

NORTH CAROLINA MARINE FISHERIES COMMISSION

# MAY 2024

*Business Meeting Briefing Materials*



May 22-24, 2024

Beaufort, NC

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## **Preliminary Matters**

May 2024 Business Meeting

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Meeting Agenda

Draft February Meeting  
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# Marine Fisheries Commission Business Meeting

## AGENDA

Beaufort Hotel, Beaufort, NC

May 22-24, 2024

*N.C.G.S. 138A-15(e) mandates at the beginning of any meeting of a board, the chair shall remind all members of their duty to avoid conflicts of interest under Chapter 138. The chair also shall inquire as to whether there is any known conflict of interest with respect to any matters coming before the board at that time.*

*N.C.G.S. 143B-289.54.(g)(2) states a member of the Marine Fisheries Commission shall not vote on any issue before the Commission that would have a "significant and predictable effect" on the member's financial interest. For purposes of this subdivision, "significant and predictable effect" means there is or may be a close causal link between the decision of the Commission and an expected disproportionate financial benefit to the member that is shared only by a minority of persons within the same industry sector or gear group. A member of the Commission shall also abstain from voting on any petition submitted by an advocacy group of which the member is an officer or sits as a member of the advocacy group's board of directors. A member of the Commission shall not use the member's official position as a member of the Commission to secure any special privilege or exemption of substantial value for any person. No member of the Commission shall, by the member's conduct, create an appearance that any person could improperly influence the member in the performance of the member's official duties.*

*Commissioners having questions about a conflict of interest or appearance of conflict should consult with counsel to the Marine Fisheries Commission or the secretary's ethics liaison. Upon discovering a conflict, the commissioner should inform the chair of the commission in accordance with N.C.G.S. 138A-15(e).*

### Wednesday, May 22

6:00 p.m. Public Comment Period

### Thursday, May 23

9:00 a.m. Public Comment Period

9:30 a.m. Preliminary Matters

- Swearing in of New Commissioner
- Commission Call to Order\* – *Rob Bizzell, Chairman*
- Moment of Silence and Pledge of Allegiance
- Conflict of Interest Reminder
- Roll Call
- **Approval of Agenda \*\***
- **Approval of Meeting Minutes \*\***

9:45 a.m. Chairman's Report

- Letters and Online Comments
- Session Law 2023-137, Section 6: Phased in Mandatory Commercial and Recreational Reporting of Certain Fish Harvests – *Christine Ryan*
- Discussion on 2024 Recreational Flounder Season
- Ethics Training and Statement of Economic Interest Reminder

**\* Times indicated are merely for guidance. The commission will proceed through the agenda until completed.**

**\*\*Probable Action Items**



## Marine Fisheries Commission Business Meeting Agenda

- Committee Reports
  - Northern Regional Advisory Committee
  - Southern Regional Advisory Committee
  - Shellfish/Crustacean Advisory Committee

10:30 a.m. Director's Report – *Kathy Rawls*

- Reports and updates on recent Division of Marine Fisheries activities
  - Atlantic States Marine Fisheries Commission Update – *Chris Batsavage*
  - Mid-Atlantic Fishery Management Council Update – *Chris Batsavage*
  - South Atlantic Fishery Management Council Update – *Chris Batsavage*
  - Section Updates – *Zach Harrison, Shannon Jenkins, Steve Poland, Brandi Salmon, Col. Carter Witten*
- Informational Materials
  - Protected Resources Update Memo
  - Rule Suspensions Update Memo

11:15 a.m. Shellfish Leases and Franchises Presentation – *Zach Harrison*

12:00 p.m. Lunch Break

1:30 p.m. Fishery Management Plans – *Steve Poland*

- Striped Mullet Fishery Management Plan Amendment 2- - *Jeff Dobbs, Willow Patten*
  - **Vote on Final Adoption of Amendment 2 \*\***
- Estuarine Striped Bass Fishery Management Plan Amendment 2 Update – *Charlton Godwin*
  - 2024 Revision to Amendment 2
- Oyster/Clam fishery management plans update – *Joe Facendola, Bennett Paradis, Jeff Dobbs, Lorena de la Garza*
- Spotted Seatrout Fishery Management Plan Amendment 1 Update – *Lucas Pensinger, Melinda Lambert*
- 2024 Southern Flounder Symposium Update – *Anne Markwith, Holly White*
  - Break for viewing of exhibits
- Blue Crab Fishery Management Plan Amendment 3
  - Stock Assessment Update – *Dr. CJ Schlick*
  - Adaptive Management Update – *Robert Corbett, McLean Seward*
- Shrimp Fishery Management Plan Amendment 2 Implementation Item Update – *Kathy Rawls*
  - **Submerged Aquatic Vegetation Protection Through Shrimp Trawl Area Closures \*\***

## Friday, May 24

9:00 a.m. Rulemaking

- Rulemaking Update – *Catherine Blum*
  - 2023-2024 Rulemaking Cycle
    - **Vote on final approval to amend 15A NCAC 03I .0113, 03O .0101, .0109, .0112, .0301 for Data Collection and Harassment**

\* *Times indicated are merely for guidance. The commission will proceed through the agenda until completed.*

\*\**Probable Action Items*

**Prevention for the Conservation of Marine and Estuarine Resources \*\***

- **Vote on final approval to amend 15A NCAC 03R .0117 for Oyster Sanctuary Changes \*\***
- **Vote on final approval to amend or repeal 15A NCAC 03I .0101, 03K .0101, .0104, .0301, .0401, .0403, .0405, 03O .0201, .0501, .0503, 18A .0901, .0906 for Conforming Changes for Shellfish Relay Program and Shellfish Leases and Franchises \*\***
- **Vote on final approval to amend 15A NCAC 03K .0110 and 18A .0302 for Conforming Changes for Shellfish Sanitation\*\***
- 2024-2025 Rulemaking Cycle
  - **Vote on management option and associated proposed language for rulemaking for “Interstate Wildlife Violator Compact” issue paper \*\***

- 9:30 a.m. Update on Proposed Amendments to the North Atlantic Right Whale Vessel Strike Reduction Rule – *Barbie Byrd*
- 10:00 a.m. Blue Catfish Information Presentation – *Robert Corbett*
- 11:00 a.m. Issues from Commissioners
- 12:00 p.m. Meeting Assignments and Preview of Agenda Items for Next Meeting – *Jesse Bisette*
- 12:15 p.m. Adjourn

*\* Times indicated are merely for guidance. The commission will proceed through the agenda until completed.*

*\*\*Probable Action Items*

**Marine Fisheries Commission Business Meeting Minutes**  
**Doubletree Hotel**  
**New Bern, North Carolina**  
**February 21-22, 2024**

The Marine Fisheries Commission (MFC) held a business meeting February 21-22, 2024, at the Doubletree Hotel in New Bern, North Carolina. In addition to the public comment session, members of the public submitted public comment online or via U.S. mail. To view the public comment, go to: <https://www.deq.nc.gov/marine-fisheries/marine-fisheries-commission/february-2024/online-public-comment/open>

The briefing materials, presentations, and full audio from this meeting are available at: <https://www.deq.nc.gov/about/divisions/marine-fisheries/marine-fisheries-commission/marine-fisheries-commission-meetings#QuarterlyBusinessMeeting-February21-232024-10574>

Actions and motions from the meeting are listed in **bolded** type.

**BUSINESS MEETING - MOTIONS AND ACTIONS**

**February 21, 2024**

Chairman Rob Bizzell held a public comment session that began at 6 p.m. and ended at 7:36pm. The following comments were received:

**Public Comment Period (6:00 p.m.)**

**Ervin Gaskins**

I'm Ervin Gaskins, president of Cape Hatteras Anglers Club. We've got the world's largest invitational surf fishing championship in the world, and this attracts fishermen from all up and down East Coast. Our main concern from the club standpoint is the size of the mullet, and the mullet available during our tournament periods, which also happens to coincide with the main spawning time. But as president, we've looked at everything and we believe, I believe, that a change with the net size, and a maximum size limit on the fish would handle everything and bring the fish back into sustainable numbers. Now, that's kind of short, but that's the way I go.

**Stephanie Bain**

My name is Stephanie Bain, and I'm one of the owners of Frank and Fran's Bait and Tackle, Avon. Two quick Google searches and you'll find the top reasons why people visit Hatteras Island. One of those main reasons being surf fishing. Another quick Google search and you'll find the most preferred bait for fishing in the Outer Banks is mullet, fresh mullet at that. In 2023 alone, Frank and Fran's paid out approximately \$40,000 to our local commercial fisherman just in Hatteras Island for fresh mullet, which in turn produced nearly \$80,000 in mullet sales alone. And that's just fresh mullet sales in our shop. That does not include any of the other ancillary purchases

like ice, t-shirts, tackle all the other things that they come in and buy once they notice that we have fresh bait. Most tackle shops in our area, on the island, house their bait outside of the shop. So, it's the first thing customers check prior to entering the store. If we don't have fresh bait, they may not even come in. They'll check our coolers; they'll see that they are locked or empty and they'll walk away. Sometimes we even have customers call when they're on their way to the island from Pennsylvania, Maryland, Virginia, wherever they're coming from. They will call before they come and ask, "you all got any fresh mullet?". If our answer is no, they are probably not coming to us. They are going to stop on their way and get mullet from wherever they can. Do we really want to send all those sales out of state because they're having to stop elsewhere to get mullet? because we can't have it fresh in North Carolina? They also will walk to the door and yell, "y'all got any fresh mullet?". If the answer is no, they're just going to leave. The closures that the North Carolina Marine Fisheries Commission are looking to put in place are unfounded and based on outdated studies, and formulas that simply do not represent the current stock. Mullet stock is affected by more than just fishing. Major hurricanes, predatory behavior, and other factors should also be evaluated. Our commercial fishermen constantly put themselves, their lives at risk by going out and trying to put food on their table and selling us bait. Fishing on days that have less than desirable conditions could cause detrimental impacts to our business. But them and their families, by cutting down their days that they have to fish, they may be forced to go out on days when it's not safe. Closures on Saturday and Sunday, and later in the year on Saturday, Sunday, and Monday, as proposed, could essentially leave our shop without fresh bait for a week at a time. Tackle shops live and die on the perception and presentation of our fresh bait. Though it's been stated that mullet will last up to five days or longer, that's simply not true. The Outer Banks Chamber of Commerce reports that more than 5 million people visit the Outer Banks of North Carolina each year with surf fishing being one of those top reasons, it's clear the overall human, economic, and time of these closures are far reaching.

### **Randy Baine**

My name is Randy Bain. I'm one of the owners of Frank and Fran's Bait and Tackle in Avon, North Carolina. Adding new regulations on stripe mullet will have a far-reaching economic impact on the livelihood of not only business owners and commercial fishermen, but waitresses, cooks, retail employees. Anyone who works in real estate companies, including subcontractors, food companies and landscaping companies, etc., are going to be affected by these regulations. No one in this room knows to what extent it will affect us because the economic impact study has not been conducted. We don't know the impact on tax revenue, which could directly affect the education of our children. What about the impact on our infrastructure? How much revenue will the National Park Service lose when the amount of beach access passes purchases starts to tumble? The truth is the total impact may not be felt for a couple of years due to the fact that the average tourist and fishermen are not aware that this is even common. When all this comes to a head, the people most affected by the decisions that you guys are making on our behalf are going to be all our children, and we will be responsible for explaining to our children why our standard of living is dropping and why family businesses are failing. As we all know, in 2023, North Carolina Marine Fisheries imposed an emergency proclamation which closed the stripe mullet fisheries. Still, as of today no one can tell us how this affected the stripe mullet population. I suggest that any decision regarding new regulations on striped mullet be postponed until a complete and up to date study can be conducted on the mullet fisheries, and that a complete and comprehensive economic impact study has been conducted and closely scrutinized to see how it's

going to affect us. But if you decide that forcing this on a dissatisfied public and making a criminal out of otherwise law-abiding citizens is the best thing to do, we still need answers to questions like; will we be able to sell mullet caught in North Carolina before any restrictions or closures? Or will we be forced to take our business and money to Virginia on the weekends? Will private citizens be able to catch their own mullet during closures? And if not, can they use mullet previously caught and frozen that they have in their house. As of right now, we have two people, or some marine fisheries officers assigned to enforce this. How are we going to find the extra people to enforce this? Or is it just going to be ignored like it was in 2023? There was nothing written. Nobody did anything.

### **Chris Greening**

Good evening. My name is Chris Greening. I own a tackle shop in Nags Head called TW's Bait and Tackle. Both myself, Stephanie, and most tackle shops along Dare County have met to discuss this recent closure, which coincidentally has changed since our last meeting without really much notice to us to prepare for this meeting. As echoed before, we've all met together on this, every tackle shop understands the heritage, the longevity of what surf fishing has been to Dare County, which Dare County for many of you that may not know is the highest-ranking tourist activity per capita in all the State of North Carolina. When it comes to fishing, at the time this closure would impact us the most is when we have the most fishermen in our county, and those fishermen come to our county to fish in tournaments, which bring in millions of dollars of revenue to all the shop owners, the lodging, the restaurant owners and not to mention the non-tournament participants such as their family. So, we're talking a very, very large economic benefit or detriment to our community at the time this is going to be in the height, which is October and September for us. You know, at my last meeting I spoke up, which is really going to echo just what the owners of Frank and Fran's have said, and that is we made criminals out of honest people. And that was something that I shared at the last meeting. And I don't know who ultimately owns these rulings, but I would like to know who it is so I can say shame on you, and shame on all of us for not pushing harder on this sooner, because there are folks that came down to fish and we expected them to keep a receipt on them and that was how this would be governed. No other state, to my knowledge, no other state from anybody here has spoken up and said this has been a restriction that's been put forth. There's been no communication of it broadly. And frankly, you know getting on social media is not suitable. And I find that to be very, very disappointing. That's how we push forth laws if that's how we're going to push for them. But the economic impact to our county is going to be significant. The most recent impact to both stripers in the Flounders have caused our sales to be down 70% on that relevant tackle and just Q4 and Q1 alone. So, I think all the tackle shops that we've met with are willing to come together and try to find ways to bring down the harvest. But to do it at that time is certainly going to need some collaboration, which something that I would certainly ask this group to work on, is to bring forth more commercial fishermen, recreational fishermen, and let's get stakeholders to find a long-term solution.

### **John Machie**

My name is John Machie, I'm a commercial fisherman from Dare County. As a year-round mullet fisherman, I feel this mullet plan is going to affect me, more than most people. When I looked at the stock assessment, I saw failure on the part of the Marine Fisheries. Failure in their assessment of the stock, failure on the part that they could possibly be wrong on their assessment of the stock.

And I also see failure in the future of this mullet plan. No matter which option they choose to go forward with. We know that you want a 22 to 35% reduction, but I see nothing in any of the options to stop or limit the fishery when it gets close to hitting that threshold. This concerns me greatly because with the amount of mullet that there actually is, we will surpass this. We as fishermen do not have the capacity to monitor, monitor the amount of fish that we have caught. That is the job of the managers of the fishery, Marine Fisheries. I feel like the mullet fishery should have a better stock assessment program and it should be completed every two years, since Mullet are full grown adults at two years. As a full-time commercial fisherman, I depend on this fishery and do not want to see it destroyed by myself, other fishermen, or by the Marine Fisheries. Without a way to stop fishing, when we reach this threshold that you are placing, you are setting us up for failure and we will once again be in the same rooms in 2 to 3 years looking at further reductions. Let's not mess this up and end up with no fishery in the long run. I do not recommend any changes at this time. My only recommended recommendations are how the stock assessments are done, reevaluated, and if any of these plans are approved, there needs to be a way to stop fishing when the threshold is reached so we are not back here looking at further reductions. Thank you.

### **Jerry Schill**

Good evening, Mr. Chairman, members of the commission. I'm Jerry Schill, director of government affairs for the North Carolina Fisheries Association. Senator Bobby Henning wanted to be here this evening, but he couldn't make it, so he sent me his comments and I'll give them to you a little later. My comments this evening are strictly on proclamation authority and almost 40 years of being involved in the management of fisheries in the state. That's one area that has evoked not the most comment by certain measures, but it's gotten a lot of comment out of the legislators and of course, the Marine Fisheries Commission exists because the General Assembly deems it so. And as such, they gave you authority to order the director authority to issue proclamations. But there are guidelines for those proclamations. Glenn Skinner, and I spoke to a Senator last year on another measure, and he mentioned proclamation authority and we told him we probably want to talk to him a little bit more in detail about how it's being misused. Talking about SAV, and what you may do there using proclamation authority. Well, there's something called variable conditions. It's hard to see where those conditions would be met in using proclamation authority. So, I would just urge you to use a little bit of, actually, I urge you to use a lot of caution when using proclamation authority, because the legislators are very interested in knowing a little bit more about it. Thank you.

### **Daniel Self**

Good evening, members of the Commission. My name is Daniel Self. I am a law student at UNC Chapel Hill and a lifelong recreational fisherman. I'm here tonight to voice my support for option number three in reference to the proposed rule for false albacore management. Firstly, I want to thank the Commission for drafting this important rule, but false albacore anglers and guides deserve a secure future and I'm incredibly grateful for your decision to take the first step by considering management for the species. I also want to thank the Commission for being the first to propose such rules. A core question underlying this debate is to what extent should North Carolina safeguard the future of the false albacore? Historically, the wait and see approach in conservation has caused more harm than good in preventing extinction and preserving ecological diversity. In my view, we cannot afford to risk losing this fish. To borrow a quote from the essay,

“*The ASGA*”, “the false albacore is a data poor species”, and this proposed rule would address this. The rule allows North Carolina to formally track the species and gather valuable data about its population and landings. As you know, in North Carolina, only 3% of commercial fishing trips result in landings over 500lbs. The proposed rule, if implemented, would set commercial landing, a commercial landing limit at 3500lbs per trip, and thus would only affect an incredibly small portion of commercial fishing trips. I want to say for the administrative record that I, as a recreational angler in North Carolina resident, find the landing limits set forth by the proposed rule to be very reasonable. In closing, I'm here tonight to support the long-term preservation of the false albacore so that one day, in 20 years, I can bring my children back to the North Carolina coast and they can have an opportunity to fish for this awesome fish. Thank you so much.

### **Jess Hawkins**

Good evening, my name is Jess Hawkins, and I've been involved with Fisheries and Natural Resource Conservation in North Carolina for over 40 years. I was chief of Fisheries management for two years for the division and the MFC liaison for over 15 years. I served on the MFC for two years, sitting in the same judgment seat that you're sitting in now. So, with that, I ask that you do what is fair and not just what is expedient. This is especially so with regards to stripe mullet measures that are on your agenda and proposed, and the proposed protections for seagrass from trawling. As a biologist and with considerable experience with conservation, the striped mullet situation is very disconcerting. The current stock assessment finds that overfishing is occurring, and the stock is overfished and estimates that stocks have been overfishing and overfished since 1995. Yet three prior stock assessments, one of which I was involved in personally, found that overfishing was not occurring back in the 1990s and the 2000s. These models are only as good as the data used for the assessment and the validity of the assumptions for those estimation. The last model did not use a survey that was specifically designed to try to track yearly abundance of striped mullet in North Carolina. I ask that you consider these facts when you decide how precautionary you need to be to address the population's concerns that the division is bringing forward to you. With regards to SAV protection, I work with the MFC. When you close vast areas of SAV to trawling in oyster dredging, we were one of the first states to do so in the country, noting the importance of SAV habitat for Fish. These new proposals appear to apply a broad swath of closures. Even in, deep in areas which are questionable, whether the SAV would survive or not if it did grow there, using the basis of potential SAV habitat as a closure mechanism. In my experience with CAMA regulations and coastal management, that's not the standard they use. Back when I would go to court, we'd never use the presence or historical presence. And so those standards are inconsistent. So, I ask that you reassess those recommendations before you take action. Send it out to your committees or ask further scientists, because we know a lot about SAV in North Carolina. In addition to the Division's biologists. thank you for your time.

### **Mike Oppegaard**

Thank you, gentlemen. I'm here to speak tonight about the proliferation of oyster leases we have around our area in Topsail. As you guys know, we've been overrun the past 2 to 3 years now with repeated water column leases, and we're having a problem with it interfering with the recreational fishing and the guide associations down there. We'd like to ask you guys to sit and consider some kind of limit, or some kind of capacity and density for how many water column leases you can have in a bay. What has happened to us consistently is they are now cutting off our main navigation channels that we've used and are also affecting the way we can fish a bank. What's

happened is we've got more people putting gear up against the bank. We can't go through the bank and fish. We have to fish a little way, go back, go around and fish a little way. When the process started, we asked if they would be considerate and put their equipment further out in the middle of the bay, and that did not happen. And so now we've reached a point where we have to do something. We've got to do something with density. There is a closure to the south of us that is a legislative closure, and therefore we have taken all the pressure south of us and north of us and put it in our small, teeny area, less than 20 miles by mile. You know, you want to regulate it. You can't regulate it like the Pamlico Sound, the Albemarle sound. You have to regulate it like it is Topsail, which is a really small piece of marsh. And we've had a proliferation of it. I know for a fact the town of Topsail Beach has sent letters to the secretary requesting that they stop issuing leases in the town of Topsail Beach, which the town of Topsail Beach theoretically goes to the center of the waterway. I would also like to discuss with you guys, you know, is there a better mechanism for us to have any kind of notice and notification? We know that we're not necessarily getting all the notices when the leases come up. We're having to find those ourselves. You know, one of us is having to sit on the sit on the computer on a regular basis back and forth just to make sure we catch every lease before it comes up so we can at least go to the meeting and voice our concerns. Finally, I would appreciate it if you guys would look at option three for false albacore and let's make and do something now before something happens in the future. Thank you very much. I appreciate your time. Thank you for all your volunteer work.

### **Lee Parsons**

My name is Lee Parsons, I have been a full-time fishing guide for almost 28 years now. My primary place to fish is out of North Topsail and Surf City area. The water column leases that are being put in there are being put in there without thought to what's happening to our environment. Now, you say that the oysters will filter water, yes, they will. But when you think about the devastation that's happening to our bottom because of a water column lease, it's a whole different thing. Our area is a very shallow area. A lot of what we do is in two feet of water or less. A lot of these leases are being put in two feet of water or less. The bottom is being disturbed. Natural oysters are being disturbed. Until the state does a study on this, our request that a moratorium be put on this, it has to be. This is being put in place without any science behind it. The state has not done a study on what's going on. All the rest of the areas of the state have been closed for the most part, and we're being the dumping grounds for all these water column leases. And this has to change. If you destroy our bottom, you destroy everything in the estuaries there is. Because if we don't have turtle grass, and no other seagrasses, and oysters on the bottom, then we're just in the wind. That's all I got to say. One more thing. I volunteered to be boat so that you guys could put an observer on it, so you can see firsthand what's going on in these column leases. And I was told there was no money for that. Once again, I'm going to sit here in front of you. I'll offer my time, my gas, my boat, my maintenance. All you got to do is come up with an observer and he can report strictly to you. And that way you will get an honest answer of whether these water column leases are holding fish or not. But of course, the guides all know they're not. So anyway, I'm making this offer to you once again. All you got to do is come up with the money to pay an observer. If you can't do that, let me know. You pick the observer and I'll figure out a way to pay. How about that? Thank you all.

### **Barbara Garrity-Blake**



Good evening. I'm Barbara Garrity-Blake, social scientist, former member of this commission. And I'm here tonight to represent NC Catch, a nonprofit that promotes local seafood. We really appreciate the opportunity to comment on the striped mullet FMP Amendment two. We at NC Catch weigh in on management proposals when we see a potential reduction in consumer access to North Carolina seafood. Consumers are the largest stakeholder group in fisheries that are easily forgotten in the policy arena. North Carolina has a population of over 10.5 million people. The great majority of consumers who prefer locally harvested seafood are completely dependent on the commercial fishing industry to provide their rightful access to it. Please raise your hand if you're commercial fisherman. So, for every one fisherman in this room tonight, there are likely tens of thousands of consumers who have a stake in maintaining access to the seafood they love. Striped mullet is the people's fish. It's an affordable source of protein for consumers on a budget. Mullet, mullet roe, value added products are in high demand across a variety of cultural and ethnic groups, and it's an important subsistence fishery. In short, Mullet is part of North Carolina's seafood supply chain, food security, and cultural heritage. We at NC Catch urge you to be truly adaptive in your striped mullet management strategy by choosing the smallest harvest reduction within your range of options, that provides for the sustainability of the stock and maintains fair access for anglers, commercial fishermen, and consumers. Striped mullet is an important small scale inshore fishery. Like shrimp, blue crab, and oysters, it provides an entry point into the industry for younger fishermen, with safer working conditions and more affordable gear compared to ocean fisheries. Our state must maintain sustainable levels of harvest for these entry point fisheries by reducing workforce barriers and supporting young fishermen. If we want to sustain the commercial sector, if we want to ensure access to local North Carolina seafood for all of us, and I hope we do. NOAA Fisheries released an equity in environmental justice strategy last year, recognizing that government policies must do better in advancing and I quote, "fair distribution of benefits to communities dependent on marine ecosystems for environmental, economic, social, and cultural well-being". Fairness, of course, is a key philosophy built into the language of the Fisheries Reform Act. We should be proud that North Carolina was really ahead of the curve in that 1997 legislation. But it's up to you all to ensure that we live up to that spirit by practicing fairness in management decisions.

### **Keith Tosto**

I've come here to talk about the closures of the SAV areas. My name is Keith Tosto, I live in South River. I'm from South River. I've lived in South River my entire life. I own a small shrimp boat and I work mainly in the Neuse River area, which includes South River, Turnagain Bay, and Adams Creek. In the summertime, when she's out of school, my 13-year-old granddaughter likes to go with me, and I pay her. She enjoys going and she's a good help. When I told her what we were up against she said, Poppa, what can I do? I said, if you want to write a letter, I'll read it. Okay, here we go. "Hello, my name is Jacee. I live in South River, and I love to go shrimping with my papa. Shrimping has made me love the water, and I even dream of being a marine biologist someday. Unfortunately, I've heard that there are plans to shut down shrimping in South River, which will ultimately put us and many other shrimpers out of business. This would be very unfortunate because I love shrimping, and it has taught me so much about the river and managing and saving the money I make. I was just out on the boat this weekend and I only saw SAV in ankle deep water and did not see it beyond that. I hope you take into consideration how many people's lives you will be damaged if you shut down all shrimping in the river. Everything I've heard and everything I've read says that as a general rule, no submerged aquatic vegetation grows

in water greater than six foot deep. I think the main reason is probably sunlight penetration, and what you folks are designated as SAV, region three; Tar-Pamlico and Nuese River areas, trawling is prohibited in water six foot or less, from June 1st to November 30th. This is referred to as the designated pot areas and trawling is prohibited whether there are any crab pots there or not. People in my area don't shrimp in shallow water. They stay out in the deep, they tend to stay out toward the channel. When I first read and saw the map that was in motion to close a designated pot area, the areas that are six foot deep or less, to a year-round closure, I thought, well, that's not such a bad thing. But then I was sent a copy of a map showing all the South River and Turnagain Bay being close, even the deeper water, some of it 15 or 20 foot deep, I became concerned. In a meeting January 17th of this year, advisory committee member, Nathan Hall, asked Chris Stewart why he suggested that all of these areas, where the water is pretty deep. Chris responded, quote, it's easier to set the boundary at the mouth, unquote. It seems to me that this is more of an effort to close shrimp trawling altogether and goes far beyond protecting areas of shallow water and grass beds.

### **Steve House**

Good evening, everyone, and thank you for allowing us to speak. Before you there are two resolutions that myself introduced to the Dare County Board of Commissioners, which I sit on, were passed unanimously by all seven members. The striped mullet, basing your data on 2019 data is woefully not sustainable. You need better information before you do a conservation type fish management plan. 2020 and 2021 were not completed, so your data is old. The 22 data was done, but where's the 23 data? With that also being said, one of the main things we were looking at is in the advisory group, you're supposed to consider the economic impact. So far there has not been any economic impact study on this fishery. So, if you look at the state numbers from 2022, we had a 23.4% decrease in total commercial fishing. That's a big hit to everybody's economy. Cook Industry Wanchu Fish House, they just announced at the end of March they're closed. They're pulling out of North Carolina. And when I spoke to those individuals, their main reason, North Carolina was too overregulated. They can do more in Virginia, where they already have a plant. Also, the other thing that was brought to you from our board was having a Marine Fisheries Commission meeting in Dare County. When this was adopted years ago in 97, they asked to have four meetings, quarterly meetings, one in Raleigh, and one spread out on the coastal areas: north, central, and southern. Since 2018, it's only been on the central part of the coast. Let's come to Dare County and hear from our guys. Let's go to Wilmington, hear from their guys. Make an effort to say, I care, I'm coming to you.

### **Ray Britton**

I'm Ray Britton, I operate Spring Tide Guide Service down in Topsail Island. There's a lot on the table tonight, but we've got a more pressing issue in our area, unfortunately, it is the oyster leases. Let's start by saying that I am all for aquaculture and leases and I do think it's the way forward. The problem we're having in our area is simply density. There are a few issues, but it's mainly density. We saw the first lease go in, or the first leases that went in. We were able to work with the guys and have them move them out of the ways of the channels and things like that. And it was a pretty good relationship for a short period of time. And I think now that we've just run out of area to have them, they're starting to go into fishing grounds that we've used for years. And, you know, the smallest area in the state, we've had a 600% increase in the last two years. So, we're already bumping into each other. The areas that the red drum, I've kept logs for 25 years on

these fish and the big bays that they would use are 15 acres in one of them. And we were glad to see that go in, you know, something different. I said, well this is cool, let's see what happens with it. After two years of fishing with it in shallow water, the red drums, which are the fish that people pay us to catch during the summer, are not hanging around the noise. And I don't know what it all what all it is with them, but they just don't hang around them. So, we need a number for density, there's got to be a number. If y'all could please look at this and see, you know, how many will you allow in an area? We're getting overrun in our area and they're spread out in the whole state. You know, they're all in the state. But if you look at our small area, it's just lit up on the map. And that is due to the closures north and south of us that were stated earlier. You know, the implementation of these things, I think it's just gained so much popularity and so many people are getting into it, which is a good thing. I think there's just growing pains and, you know, the director's reports, the officer's reports, I've seen inaccuracies. I've made three phone calls to the director that were unanswered. The report that I read said that there were no objections from the public. If we don't receive a phone call back, I can't make that objection. I know that they're understaffed for their technicians that are looking at the areas that these things are being put in, and they're putting in in areas where there's grass. You know, I don't know how they're missing that, but I get it, they're understaffed. But, if that's the case, don't just approve them and put them in without having more look at them. You know, and the other thing that, you know, I'd like to see is it's my understanding there is a committee that looks at these things as well, and I'd like to see some representation from the fishing community because as stated earlier, we're not able to fish around these things. We snag and I don't want to leave a hook in the guy's gear. It's basically off limits to us at that point. For our area in that shallow water, we're not able to fish and we're not able to use these anymore. So, if there's a way, we can all work together and begin this process, that would be a lot better than 3 minutes at a public hearing to state our concerns.

### **Henry Murray**

Good evening, I'm Dr. Henry Murray, my friends call me Tripp. I come to you tonight from Topsail Island. Coincidentally, I'm going to echo a lot of the concerns that Captain Britton just expressed. I'd also like to say I'm in favor of option three for the false albacore management. I'd like to see North Carolina take the lead in this management initiative to help the fishery, since it has missed that opportunity for other species previously. Density for these water column leases in the Topsail Island area is out of control. I'm not aware of any studies that have been done to determine exactly what kind of density these areas can support safely. We're starting to see some mortality in the wild caught oysters there. I'm concerned about that. I'm concerned about how that will affect other species. I'm concerned about the application process that's going on for these water column leases. Applications are presently being considered in that area when there is no lease coordinator at the Department of Marine Fisheries at this time. They're also understaffed for technicians for site investigation, and apparently the technicians sent obviously don't know what they're doing when they say that a bay with 2 to 3 feet of water in it is too shallow to fish in, so that that would make it a great place to put a water column lease. Most of the fishing I do is in two or three feet of water. And when they're talking about putting a 20-acre lease right in the middle of one of the main bays that I fish in, that bay becomes off limits at that point. And this is what we see happening in the Topsail Island area again and again, I'm not against aquaculture, but I'm against giving up my hobby so that somebody else can enjoy it. Let's spread it out a bit, folks. Put it in other areas of the state and give us a break where we are. Thank you.

### **Allen Jernigan**

Good evening, everybody. I'm not here representing a registered lobbying firm, nor am I a registered lobbyist. And I make that point because this has been political for way too long. I'm here just representing common sense. First, I support option three for false albacore. That's a very important fishery for the recreational community, especially to fly fishermen in our area. Pender, Onslow, as others have said, with water column leases, there is no rule or statute for density in our area, and you can look at the map and clearly see we are overrun. It's taken our grounds away. It's taken grounds from our recreational anglers, fishing guides. Everybody's losing access, our crabbers, everybody. The reason is, the moratorium north and south of us, are one I like to mention and bring up is Bogue Sound, if I remember correctly, there's two leases active in Bogue Sound in a 17 mile stretch from Emerald Isle to Morehead City. I mean, can we put some up there? Do we have to keep putting them in Pender, Onslow? I ask you guys please bring something up and change this, because we were just at capacity in our area. That's about all I've got. I do have one more thing. I'm here in support of the family of small shrimp boats that's here, given comment. If we're going to look at anything shrimping wise, we should be looking at, I'm not going to say any names I'm not supposed to, we should be looking at the fleet that's down the river pooling 220 foot of head rope. We need to be looking at those guys before you go looking at people sitting in here in 35 foot.

### **Don Willis**

Hello, I'm Don Willis. I have made my living after recreational fishery for over 35 years. I'm here to speak to you about a few things tonight. One thing is the false albacore, amendment three looks like the right thing to do. Let's get in front of this one, let's be proactive instead of reactive like we are on too many things. You've got some tough choices coming up. You've got to look at this mullet deal. Your stuff shows they're overfished, and overfishing occurring. So y'all have got to make some tough decisions on how to fix that. The SAV, you know, I'm all for saving, you know, the grass. I would love to see, you know, let's see if we get more spawning areas for our fish. I know I'm totally on board if you want to end the mechanical harvest of shellfish. That's outdated and very damaging to what's left on the bottom after they're done. Beyond that, would be the shrimp boat, I notice you're talking about doing observers. Yeah. One reason I think we have so much problems with a lot of our FMP, is we don't really put anything in there for the amount of bycatch that's being caught in these big shrimp trawls. And until we can get a handle on that and figure out what's going on, we're going to have problems. I don't see how you cannot address that gorilla in the room, it's a lot going on there. So, thank you. You've got some tough choices coming up next, two days. We wish you all the best.

### **Perry McDougal**

Ladies and gentlemen of the committee, thank you for gathering to hear public comment on all the issues discussed tonight. My name is Captain Perry McDougal. I'm based out of Swansboro. I'm a full-time fishing guide and a local fly shop owner. I'm here this evening to express my concern for the current lack of management for a false albacore fishery. As a fly in light tackle fishing guide, false albacore are a huge part, a huge part of my business. They're a huge draw for my clients. My clients or anybody who come locally from North Carolina. I've got clients that come as far away as Germany. These are clients that come to our area to stay in our local lodgings, to eat at our local restaurants, to shop at our local stores, and support our local economy. These are clients who bring hundreds upon thousands of dollars to our area. These fish are

connected from the New England area all the way down to the Keys. I've been fortunate enough to be a part of the science behind these amazing fish for the past couple of years, both in DNA studies and in the tagging program last year, all of which that information I believe you have received. With option three, proposing a potential harvest of 200% of a five year record in the state, I find it to be incredibly fair for both commercial and recreational anglers. This gives the ability for those who target these fish commercially to harvest and encourage them to grow their business. It also gives the recreational anglers who are more conservation based a chance to preserve their future for this fishery. With no protection, just me personally, I could lose potentially a third of my annual income that comes from guiding and my small fly shop business. I can't have that happen. I can't have this fishery be pillaged by someone who's not focusing on our local economy and our local citizens. I ask you to be mindful that other states are watching your decision making. This vote has a larger impact on this fishery than just here. Be mindful of your choices and understand that this is the future of this fishery, it's not the right now. Have an educational discussion between yourselves, please. Inform yourself, review the information and please work together. I support option three for false albacore. To end on this, please, as all the folks from Topsail have echoed, please take a peek at your water column densities for your oyster leases.

### **John Mauser**

Hey, y'all, I apologize, I've got a lot, so I'm going to read this pretty quick. My name is John Mauser, and I'm a full-time fishing guide operating out of the Carteret and Onslow County area. I've been guiding for 13 years, and false albacore make up a large percentage of my charter business. In fact, false albacore charters accounted for 40% of my total income last year. The health of this fishery is very important to many of us as these fish are sought after by multitudes of recreational anglers and commercial anglers too. Albacore also brings lots of money to our community. My anglers spend an average of 1200 dollars per day on guide fees, hotels, food, fuel, etc....while fishing with me for these false albacores. Multiply that by the 60 days my clients pursue these fish with me each fall, then multiply that by all the other guides running charters for albacore and then throw in all the rec anglers, and their boats and buying fuel licenses, lures, etc. Albacores bring money to the coast each fall when all of the tourists have already left town. To me, though, I'm more of a conservationist than I am a businessperson. I want this population of fish to be healthy and vibrant for a long time. Why wait until there is some major concern looming on the horizon before we take action? Waiting until a species of fish is in trouble before protecting it rarely works out well for the fish or the anglers. We have a species that is extremely sought after, and we don't have a single regulation on them, it could be free for all. We may not know if this species is being overfished yet, but one thing is for certain pressure will continue to increase on them in the future by both sectors. Why not be proactive and set some basic guardrail regulations on these fish? I've given this topic a lot of thought. I've looked at it from a lot of different angles. I strongly support capping the harvest at 200% of the five-year average. No one is getting cut out with that in the fishery, and it allows the recs and commercials to have plenty of room for success and growth without hitting the 200% mark and kicking in the regulations. It is a win win-win situation. Rec anglers win, commercials win, and most importantly, the fish win. It sets a benchmark by saying false albacore important to us here in North Carolina and it protects them from the possibility of a devastatingly large harvest in the future. Whether it's a large rendering industry being developed around them, or if it's just the ever-increasing number of anglers chasing them, the pressure on these fish will absolutely increase in the coming years. It's

been scientifically proven that we are sharing these fish from Massachusetts to Florida. There are other states watching closely that will likely make their decision on whether to protect these fish based on the decision that the MFC makes. Let's set the standard for excellence and do the right thing. I highly support the proposed regulations on false albacore. Please vote yes on option three. Secondly, I just want to echo what everybody else said. I do spend some time each year fishing around the Topsail area. I have seen the growth in the number of water column oyster leases, quite a few of them blocking access to the shoreline and normally accessible bodies of water. Will you guys please take a look at the water column Oyster lease density for the Topsail Area? Commission members Thank you so much for your time.

### **Pete Pascal**

Good evening, my name is Pete Pascal. I grew up in Hampstead, North Carolina, and have since relocated to Swansboro. I've seen firsthand the issues that have been described with the oyster leases, and I encourage you to please take a look at that. I'm here to talk to you this evening about option three and the false albacore management plan. I'm going to take a little different approach, though. I caught my first false albacore in 1994. Now I'm not a math teacher. Well, that's not true. Actually, I am a math teacher. But you know, some quick math there. But 30 years ago, I went on a trip with a buddy of mine from high school named Chris, and we didn't know what we were doing, but we caught some fish. And the level of excitement, the laughter, the high fives, irreplaceable. Unfortunately, Chris passed away a few years after that, leaving behind two young sons. Every time I'm on the water and I think, man, Chris would really, he'd really dig this. I tell you all that because I'm not going to talk about things that are quantifiable. I'm going to talk to you about the data. I'm not going to talk to you about the economics. I'm going to talk to you about the relationships that are built from this fishery. It's an amazing fishery that we have here in North Carolina. And given the contentious nature of fisheries management historically in our state, I can only view this as a golden opportunity, a defining moment, if you will, to bring user groups together to build those relationships. This is a win-win, as has been mentioned before. It is an opportunity to be proactive, as has been mentioned before. So, I really encourage you, please take a good hard look at option three. Thank you.

### **Chris Thompson**

Good evening, ladies, and gentlemen. I'm Chris Thompson and represent the board of directors for the Cape Lookout Albacore Foundation. The Cape Lookout Albacore Foundation was founded for charitable and educational purposes, specifically aimed at conserving, and understanding the coastal fisheries of North Carolina. The foundation was created primarily from admiration of the false albacore fishery on the Crystal Coast and the desire to celebrate this spectacular species with upcoming and existing anglers. We serve a community of recreational anglers and guides who are devoted to the fishery and desire to be maintained for future generations' enjoyment. Through an annual event hosted in Atlantic Beach, we've met anglers from across the country with a shared love of false albacore. They congregate in the waters near Cape Lookout in their travels up and down the East Coast in pursuit of this magnificent species. They inject funds into the local and state economy by employing guides, reserving hotels, dining at eateries, and making retail and fuel purchases. We've established relationships with hundreds of these anglers, all of whom are interested in promoting sustainable fishing practices for false albacore. From the intent of ensuring the species may be of continued economic and recreational value, the Cape Lookout Albacore Foundation is advocating for management of the fishery. A Division of Marine Fisheries

False Albacore Information Paper update published February 2nd of 2023. Observe There are no management rules for false albacore and landings from both the commercial and recreational sectors have risen steadily over the past ten years. This document concludes, the most prudent management strategy is to apply management measures to limit expansion of new and existing fisheries. Option three of the proposal supports this conclusion, if enacted, by establishing a 3500lbs commercial daily limit in line with existing restrictions on Spanish and king mackerel, fisheries, and a ten fish per person in 30 fish per boat Recreational limit. Preliminary science and data collected with the American Saltwater Guides Association and in collaboration with Cornell University, the New England Aquarium and NOAA fisheries indicates false albacore are a connected coastal stock. Fish tagged in Nantucket Sound were discovered in North Carolina waters within a month and subsequently down the coast and into Florida. Long term empirical data may not be available for the life history for this species in the Western Atlantic, but neither is state funding to develop additional data. Such data is not required to make an informed management decision. What we do here in North Carolina can serve as an example to other states, and we all have an obligation to be good stewards of our resources. Option three provides protection for false albacore and provides a means to preserve the resource for the numerous businesses that rely on them and the public that so very much enjoys them. The Cape Lookout Albacore Foundation supports option three. Thank you for your time this evening.

### **Justin Schenkel**

Evening, ladies, and gentlemen. Names Justin Schenkel, I just want to take the time to thank you guys. I'm not a guide. I own no business that earns income. I just want to thank you for the opportunity to voice my opinion for support for option three. I feel that there is minimal scientific knowledge out there, but there is some. And with this proposal, option three gives us more time. I'd like to take my children to fish the opportunity I have, and I hope it sticks around. Thank you for your time.

### **Stuart Creighton**

Good evening, commissioners, it's always nice to have the chance to get up in front to speak to you. This evening, I can't say any more eloquently than those before me about the endorsement for option three for false albacore, and that is certainly something that we should move forward with at this meeting this week. In addition to several things, first, you guys are going to hear a presentation this week on the feasibility of initiating an observer and long loop program for the shrimp trawl industry, something that I fully support. This should be initiated as soon and as completely as possible. The report summarizes it is easily feasible to begin this program, as long as sufficient funding can be obtained. The division estimates for a 5% observer coverage are about 760,000 per year and for a 20% coverage rate it would go to about 3.2 million per year. As of the fiscal year 2023, the Commercial Fishing Resource Fund had nearly one and a half million dollars in excess, and that would be a perfect source to start this program. You're also going to hear about certain areas in Pamlico Sound and other parts of North Carolina waters that should be close to shrimp trawling so that critical SAV habitat can be protected and restored. This is one of the most important shallow water habitats in the sound, functioning as nursery areas for a wide range of species of finfish and shellfish. All 12 of these proposed areas should be fully endorsed and protected from trawling. As I commented on during the November MFC meeting, care has to be taken with regards to the rapidly developing mariculture industry. First, and again, you've heard this several times tonight because of the rapidly expanding number of oyster leases for the

mechanical harvest of oysters and clams through dredging and kicking should be discontinued. Please be reminded that new bottom and or water column leases should be properly sited. And what is happening now in Stump Sound and the Topsail area is a good example of what not to do. Here leases have risen almost 600% in a very short period of time, and public angling and recreational access is being lost. It's important to note that oversaturation of a given area is an invitation for disease. The large number of cages in these areas are constantly covered with roosting birds, which expel guano on them constantly. Of course, there are strict rules governing shellfish sanitation, with regard to exposure, guano loaded with bacteria and parasites. With such a rapid increase in the number of aquaculture operations in these areas, the question has to be asked, is the DMF capable of enforcing these public health regulations? if not, again, CFRF monies should be used to fund the position or positions necessary to monitor such an important health concern. And since I'm out of time that's it.

### **C.R. Frederick**

Good evening, good to see you. To the Division, I respect you from the law enforcement to the ones sitting in front of me here now. To the commission, if you were in the public sector and got as wrong as many times you'll have, you wouldn't have a job. Plain and simple, you wouldn't have a job. The issue of aquatic vegetation and shrimping, I'm going to say if, because I really truly, I don't, I don't, I don't know that if the eelgrass is dying out, I'm going to say 90% of it has got to be through encroachment of hard sand onto a muddy bottom. You can see it from Bouge Inlet, New River Inlet, Beaufort Inlet, the whole nine yards, and nothing's growing. From an oyster, a few clams will, but grass won't. You're, I believe, headed in the wrong direction. In the Swansboro area, from the mid-seventies, eighties, shrimping was pretty substantial, especially in Queens Creek, White Oak River, New River. Now we've all gone to auto trawling, gone to skimmer rigs, which is actually the same footprint on the bottom. And the Queen's Creek, White Oak area, the trawling itself, I assure you, has been discontinued up to, I'm going to say 95%. Queens Creek, I'm going to say even higher than that. I live on the water, last year I seen one boat, other than myself, that pulled and auto trawled down Queen's Creek for 30 minutes, took up and went home. You cannot pull in auto trawl. You cannot push a skimmer rig in grass. It will not let you. It will not, if you get into it by mistake, it doesn't take you long to figure out where you're at, what's going on it now. To come out with a wide closure and say it's all eelgrass is completely unfounded, and absolutely, ludicrous. The division should send out people and check for the grass. Heat will kill it out and maybe it comes back. It should be based on whether it's there at the time, and let the people enjoy their shrimp, and put a smile on everybody's face and enjoy eating wild Caught seafood in North Carolina.

### **Cameron Pappas**

Good evening. Thanks for being here. I'm apologies for reading off my phone, but if I shot from the hip, it probably wouldn't come out very good. So, my name is Cameron Pappas. I'm a full-time charter captain out of Wilmington, North Carolina. I'm in full support of option three, regarding false albacore. I think that these fish are extremely valuable for our coastal communities, from guides to recreational anglers, to commercial. Option three provides very liberal guardrails for a highly sought after species that currently has absolutely zero regulations. Why would we not put regulations around false albacore to protect them from something horrific happening? I fish for these fish almost solely for two months out of the year with people that travel from out of state. People that book hotels, buy gas, eat at restaurants. These fish are



valuable and deserve to be respected just as much as any other regulated species. These fish are growing in popularity, it can be seen by the amount of boats chasing them these days. Please do the people of North Carolina something right by keeping these fish around for many years to come, by putting some form of regulations around them. Lastly, I'd like to also express my opinion with the water column leases and Topsoil and Surf City. I think there is far too many taking up valuable fishing space, and something has to be managed there because it really is becoming kind of ridiculous.

### **Steve Boljen**

Good evening. Thank you. My name is Steve Boljen. I'm a residential fisherman living in the Cape Carteret area outside of Swansboro, and I'd like to address the false albacore issue that will be in front of you folks. Essentially, in my years of business and government experience, one of the biggest struggles I see people face is making the wrong decision. Unfortunately, everything we do in life is a tradeoff. Whatever we say we do, we pursue, it has a cost and a benefit. We always expect that more data will appear to illustrate the correct choice. This usually results in making a decision, not to make a decision, until that data presents itself. So here we are pondering this decision about regulating false albacore in North Carolina. We have three options in front of us. Option one is clearly just the decision, to not make a decision. You all called it the status quo option. It provides no data to monitor the fishery and provides no rule to manage the measures, to manage the fishery, in case something happens, and it becomes a target fishery. Option two on the other hand, is only a little better than the status quo, and that it does provide for formal monitoring but still offers no rule to manage this fishery. Option three, in my opinion, is the only choice to make at this juncture. In addition to formal monitoring, it has a rule in place for implementing management measures if landings considerably increase. This is a proactive decision to protect this important fishery while monitoring and collecting the necessary data to manage it going forward into the future. Under options one and two, what is the procedure, should the false albacore fishery become a prime target? While data is formally collected and evaluated, the fishery can be assaulted to the point that it reaches a barely sustainable threshold or even worse, is exploited beyond that threshold. Option two, in my opinion, is what I would call paralysis by analysis. We're going to monitor and monitor, but we're not making a decision. Option three is what I strongly recommend you all should vote for. I appreciate the time you've all given me to come up here and address my concerns on this. I hope you all have a good evening.

### **Greg Barnes**

First of all, I want to thank everyone on the committee for your time. I know this is not an easy task. All the fisheries that you guys are asked to contemplate this week, you know, science isn't a perfect process. Policy isn't a perfect compromise. So, I encourage you guys to make pragmatic in the absence of perfection. On the topic of option three, I think it's fair to say that there's a lot of folks out here today that want to see our fishery managed for abundance, and this is a pragmatic decision to protect the ability for us to study it more. And it's a safe guardrail in the short term so that we show the best of luck this week.

### **Wesley Potter**

I'm Wesley Potter, I'm a commercial fisherman, member of North Carolina Fisheries Association. Thanks for this opportunity to address the latest shrimp trawl closure proposals. I've been in commercial fishing for over 50 years, pulling shrimp nets most of that time. Providing fresh,

affordable seafood to the American people. I went to my first public hearing on trawl bottom closures when I was 18 years old. Been able to attend these types of meetings every year, or two ever since or knew bottom closure proposals. It seemed that this latest plan was more acceptable because it was closing narrow areas along the edges of shoals and hard where grass beds may occur, and shrimp production is usually minimal. But, when I seen that all of West Bay was to be closed, I knew it was a bottom grab. There are lots of soft mud slews in the West Bay area, where grass beds don't occur, and should stay open to shrimp trawling. There is already over a million acres of bottom close to trawling, and I know it will never be enough for some people that want it all shut down. There are a lot of people that depend on this resource and every new closure makes it harder to make a living, and this is the only work that I know. Just for your information, and over 50 years of pulling a shrimp net, you don't pull it long in a grass bed. And once you know where the grass is, you don't go back. If your net is loaded with grass, your net is not catching shrimp, you're just wasting fuel. It's just common sense.

### **Patricia Kellum**

I'm not a commercial fisherman, but I've been married to one for almost 50 years. We raised four children and four grandchildren, based on a lot of the commercial fishing that my husband has done. I am talking about the seagrass issue in Carteret County. Don't know about it in other areas as much. But my degree was in biology, and so my first bent is to go and look at the resources online. I had a really hard time finding some information concerning commercial fishing and sea grass, because like these guys says, anecdotally, you don't go to an area that's got grass because you can't pull in it. What you do, do is you go into deeper waters. And it was very, very concerning when I heard that the reason why they want to close the entire areas is because they didn't have the resources, in order to monitor the areas that had deep water. I asked my husband on the way up here, when was the last time he drug in a grass area on purpose? He said it was about seven and the only reason he did it then was because he had to push the boat. Otherwise, he tries his best to stay out of those grassy areas. I think that it would be unacceptable for any of you all to say that we're going to stop doing something because we don't have the resource to monitor everybody. And I just can't quite wrap my head around that. The other part that I wanted to discuss was, when I did my research, what I found was that it wasn't trawling as much of a problem as it was climate change, glass glyphosate in the water from herbicides, and other herbicides and grow things that were runoff from over population of the areas near those grass beds. Now, if you would like to go and stop some of the development in Carteret County or any of the other counties that are being affected by this, then that might help this issue, because my thought is, is that if it kills grass, it kills grass. Runoff would do the same thing. So, I'm not a very good public speaker. I understand the science behind this, and I understand that the science is not on your side. with someone trawling in deep water, versus not trawling in grassy areas. The science is on the side of the herbicides.

### **Zack Davis**

Commissioner, do you mind if I pass paperwork out right now? I am passing you all out three different handouts. I'd like to address the first one this, excel spreadsheet. It was created by myself. I used Fisheries and the Department of Environmental Online Resources, the SAV mosaic from 1981 to 2021. I ask how many of you all watched the TV shows or the cable networks from the 1980s? If you're using the same phone, you were using from the 1980s? the same landline you were using in the 1980s? the same car you were using in the 1980s? or the same internet you're

using in the 1980s? because that's what you're doing to us with this submerged aquatic vegetation. Nearly 99% of the, quote, “furthest known extent of SAVs was established by area documentation with photographs from the 1980s, 81, 85 and 88”. That's where the Fisheries and the Department of Environmental Quality gets their base map for the furthest known extent of SAVs. That excel spreadsheet takes different areas, and yeah, I did personally look at it, it's public information you can zoom in. It was kind of hard to find an area that was specific with one circle that you could kind of zoom in and compare a 1980 photograph to something from the 2000s. But if you look at the reduction rates on nine different locations in closed trawling bottoms, the average reduction in SAVs was 71.45%. If you look in open bottom, that same comparison was 67.76%. That alone tells me trawling is not the problem. Either the data from the 1980s is the problem, and you're not using the most relevant data, or something else is causing the reduction in submerged aquatic vegetation. Okay, it's document number one. Document number two was a map packet that I drew after talking to fellow fishermen from different areas, both locally and up the coast Wanchese, which I dare say is quite a bit more than Mr. Stewart did in the last four years, since the last map packet came out. This is your stakeholder input; it gives you 95% of what you want. It gives us 95% of our bottom to make a livelihood. The last packet is this; is falsified information. A lot of these acres that they are including in their table as unprotected is in primary, secondary and special secondary nursery areas that are protected from trawling. And they're included on this as being unprotected is false.

### **Monica Smith**

Good evening. My name is Monica, and I help my family run Miss Gina's Shrimp in Beaufort. I worked as an elementary school teacher and then a med-surgeon labor and delivery nurse before quitting to stay at home, help run our business and raise our children. In 2021, scientists presented data in an effort to close open bottom to trawling. They didn't get all they asked for, but they got the closure of Bogue Sound. To them, it was a small win, yet to the shrimpers who live and work Bogue Sound, you completely changed their livelihood. You made a proposal, got a small piece of what you asked for and you went back to work knowing we'd be back here again.

Unfortunately, for those shrimpers, that privilege was stripped from them. Sure, you said they could go work somewhere else. Probably in those same bodies of water that you're here again trying to close. In January 17th meeting, someone asked, why can't you just all go channel in? Well, how about we line up 8 to 10 other people and you can all race to get to your desk on Monday morning to earn your paycheck. As a teacher, I taught the scientific method, ask the question, create a hypothesis, develop an experiment, gather and analyze data, and report conclusions. You've done a great job of asking the question and creating a hypothesis. You've even developed an experiment. But nowhere in the January 17th meeting were you able to show data from closing an area to trawling to conclude that it worked to increase SAV. Not in primary or secondary nursery areas, and not in Bouge Sound. So here we are, and you've now presented the same data again. You've had over two years to collect further data, to prove your point and you have failed to do that. Just like you failed the shrimpers of Bouge Sound. You come back here, and you propose more closings. You want 100% protection of SAV. I'm guessing you're going to ask for massive closures, cut back on what you're asking for under the guise that you actually listened to the stakeholders, and compromised. And then you'll chip away at inshore trawling. In three years, we'll be back here again, same question, same experiment, same lack of data. Now, if I was a scientist, and I had dedicated a portion of my life to saving SAV at the expense of someone else's livelihood, I would come in with mountains of data proving that it

worked. In the January meeting, it was stated, and I quote, “we know that trawling is one piece, and probably a smaller piece at this point of the problem than other things, but we have to address all of the pieces in order to have success”. Well, I can't wait to hear how you're addressing other problems when these massive closures is how you propose to handle such a small piece. I encourage you to take the next few years, use Bouge Sound as a study area, collect the data, analyze it, and then come up with yet another bogus reason to close inshore trawling. Isn't that the ultimate goal? and we'll be here once again fighting for our ability to go to work.

### **Thomas Smith**

My name is Thomas Smith and I'm from Beaufort. I own and operate a 50 foot shrimp boat, and co-own Miss Gina's Fresh Shrimp in Beaufort with my dad. We sell fresh shrimp caught by our boat from Core Sound, Pamlico Sound, and along our North Carolina beaches. We run this business out of my front yard, much like a produce stand. Social media has been a big part in growing our business. Our shrimp have been purchased and carried to nearly all the lower 48 states. We employ 6 to 8 people each year. Several being high school, and college students trying to put themselves through school to earn a degree. We've sold over \$1,000,000 worth of North Carolina seafood from my front yard last year. Most of that coming from shrimp caught by our boats. I am the so-called mom and pop fishermen; you guys speak about wanting to help. For as long as I can remember, all I've ever wanted to be when I grew up was a shrimper. But my Dad demanded I go to college as he knew this day would come. A day when I would have to stand up and fight for my right to make a living. Now I have two precious boys, Cameron, now 11. He did his remote learning when school closed for COVID from my boat in Pamlico Sound. He loves it is in his blood. When asked in kindergarten what he wanted to be when he grew up, he never hesitated and said a shrimper. Conner, who is 3, shares the same excitement. He wants to go shrimping with daddy. Those boys, as well as myself, are happiest on the water. I've dreamed of the day when they're both old enough to make up my crew, just like I did for my dad. Yet here we are, fighting for the right to work and teach my sons about this lifestyle. Begging you once again to not take this away from us. These proposed closures will put me out of business. You have stated that due to lack of shrimp trawled data for specific SAV reasons, you are not able to estimate precise economic impacts to the shrimp trawl industry. I can assure you they would be detrimental. The areas that you are proposing, particularly Core Sound, will take from 25 to 75% of my income, depending on the year. This isn't just about me. This will affect the high schooler, who works during the summer to pay for their college education. The full-time worker, who comes from Cherry Point, throws on his boots and takes his son and daughter out to teach them about shrimping, and keep them out of trouble. The husband and wife, who need just a little extra money to pay for their bills, and pay for dance or softball, or uniforms for their kids. I oppose these SAV closures in the shrimp trawler industry.

### **Cayton Daniels**

Good evening, my name is Cayton Daniels. I've been attending these meetings since I was 16 years old, and I've watched a thriving industry be stripped and tattered to pieces. This industry can't take any more blows. Early on in attending these meetings, I got the idea of we got to give them something and maybe they'll let us be. Maybe give them a 15-inch flounder, maybe give them four days a week on large mesh gillnets. Maybe give them 75 speckled trout. Going way back for my time, let's give them south the Hyder Shoals to fly netting. Let's give them half a mullet season. Best one in the last ten years, let's give them half of that. The list goes on and on

and on. This industry has given, till there is no more to give. And, in my opinion, anything that is given is just a foot in the door to expand what has been taken away from us exponentially. This closure was to go into effect in proposed areas for the SAV, this will be no different. You got Bogue Sound. Next to be Southern Core Sound. Next it will be the same map it was three years ago. The west half of Pamlico Sound is just going to grow like wildfire. I own a 45-foot shrimp boat, and a lot of my income comes from Core Sound. This past season alone, over 30% of brown shrimp I landed for the year came out of the southern end of Core Sound, where you're proposing to close. How many of you could survive losing 30% of your income? This proposed closure will be shoving a smaller class of boat, into much larger water, where they don't belong. Due to sea conditions, weather, carrying capacity, and so on. Anyone in this room can pull that more recent and detailed satellite imagery, and what was used to come up with this with your cell phone, and clearly see, there's no SAV in the areas where we trawl. Before any permanent closure should ever even be thought of, I feel there should be more interaction done with local fishermen who are knowledgeable of an area and are aware of the seasonal environmental changes on that specific body of water. This industry, as a whole, has given their fair share throughout the years. I think it's about time this division gave us something back, a break. I'm going to end this with some our forefathers, wrote in 1776. "We hold these truths to be self-evident, that all men are created equal, that they are endowed by their creator with certain unalienable rights, that among these are life, liberty and the pursuit of happiness". This division has certainly robbed the North Carolina fishermen of their lives and their pursuit of happiness.

### **Bruce MacLachlan**

Well, thank you for the opportunity to address you this evening. I came here only to address one issue, and then I started expanding and that as I've heard testimony, but I'll keep it brief. Number one, option three or the false albacore. My opinion, I cannot add anything more than what Perry, McDougal, Chris Thompson, John Mouser, and several others said already. So, I won't repeat that. But I think this is an opportunity for the Commission to get in front of an issue and preserve a resource for our state, and really for the entire Atlantic coast that is extremely valuable. I encourage you to do so. Some of the other issues I have heard tonight, I don't have the necessary background to comment on in length, but I would just encourage all of the members of the Commission, look backwards to where we were and then look forward 10 or 20 years to where we want to be. Whether that's stripe mullet, whether that's submerge aquatic vegetation, whether it is trawling in key areas, whether it's observer coverage, all these things, we need to do better. I can't encourage you enough to look at the observer coverage on our trawling industry, like Stuart Creighton mentioned earlier. I did sit on the Shrimp Advisory Commission a couple of years ago, and I believe that's a gaping hole in our management strategy, and I strongly encourage you to find the funding to cover that gap.

### **Kenny Rustick**

My name's Kenny Rustick and I work out of Marshallberg Harbor. First off, I'll tell you that 95% of my shrimping income this this year came from Straits Channel. On average, I'd say probably 60% of my income comes from these closures, and Core Sound. I also say that in 1989, and I said this at the meeting in January, in 1989, we had a freeze and a snowstorm the week before Christmas. The whole town froze over. Beacons got tore down when the when the ice broke free. Tore all the beacons down, Core Sound, everything. That was the start of the grass going away from Core Sound. It killed the grass over to the banks. That's when the scallop started dropping

off. You can look at the data from the fisheries and it'll show where the scallops dropped off, dropped off, dropped off. Well, the grass has never come back. There's no trawling over there to the banks. There's no scallop dredging anymore. And no keeping clams on the bank shoal no more. So, it's not shrimping that's doing it. They got plenty area to go look at the banks and see why the grass hasn't grown back. But to put us out of business, because every one of these places that's proposed close is where we work. That's where we work. And it'll kill the small boats in Core Sound. I mean, it'll put us out of business. We're struggling now. We didn't even have a viable shrimp market this summer because of imports. And another thing, the data stored in the 81, they said at the last meeting, and they had more grass then. Then the grass start disappearing, well, if 300 boats that work Core Sound in the eighties didn't kill the grass, the dozen or the 15 or 20 working there now isn't hurting it. So, you need to start looking at other options and leave commercial fishermen alone. We've worked, and we've give, and it's just like Cayton Daniel said, we give, and give, and give, and the Marine Fisheries has took, and took, and took. We never get anything back. Trout, they closed fly nets. We can't catch but 100lbs now. What happened to them? Who is held accountable at the Division for closing all this stuff? And we are the ones that lose out. We're the ones that's held accountable because can't pay our bills, can't support our families. And the regulations is what's destroyed commercial fishing in North Carolina. And that's basically all I got to say.

### **Jeff Stamper**

My name is Jeff Stamper. I'm from Bogue Sound, the area y'all closed 3 years ago. I've lost over half of my income. Now I'm shrimping the areas that y'all are talking about closing now. When I was a kid, I started on Bouge Sound, I'm probably five years old. I got two little boys back there working the water with me every summer. Y'all took, took, took. When I was a kid, there was no grass in Bouge Sound. What y'all closed, there was no grass. As everybody always tells you, I got \$3,000 in one net. Do I want to drag it across the oyster rocks and tear at my net? I don't think so. I don't want to pile my net up with grass? I don't think so. So, what y'all keep saying, It's bullshit. Excuse my language. It's wrong. It's wrong of y'all to do it. If we took pictures of every one of y'all, y'all will volunteer. What if we went to y'all's jobs, harassed y'all, like we get harassed on our jobs? What would that mean for your family? You would be out of work like us. Thank What y'all do?

With no one else wishing to speak, Chairman Bizzell ended the public comment period at 7:36 p.m.

### **February 22, 2024**

Chairman Bizzell convened the MFC business meeting at 9 a.m. on February 22, 2024, with the public comment period. The public comment session began at 9 a.m. and ended at 9:35 a.m. The following comments were received:

### **Public Comment Period (9:00 a.m.)**

#### **Joe Harris**

Good morning. My name is Joe Harris, I'm just a recreational fisherman. I was here last night and had no intention of speaking. I wasn't planning on getting up at five this morning, but you know,

after what I heard last night, I felt I had to come and say something. I've been fly fishing for false albacore for over 30 years. Kids grew up doing it. My wife and I still come and do it down here four or five times a year. I'm also involved with Project Healing Waters, which is a great organization for veterans to take them fishing. What we do is have a few events and take vets out fishing. It's wonderful to see veterans, both men and women, jump on a boat, leave the problems at the dock and giggle like kids when they're out there fishing. So, I obviously support option three. The mullet issue and the Topsail issue, I'm not that familiar with, but I'm hoping that that gets resolved for, you know, something for both parties. Lastly, I love eating shrimp. I love North Carolina seafood. Commercial fishermen are hardworking people. They wouldn't be out there if they didn't love it. I just would throw my support to them. And that's pretty much it. God bless them Commercial fishermen.

### **Glenn Skinner**

Hi, I'm Glenn Skinner, a commercial fisherman and executive director of North Carolina Fisheries Association. Want to talk to you about using trawl closures to protect SAV issues. And, I want to start by reading a small portion of the motion that was passed two years ago by this commission that brought this issue back to the commission. It states that the Division of Marine Fisheries collaborate with the support staff, and Habitat and Water Quality Advisory Committee on issues related to SAV habitat as the division deems appropriate and feasible actions to address that impact, which to me means we're supposed to identify specific impacts that are occurring and come up with recommendations to address them. Now, no specific impacts have been identified with shrimp trawling and SAV. Just the simple fact that shrimp trawling could impact SAV is the only thing that's been identified in this issue paper. It also says will be identified by the appropriate committees and brought to the MFC in the future for action as part of Adaptive Fisheries Management. This commission instructed the division to use the Adaptive Management Process and Amendment two to implement these recommendations. Adaptive management is a management process that gives you flexibility to change the variable conditions. To adapt your management to suit changes in science, fisheries activity, stock status, whatever it may be. The division came back with a recommendation for a permanent closure. There is no variable condition, no chance for change, permanent means steady, unchanging. There is no variable condition in this, that would suggest you should use the adaptive management process to implement it. Through the adaptive management process, they also use proclamation of authority to implement these changes, if you approved. Under North Carolina State statute, 113-221.1, subsection B, you all are given the power to delegate authority to the fishery Director to implement rules or suspend rules that are affected by variable conditions. Again, to use proclamation authority, there is supposed to be a variable condition. There is supposed to be some for foreseen circumstance where this rule may need to be changed and changed in a timely manner, if you use proclamation authority. Once again, a permanent closure has no variable condition. Another part of this motion, they're supposed to collaborate with stakeholder groups. There's been no collaboration at this point with any stakeholder group that I'm aware of. If you all decide to move forward, I would suggest you use the proper legal process, which is the rulemaking process, and you require that a stakeholder group is formed to come up with some better recommendations than what you currently have, and I'll leave it at that.

### **Thomas Newman**

My name is Thomas Newman and I'm a commercial fisherman, and also work part time with the North Carolina Fisheries Association. The first page of the false albacore document in your briefing materials clearly states, as has been stated in multiple management levels up and down the East Coast and also here at the MFC, that this fishery is healthy. The document says there's no evidence of size truncation, and the majority of the fish caught are well above the length when they 50% sexually mature. This rule has unfortunately also been misrepresented to most of the people commenting in this meeting. This misinformation given out about this rule is par for the course with the groups and persons organizing and trying to pass it. This rule does not provide liberal guardrails. In fact, I believe it's quite the opposite. The limits mentioned in this rule are maximum limits, bag limits, not to exceed ten fish. Shrimp limits, not to exceed 3500lbs. And this brings me to my next point, why are both sectors harvest tide each other in this rule? One sector should not be responsible for trigger management for the other. We all know recreational data MRIP is undergoing an effort calibration and the recreational harvest numbers are going to change. This recalibration line could easily exceed the 200% trigger. Bag limits will do nothing but put a target goal for many recreational fishermen to hit, if implemented. Data already presented to this commission shows that recreational fishermen currently on average keeping one fish. Commercial trip limits will do nothing but create waste. Your data shows that most commercial landings are under 500lbs, but bigger catches regularly occur. Why, with such low commercial harvest numbers in NC, should we waste and discard perfectly good fish by setting an arbitrary triple limit? This rule contains no fisheries science or fisheries management. Where is the stock assessment? Where is the fisheries management plan? Where is the fishing mortality? What is the span of stock? Biomass? Should we not be worried if landing shows a decreasing trend? This rule is nothing but ruse to appease Commissioner Roller. Please do not continue to burden DMF staff with solely trying to manage such a healthy, Atlantic wide stock, and leave this at status quo. DMF already has enough species that need better management. In reference to stripe mullet, a two-day Saturday and Sunday closure year around, and small 50lbs allowance on weekends meets the threshold at 21.7% reduction and should be included as a proposed option. Albacore rules, mullet closures and trawl closures, are all nothing but attempts to stomp out the few remaining small-time fishermen in this state. We are being run through again, and again, and again at these meetings. We are trying to work with the process, we are begging to be involved, and volunteering to help with the process. We need management, but we need smart management. Management that doesn't just continuously cut the last remaining fishermen to fill their data gaps. Thank you.

**Tim Hergenrader**

Good morning, I just want to put you at ease. I'm not here to bring any legislators in, I haven't been talking to any of them to get into your mess. Just do your job. Okay? We'll get that squared away. We heard a lot last night about the mullet being so economically important, and I don't doubt that. I didn't realize it was that important on the Outer Banks. But one thing I didn't hear much about was the importance of the mullet for the fishery. The mullet is critically important. It's a food base that all the other predators feed on, on mullet. Without a mullet, we haven't got anything. So, we got to get it right on the mullet. We got to get it right on the mullet. We also heard a lot about SAVs last night. How they can't trawl in those areas where there's SAVs because it tangles up their nets. It wasn't too long ago, or the word was that they had to keep those grasses under control because they get so thick, they bind up everything out there. They just had to keep those SAVs under control. Now, all of a sudden that's the other way. One way or the other, it's got to have one or the other,



can't be both. I'm not going to say anything about Tom Roller's efforts on behalf of a species, but it sounds like everybody is pretty much sold on option number three. I don't know. I've only got one of those in my life, and I'll tell you what, that was a heck of an experience for me. I hope you keep them around forever, so maybe one of these days we can all catch one. Thank you very much.

### **David Sneed**

Good morning. Thank you, Mr. Chairman. My name is David Sneed and I'm the executive director for the Coastal Conservation Association in North Carolina, And I would like to offer some comments on behalf of our membership. We support option three for false albacore management rulemaking. As has been mentioned time and time again last night, it was great turnout, great support for this, and it simply puts some very liberal guardrails on a fishery that is very important to the fishing public. While commercial and recreational landings have increased in the last ten years, this is still primarily a catch and release recreational fishery. This is a unique opportunity for this commission to implement some precautionary management, a precautionary management approach that would build a framework for future action in other states and position North Carolina as a leader in conservation efforts in this important fishery. We support DMF efforts to protect critical seagrass habitat, and I would call your attention to a study by ASMFC that was just released yesterday entitled "*Fish Habitat of Concern Designations for Commission Managed Fish and Shellfish Species*". This document apparently addresses the gap in protection by emphasizing the critical role habitats play in fisheries production and ecosystem function. Along those lines up on striped mullet, I thought one of the most interesting comments last night was from a commercial fisherman that was talking about the reduction that are being proposed, and what he termed, the lack of the landings data for when they reached the threshold, as he called it. And what we've been looking at is there's no quota that goes along with this. So, his concern was how do you know if you're getting the reductions that you're trying to get without any sort of cap or target for what can be caught to achieve those reductions? So how would we know if we're even getting reductions until after the fact, after the year is over? I'm not sure if we even know if we've achieved reductions from the 2023 supplement. And I would also echo some other comments about the importance of striped mullet as a forged fish. And again, it is very important to get this right because of the ecosystem impact this fishery has on other species of importance, and I'll wrap it up there, Mr. Chairman. Thank you.

### **Bobby Brewer**

My name is Bobby Brewer. I'm a fishing guide out of Oriental and false Albacore is a very, very important fishery to us in the October-November timeframe. During that time period, I fish a host of people from many states and also occasionally I host people from foreign countries. Also, I'm on the board of directors for Fly Fishers International for the Southeast region, and that's also very important fish for them. In fact, last year we hosted a group from FFI down in Morehead City in November, and that's gets advertised all across the United States. In addition to that, after that event, it was voted on by the members to come back down to Morehead City and do another event. So, the economic impact on that, on that fishery is quite large for that particular area. Usually when I've spoken at this event, two or three different times and every time I speak, it seems like we have a fishery that's in danger. That's been overfished, or overfishing is occurring. This particular time we don't have that. We have a fishery that we can do a proactive approach to try to protect it into the future. And I hope that you guys do that. I hope you take that into consideration to do that. Now, I support option number three on that. Thank you very much.

**Ron McCoy**

I'm Ron McCoy from Hampstead. I quote, "The Marine Fisheries Commission is responsible for managing, protecting, preserving and enhancing the marine resources under its jurisdiction". My question, are you living up to your responsibilities, or are you here to manage what user group gets to fish and keep the fish? There's a real difference in catch management versus resource management. Catch management ignores data trends by summarizing data into buckets. Catch management allows all gear to be used anywhere, no matter how destructive. Catch Management does not punish commercial gear users for not reporting catches. Catch management accepts bycatch as a necessary evil so catch can continue. Catch management supports long-term, five-year plans so difficult resource decisions can be delayed. Catch management occurs when oversight commissioners are predominantly users. In contrast, resource management is driven by data trends, restricts the use of destructive gear, punishes not reporting catches. Does not hide in long-term, five-year plans, and does not accept bycatch as necessary. We the citizens, me, and you, have failed the resource. We've done little to convince Raleigh that the resources and real danger. Our current government and governor are influenced by users, not the resource. We have become complacent and think nothing will change. We make our public comments and go fishing.

**Landon Merkley**

Good morning. My name is Landon Merkley. I'm from Gloucester, North Carolina. I'm a mechanical engineer student at NC State. I'm a small business owner and I'm a commercial fisherman. Of all these, I'm most proud of being a commercial fisherman. Yeah. Now it seems that we're being criminalized for exercising our God given right to fish. This bottom closure would end shrimping in Core Sound, Back Sound, Straits. Though this isn't necessary. Like Mr. Rader mentioned on January 17th, "there shouldn't be any unnecessary negative impacts on users, which include shrimp trawlers". Or the largest argument against this closure is that since 1985, there's been a 71% decrease in seagrass and closed areas, compared to a 67% decrease in open bottoms of Core Sound, Back Sound, Straits. These areas are already close to shrimp trawling. They're not seeing recovery and are continuing to lose seagrass. The NC Department of Environmental Quality in July 2020 recognized that on the east coast of the US, large decline of submerged aquatic vegetation has largely been due to impaired water quality. And it's also known that seagrass can only survive in shallow waters where light levels are high enough to allow for growth. So are the deep waters of Straits channel, Core Sound and Back Sound, including this closure. Well, it was stated that it was difficult to establish a buffer between the main channel adjacent to the Straits, so staff decided to create a broad buffer between the proposed Core Sound closure and the existing Bogue Sound closure. When it was argued to limit the closure with improved marking, Chris Stewart stated that Marine patrol preferred straight line closures that use channel markers and existing landmarks. In other words, it's not complicating the jobs of the Marine patrol, it's a lot easier to take the jobs away from the fishermen. Really, I shouldn't ask why certain water depths are considered for this closure, but why the closure at all? When the public data shows that the seagrass is decreasing more in closed bottom areas where it's not at all affected by shrimp problem trawling, Personally, I believe this is another distasteful jab at the shrimpers. And I asked you to study the Bogue Sound closure for the next few years before deciding to close this area. Thank you.

### **Woody Joyner**

Good morning, My name is Woody Joyner. I'm representing North Carolina Watermen United. I'm a full-time resident of Hatteras Village. I would like to thank the commission for this opportunity, and we appreciate the difficult decisions, task to your members. We would also like to congratulate Vice Chair Corbett, Commissioner Bethea on your recent appointment, we look forward to working with you. I would like to address the Striped Mullet FMP Amendment Two draft that will be brought to a vote later this afternoon. The 2022 Stock Assessment of Striped Mullet supplied the data to view the stock status and the necessary reductions if needed required to rebuild the stock. This assessment is based on the basis of the commercial harvest relative to commercial landings in 2019. It is our position that this data is dated, and we are not working with the best available science. Incorrect data makes it extremely difficult to make a rational, informed decision. Applying a model using data that is 3 to 4 years old on a species that matures at two years should not lead to overly restrictive regulations. Commercial landings for the last few years have in fact shown larger than average harvest yields. It is our contention that the mullet is not experiencing overfishing in the northern region. However, the division is striving to meet the directive with a 21.3 to 35.4 reduction of overall commercial harvest. To exasperate the restrictions even further on commercial harvest, the Division is recommending the most conservative reduction of 35.4%. Would it not be a far less punitive measure to give a more accurate assessment to the true mullet population? So, I sat down using the data from option five on table 2.13, allowing for day closures, only with no trip limits. The Saturday and Sunday closures, January through December yield a 25.7% reduction. I have spoken with the NCW members and mullet fishermen in the Hatteras village, Frisco and Buxton area to get their reaction to this less restrictive scenario that I just outlined at 27.5. A few weeks ago, I spoke with some of the same bait and tackle shop owners that spoke at last night's public comment section and asked the same question to a person. They all said the exact same thing, a resounding no. Personally, the day closures with no trip limits a 27.5% suits my projection. But after hearing the negative economic hardships of the watermen and the small business owners during the 2023 shoulder season due to early closure, and being an organization that has in our in our mission statement "protecting your freedom to fish", the North Carolina Watermen proposes a return to pass mullet seasons with no restrictions, until an updated assessment is completed and this will provide a more accurate reflection on the status of striped mullet. Thank you for your time. Thank you to the Division of Marine Fisheries.

### **Chris Elkins**

Good morning. I am Chris Elkins and thank you for the opportunity to comment. I'm a retired scientist from UNC Chapel Hill, but now reside in Gloucester, where I fish guild boats. I'm a member of CCA, and I support CCA's positions as offered by David Snead earlier. Especially option three of the albacore. But this morning I'll briefly go over the most important issue here today, striped mullet and the glaring omission of a quota for that species. A hard quota with payback won't assure a recovery. But, no quota with a currently proposed meager conservation measures will fail. We have seen stock after stock regulated by half measures, and the stocks subsequently decline. And we all know what I'm talking about here. And just as a reminder, after decades of half measures on southern flounder, the MFC voted a hard quota with payback for recreational fishermen. How is this any different? I'd like to thank you all for your service.

### **Steve Brewster**

Good morning, my name is Steve Brewster. I'm not here representing anyone. I'm not a lobbyist. I am not paid to be here in any way. I am heavily concerned about the condition of our coastal resources. I'd like to support option three for the false albacore. For mullet, it's a very confusing situation because we see conservation, and an economy sort of clash. And we really have to remember that to maximize commercial yield, to maximize profits at tackle shops, conservation is how that is accomplished. Drawing the obvious parallels between debt and our stock statuses, you get into a hole, and you dig that hole deeper. It is harder to climb out of that hole. So, swift and strict action early is without question the best choice for you all. Thank you all for what you do. I know how hard these decisions must be for all of you.

### **Rocky Carter**

Good morning. My name is Rocky Carter. I'm involved with CCA. Have been on their board of directors for over ten years now, and I believe in their mission, to conserve our resources for future generations, is incredibly important. What I'd like to speak about just briefly this morning is something I did not hear discussed last night. This is on the oyster leases. I wonder what is driving this incredible increase in the demand for oyster leases. So, it's like all the things usually money is behind it. So, I started thinking about how many studies were done on the impacts of having these oyster leases? And how much water flow is going to be restricted? When you put hundreds of acres of top to bottom structures in an area where the water has traditionally, for maybe a few million years, flowed freely. When you start restricting, it seems to me that the laws of cause and effect are going to come into play somewhere, somehow, sometime. And I think we need to do a little bit more research before we continue to write these leases and cover our bottoms with structure. The other thing is on option three, some of the greatest times in my life has been taking my friend's kids, my own daughter, and now my friend's grandkids out fly fishing and fishing for the false albacore. I wanted to comment a little to these, but that's not accurate. So, as we move forward in protecting these fish, I think it's incredibly important to remember that there's a lot of pleasure received from the younger generations in putting these fish in the boat. And I hope you consider option three. Thank you.

### **Ryan Daniels**

Hello, my name is Ryan Daniels. I'm a lifelong resident of Atlantic, North Carolina. I started shrimping with my father when I was 11 years old. I currently work in the professional maritime industry, but I still shrimp part-time in the summers, when I'm home. I'm asking you today not to institute any sort of trawl ban. Proposals based on old faulty data, there's no evidence a ban will benefit grass beds. We already refrain from towing and grass as much as possible because of the way our gear down and cause a lot of extra work for us. The type of shrimping that I do, like many others, is small scale, provides local seafood, for individuals as well as local restaurants, benefit the local economy. So, I'm asking you today, do not institute a ban or any new trawling and regulations. Thank you.

### **Matthew Wallen**

Good morning. My name is Matthew Wallen, just an avid angler from New Bern, North Carolina. I want to thank you all for your time and dedication to our public resources. I hope that you all continue to work together to improve our fisheries resources in the outdated management process we have here in North Carolina. Growing up in Chesapeake Bay, catching an albacore the fly or a light tackle was just something I read about in magazines, while also dreaming of the experience

to experience that fishery in the future for myself. I'll never forget the first trip that I took to Cape Lookout to experience the Albee blitz seven years ago. The pure mayhem of acres of Albee's crushing glass minnows on the surface is a true adrenaline rush. The ability to catch these fish so close to the beach on light tackle is a treasure for North Carolina's public anglers, the guide community, and many coastal communities from Harker's Island to bald head. I am obviously in support of option three for the proposed management of false albacore. I commend DMF for proactively taking the lead on implementing precautionary management measures for false albacore, and I encourage this Commission to vote to implement those measures in option three. We don't see this opportunity very often when it comes to fisheries management here in North Carolina, you have the ability to set a standard for which we manage this precious fishery so that we can ensure its future. North Carolina cannot afford to lose the false albacore. Outside of that, I know you guys heard a lot of comments about this last night, but I think DMF needs to take a serious look at the water column leases out in Pender and Onslow County. Oyster Aquaculture can be a great opportunity for the state to create a sustainable industry and a market for North Carolina oysters. But it needs to be done the right way. A 600% increase in oyster leases in such a small area, such as Topsail Island, is causing a density issue impacting the angling public, the guides, and the commercial sector's ability to access our public trust resources in those areas. DMF needs to stop any further leases from going into that area and figure out a plan to expand into other portions of the state. Thank you.

With no one else wishing to speak, Chairman Bizzell ended the public comment period at 9:35 a.m.

### **Preliminary Matters**

Chairman Bizzell called the business meeting to order. He began the meeting with a moment of silence, followed by the pledge of allegiance.

Chairman Bizzell reminded all commissioners of N.C. General Statute § 138A-15E, which mandates at the beginning of any meeting of a board, the Chair shall remind all members of their duties to avoid conflicts of interest under Chapter 138 and the Chair shall also inquire as to whether there is any known conflict of interest with respect to any matters coming before the board at that time. There were no stated conflicts of interest from any commissioner.

The following commission members were in attendance: Rob Bizzell – Chairman, Ryan Bethea, Mike Blanton, Sammy Corbett, Sarah Gardner, Donald Huggins, Robert McNeill, Dr. Doug Rader, and Tom Roller.

Chairman Bizzell asked for any corrections or anything that needs to be commented on regarding the meeting agenda and then requested a motion to approve the agenda.

**Motion by Commissioner Roller to approve the agenda.**

**Second by Commissioner Rader.**

**Motion passed without dissention.**

Chairman Bizzell asked for any corrections, additions or deletions that need to be made to the November 2023 MFC Quarterly Business Meeting minutes. Hearing none, he called for a motion to approve the minutes.

**Motion by Commissioner Roller to approve the minutes of the November 2023 meeting.**

**Second by Commissioner Radar.**

**Motion passed without dissention.**

**Chairman's Report**

Chairman Bizzell addressed the reason for central meetings after Dare County Commissioner, Steve House presented a resolution about having meetings in Dare County, and throughout the state. Chairman Bizzell stated that this is not the first time he has received this request, and that the reason for having the meetings in a central location is because when the meeting is in Dare County, it seems like the people from Wilmington have issues and vice versa. He believes a central location puts less strain on everybody and less strain on staff too. Chairman Bizzell stated that he believes this is serving the constituency best, and that he plans to continue to have meetings in a central location.

**Letters and Online Comments**

Chairman Bizzell referred commissioners to letters and comments provided in the briefing materials.

**Ethics Training and Statement of Economic Interest Reminder**

Chairman Bizzell reminded commissioners to stay up to date on their ethics training and Statement of Economic Interest.

**Committee Reports:**

- Northern Regional Advisory Committee
- Southern Regional Advisory Committee
- Finfish Standing Advisory Committee
- Shellfish/Crustacean Advisory Committee
- Habitat and Water Quality Advisory Committee
- Joint Meeting of the MFC Commercial Resources Fund Committee and the funding committee for the N.C. Commercial Fishing Resource Fund

Conservation Funding Committee Verbal Update given by Commissioner Doug Rader. Commissioner Rader stated the committee met and received a request from staff to spend \$40,000 in support of the My View Emergency Stocking Process for striped bass in the Roanoke Albemarle stock. The committee discussed the matter with staff and strongly recommended the

approval of that expenditure as part of the total program that will increase the number from 100,000, up to 200,000 striped bass to be stocked. Three quarters of that total 200,000 will go into the Albemarle Roanoke system and 50 down into the Cape Fear system. They hope to resume resources available. The rotational stocking into the other two central estuaries as money allows but presumably next year. Commissioner Rader made the recommendation, and the motion on behalf of the committee, to approve the expenditure as described. Commissioner Rader said the motion, as approved by the committee, is to support the request by the Division of Marine Fisheries for a disbursement of funding equaling \$40,000 from the Conservation Fund, which was about \$216,000 at the time of the meeting, and that had not been used since 2016. Funding equaling \$40,000 for the Conservation Fund to provide support for the U.S. Fish and Wildlife Service Edenton National Fish Hatchery to produce Phase two striped bass for stocking in the Albemarle Sound.

**Motion was made by Commissioner Radar to approve the MFC Conservation Funding Committee recommendation to support the request by the DMF for a disbursement of funding equaling \$40,000 from the Conservation Fund to provide support for the U.S. Fish and Wildlife Service Edenton National Fish Hatchery to produce Phase II striped bass for stocking in the Albemarle Sound.**

**Per the Chairman, a second to the motion was not needed, as it came out of committee.**

**Motion passed unanimously.**

Member	ROLL CALL VOTE				
	Aye	Nay	Abstain	Recuse	Absent
Bethea	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blanton	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Corbett	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gardner	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Huggins	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
McNeill	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rader	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Roller	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bizzell	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Director’s Report**

Director Kathy Rawls gave a general update on activities happening at the Division in the beginning of 2024.

Director Rawls introduced Jesse Bissette as the new MFC Liaison and gave notice that Jacob Boyd, the Habitat and Enhancement Section Chief, had accepted a job with the NC Coastal Federation.

Director Rawls noted that there are other vacancies in the Shellfish Leasing Program and such vacancies impact the processing of leases, causing things to take a little more time than usual. Staff are working on responding to inquiries. Director Rawls asked for patience as staff works through the process.

Commissioner Roller stated that issues with oyster leases in the Topsail area predate many of those departures. Commissioner Roller stated he has heard comments from fishermen and guides, and that one of the arguments being made is the public process is not adequately vetting other user groups' concerns and asked what they can do as a Commission about that.

Director Rawls explained the process, stating there were 450 comments submitted online, in the last public comment period relative to leases. Director Rawls explained that approvals for leases are based on statute and MFC rules. She stated that vacancies are one reason it is taking time, but also, making sure to address all the requirements of all laws and rules appropriately for lease applications is another reason it takes time to determine whether to approve or deny a lease. Director Rawls encouraged people to speak with their legislators about the lease issues. Director Rawls agreed that more conversation is needed on the issues.

Commissioner Corbett asked to have this issue put on the agenda for the next MFC meeting, including an overview of the requirements the director has to follow. Director Rawls said that can be done.

Commissioner Rader continued the discussion by asking Director Rawls to be prepared to give a briefing on what she can and cannot do with respect to cumulative impacts, both environmental and resource related impacts, as well as user group conflicts. Commissioner Rader pointed out that to him, the social and economic questions that cumulative impact scale among user groups, is one that the governance system rarely and adequately addresses. Commissioner Rader states it may be that something novel is required to engage a process that actually outputs something usable in terms of identifying a carrying capacity, or sectoral allocation of carrying capacity.

Director Rawls stated she does have a meeting with DEQ attorneys to discuss cumulative impact rule language scheduled and would relay the results of the meeting to the commission.

Commissioner Roller stated he agrees with Commissioner Corbett and would love to see the issue on the next agenda. He also expressed his agreement with Commissioner Rader, and the importance of what we can and cannot do. He stated what they are hearing is cumulative impacts are already too much for other economies in some areas, and frustrations that they are sacrificing other watermen for this one industry.

Director Rawls continued with the Director's Report, explaining that there are vacancies in the Stock Assessment Program and that recruiting candidates for these positions has been very challenging.

Commissioner Roller stated that he has been commenting on this since before becoming a commissioner. He said that North Carolina is really unique with a robust Stock Assessment



Program, and expressed his frustration with salary ranges not being competitive with the federal government. Commissioner Roller stated, if we are going to have this program, and he believes it is a need, he wishes the state would address the salary issue.

Commissioner Rader stated that he concurs and that it is a systemic problem, and being driven not just by salaries, but how full the pipeline is with people being trained in these specialties. Commissioner Radar asked what they can do or get the state to do in terms of working with universities to build programs and fund them with help from NOAA and others. Commissioner Rader stated he would love to help personally with trying to find partners to pursue the ideas mentioned.

Director Rawls expressed appreciation to the commissioners and said it is a unique program; not many states have a stock assessment program like North Carolina. Director Rawls stated that the availability of stock assessment scientists is just not there, and when they are there, they are in high demand and the Division salaries just cannot attract them. Director Rawls said the Division is struggling in that regard but will continue to work on it and think about how to address the issue.

Director Rawls gave an update on Session Law 2023-137, Section 6 “*Phased in Mandatory Commercial and Recreational Reporting of Certain Fish Harvest*” and explained what it contains. She mentioned that the implementation of this would be a huge undertaking, and that she would keep the Commission informed throughout the process.

Director Rawls provided an update on the CCANC lawsuit, saying that discovery is ongoing. The state sought to limit discovery to finfish, as the plaintiffs recently expanded claims to include shellfish and crustacea, but the judge denied that motion, so the state is now working to include information about those additional species.

Director Rawls explained that outreach and education was a focus of hers. She stated that this year, the Division is focusing outreach at coastal events in hopes to reach those who are active in the state’s fisheries.

Director Rawls told the Commission that a new phone system was installed at the Division Headquarters Office on January 17, 2024. There have been some issues with that new system, but the new numbers are on the website.

Special Assistant for Councils Chris Batsavage gave updates from the recent meetings of the Mid-Atlantic Fishery Management Council and the Atlantic States Marine Fisheries Commission.

Executive Assistant for Councils Trish Murphey gave an update from the recent meeting of the South-Atlantic Fishery Management Council.

Habitat and Enhancement Program Manager Anne Deaton gave an update regarding activities of the Habitat and Enhancement Section.

Shellfish Sanitation and Recreational Water Quality Section Chief Shannon Jenkins gave an update regarding activities of the Shellfish Sanitation and Recreational Water Quality Section.

Fisheries Management Section Chief Steve Poland gave updates regarding the Fisheries Management section.

Colonel Carter Witten gave an update regarding Marine Patrol activities and accomplishments since the previous commission meeting.

License and Statistics Section Chief Brandi Salmon gave an update regarding activities of the License and Statistics Section.

Informational Materials:

Protected Resources Update Memo

Rule Suspension Update Memo

Update on Strategic Habitat Areas (SHA 's) Study Report:

Anne Deaton, Habitat Program Manager in the H&E section, gave a presentation on the summary of a field validation study done for identified Strategic Habitat Areas from Core Sound in Carteret Co through Brunswick Co.

To view the presentation, go to: [Presentation PDF](#), [Video of Presentation](#)

Fishery Management Plans

Status of Ongoing Plans:

FMP Coordinator, Corrin Flora, gave a PowerPoint presentation focused on review of the four FMPs under development, which include striped mullet, spotted seatrout, eastern oyster, and hard clam. Corrin also reviewed FMPs for adaptive management, which include Shrimp, Blue Crab, and Southern Flounder. Currently, Blue Crab and Southern Flounder are under review.

To view the presentation, go to: [Presentation PDF](#), [Video of Presentation](#)

Striped Mullet FMP Amendment 2- Jeff Dobbs, Willow Patten.

Gave a PowerPoint presentation over the goal and objectives of Amendment 2, overview of the information included in Amendment 2, a summary of AC input and public comment received, and the DMF recommendations. We will then review a timeline for implementation of the amendment and take questions, and finally, the commission will vote on their preferred management options.

To view presentation, go to: [Presentation PDF](#), [Video of Presentation](#)

**Motion by Commissioner Corbett to select the DMF's preferred management options for the Striped Mullet FMP Amendment 2 as the MFC's preferred management options:**

- **Sustainable Harvest:**
  - **Option 5: Combination of Measures: 5.n (day of week closure Jan-Sept Sat-Sun; Oct-Dec Sat-Mon).**
  - **Option 6: Stop Net Fishery Management: 6.a (Status quo).**
  - **Option 10: Adaptive Management Framework.**
- **Recreational Fishery:**
  - **Option 1: Recreational Vessel and Bag Limit: 1.c (100-fish bag, 400-fish vessel)**
  - **Option 2: For Hire Vessel and Bag Limit: 2.c (exception for bag limit for number of anglers fishing up to 400-fish maximum including in advance of a trip).**

**Second by Commissioner Roller.**

Member	ROLL CALL VOTE				
	Aye	Nay	Abstain	Recuse	Absent
Bethea	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blanton	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Corbett	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gardner	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Huggins	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
McNeill	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rader	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Roller	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bizzell	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Motion passed unanimously.**

**Shrimp FMP Amendment 2 Implementation Items**

Jason Rock presented an information paper, including the N.C. Division of Marine Fisheries (DMF) recommendations to the N.C. Marine Fisheries Commission (MFC), discussing the feasibility and utility of a shrimp trawl observer program.

**Motion by Commissioner Roller to have the DMF carry a recommendation from the MFC to the Commercial Fishing Resource Fund to take up as much as this funding as they could for a shrimp trawl observer program.**

**Second by Commissioner McNeill—NO VOTE DUE TO SUBSTITUTE MOTION**

**Substitute motion by Commissioner Gardner that the MFC would look for multiple sources of funding and methods of monitoring that may be less expensive for a shrimp trawl observer program, in addition to the Commercial Fishing Resource Fund.**

**Second by Commissioner Rader**

Member	ROLL CALL VOTE				
	Aye	Nay	Abstain	Recuse	Absent
Bethea	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blanton	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Corbett	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gardner	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Huggins	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
McNeill	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rader	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Roller	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bizzell	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Substitute Motion passed 7-1-1 (note: this means the substitute motion replaces the original motion).**

**Motion by Commissioner Gardner that the MFC would look for multiple sources of funding and methods of monitoring that may be less expensive for a shrimp trawl observer program, in addition to the Commercial Fishing Resource Fund.**

Member	ROLL CALL VOTE				
	Aye	Nay	Abstain	Recuse	Absent
Bethea	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blanton	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Corbett	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gardner	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Huggins	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
McNeill	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rader	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Roller	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bizzell	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Motion passed 6-2-1.**

SAV Protection Issue Paper

Chris Stewart gave a PowerPoint presentation discussing the protection of critical sea grass habitat through shrimp trawl area closures issue paper. This presentation included the N.C. Division of Marine Fisheries (DMF) and Habitat and Water Quality Advisory Committee (AC) recommendations to the N.C. Marine Fisheries Commission (MFC) in support of Shrimp Fishery Management Plan (FMP) Amendment 2 implementation.

To view the presentation, go to: [Presentation PDF](#), [Video of Presentation](#)

**Regarding “Submerged Aquatic Vegetation Protection Through Shrimp Trawl Area Closures Issue Paper,” motion by Commissioner Corbett to refer the issue paper to the Northern and Southern regional and Shellfish/Crustacean advisory committees for their input.**

**Second by Commissioner Blanton.**

Member	ROLL CALL VOTE				
	Aye	Nay	Abstain	Recuse	Absent
Bethea	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blanton	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Corbett	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gardner	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Huggins	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
McNeill	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rader	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Roller	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bizzell	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Motion passed unanimously.**

Rulemaking

Rulemaking Issue Update

MFC Counsel Christine Ryan deferred to DMF Rulemaking Coordinator Catherine Blum to provide the most recent information on the commission's rulemaking activities.

Rulemaking Update

DMF Rulemaking Coordinator Catherine Blum provided updates on two rulemaking cycles, including information about two subjects under development in the 2024-2025 Rulemaking Cycle. She also provided a preview of upcoming items in this cycle, as well as a brief update on the development of and deadlines for temporary rules pursuant to Session Law 2023-137, Section 6, for harvest reporting requirements.

**Motion by Commissioner Roller to select Option 3 as the MFC preferred management option and associated proposed language for rulemaking for “False Albacore Management” issue paper.**

**Second by Commissioner McNeill.**

Member	ROLL CALL VOTE				
	Aye	Nay	Abstain	Recuse	Absent
Bethea	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blanton	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Corbett	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gardner	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Huggins	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
McNeill	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rader	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Roller	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bizzell	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Motion passes 5-4.**

**Motion by Commissioner Blanton to select Option 2 as the MFC preferred management option and associated proposed language for rulemaking for “Simplify Pot Marking Requirements” issue paper.**

**Second by Commissioner Corbett.**

**Motion passes unanimously.**

Member	ROLL CALL VOTE				
	Aye	Nay	Abstain	Recused	Absent
Bethea	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blanton	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Corbett	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gardner	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Huggins	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
McNeill	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rader	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Roller	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bizzell	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Motion by Commissioner Corbett to request the Rules Review Commission waive the 210-day requirement for the Marine Fisheries Commission to submit a temporary rule to the Rules Review Commission based on the effective date of Session Law 2023-137, Section 6, per N.C.G.S. 150B-21.1(a2).**

**Second by Commissioner Huggins.**

**Motion passes unanimously.**

Member	ROLL CALL VOTE				
	Aye	Nay	Abstain	Recuse	Absent
Bethea	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blanton	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Corbett	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gardner	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Huggins	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
McNeill	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rader	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Roller	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bizzell	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Issues from Commissioners**

Commissioner Bizzell – asked the staff to ensure the bait shops understand what they can and cannot do relative to recent actions for striped mullet.

Commissioner Roller – asked to revisit the discussion about oyster leases at the next meeting, particularly the determination of significant recreational activity. He reiterated his interest in the forthcoming division white paper about federal permits and state requirements. Commissioner Roller also expressed interest in Atlantic bonito recreational bag limits, black drum limits, and any updated information on sheepshead.

Commissioner Blanton – requested further discussion regarding blue catfish in Albemarle Sound.

Commissioner McNeill asked to address the commission. He said after four years of service, it was time for him to step down from his role on the commission. Commissioner McNeill noted that the commission requires the full attention of its members, and due to his obligations to family, young children, and work, he is no longer able to dedicate the necessary time. Commissioner McNeill stated it has been an honor and privilege to serve and thanked Chairman Bizzell, Director Rawls, the commissioners, and DMF staff for their hard work.

## **Meeting Assignments and Preview of Agenda Items for Next Meeting – Jesse Bissette**

- The Division will continue to develop an issue paper regarding South Atlantic For-Hire permits.
- The Division will bring information on black drum regulations and changes that can be made to them.
- The Division will provide an update on sheepshead landings.
- The Division will provide a presentation on the shellfish lease program that includes information about the MFC rules and general statutes that govern lease approval in May.
- The Division will look at Atlantic Bonito landings and the potential for recreational bag limits.

The next scheduled business meeting is May 22-24, 2024, at the Beaufort Hotel in Beaufort. Agenda items are scheduled to include:

- Receive input from DEQ Secretary and legislative entities on the Striped Mullet FMP Amendment 2 and vote on final approval.
- Receive input from Northern, Southern, and Shellfish/Crustacean Advisory Committees regarding the SAV protection issue paper and vote on management options.
- Receive an update on the continued development of the Spotted Seatrout FMP Amendment 1, including input received at the Spotted Seatrout FMP AC workshop.
- Receive a presentation on the Blue Crab Stock Assessment Update, as well as potential adaptive management options.
- Present the 2024 Revision to the Estuarine Striped Bass FMP Amendment 2 documenting the harvest moratorium.
- Rulemaking:
  - Vote on final approval of permanent rules for the following subjects:
    - Data Collection and Harassment Prevention for the Conservation of Marine and Estuarine Resources;
    - Oyster Sanctuary Rule Changes; and
    - Conforming rule changes for the Shellfish Relay Program, Shellfish Leases and Franchises, and Shellfish Sanitation.

Having no further business to conduct, Chairman Bizzell adjourned the meeting at approximately 5 p.m.



NC Marine Fisheries Commission

# **Chairman's Report**

May 2024 Business Meeting

## Document

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State Ethics Education Reminder

2024 Annual Meeting Calendar

Committee Assignments

Regional and Standing Advisory  
Committee Reports



## EDUCATION REQUIREMENTS FOR PUBLIC SERVANTS

Public Servants must complete the Ethics and Lobbying Education program provided by the N.C. State Ethics Commission within **six months** of their election, appointment, or employment. We recommend that this be completed as soon as possible, but the training must be repeated every two years after the initial session.

Our new 90-minute on-demand online program is available on our website under the Education tab. For your convenience, here is the [link](#). The new program is compatible with portable devices such as phones and tablets.

Live webinar presentations are also offered every month. These presentations are 90 minutes in length and give the opportunity to ask questions of the speaker. Registration information for those can be found [here](#).

For questions or additional information concerning the Ethics Education requirements, please contact Tracey Powell at (919) 814-3600.

# Marine Fisheries Commission 2024 Calendar

*\*Dates are subject to change.\**

January						
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## 2024 MFC Meeting Dates

MFC Business Meetings	Northern Regional AC	Southern Regional AC
February 21-23	January 9	January 10
May 22-24	April 9	April 10
August 21-23	July 9	July 10
November 20-22	October 8	October 9

Shellfish/Crustacean Standing AC	Finfish Standing AC	Habitat and Water Quality Standing AC
January 11	January 16	January 17
April 11	April 16	April 17
July 11	July 16	July 17
October 10	October 15	October 16

## Calendar Key

	MFC		Northern Regional AC
	ASMFC		Southern Regional AC
	SAFMC		Shellfish/Crustacean Standing AC
	MAFMC		Finfish Standing AC
	State Holiday		Habitat and Water Quality Standing AC

# 2023 Committee Assignments for Marine Fisheries Commissioners

08/31/2023

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## **FINFISH ADVISORY COMMITTEE**

*Statutorily required standing committee comprised of commissioners and advisers that considers matters related to finfish.*

**Commissioners:** Tom Roller – co-chair, Mike Blanton – vice chair

**DMF Staff Lead:** Lee Paramore - [lee.paramore@deq.nc.gov](mailto:lee.paramore@deq.nc.gov)

**Meeting Frequency:** Can meet quarterly, depending on assignments from MFC

## **HABITAT AND WATER QUALITY ADVISORY COMMITTEE**

*Statutorily required standing committee comprised of commissioners and advisers that considers matters concerning habitat and water quality that may affect coastal fisheries resources.*

**Commissioners:** Doug Rader – chair, Sarah Gardner– vice chair

**DMF Staff Lead:** Anne Deaton - [anne.deaton@deq.nc.gov](mailto:anne.deaton@deq.nc.gov)

**Meeting Frequency:** Committee can meet quarterly, depending on assignments from MFC. CHPP Steering Committee can meet a couple of times a year.

## **SHELLFISH/CRUSTACEAN ADVISORY COMMITTEE**

*Statutorily required standing committee comprised of commissioners and advisers that considers matters concerning oysters, clams, scallops and other molluscan shellfish, shrimp and crabs.*

**Commissioners:** Mike Blanton – chair, Ryan Bethea – co-chair

**DMF Staff Lead:** Tina Moore - [tina.moore@deq.nc.gov](mailto:tina.moore@deq.nc.gov)

**Meeting Frequency:** Can meet quarterly, depending on assignments from MFC

## **CONSERVATION FUND COMMITTEE**

*Committee comprised of commissioners that makes recommendations to the MFC for administering funds to be used for marine and estuarine resources management, including education about the importance of conservation.*

**Commissioners:** Doug Rader - chair, and Robert McNeill

**DMF Staff Lead:** Steve Poland – [steve.poland@ncdenr.gov](mailto:steve.poland@ncdenr.gov)

**Meeting Frequency:** Meets as needed

## **LAW ENFORCEMENT AND CIVIL PENALTY COMMITTEE**

*Statutorily required committee comprised of commissioners that makes final agency decisions on civil penalty remission requests.*

**Commissioners:** Rob Bizzell - chair, Donald Huggins – co-chair

**DMF Staff Lead:** Col. Carter Witten – [carter.witten@deq.nc.gov](mailto:carter.witten@deq.nc.gov)

**Meeting Frequency:** Meets as needed

## **COASTAL RECREATIONAL FISHING LICENSE TRUST COMMITTEE**

*Committee consisting of the three recreational seats and the science seat to provide the DMF advice on the projects and grants issued using Coastal Recreational Fishing License trust funds.*

**Commissioners:** Robert McNeill– chair, Rob Bizzell, Tom Roller, and Doug Rader

**DMF Staff Lead:** Paula Farnell – [paula.farnell@deq.nc.gov](mailto:paula.farnell@deq.nc.gov)

**Meeting Frequency:** Meets as needed

## **NOMINATING COMMITTEE**

*Committee comprised of commissioners that makes recommendations to the MFC on at-large and obligatory nominees for the Mid- and South Atlantic Fishery Management Councils.*

**Commissioners:** Robert McNeill – chair, Tom Roller – vice chair, Donald Huggins, Sammy Corbett

**DMF Staff Lead:** Chris Batsavage - [chris.batsavage@deq.nc.gov](mailto:chris.batsavage@deq.nc.gov)

**Meeting Frequency:** Typically meets once a year

## **STANDARD COMMERCIAL FISHING LICENSE ELIGIBILITY BOARD**

*Statutorily required three-person board consisting of DEQ, DMF and MFC designees who apply eligibility criteria to determine whether an applicant is eligible for a SCFL.*

**Commission Designee:** Mike Blanton

**DMF Staff Lead:** Marine Patrol Capt. Garland Yopp – [garland.yopp@deq.nc.gov](mailto:garland.yopp@deq.nc.gov)

**Meeting Frequency:** Meets two to three times a year, could need to meet more often depending on volume of applications

## **N.C. COMMERCIAL FISHING RESOURCE FUND COMMITTEE**

*Committee comprised of commissioners that the commission has given authority to make funding decisions on projects to develop and support sustainable commercial fishing in the state.*

**Commissioners:** Sammy Corbett - chair, Mike Blanton - vice chair, Ryan Bethea

**DMF Staff Lead:** William Brantley – [william.brantley@deq.nc.gov](mailto:william.brantley@deq.nc.gov)

**Meeting Frequency:** Meets two to three times a year

## **WRC/MFC JOINT COMMITTEE ON DELINEATION OF FISHING WATERS**

*Committee formed to help integrate the work of the two commissions as they fulfill their statutory responsibilities to jointly determine the boundaries that define North Carolina's Inland, Coastal and Joint Fishing Waters as the agencies go through a statutorily defined periodic review of existing rules.*

**MFC Commissioners:** Rob Bizzell, Donald Huggins, Sarah Gardner

**DMF Staff Lead:** Anne Deaton - [anne.deaton@deq.nc.gov](mailto:anne.deaton@deq.nc.gov)

**Meeting Frequency:** Meets as needed

## **SHELLFISH CULTIVATION LEASE REVIEW COMMITTEE**

*Three-member committee formed to hear appeals of decisions of the Secretary regarding shellfish cultivation leases issued under G.S. 113-202.*

**MFC Commissioners:** Rob Bizzell

**DMF Staff Lead:**

**Meeting Frequency:** Meets as needed

## **COASTAL HABITAT PROTECTION PLAN STEERING COMMITTEE**

*The CHPP Steering Committee, which consists of two commissioners from the Marine Fisheries, Coastal Management and Environmental Management commissions reviews and approves the plan, recommendations, and implementation actions.*

**MFC Commissioners:** Doug Rader, Donald Huggins

**DMF Staff Lead:** Anne Deaton – [anne.deaton@deq.nc.gov](mailto:anne.deaton@deq.nc.gov)

**Meeting Frequency:** Meets as needed



ROY COOPER  
*Governor*

ELIZABETH S. BISER  
*Secretary*

KATHY B. RAWLS  
*Director*

May 1, 2024

**MEMORANDUM**

**TO:** Marine Fisheries Commission  
Northern Regional Advisory Committee

**FROM:** Lee Paramore, Northern District Manager  
Charlton Godwin, Biologist Supervisor  
Fisheries Management Section

**SUBJECT:** Meeting of the Marine Fisheries Commission's Northern Regional Advisory Committee, Apr. 9, 2024, to provide recommendations for management options for Marine Fisheries Commission consideration on protection of critical seagrass habitat through shrimp trawl area closures

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The Marine Fisheries Commission's (MFC) Northern Regional Advisory Committee (AC) held a meeting on Apr. 9, 2024, at the Dare County Commissioners Office, Dare County North Carolina. Advisory Committee members attended in person and online, public comment was received in-person and the meeting was streamed to the public not in attendance via YouTube.

The following Advisory Committee members were in attendance: Sara Winslow, Jonothan Worthington, Thomas Newman, Carl Hacker, Wayne Dunbar, Mellisa Clark, (Online – Roger Rulifson, Jamie Lane) (Absent – Everette Blake, Keith Bruno).

Division of Marine Fisheries (DMF) Staff: Chris Stewart, Steve Poland, Kathy Rawls, Lee Paramore, Tina Moore, Charlton Godwin, Debbie Manley, Chris Lee, Dan Zapf, Jason Rock, Charlie Deaton, Michelle Brodeur, Carter Witten.

Public: Jamie Parker Jr., Dale Beasley, Darrell Beasley, Devin Clark, Joseph W. Johnson, Marc Mitchum, Jamie Parigrer, Terry Beasley, David Wilson, Troy Boyd, Wesley Peale, Calvin Peale, Jenn Dixon, Acey Hiner, James Byrd, Robby Midgette, Naomi Midgette, Micha Sadler, Josh Gibbs, James Fletcher, Vernon Saddler, Stanley Equin, Daniel Midgette, Dana Beasley, Judy Reynolds, Barry Sawyer, Steve House, Gaither Midgette, John Silver, Russell Firth, Patricia Capps, Jamie Wescott, Brian Horsley, Rowdy Austin, Steve Albright, John Machie, Carson Beasley, Carson Creef, Luke Midgette, Sarah Gardner (MFC Commissioner), Jamie Rollensen. 35 viewers watched on YouTube.

The Northern Regional AC had eight members present at the start of the meeting and a quorum was met.

Northern Regional AC Chair Sara Winslow called the meeting to order at 6:02 p.m. The Chair opened the floor for the AC members and DMF staff to provide introductions.

## **APPROVAL OF THE AGENDA AND APPROVAL OF THE MINUTES**

**A motion was made to approve the agenda by Jon Worthington. Second by Carl Hacker. The motion passed without objection.**

**A motion was made to approve the minutes from the Northern Regional AC meeting held on Jan. 18, 2024. Motion by Jon Worthington to approve the minutes. Second by Thomas Newman. The motion passed without objection.**

## **PRESENTATION OF THE PROTECTION OF CRITICAL SEA GRASS HABITAT THROUGH SHRIMP TRAWL AREA CLOSURES**

Steve Poland, Section Chief, Fisheries Management provided introductory remarks for context of this meeting. The MFC instructed DMF to look at current submerged aquatic vegetation (SAV) layers on maps and bring the MFC options for shrimp trawl closures to protect SAV as part of the Shrimp FMP Amendment 2 adopted in 2022. Chris Stewart, lead biologist for shrimp, presented the issue paper provided to this AC tonight at the MFC in Feb. 2024 and the MFC passed a motion to bring the issue paper to the MFC Regional and Shellfish Crustacean Advisory Committees for further input. Adjustments to the closure options made based on stakeholder input after the issue paper was drafted were presented to the AC. This action was directed to DMF by the MFC and any potential closures would be implemented by proclamation through adaptive management adopted in Amendment 2 of the Shrimp FMP. The intent is to work collaboratively with stakeholders to balance protection of SAV and limit impacts to the shrimp trawl industry. The DMF is stretching the timeline to bring their recommendations to the MFC later this year from the initial May 2024 meeting. DMF will reach out to more stakeholders for direct input and encourage the public to reach out to participate in these smaller stakeholder group discussions.

Chris Stewart presented information on SAV overlays also known as the mosaic with the current open and closed areas to trawling and initial DMF lines to extend areas closed to shrimp trawling to protect SAV. He iterated several times in the presentation, this was the first step to allow for stakeholder input. He noted the adaptive management strategy was directly from the MFC in the Shrimp FMP Amendment 2 and was limited to addressing shrimp trawl impacts to SAV. He encouraged the public to reach out to the two other commissions who are responsible for the Coastal Habitat Protection Plan that deal more directly with water quality concerns. Information was provided on the importance of SAV as a critical habitat and impacts to this habitat from bottom-disturbing gears. Aerial imagery with sampling conducted randomly at selected sites was updated to identify the maximum known extent of SAV in NC. The original DMF options would close about 9.5% of the current open shrimp trawl areas and he went through the maps of the proposed line changes by region as well as alternative options not shown in the issue paper that would reduce the extent of the closed areas. The MFC Habitat and Water Quality Advisory Committee met in Jan. 2024 and endorsed the current recommendations only after further input from stakeholders and recommended a monitoring program for SAV.

After the presentation, the chair entertained questions and comments from AC members. Thomas Newman asked why the Division brought these SAV closure areas and presented them to the Habitat and Water Quality Committee and did not present them to the public prior to coming to the ACs so the public could provide input before the lines were drawn. Staff responded it was part of the MFC directive to identify issues pertaining to SAV, and the issue paper addresses the most current SAV mosaic data that is available. So through Amendment 2 many of these lines were drawn as a starting point to begin discussion. Thomas discussed that he listened to the habitat meeting and they were focused on the Southern region, and that's why we are getting so much negative feedback from the public. Many of these areas up in the Northern area of the state in Dare and Hyde counties that were shown tonight are in very shallow water where trawlers can't even get into. So why close them to trawling? A bigger concern is the damage done to SAV by skiffs and props. Staff responded that managing boats is outside the scope of the

Shrimp Fishery Management Plan. The Chair recognized that members Roger Rulifson and Jamie Lane are online. Wayne Dunbar asked what kind of proof exists that if we stopped trawling in these areas, it will actually help the SAV? In his experience, anytime he's seen shrimp trawlers go into an area it improves the bottom when they turn it over. Staff responded there is very little evidence that shrimp trawling increases productivity. Shrimp trawling has been shown to tear up SAV and turbidity from shrimp trawlers also threatens SAV by limiting light penetration. There are also areas that are stressed by other issues, such as wind and wave energy, but in those places, it would benefit the SAV to limit shrimp trawling. Mr. Dunbar mentioned additional stressors including skates. He sees this as another way of stabbing the public in the back. Thomas Newman asked why we were using proclamation authority to implement any closures instead of through the rule making process? It's my understanding that once these areas are closed they will not open back up. Staff responded that this is happening through Adaptive Management in Amendment 2, and the DMF will continue to monitor SAV.

Chair Winslow opened the floor to public comment.

### **PUBLIC COMMENT**

Robbie Midgette: I'm a shrimper and I don't want these lines because there are plenty of places with grass that are already closed. I'm not going to speak for the areas around Collington, Manns harbor, Wanchese area, Hyde County there are other boys here who will do that. But my son is here, I'm tenth generation in this community. Some people have been here since 1790 something, we've been shrimping these areas for years. The area around Stumpy Point, this is where we make our livelihood. These places are vital. I talked to Chris earlier and we talked about how the effort is down, some 28%, 38%, so effort is already down and there has been a big reduction in effort in the area. Can we pull up that map of Stumpy Point Chris? (Staff indicated it would take the rest of his public comment time, we could do it after). I looked in there, there is no grass in that Stumpy Point area, so you want to close more of it so there will be no grass? There are a lot of boys in here that work that area behind and just inside where you want to close that is vital to these folks. We've been shrimping there for generations and generations. Haul nets used to catch lots of fish in there but all that's closed too. Let the few folks that are left continue to work.

Chair Winslow asked staff to pull up the map of Stumpy Point Mr. Midgette talked about. The proposed area south of Stumpy point Bay. The map was pulled up to that area.

James Fletcher: Represents United National Fisherman's Association. What is the Latin name of the vegetation we are proposing to protect? Is it Eurasian milfoil? How many of the species are we proposing to protect that are native to America? The question is we are going after something the wrong way? How many of these are imported that the colonists brought over from England. Will any of this do away with the vibrio that is killing fisherman and threatening to kill tourists this year and is it going to clear that out of the water? If we were to allow the ground application of all wastewaters in the state of NC would it allow the seagrass to grow? We are going after it the wrong way. I'm 78 years old. The first meeting I went to he said the water was the wrong color in 1949. He was talking about the dioxins coming out of the plant at Plymouth. The state needs to look at where the problem is. Your parent agency DEQ should be asked to ground apply every drop of wastewater in the state. Address the problem. Address the specific types of vegetation you want to grow. Don't just say SAV. Half of it may have been imported in the last 300 years. Are any of you aware that the jets jettison jet fuel before they come back over this part of the sound? Are you interested in shrimp? How many billions of shrimp could we have in the sound with spawning facilities? We had the third largest aquaculture group in the world in the Sound. The DMF and Environment Natural Resources never took advantage of their expertise. How many places could raise SAV. Are we going at it the wrong way and are we listening to people that have an education from the University and have no common sense.



Dana Beasley: Commercial fishermen from the northern part of the beach. I can't speak on the southern areas and their grasses. But just looking at the numbers you said you wanted about 9.8% or close to 10% of the areas closed to trawling. Looking at 2022 numbers we landed 9.7 million pounds of shrimp, so that means you are going to take possibly 970,000 pounds of shrimp at a value of 2.23 million dollars. It just doesn't seem fair, simple as that. As Mr. Fletcher said I think the problem is fertilizer, golf courses, just overpopulation of the area in general. The aquatic grass isn't the problem, the people have made it the problem. The one thing that is endangered here we haven't talked about is the commercial fisherman. I believe there were close to 7,000 licenses in 1980, now there are roughly 6 maybe 5 thousand, and those are duplicative, and a lot of those are not used, so you might have 3,000 licenses landing what we catch. Everybody eats shrimp. If you cut our production out where is the shrimp going to come from? People aren't going to stop eating it. Where is it going to come from? China, Asia, Thailand? We should be promoting local seafood production.

Barry Sawyer: I run a charter boat in summer, gill net in spring and fall. Drag a shrimp net summer though fall when I'm not chartering, and I guide duck hunts in the winter. I do a lot of this in the small creeks, sounds, and rivers. So I'm out there all the time. A rational talking person would have to put at least a little bit of credit to what these people say that work on the water all their lives. What they say would have to be relevant as much as a study from 1981, by some biologist from who knows where. This sea grass thing or whatever you want to call it is a farce, it's not fact, not accurate, and basically a lie. I look at your proposed areas and I challenge you or anybody to take you to any of these areas in this part of the state and you will not find any seagrass. And I challenge you or anybody on the commission or anybody to let me take you to any of these areas on this end of the state that we tow a shrimp net and you will not find me with one blade of grass, none and I mean none, the salt water has killed it. Your biologist should have told you that. So basically, you want to stop the ones that make a living commercial shrimping, stop the guys that take hundreds of families on shrimping charters in the summer, and stop the recreational guy from going out and just catching a few shrimp to put in his freezer. You want to stop all that because of something that is not even there, it's unbelievable. We should not even be here, we should not even be having this meeting, wasting all my time your time whoever's time. Your goal can't be improving fish stocks because there's the most speckled trout there's ever been, the schools of drum down the inlet you run through them all the time, the flounder stocks incredible regardless of what you say, mullet I could go on and on. So we all know it's about getting the nets out of the water, but it doesn't matter to you people. A lot of the public and recreational people are starting to see through this stuff, it is uncalled for. Some of the public still believes it but an old timer said one time you can fool the fans but you can't fool the players. We know the truth. So in your advisory capacity go back and advise the commission that instead of pushing this untrue proposal do something that they are charged with, do something that would really help the fish stocks, and help people use what God's put here to improve theirs and other people's lives, not take it away from them. I'm done.

Steve House: Thank you I'm Dare County Commissioner Steve house I'm also chairman of the Dare County Working Water Commission and also chairman of the Oregon Inlet Task Force. I can tell you that a lot of the SAV situations around Dare County with potential shrimp closures should not happen at all. And I'll tell you why I believe this, number one: there's a definite reduction in shrimp trawling in North Carolina period. SAVs are there they've always been there with the Oregon Inlet Task Force we have the Miss Katie dredge a first ever public private partnership that keeps the Oregon Inlet open. Our permitting process was fine everything was going smooth no problems. All of a sudden at the very last minute, "oh wait a minute there's a buffer zone around the SAVs", that nobody even knew about. They weren't there, they weren't on any situational map, they weren't drawn anywhere on any of the permits, but all of a sudden, we've got SAVs to worry about. It took us 6 weeks to clear that subject up. And the SAVs that are around Oregon Inlet and around Walter's Slough which is one of the channels we will be dredging we've got documentation those SAVs have not grown and have not decreased. And there has been no shrimping in those waters for a very, very long time. And I would challenge your staff to look at the areas

that have been closed to shrimp trawling and have those SAVs changed, have they grown, have they diminished, and if there is a change, why is it, it's not shrimping. These guys behind me shrimp. And most of them have the small boats and not the big shrimp trawlers, and they go out and pull these sounds SAVs only grow to uh maybe four feet. The places you're planning on closing are deeper than that. The grass wouldn't even grow in there anyway. There are other areas to look at than just our shrimpers. And I agree with several of our people that have spoken before it's just another attempt to get nets out of the water. It's just another attempt to get shrimpers out of our Sounds. Look at the economic impact this would have. There's been no economic impact study on this. None. We're already down 23.4% from last year's numbers, trust me our Representatives in Raleigh are looking at those numbers. Thank you.

John Silver: my name is John Silver I run shrimping charters in the summertime and I'm a commercial shrimper for the rest of the year. So based on scientific data do you expect these shrimp trawl closures to result in SAV restoration? The answer is no. DMF cannot use scientific data to support a reasonable expectation of SAV restoration after closing these areas, because that data doesn't exist. There's no science to support the areas and closed bottom are showing an increase in SAV. I don't even think DMF staff can verify a slowing in the decrease of SAV in a closed bottom. We're talking about areas that have been closed for decades. If shrimping was a problem you would expect to see a direct correlation between a decrease in shrimping and an increase in SAV. In 1995 I heard Marine Fisheries paperwork indicated there were 1,080 shrimpers who made 23,890 trips. In 2022, 299 shrimpers who made 3,349 trips. With such a decrease in shrimping why is the SAV continuing to decrease? Like is said in DMF Amendment 2, I quote, in the absence of shrimp trawling SAV may still be covered by sediment and SAV growth may be impaired by poor water quality or wild disease. That's on page 63. There is no correlation. So what happens when you close these areas to shrimp and the grass continues to decrease as well? What's next crab pots, gill nets something else going to be disturbing in the bottom there? It's just like everything else you give an inch a mile is going to be taken. Thank you for your time

Jamie Parker Jr.: Before I get on the clock can they get the map up for the Roanoke Sound area please. I'm Jamie Parker Jr, I'm a commercial fisherman and a charter captain in the summertime months. I'll start out they were talking earlier about nothing on the bottom. Why does a farmer till his land? Why do you mow your grass? It gets overgrown and you end up with a bunch of trash in your yard. It's the same thing we're doing with nets on the bottom. So I run a charter business in the summertime taking people from all over the United States on shrimp and crab charters that is what I specialize in. We're running 100 to 150 charters in the summer months. Economic impact study, it's been said multiple times. How many, who's done it? It hasn't been done. Look at all the money that's being brought in by these charters to every business in town. You would completely shut me down with what you're showing in Roanoke Sound. I don't leave that area, I stay in that area, very seldomly I'll leave that area. You'd shut my whole business down. I have a son here that works for me all summer, he'd be out of a living. You know with everybody else, I'm not the only one, there's multiple people that that's never been factored in numbers. On the economic side, the mullet rule was just shut down because an economic impact study was never done. Small boat you could time this and areas that the grass is growing, they're unusable. I don't go in there where grass is. It will stop up your shrimp net and you can't pull a shrimp net in there. One of the options was just Roanoke Channel. Look at the transit boats that come through there all year so how am I going to get by with two boats going to pass each other and then I'm going to have to sit there and get a ticket because I'm 10 feet out of a channel. I mean it's just nonsense. You know where the grass was, the salt water killed it, are they going to build a wall north of Oregon Inlet and stop the salt water from killing the grass? You know things have changed since I was a kid. You know the saltwater's pushing further north. We're having to move to different areas because the saltwater's killing things and different things are moving further north. Crabs one year, fish one year depending on salinity they're going to move. The saltwater's pushing further north you know y'all acknowledge that the salt flush. You got oysters growing in places that they've never grown. You're opening oyster areas further north, why is everything else not moving north. Thank you.

Wesley Peele: my name is Wesley Peel I'm a commercial fisherman the whole pink area behind Roanoke Island that's my backyard, that's where I grew up. And the whole Manteo Bay has been nursery area for years and years and years and as of today no net has been drug in there for years and there is no grass in there now. Part of the problem is Manteo Bay was a nursery area and it's still a nursery area but there's 300,000 gallons of chlorinated water dumped in there daily, so let's talk about water quality, instead of trying to close stuff with grass. That chlorine water kills everything and there's no shrimp industry around Manteo. It is going downhill since that water has been dumped in there. I run a shrimp charter in the summertime. I try to teach people the ins of outs of how to catch seafood, crab pots, shrimp nets and I'm trying to be educational and tell people where seafood comes from. I stay all in this area here, most of it in the pink and never see grass there anyway. The green area there Manteo Reef it used to be grass there years ago but because of salt water now it's all gone. Just keep that in mind, please sir. Thank you.

Steve Albright: Good evening, I am Steve Albright, Kill Devil Hills, Colington Island. I'm one of the recreational fishermen that's been enjoying pulling the shrimp trawl in Kitty Hawk Bay for about 25 years. Wonderful way to raise the kids standing around the cull box and watching the sun go down. One of my favorite three weeks of the year and that's all we get. It's not like, maybe down in Wilmington they shrimp year round, it's a narrower window here I think. And the other thing that struck me and I did a little sketch for you, this pink line on here that shows the six foot depth in Kitty Hawk Bay and all down here which in your data says there's no SAV development in six foot or greater because of the sunlight penetration and turbidity. So that map shows probably 75% of the closure area is greater than a depth of six feet and you're never going to get any SAV there. The other thing that's interesting is Currituck Sound and Albemarle Sound have been closed for 30 or more years to trawling there's no great proliferation of SAV within that area, so I don't think you're going to get the benefit that you foresee. And as Jamie just said there's a number of party boats and other boats that are working if you put everybody into that channel you can have a mess. So then there is a group of RCGL licensed folks that enjoy shrimping up in this area. It's nice being around Colington no matter which way the wind's blowing you can get in the lee in a small boat and kind of do it safely. And like I said the drawings tonight were a little better than this map, and the other thing if I can clarify, is that we're getting another season right because it's got pushed to August? So no closures until after this year that is kind of what I heard? It's not going to the May meeting so there's going to be a proclamation that shuts us down this year. Steve Poland: no there's no action until after August and there's no timeline on action, but it won't go to the commission till after August.

Carson Creef: I am your newly elected Dare County Commissioner Carson Creef. Your mind's already made up sir and I'm aware of that here I would like to talk about the general assembly 1997 session which the marine fisheries board was put into place and the opening statement was "whereas the state of North Carolina has one of the most diverse Fisheries in the United States and whereas the general assembly recognizes that commercial fishermen perform an essential function by providing wholesome food for citizens of the state and thereby properly earn a livelihood and whereas the general assembly recognizes the economic contribution important heritage and traditional full-time and part-time commercial fishing and whereas the general assembly recognizes that for many citizens fishing is an important recreational activity and that recreational fish enjoyment satisfies a need and recognizes the importance of providing plentiful fishery resources to maintain and enhanced tourism as a major contributor to the economy of the state. That was the original Board of marine fisheries goal. So if I'm speaking to the board of marine fisheries then why is our new vision statement as of this year "as a model fisheries management agency the North Carolina Division of Marine Fisheries ensures healthy sustainable marine and estuarine fisheries and habitats through management decisions based on sound data and objective analysis. Sound data from 1981? Monitors and evaluates coastal waters for the safe harvest of mollusks and shellfish and recreational uses to safeguard the public and the health of shellfish consumers and recreational bathers. Recreational bathers that's a little bit different than the commercial fishing that they spoke of in 97?

Provides excellent public service by motivated employees in an open and healthy working environment. Views public participation as essential for successful management of North Carolina's Fisheries resources and enforces marine fisheries statutes and laws. If we go back to the North Carolina Constitution, our declaration, our original Bill of Rights in section 38 says right to hunt and fish and harvest wildlife. The right of the people to hunt fish and harvest wildlife is a valued part of the state's heritage and shall be forever, forever, preserved for the public good. The people have a right, including the right to use traditional methods, to hunt fish and harvest wildlife subject only to laws enacted by the general assembly. Only subjected to laws enacted by the general assembly. You don't have to wait another disqualification for office is the following person shall be disqualified for office: first and foremost any person who shall deny the being of an almighty God. OSHA NOAA here we go, in 2016 the National Oceanic and Atmospheric Administration established the US seafood import monitoring program SIMP. Through import monitoring program simp OSHA's analysis found that in 2022 the United States imported over \$30 billion worth of seafood from 150 countries and the top contributor was China. Only about 13% of the total volume of U.S. imports from China were covered by SIMP and subject to documentation. Also our second biggest contributor to imports was Russia nearly exported a billion dollars of seafood to the United States and only 48% were covered. I will. My problem is they are made up, and that's fantastic, but those are Governor appointed positions and when Mark Robinson wins election in 2024 I would ask that the governor completely redo and reappoint the marine fisheries board to serve the original purpose that was put in place in 1997 by the general assembly, fire all of these biologists.

Ralph Craddock: A lot of pink areas and I had some questions about the water depth and where this stuff grows. And it's kind of been answered was it four foot, six foot, six foot or less, six foot and it can grow in slightly deeper water depending on water clarity. Okay but anyway if I'm understanding correctly these are places that you took from 1981 to now, I guess maybe did you go there and check that grass or was it satellite pictures where eel grass had shifted and moved around and settled in deeper water how did you sample that in 1981? DMF staff response: so they go out a group of collaborators APNEP staff, DMF staff, University staff, NOAA staff they ground truth the aerial photographs they take, they look at it under different resolution and then these lines were developed based on that entry. Mr. Craddock: and how many of these is in six foot or I mean you take that shoreline right there I mean you pretty well got to touch the bank in places so I mean you just took and magically drew a line obviously, correct? Staff: these lines line up with the channel markers. Ralph Craddock: Channel markers what I don't understand, there are no damn channel markers over there on left side of Roanoke Island. Tell me where a channel marker is right there back of the airport, there's one out there in the middle of the sound there's one up there above the bridge they're in the middle of the sound I don't know what channel markers you're talking about maybe they magically appeared last night I didn't see it. But anyway, there's a lot of it that yall got to take back to the commission and he pretty well summed it up, I had a lot to put into it, but he can't control nothing but the trawl boats is his exact words. Well if you go down and look at those areas where grass is, there's a kazillion damn outboard motors that goes through that grass. It looks like a man went down there and prepped it to plant corn. There's grass then no grass about the size of a damn prop. Where is this going to lead to? Your opening up a big can of worms for nothing that they can back up, none of the science they come up with. Whether it be fishing, no flounders, holy crap they're thicker than they've ever been. But what I'm saying is you take Croatan Sound is deeper than six foot in most places. You're just cutting the people out because you got jurisdiction over a trawl boat you set right here, stood right here and said that's the only people we can control but if you close this, when it's going to go to your crab potters but when you pull the pot off the bottom I'm sorry but it's going to disturb the bottom. Your gillnet but you're trying to take them out anyway. You need to go tell the MFC that this advisory can't accept what they're trying to put out.

Micah Daniels: Good evening I just want to thank everybody for being here. I want to thank this group for showing up. It just means so much to me that our community is here and that you are taking the time to listen to all the concerns that are being expressed. I would like to say to you I really genuinely believe there's a water quality problem and I thought at one point in your presentation you said that we are going

to address water quality and I hope that's a commitment of this group because we have a huge water quality problem. And I understand this is really complicated, I mean I don't think it's that complicated, but it's a lot involved what can be managed and what cannot. But I'm actually not even a shrimper, I'm just here because I'm well I'm in the seafood industry, but I'm a consumer I am concerned about the attack on the food producers and this group is a whole group of people who produce food for America. And so I just want to say as a consumer when these people can't harvest product then I can't access that product and that's a concern for me. I don't personally shrimp and I cannot go harvest shrimp myself and that leaves me as some people have talked about tonight about the imported shrimp. So as we said we're not going to change the demand of shrimp but we're not going to harvest shrimp and we're going to close areas off our coast because we're concerned about the ecological foot print, the footprint right where we're going to be like here's our Global footprint, our carbon footprint we're going to protect it here and then we're going to fly it in or import it in from Indonesia and from foreign countries and China and Russia. So is that the same I mean it's really hard for me with that Global footprint. We're going to protect the grass here and to protect the grass here we will fly in more shrimp or whatever which is really bad for the environment just as bad for the environment. And my other issue is it's like just on the basis of health. I think this is correct in 2019 Louisiana declared by law they would not stop shrimp trawling in the state of Louisiana not on the basis of economic but on the basis of health. These shrimp have banned antibiotics. The amount of chemicals that are put on them and the lack of. I mean it's just harmful so what we're saying is like Hey we're going to protect we already know we got a huge water quality problem we're going to aim for the grass we're going to aim for this small group of trawlers and I want to say and I mean this so respectfully this is not a young group like you're taking out a group. I mean this is not a group of 20 year olds, this is people that's been their livelihood they have they have managed the water and so I just want to say as a consumer I want their food. I want what they produce. And when you if we choose to eliminate these people then I don't have access to that food and I am just one person here but there are hundreds, thousands, millions of people who eat the food that they produce and I just want to say please consider the consumers. Thank you.

David Wilson: I got some questions for Mr. Stewart. first question: what problem have you seen for us to be in this meeting? Have you found a problem? Do you have a problem for us to be here at this meeting? Could you and why did you not bring any information showing us the problem? Okay where's the information papers that was not up there for nobody? We got to get on the website? Oh my goodness you come to a meeting without being prepared. Okay here's my next question who's behind it? What brought this about? Okay they brought it about for what reason? You told me you just told me you ain't got information on the problem tell me where the information of the problem is? Okay so what is problem back to seagrass. Where is the problem with the seagrass that we got right now it's all over. Wait a minute is there a problem right now is there a problem right now with our seagrass? What problem is there with seagrass? Is it there's not enough of it? Is that what you're telling me we have lost seagrass in certain areas okay from what hurricanes? Okay how about ducks? If you're driving a boat how about how about boats? Do you have proof that shrimpers done it? We know that these areas are unprotected. That doesn't make any difference, I want to know if they've been harassed by shrimpers. So basically what you're telling me is you don't have a problem they are unprotected so you've got to do something whether there's a problem or not. I would let the Lord protect the seagrass because I have faith and trust in him. I mean he's been doing it since he created it and what makes you better than he is? I'm just saying I know you're the speaker, I know you're just the speaker, but the people you work for common human beings that are selfish and self-righteous and this committee here, find a problem before you try to resolve it.

## **SHRIMP FMP AMENDMENT 2 – ADAPTIVE MANAGEMENT – PROTECTION OF CRITICAL SEA GRASS HABITAT THROUGH SHRIMP TRAWL AREA CLOSURES**

The Chair now opened the floor to the Advisory Committee on further questions for staff and discussion. Jon Worthington said he's heard water quality mentioned several times. I've also heard it said water quality is not under our purview. Can we get with the agencies that do have control over water quality and

work with them to get at some of the root causes? Staff: Right now they're working on the water standards so that is a step in the right direction when that gets incorporated it can offer other protections. I would like to encourage members of these ACs, as well as Commissioners, to go to the EMC, the CRC, and all these other commissions and tell them we need their support, we are trying to do it on this end by protecting areas based on direct and indirect impacts from fishery related gears, now we need others to step up. I would offer that as a suggestion, they're working on these different standards and there's other standards in place as far as dredge and fill. This is our chance to do it in the purview of the shrimp FMP. Thomas Newman talked about the area south of Stumpy Point and noted the grass in that area is right up on the shore, so trawlers can't work there anyway because it's just too shallow and close to shore. They work farther out so turbidity shouldn't be a problem. So why close these areas if the trawlers can't work there anyway? Staff answered to create a buffer to protect the SAV that is there. Newman went on to say DMF has shown data that over a third of Hyde county is going to be underwater 30 to 40 years anyway, and if that's the case you're going to have the most SAV on the east coast in 30 years, so why are we closing these huge areas for just little fingers of grass that may not be there as sea level rises. Discussion turned to asking about using a method that would not create such a huge buffer, such as a distance from shore rule. Staff pointed out we were open to other options and were here looking for feedback. The chair pointed out that they have heard a lot of comments about the 6 ft contour, but that creates an enforceability problem. Plus that 6 ft contour can change with tides. Staff pointed out that's why we tried to go with straight lines where possible to make it easier for enforcement but also for fishermen to know where the line is. Wayne Dunbar pointed out that the 6 ft contour goes way out into parts of the sound in some locations up here, and that might take up a lot of bottom. Staff also mentioned distance from shores could be an option, but like our nursery areas the best way to create these lines is usually using points and straight lines off bays and landmarks. Jamie Lane was wondering in the Albemarle Sound, specifically the end where she works near the Albemarle Sound Bridge, that it's been closed to trawling since around the 70s, can we quantify the difference in SAV then versus now to quantify what the difference is? Staff mentioned APNEP has a series of papers out here they looked at the difference between surveys possibly in 2006 and then 2012 and 2013 (not 100% sure of the dates) that's available online, but could not quote those numbers to you right now. Jamie: from my perspective fishing that area regularly for the last almost 20 years, there is no SAV and there's been no trawling for about 50 years and there was quantifiable SAV at least in the 1990s, so from my understanding it couldn't be the trawlers who have destroyed the SAV in Albemarle Sound. We can't change hurricanes that's mother nature but you always say that water quality is outside of your purview so we just shut down fishing, we shut down trawling, we take away nets, we close the Neuse for the CCA whim, and I think this is just another way of them trying to take another chunk out of the commercial industry. But there's no scientific data to back up the closure in the Neuse and there definitely doesn't appear to be any data scientifically that you can quantifiably say that shrimp trawling is killing the SAV. Staff indicated there's lots of data out there showing that we've gained and lost SAV in certain areas, and we can't always put our finger on exactly why we lost it or gained it, as I mentioned at the start of the presentation. There are some data gaps we just can't put our finger on, but we can prevent it from getting impacted by direct disturbance from shrimp trawls and indirect sedimentation and turbidity changes and that's what we can do inside of this plan. Jamie Lane: Since we can't say that the shrimp trawling is directly without a doubt the reason SAV is gone, because we can see in my area of the Albemarle Sound it's gone over the last 30 years with no trawling over the last 50 years, so I would say until we can prove it without a doubt that we should not take any of these options. I would like to make a motion that we take none of these options take them all off the table and until we can 100% say its shrimping that causes SAV loss I think it should be tabled. I don't know if I can make that motion but I am requesting that. The chair asked Jamie if she would repeat the motion to make sure the AC members heard it.

**Motion by Jamie Lane: I would like to make the motion that we as an advisory committee do not accept any of the options on the table and furthermore that we wouldn't consider any options to close shrimp trawling or SAV areas to shrimp trawling until we can 100% without a doubt quantify**

**that they're the one causing the loss of SAV. Second by Thomas Newman. The motion passed unanimously.**

The Chair asked if there was any further discussion or information the AC wanted to bring back to the MFC. Thomas Newman: I would just like to comment to the division, to please before you draw lines, talk to us, talk to your constituents that are paying your salary. We pay taxes, you are employees of the state. Jon Worthington: To staff who presented this, somebody did a disservice to you. There should have been a procedure followed, it's like coming in here from the governor asking can we help you? We have a solution in search of a problem. I'm going to go with anything in marine fisheries if it comes out of the puzzle palace in Raleigh or Morehead, you got to have an economic impact, I mean commissioner House touched on that he's heard me say it every time I've been up here, you got to have economic impact you got to show us economic impact you got to show us who's guilty of doing what it is. I use the analogy of a deer getting shot by a neighbor and I'm getting blamed for it, we haven't proven or anybody hasn't proven that the shrimpers are causing all the decline in seagrass. I mean we got environmental factors, we got climate change we got wildlife, a whole host of other things. And the biggest thing is when you do something like this from coming from Raleigh which I mean we're all paid for and, get with the stakeholders and say, hey what can we live with, because you may be closing something up here and it's not even on the board and you can come in here and just swap out a whole thing we're not going to go for that. Why don't I go to the point, the first thing the governor closes. We need to look at these guys that's been talking about less effort tonight so there's less trips so and theoretically you I'm think as Mr. Midgette said something about one of the educated guys, well that's me, but it did take my common sense out of my head when I was at University. You got less effort we should have some correlation to improvement in the environment or the grass. That's what I want, I want like you said, we need more open communication I hate the word transparency, but we need more open honest communication, so you don't have a triangle here where everybody's looking at each other and we got our arms crossed and we, I mean these guys here are trying to make a living. I worked in the government where I signed the back of the check, I had my own business where I signed it on the front. And what they want, they want to be heard and they want to be respected. And I think over the years from what I've seen that hasn't been happening from Raleigh or Morehead. And that's all I got to say. Chair: I think pretty much everybody who spoke tonight mentioned water quality or habitat or fertilizer or run off but you know when the CHPP habitat protection plan was developed originally and when the rewrite was done I think it was last year and the push was made to try to get the Environmental Management Commission the Coastal Resources Commission and those agencies essentially to step up to the plate and kind of work towards a collaborative effort to make habitat better the people of the state of North Carolina are the ones that could have made that difference. As you said essentially, we've been waiting around for this to have some teeth in it for years. SAV is protected by the Coastal Resources Commission, essentially it cannot be destroyed or impacted. So there are a lot of things that need to be moving forward simultaneously for the overall good of the environment. and I think Director Rawls would like to say a few things. Director Rawls: Thank you, madam chair. I just wanted to take a couple of seconds to speak to both of your comments relative to the Division working backwards on this issue. The Division is working on this issue exactly as the Marine Fisheries Commission has directed us to. This is not a Chris issue, this is not a Steve issue, this is a Marine Fisheries Commission Fishery Management Plan issue, and that's what we're doing here. We have done exactly what the Marine Fisheries Commission asked us to do. This is what working with the stakeholders looks like and we talked about the meeting that we had last night to work with some stakeholders. We had some intentions to maybe have some additional meetings with stakeholders but I'm going to be rethinking that. This is what that looks like for us. These are the directions that we got, this is what we're doing. And if your recommendation is you don't want any closures, same for the public if that's the recommendation of the public, then we can absolutely take that back to the Marine Fisheries Commission and we will, and that will be our recommendation that you don't want any additional closures. And that is a fine recommendation. But we are doing exactly what this commission addressed us to do in the Fishery Management Plan and that is what we work by. We do not just sit around our offices

and come up with these things to come to you with. And we absolutely do not sit around our offices and come out here to close fisherman down. That is not what we do. Our job as an agency is to collect data. That is our job. Our job is to collect the science, put it together and take it to the commission. That is our job. And the Commissioners, they have the tough job, we don't really have the hardest job. They have the tough job of making the decisions. That's where the decisions come from, from the Marine Fisheries Commission. So we are trying to work on this issue we are trying to work with the stakeholders so that we can take the best management recommendation back to the Marine Fisheries that we possibly can, because they then are the ones that have to make the decisions on this. Thomas Newman: I understand that's the directive. My biggest concern and the public's biggest concern is that these lines were drawn and as soon as you first presented them, light bulbs are going off in everybody's head and everybody is scared to death they are going to lose everything they got when you draw these lines. I personally feel like the Division should have reached out and said, hey these are our protected areas what can we do with them? If you'll put your feet on the ground in Parched Corn Bay or the north side of Manteo and guys go look at that grass, where grass is supposed to be, you might chuckle because it isn't deep enough for boats to work. I mean it's 18 inches in the biggest place. These guys are scared of that you know. Director Rawls: So and I absolutely appreciate those comments we have talked, we talked about this even internally this morning and some one of the staff said I don't remember who it was made the comment that perhaps we should have just started by presenting the mosaics, the SAV mosaics and go from there and say okay here's where the SAV is, let's talk about these lines. We learned a lot yesterday meeting with those few shrimpers down in core sound about the area and the areas that are valuable to them why and the fact that they don't feel like they can move to other areas. We absolutely learned that in a very small group. And we absolutely appreciated those comments, but what we say over and over again, is that our recommendations, and all division recommendations don't naturally just come at first. Different directors are different. Some directors don't want the division to have to do it till late in the process. I like our recommendations to come out in the very beginning so that people know what we're thinking and that they know where we're starting from. Our recommendations we say it over and over they are just drafts right out of the gate. They are drafts we can change them, we will change them. We have. Striped mullet is a perfect example of us listening to the stakeholders, listening to the fishermen and trying to come to some sort of agreement where we can work together, and this was no different. I recognize that these area closures can be, to your point, can scare people, and that is not our intent. Our intent is just to get what we're thinking out there so that people have something to start with and that was our intent with putting these out here. And again it is not our decision, and it is absolutely not this guy's decision, but this is what you know this is a lot of times what kind of reception we get. And I get, I get, that y'all are upset, but respect goes both ways. And that is something that I just want to leave on the table here. But we are doing our best to work on this issue, it's a tough issue and the Marine Fisheries Commission is going to struggle with this issue. They did when we did Amendment 2 it was a struggle. This is going to be a struggle for them we know that, so we are even more conscious of what we carry back to committee. The message from the committee, the public has been documented it's been recorded we've taken it down we'll absolutely take it back to them and that'll be a piece of the information that they use to make their decision. Thomas Newman: And I greatly appreciate you sitting down with the stakeholders and that's a super important thing but you could skip all these angry people by walking in the Manteo office say hey this is a draft we put together. We got 700 miles of coastline nothing is the same you know up here versus what it is down in the southern area and that's all I'm asking. It's just you know you ain't got to show it that way, you know all everywhere at once, but you know when you put these things out there I mean it's on public record and that's what I was scared of when we came here. I was like man these lines are already drawn I said they've already presented to MFC so we can't change anything on that. That's how I came in here and when I saw lines were changed here this evening that weren't on the original documents that went out, I thought I guess they're out working on changing the lines. Director Rawls: We're always working on changing our recommendations and again our recommendations come out in the beginning so that people know what we're thinking. Thomas Newman: But this was outside the FMP process that scared me because usually when we go through the FMP process stuff is sent to the MFC and then we get



some comments from the public and then next meeting that's where get hammered next month at MFC if we didn't go out here and fight this tooth and nail. Director Rawls: And I understand that because this is an Adaptive Management piece and really quite frankly, the marine fisheries commission adopted a fishery management plan in February of 2022, and it just took us a little bit of time to get to this so it seemed disjointed but this absolutely came directly from the fishery management plan and very specific to the motion in the plan was that we work with the habitat and water quality committee and stakeholders and then come back to them, so that was the specific guidance that was provided in the Marine Fisheries Commission's plan, and our job as an agency is to do exactly what that plan tells us to do. And so that's exactly what we've done. So I thank you Madam Chair for allowing to make comments. Chair: thank you Director. Any other issues from the Advisory Committee? Lee do you have any kind of update relative to the Marine Fisheries Commission? Lee Paramore: the Chair already covered the fact that you were given information in your packet about the Marine Fisheries Commission update of the last meeting and the action that was taken at Marine Fisheries Committee meeting in February. The Marine fisheries commission will meet again in May, the 22<sup>nd</sup> through 24<sup>th</sup>, in Beaufort. The agenda items will be coming out shortly. One of the things that'll be on the agenda that probably will interest you is the Striped Mullet Fishery Management Plan that you guys reviewed at your previous meeting, they'll be voting possibly to adopt that plan at the May meeting, so that's when that'll happen. Spotted Seatrout we are working on the FMP for that. There's an AC Workshop it's going to be April 22<sup>nd</sup> through the 24<sup>th</sup> that's going to be in New Bern. We don't allow public comment of that but it's open to the public to attend and listen. There's going to be an FMP Advisory Committee that's already been appointed and that'll be like a two and a half day meeting and they'll be reviewing the draft FMP, going through the issue papers, and that'll be the first step in that process of beginning to put that together. That could potentially come back to you in October so that'll probably be the next agenda item that I know for sure is on the slate to come back to the advisory committees will be the spotted seatrout draft plan. And that's what I have unless you guys have a question on the update. And you are always welcome to reach out to me or Charlton with any questions, we are the staff leads for the Northern AC.

#### **ISSUES FROM AC MEMBERS**

No issues were provided by the Advisory Committee.

Jon Worthington made a motion to adjourn, seconded by Carl Hacker. Passed unanimously. The meeting ended at 8:03 p.m.



ROY COOPER  
*Governor*

ELIZABETH S. BISER  
*Secretary*

KATHY B. RAWLS  
*Director*

April 11, 2024

**MEMORANDUM**

**TO:** Marine Fisheries Commission  
Southern Regional Advisory Committee

**FROM:** Tina Moore, Southern District Manager  
Chris Stewart, Biologist Supervisor  
Fisheries Management Section

**SUBJECT:** Meeting of the Marine Fisheries Commission's Southern Regional Advisory Committee, Apr. 10, 2024, to provide recommendations for management options for Marine Fisheries Commission consideration on protection of critical seagrass habitat through shrimp trawl area closure

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The Marine Fisheries Commission's (MFC) Southern Regional Advisory Committee (AC) held a meeting on Apr. 10, 2024, at the N.C. Division of Marine Fisheries, Central District Office, Morehead City, North Carolina. Advisory Committee members attended in person, public comment was received in-person and the meeting was streamed to the public not in attendance via YouTube.

The following Advisory Committee members were in attendance: Fred Scharf, Tom Smith, Jason Fowler, Jeremy Skinner, Tim Wilson, Pam Morris, Ken Siegler, Michael Yates (Absent – Sam Boyce, Jeff Harrell, and Truby Proctor).

Division of Marine Fisheries (DMF) Staff: Chris Stewart, Tina Moore, Kathy Rawls, Jeff Dobbs, Jason Rock, Dan Zapf, Garland Yopp, Ashley Bishop, Carter Witten, Debbie Manley, Michelle Brodeur, Brooke Anderson, Chloe Dorian, Lucas Pensinger, Charlie Deaton, and Mike Loeffler

Public: Glenn Skinner, Richard Wade, Thomas Smith, Monica Smith, Robert Buckley, Mike Lewis, Jared Davis, C. R. Frederick, Michael Cowdrey, Chris Elkins, Wesley Potter, Woody Daughetry, Lee Edens, Ivey Edens, Cayla Camm, Ike Edens, Gracie Edens, Brady Hattfield, Shane Griffin, Temple S. Chadwick, Kathy Wilson, Landon Merkley, Camryn Rose, Stephen Smith, Larry Mizelle, Justin Mizelle, Cayton Daniels, Sherri Davis, Stevie Davis, Frances Ann Moran Griffield, John McQuaid, Allyn Powell. Thirty-five viewers watched on YouTube.

The Southern Regional AC had eight members present at the start of the meeting and a quorum was met.

Southern Regional AC Chair Fred Scharf called the meeting to order at 6:03 p.m. The Chair opened the floor for the AC members and DMF staff to provide introductions.

**APPROVAL OF THE AGENDA AND APPROVAL OF THE MINUTES**

**A motion was made to approve the agenda by Tom Smith. Second by Jason Fowler. The motion passed without objection.**

**A motion was made to approve the minutes from the Southern Regional AC meeting held on Jan. 10, 2024. Motion by Jason Fowler to approve the minutes. Second by Tom Smith. The motion passed without objection.**

**PRESENTATION OF THE PROTECTION OF CRITICAL SEA GRASS HABITAT THROUGH SHRIMP TRAWL AREA CLOSURES**

Steve Poland, Section Chief, Fisheries Management provided introductory remarks for context of this meeting. The MFC instructed DMF to look at current SAV layers on maps and bring the MFC options for shrimp trawls closures to protect SAV as part of the Shrimp FMP Amendment 2 adopted in 2022. Chris Stewart, lead biologist for shrimp, presented the issue paper provide to this AC tonight at the MFC in Feb. 2024 and the MFC passed a motion to bring the issue paper to the MFC regionals and Shellfish Crustacean ACs for further input. Adjustments to the closure options that will be presented tonight but are not shown in the issue paper. This action was directed to DMF by the MFC, and any closures would be implemented by proclamation through adaptive management adopted in Amendment 2 of the Shrimp FMP. The intent is to work collaboratively with stakeholders to balance protection of SAV and limit impacts to the shrimp trawl industry. The DMF is stretching the timeline to bring their recommendations to the MFC later this year from the initial May 2024 meeting. DMF will reach out to more stakeholders for direct input and encourage the public to reach out to participate in these smaller stakeholder group discussions.

Chris Stewart presented information on submerged aquatic vegetation (SAV) overlays also known as the SAV mosaic with the current open and closed areas to trawling and initial DMF lines to extend areas closed to shrimp trawling to protect SAV. He iterated several times in the presentation, this was the first step to allow for stakeholder input and that the proposed closures were intended as a starting point to get discussion going. He noted the adaptive management strategy was directly from the MFC in the Shrimp FMP Amendment 2 and limited to addressing shrimp trawls impacts to SAV. He encouraged the public to reach out to the two other commissions who are responsible for the Coastal Habitat Protection Plan (CHPP) that deal more directly with water quality concerns. Information was provided on the importance of SAV as a critical habitat and impacts to this habitat from bottom-disturbing gears. Aerial imagery with sampling conducted randomly at sites was updated to identify the maximum known extent of SAV in NC from 1981-2021. The original DMF options would close about 9.5% of the current open shrimp trawl areas and he went through the maps of the proposed line changes by region as well as alternative options not shown in the issue paper that would reduce the extent of the closed areas. The MFC Habitat and Water Quality Advisory Committee met in Jan. 2024 and endorsed the current recommendations only after further input from stakeholders and recommended a monitoring program for SAV.

After the presentation questions and comments were brought forwarded from AC members. Tim Willis asked whether other states with similar estuaries have created a similar plan? Stewart responded NC is unique in allowing trawling in inside waters. The closest is Chandlier Bay, LA but they are limited much more than in our inside waters and Florida fines people for anchoring in SAV. Ken Siegler asked who is trawling in 18 inches of water, too shallow, so why make a law where they can't trawl anyways. Stewart added that the turbidity plume is also part of the issue with bottom disturbing gear near SAV. Seigler asked what impact does turbidity from barges going down the IWW have on SAV? Stewart responded navigational channels are outside of the scope of the Shrimp FMP. Seigler indicated that the proposed rules would be detrimental to smaller vessels (18 ft). Stewart explained the variables behind how long sediment plumes stay in the water column. Pam Morris stated that while the SAV mosaic provides the historical extent of SAV, it does not accurately depict where it is today. Morris further noted that she is seeing SAV beds becoming smaller and breaking apart in areas already closed to trawling. There is lack of science to show the trawlers are directly impacting SAV. Core Sound is shallow, and winds cause more turbidity than trawls. Stewart noted that the Albemarle-Pamlico National Estuary Partnership (APNEP) monitoring data has shown a net loss of SAV in NC and pointed to some of their recent publications that document the how

SAV has changed between surveys (2006-2007 vs. 2013). Stewart further noted that mapping data can be viewed for each mapping period but cautioned that the absence of SAV in some of the imagery is due to the area not being monitored as sampling occurs on a rotational schedule. Regarding the loss of SAV and continuous SAV beds, Stewart indicated that this is an indicator that these habitats are stressed and need further protection to aid in their recovery. Morris said there are multiple impacts causing the decline of SAV, including development along the coast, propeller strikes on shallow beds, and dredging channels by the park service. Morris added that creating new shrimp trawl management is not needed since shrimp trawlers don't work in areas where SAV is found and only burden enforcement in other areas. Seigler iterated trawling is not the main problem for the grass beds.

Chair Scharf called a five-minute break before starting public comment.

### **PUBLIC COMMENT**

Glenn Skinner – NC Fisheries Association (NCFA), Executive Director and commercial fisherman. We discussed at the NCFA board and voted to oppose all shrimp trawl closures. None of the closures are necessary because there is nothing to suggest that trawls are impacting SAV. Based on the Rules Review Commission has standards to determine these closures are justified or necessary through the Director's proclamation authority. They must show these closures are reasonably necessary to achieve the goal of saving SAV. When I looked up the definition of necessary the word food came up, the trawl fishermen produce food and essential workers to provide food. Therefore, these closures are arbitrary and ask for the AC to oppose the recommendations by the DMF.

Richard Wade – Commercial Fisherman with a 73-foot trawler. These closures will not affect me because I have a big vessel this will hurt the small boats. Has anyone looked at whether the already closed areas see if SAV has improved or declined? You need to look at areas already closed to trawling to verify if SAV has improved. In 1986 DMF Director Hogarth called fishermen ignorant, when we had a thriving industry. Science based management has ruined the trawling industry and the ecosystem.

Monica Smith – Represents Miss Gina's Seafood, Beaufort. A small group of fishermen and I met with the Director and staff earlier this week and I prepared a presentation I would be happy to share with you. I understand the importance of SAV, but there is a lack of science. We are not here to negotiate, we are here to fight, and I have five points to make. 1.) DMF cannot use scientific data to support closing areas that support SAV. Seventy-seven percent of the SAV mapped is already behind closed lines to trawling. 2.) In 1985 there were over 1,000 shrimpers and now is a fraction of fishermen in the industry. 3.) There is no scientific data to show what buffers should be. 4.) There is no economic analysis to show the impact these proposed closures will do to the industry. 5.) Shrimping in NC has a significant cultural and heritage value that is not considered. I request the AC to vote against these closures. More lines do not protect the SAV and DMF cannot definitively say the closures will improve SAV.

Thomas Smith – Represents Miss Gina's Seafood, Beaufort. I grew up as a kid in Core Sound. I had a skiff that I used to catch seafood and it supported me through college. Closing these areas will directly impact my income. I request the AC to deny the proposed closures until science catches up.

Robert Buckley – Harkers Island. I am not a fisherman, but I have come to this area for over twenty years to visit and bought property in 2019 that looks over Back Sound. When I first came here there were trawlers everywhere, now I rarely see a trawler. I bet the number will be reduced by 60-70%. I see fishermen working their tails off and this economy is killing us. Please recommend no more closures, there is no science and it seems like cherry picking.

Jared Davis – Commercial shrimper. I love being on the water. I love to share my heritage with my kids. You're taking food out of our mouths. These closures will hurt a lot of people. There is no data to support whether trawling affects SAV.

C. R. Fredrick – Commercial fisherman, Swansboro for over 50 years. I worked with NOAA on gear development of TEDs. He asked a few questions: Are props considered bottom disturbing gear? How does DMF survey SAV? Are otter trawls considered the same as skimmer trawls? Do SAV move? Once something is taken away from fishermen it is not given back. Trawlers cannot pull in grass a novice will do it but not for long. There are other issues hurting SAV. Sand encroachment and development for example, changing temperatures and pollution as well. Trawling activity is down at least 85% to what it once was. Need more studies to find out the cause of the degradation of SAV. Other gears are fishing in SAV as well.

Michael Cowdry – Commercial fisherman, Sneads Ferry. I started trawling with a 16-foot skiff in the New River and now have a 30-foot vessel. Fishermen are being impacted by the rulemaking process and plagued by best available data. There is no data to support SAV impacted by trawlers. If anything, there is less dragging done now and our waters are no better. The polluted lines match the trawl closure lines because the bottom goes bad when it is not dragged. Only closing something to say we did something. Even show areas closed where there is no vegetation.

Chris Elkins – Represents the Coastal Conservation Association (CCA), Gloucester. The CCA supports the DMF proposed closures. Habitat is important for shrimp and many other species including food for forage fish such as croaker, spot, weakfish. Bycatch from shrimp trawls is also a major issue and closures will reduce bycatch. From my personal view these areas represent a small amount of shrimp harvested and would eliminate mostly smaller operations. I support subsidies for shrimpers to acknowledge and compensate them for some of their loss.

Wesley Potter – Commercial fisherman. The closures will directly have an impact on me and many other fishermen's livelihood. How much would it cost to pay us off? Need to acknowledge the work it would take to figure out these lines. We are not catching grass we are catching shrimp.

Cayton Daniels – Commercial fisherman, Marshallberg. I fish mostly in Back Sound. These closures will put me out of business. There is no data to support these closures. This will kill all the small boats. Less than 20 fishermen are left in this industry under the age of 40. This hurt high school and college kids trying to fish to get them through school. I encourage the MFC to study if the closure in Bogue Sound has improved SAV. I also ask what do rays do to create turbidity in these areas? You see cownose rays from one end of Core Sound to the other right now and they are stirring up the bottom. Not to mention now Ophelia Inlet. Forty percent of my shrimp came from the Straits last year.

Frances Anne Moran Griffield – I'm from a fishing family, I agree that protection of SAV is needed but these closures go too far. I reached out to Professor Rusty Day, College of Charleston to get his insight on trawling over SAV. He thought it was a good idea to prevent trawling in SAV but noted the proposed areas in the paper were excessive. There was also the absence to measure the positive impacts of closures. There is no mention of specific monitoring programs and need to reach a balance for cultural benefits. There was also the failure to address other stressors to SAV and consideration for how these measures weigh against other activities. It was noted too closure causes more need for enforcement which there isn't enough manpower as it is now. We need real-time information on SAV and not just pointing at trawling as theoretical threats to SAV.

John McQuaid – Recreational fisherman, Raleigh. I support the conservation of SAV, but it may already be too late. I have seen a drastic decline in SAV as well as fish in my years coming to the coast. Inshore

trawling is a destructive gear which damages our fish. Closing areas to trawling will protect juvenile fish. I would err on the side of conservation even with limited data.

Stephen Smith – Recreational fisherman, Morehead City. I have met a lot of people as a local dentist and seen a lot of changes in the years I have lived in this area. Offshore could see the gun mount and now it is underwater. Shrimp used to winter off SC and now they winter off NC. Water temperatures are increasing. My lemon tree in my backyard produced 160 lemons last year and we see Spanish mackerel in our water in February. Do warmer waters cause more issues? More research is needed to see if warming temperatures are causing the decline in SAV. Some people are seeing these closures to reduce bycatch and using SAV as the excuse to limit trawling.

Chair Scharf called a five-minute break before starting Advisory Committee discussion and vote to recommend options to the MFC.

### **SHRIMP FMP AMENDMENT 2 – ADAPTIVE MANAGEMENT – PROTECTION OF CRITICAL SEA GRASS HABITAT THROUGH SHRIMP TRAWL AREA CLOSURES**

Fred Scharf requested Stewart to follow up with any responses to the public comment. Stewart noted there is plenty of evidence that otter trawl doors damage SAV. NOAA and APNEP also survey SAV, which comprises of an aerial high-resolution component as well as ground truthing, completed annually on a rotational basis in areas. DMF staff and others assist with the ground truthing, which requires sampling on the ground to determine SAV presence and other habitat characteristics. When SAV is exposed to extreme high and low temperatures they usually grow back in 1 to 2 years. Scharf added that the grass species composition changes as temperatures increase.

Seigler said trawlers do not drag through grass beds, they don't make money towing through them. He mentioned a study in Buzzards Bay where eelgrass loss was caused by nitrogen loading and suggested getting more water quality samples to see what the nitrogen levels are rather than blaming commercial trawlers. Scharf asked what should we do about unprotected SAV? Stewart noted the direction was provided by the MFC through Amendment 2 of the Shrimp FMP and asked how would others on the AC recommend dealing with this issue? Jeremy Skinner said he would like to see more data on areas already closed to trawling and how the SAV has changed. Skinner further noted that the division should revisit the issue once more data is available.

**A motion was introduced by Jeremy Skinner to not support the proposed closures in the issue paper; Need water quality data in the areas with seagrass loss and healthy seagrass areas and need a link between habitat protection and seagrass recovery. The motion was seconded by Ken Seigler.**

Michael Yates requested clarification whether we are talked about shrimp trawls affecting SAV or other things affecting SAV? Are we asking DMF to address the other issues affecting SAV not only shrimp trawls. Tim Willis said we need to address other things before closing more areas to trawling, as it appears a lot of other things are being ignored that contribute to the loss of SAV. We already do not have enough law enforcement to cover the regulations already in place. Scharf reiterated the discussion to the group what he heard as the intent behind the motion; we want to wait for more data, no support for any trawl closures, and there is not enough manpower to enforce. Ken Seigler added to get the water quality issues resolved before closing more areas to trawling.

Tom Smith stated we should give SAV a chance and exclude all traffic over the SAV. There is a need to protect these core areas. I'll admitted the initial proposed closures are ambitious but let's do what we can to protect SAV habitat and just close the unprotected SAV through this FMP. The CHPP looks at other aspects not under the authority of the MFC like water quality. Why is there such an issue to say no use to

trawls in an area if we already know the trawlers don't go in there? Ken Seigler said if trawls can't be allowed then exclude everyone from SAV. Smith noted we cannot go there through the shrimp FMP. Scharf said we could recommend other protections where current grass exists. Willis said who is going to enforce these laws. Pam Morris wanted to foster a better understanding behind the SAV mosaic. The SAV mosaic is built over time in some areas, not all and layered upon one another. And the mosaic has shown SAV has changed over time, closed areas are disintegrating and the SAV is in broken pieces. There is zero proof that trawling has an affect on these areas. And I can tell you from my own experience running to the Cape with our boat and in the shallowest of water hoping we don't bump. Knowing that our prop is also hitting SAV. SAV occurs in waters 6 feet and less and there is more damage caused by general boating activity through these waters than trawling. Other things to consider is the impact of global warming. Effort and the number of fishermen are declining. The buffers for the closures are too big. I ask DMF to go back and look at how SAV has changed in waters already closed.

Scharf called the motion to vote. **The motion passed 5-2 with one abstention.**

Scharf said the Southern AC motion will go to the MFC for them to make their final decision. Please participate in the process and provide further input before the final recommendation.

#### **ISSUES FROM AC MEMBERS**

No issues were provided by the Advisory Committee.

Jeremy Skinner motioned to adjourn, seconded by Tom Smith. The meeting ended at 8:49 p.m.



ROY COOPER  
*Governor*

ELIZABETH S. BISER  
*Secretary*

KATHY B. RAWLS  
*Director*

April 26, 2024

**MEMORANDUM**

**TO:** Marine Fisheries Commission  
Shellfish/Crustacean Advisory Committee

**FROM:** Tina Moore, Southern District Manager, Fisheries Management Section

**SUBJECT:** Meeting of the Marine Fisheries Commission's Shellfish Crustacean Advisory Committee, April 11, 2024, to provide recommendations for management options for Marine Fisheries Commission consideration on protection of critical seagrass habitat through shrimp trawl area closure

The Marine Fisheries Commission's Shellfish/Crustacean Advisory Committee (AC) held an in-person meeting on April 11, 2024, at the Division of Marine Fisheries, Central District Office, Morehead City, NC.

The following AC members were in attendance: Lauren Burch, Tim Willis, Michael Hardison, Mike Marshall, Ted Wilgis, Ryan Bethea, Mike Blanton, Mary Sue Hamann (Absent: Bruce Morris, Jim Hardin, and Brian Shepard)

Division of Marine Fisheries (DMF) Staff: Debbie Manley, Steve Poland, Chris Stewart, Tina Moore, Brooke Anderson, Jason Rock, Dan Zapf, Kathy Rawls, Carter Witten, Mike Loeffler, Charlie Deaton, Jason Peters, Chloe Dorin

Public: Glenn Skinner, Michell Hostetler, Warren Hostetler, Monic Smith, Thomas Smith, Woody Daughtrey, Kenny Rustick, C. R. Frederick, Ken Seigler, Barbara Garrity-Blake, Thomas A. Smith Sr., Zach Davis, Cayton Daniels, Wendy Johnson, Landon Merkley, Billy Merkley, Jeffrey Moore, Savannah Gillikin, Grace Masencerp, Larry Mizelle. Thirty viewers watched on YouTube.

Shellfish/Crustacean AC Chair Mike Blanton called the meeting to order at 6:05 p.m.

Chair Blanton provided some introductory remarks, reminding the committee of the requirements for conflict of interest per N.C.G.S. 138A-15(e) which committee members noted no known conflict. The Shellfish/Crustacean AC members in attendance met a quorum.



## **APPROVAL OF AGENDA AND APPROVAL OF THE MINUTES**

**A motion was made by Tim Willis to approve the agenda. Second by Mary Sue Hamann. The motion passed without objection.**

**A motion was made by Mike Marshall to approve the minutes from the Shellfish Crustacean AC meeting held on January 11, 2024. Second by Tim Willis. The motion passed without objection.**

## **PRESENTATION OF THE PROTECTION OF CRITICAL SEA GRASS HABITAT THROUGH SHRIMP TRAWL AREA CLOSURES**

Steve Poland, Section Chief, Fisheries Management provided introductory remarks for context of this meeting. The MFC instructed DMF to look at current SAV layers on maps and bring the MFC options for shrimp trawl closures to protect SAV as part of the Shrimp FMP Amendment 2 adopted in 2022. Chris Stewart, lead biologist for shrimp, presented the issue paper to the AC. The issue paper was previously presented to the MFC in Feb. 2024 and the MFC passed a motion to bring the issue paper to the MFC regional and Shellfish Crustacean Advisory Committees for further input. Adjustments to the closure options that were not shown in the issue paper were included in the presentation to the ACs. This action to consider additional SAV protection was directed to DMF by the MFC and any closures would be implemented by proclamation through adaptive management adopted in Amendment 2 of the Shrimp FMP. The intent is to work collaboratively with stakeholders to balance protection of SAV and limit impacts to the shrimp trawl industry. The DMF is extending the timeline to provide recommendations to the MFC until later this year and not as initially planned for the May 2024 meeting. DMF will reach out to more stakeholders for direct input and encourage the public to reach out to participate in these smaller stakeholder group discussions.

Chris Stewart presented information on submerged aquatic vegetation (SAV) overlays also known as the mosaic with the current open and closed areas to trawling and initial DMF lines to extend areas closed to shrimp trawling to protect SAV. He iterated several times in the presentation, this was the first step to allow for stakeholder input. He noted that this adaptive management strategy was directly from the MFC in the Shrimp FMP Amendment 2 and is limited to addressing the impacts of shrimp trawl on SAV. He encouraged the public to reach out to the two other commissions (CRC and EMC) who have the responsibility for dealing more directly with water quality concerns as outlined in the Coastal Habitat Protection Plan. Information was provided on the importance of SAV as a critical habitat and impacts to this habitat from bottom-disturbing gears. Aerial imagery with results of sampling conducted randomly at sites was updated to identify the maximum known extent of SAV in NC. The original DMF options would close about 9.5% of the current open shrimp trawl areas and maps of the proposed line changes by region were presented. In addition, the alternative options not provided in the issue paper that were developed to reduce the extent of the closed areas were also shown in the presentation. The MFC Habitat and Water Quality Advisory Committee met in Jan. 2024 and endorsed the current recommendations only after further input from stakeholders and recommended a monitoring program for SAV.

After the presentation questions and comments were brought forward from AC members. Mary Sue Hamann asked for the reasoning behind the updated closure areas. Stewart said the new options followed discussions with stakeholders, division staff, the MFC Habitat and Water Quality AC, and Marine Patrol to help reduce the extent of shrimp trawl closure areas. Vice-Chair Ryan Bethea asked Marine Patrol about how many shrimp trawling violations there are, how big of a problem is it? Colonel Carter Witten said he'd have to look into it further but recalls a violation for someone fishing without proper license. Beathea asked Marine Patrol about enforcement and if trawling in SAV was a concern to them and if the proposed closures are necessary? Witten said this is a request from the MFC and it is Marine Patrol's job to enforce MFC rules. Straight lines are the easiest for enforcement, but they also enforce depth contours, distance from shore, under other current spatial regulations. Enforcement options are region specific and vary because some methods don't work as well in one area over another. Hamann asked whether this committee can make recommendations outside shrimp trawling and Stewart responded they can make recommendations for other concerns (i.e., water quality). Hamann wanted to know if there is research on if limiting shrimp trawling is actually the best approach to protecting SAV versus other approaches (i.e., water quality).

Lauren Burch wanted to know if SAV grows like fungus and needs connectivity to branch out? Stewart said spreading can occur and other grass species can populate in a bed. Connectivity is important for nursery protection. Burch asked if we've seen growth in SAV in historic closure areas? Stewart said we see mostly a decline throughout the state and there are numerous reasons for declines in SAV, not only shrimp trawling. Burch added that SAV then should be growing in areas where shrimp trawls cannot occur and this suggests the trawl closures are not working to increase SAV. The areas looking to expand closures will impact small vessels the most. Why add closures to areas where SAV is not going to grow in the deep-water areas? The fishermen know where they can't trawl. Stewart noted the lines were drawn for connectivity and ease of enforcement. These lines are not just for trawlers who know the waters but also novices learning to work the areas, also for RCGL trawls. Lines will help enforcement mostly for those who intentionally go into the grassbeds and don't care about the consequences to the SAV.

Hamann requested a summary of comments and suggestions that have been made, stakeholder concerns, and how DMF is responding to those concerns. She was glad DMF was soliciting further input from stakeholders and noted it was unfortunate that DMF cannot evaluate the economic impact to the industry. Stewart said comments were received that these closures put the burden on fishermen rather than water quality issues that impact SAV and we encourage all stakeholders to go to the CRC/EMC meetings to express their concerns. Stewart noted the trip ticket data doesn't allow level of data resolution to look at effort in specific areas. We only have the authority to address shrimp trawling. He reiterated the need for stakeholder input, and the alternatives presented tonight open the deeper waters to allow access to shrimp trawling that doesn't overlap with SAV.

Tim Willis asked if DMF communicated with other states (SC, GA) about what they've done? There's a lot of areas that have been closed for 10 years still losing SAV. Is there any solid data showing what's causing SAV loss? It's the inexperienced boaters tearing up SAV, not commercial trawlers. And therefore, it is inappropriate to put on shrimp trawlers without data to support further closed areas. Stewart noted there is no inshore trawling in other states and physical disturbances are known to damage SAV.

Ted Wilgis asked how closed areas would impact cultch planting, leases and other gears? What's the trigger or mechanism used to re-evaluate closed areas? Chesapeake does aerial surveys every year with federal funding, maybe we can tap into federal funding. Recommends providing more funding for monitoring and looking into water quality. We need more information on what is having the most impact for SAV protection and work with other groups. Stewart said the closed areas would only impact shrimp trawling. Other gears would still be allowed. APNEP is looking at loss and gains of SAV in closed areas to trawling but APNEP has limited personnel and funding to accomplish the work.

## **PUBLIC COMMENT**

Chair Blanton requested the public to keep their comments tasteful and directed at the issue, not staff. This is an ongoing issue that the division was directed by the MFC to take on and they have done exactly what they were tasked to do. Try to keep comments to three minutes.

Glenn Skinner, commercial fisherman and director of NC Fisheries Association. The NC Fisheries Association board met and voted unanimously to not recommend any closures and didn't find information necessary to support the recommendations. Rulemaking standards must identify if rules are reasonably necessary. They didn't find anything pointing to shrimp trawl closures as described being necessary. I'm not saying the SAV is not necessary. So I looked up the definition of the word "necessary" and it keeps coming back to food and food production being necessary. Commercial shrimp trawlers are essential workers. Voting on this closure would be inappropriate. He asked the committee not to support these options. The MFC Habitat and Water Quality Committee meeting in January indicated that we would go forward to the MFC to vote and asked what changed since? Poland said the original intent was to follow guidance of MFC. Following the MFC Habitat and Water Quality meeting, DMF decided we needed further input from the stakeholders to fine-tune the areas to protect SAV. Skinner requested stakeholder input before any lines are drawn.

Monica Smith, Miss Gina's Shrimp. There is a lack of science directly relating shrimp trawling to SAV loss. DMF doesn't have scientific data to indicate restoration will occur in closed areas. Current shrimp trawl closed areas are still losing SAV. There has been a huge reduction in shrimp trawling over the years, so why does SAV continue to decrease? No scientific data to support the use of buffers. The SAV mosaic doesn't represent current SAV habitat or future habitat and doesn't show yearly data. Economic impact study has not been done. These closures would be devastating to small boats, ~75% of their fishing occurs in the proposed closed areas. Please vote against shrimp trawl closures to protect SAV until science supports it.

Woody Daughtery, lived here since 1972. Tens of thousands of people have moved here to be near the water. New docks, seawalls, boats, and prop scars. This is an agenda for a piece of paper to say we've stopped shrimping, shrimpers already stay off your grass.

Kenny Rustick, commercial trawler. Stewart keeps bringing up turbidity. Shrimped many hours on the shrimp lines. Shrimp go to turbid areas to feed. I have seen Core Sound flourish in the past when there were a lot of trawlers and think the loss of shrimpers has reduced the ecological productivity in Core Sound. I remember when the wind blew 100 mph through Cape Lookout.

More turbidity caused by nature than all trawlers combined over a year. Places they want to close in Core Sound is where the shrimpers work. About 95% of the money, I made last fall was in the Straits channel. In 1989 we had a cold storm and froze Core Sound over, then in spring of 1990 there was no more grass.

C.R. Frederick, commercial trawler with 50+ years of commercial fishing, on smaller waters. I spent 5 years working with NOAA on TEDs in skimmer rigs. We addressed reduction of bycatch, met and exceeded those reductions, now we are moving on to SAV. Commercial fishermen don't want to catch the last fish or destroy the last SAV. What is the preferred depth of eelgrass? Mentioned Spooners Bay clam gardens. If SAV grows into that garden, will they be banned from their gardens? If we don't know shrimp trawls are responsible for 90% or 60% of SAV damage, why are they getting 100% of impact from closures. We need to establish lines better than using data from 1981. Reckless to put this on the backs of commercial shrimp trawlers. We need more data, research, flyovers before putting people out of work.

Ken Seigler, commercial fisherman. Rain and wind cause green slime algae to grow in the water at the same time eelgrass grows. Wind, rain, turbidity makes algae smother eelgrass. The problem is algal blooms from nutrient overload. The primary mechanisms for loss of eelgrass is nutrient loading and shading by algae, not shrimpers towing their trawl nets. There's no market for eelgrass, they don't want to catch it. Shrimpers aren't the problem. Eelgrass will not return if water quality is not good. Rainfall and runoff causing nutrient overloading. We are at the extreme southern limit of eelgrass. Nutrient load is the problem. I urge this committee to not recommend any shrimp trawl closures until further data is collected.

Barbara Garrity-Blake, president of NC Catch. NC Catch advocates for local seafood and threats to consumers access to local seafood. We host seafood festivals in downeast community of NC and feature local seafood including shrimp, free for the public. We get seafood for these festivals from many of the shrimpers here tonight at this meeting. I am proud of local fishermen and connecting the public to local seafood and community. Commercial shrimpers support our community. NC Catch also shares concerns about loss of SAV. We are increasing fishing restrictions but loosening environmental protection restrictions. Not protecting wetlands. Another concern in Gloucester is that the downeast conservation group included a 50 ft buffer from a structure being built near the water. And now no longer have that buffer. Environmental regulations are getting looser, fishing regulations are getting tighter. Appreciates DMF agreeing to meet with fishermen and delaying an MFC recommendation. The management strategy would be improved by collaboration with fishermen.

Zach Davis, shrimps in Core Sound. Done research on APNEP and CHPP. A study by NC State showed SAV decline is caused by turbidity related to sediment pollution which leads to algae growth. Bottom disturbance is not causing turbidity-related loss of SAV. Another study in Florida showed SAV can have a growth rate of 8 mm per day following cutting. In 21 days you can't tell it was ever altered. This should indicate shrimp trawls aren't impacting SAV long-term. Substantial reduction of SAV in closed areas (up to +70%), provided data. Trawling is not the problem, it's water quality and pollution. Trawl closures are not going to matter. I have the data and can share it with DMF. Chair Blanton requested Davis to provide the information to AC and the staff lead. Tina Moore provided Mr. Davis with her email address to send the information. As of writing these minutes Davis has not followed up with the information.

Cayton Daniels, commercial trawler. These closures would put me out of business. No justification for closures, the science isn't there. There is no support that shrimp trawls are causing damage to SAV and that shrimp trawl closures would also cause growth in SAV. There are larger reductions in SAV in closed areas than open areas. There has been a huge reduction in the number of shrimp trawl participants over the years. Closures will cut the small trawlers out. The industry has given until there's no more to give. Look into SAV in Bogue Sound following the previous closure. Need further studies. Turbidity is natural, the sound looks like chocolate milk after the cownose rays move through. Closures from the 2022 FMP has had huge effect on the industry. We can't take it anymore.

Landon Merkley, welding and boat repair, college student, commercial fishermen. I trawl mostly in the potential closed areas of Straights, Back Sound, and Core Sound. Closures will hurt me financially from selling and eating shrimp. The bottom of Back Sound has become harder and beaches in front have washed away. He has seen a decline in water quality and encroachment of sand in these areas to cause loss of SAV. There is more loss in closed areas than open areas. Wants to see evidence that SAV loss is caused by trawlers. If SAV is already stressed, then why stress it further? The shrimpers have been stressed. He asked the AC to vote against these closures and identify what is really impacting seagrass.

Jeffrey Moore, I have been shrimping since my childhood. My daughter loves to go shrimping. The potential closures are the only areas they fish in. Only shrimp there 20-30 days a year. We fill our freezers for food and to make some money. Please vote against closures as there's no science to support them. Closing these areas would be a real blow to the trawling community. Development, runoff and hurricanes are more impactful.

Chair Blanton asked if anyone else wanted to speak. No one spoke up. Chair Blanton said your concerns are valid. There are places to address these concerns. Pushed this as an MFC Commissioner for 6 years to bridge the gap. We heard your opinions and input. Asks stakeholders to start outlining facts and knowledge that you know and take that to the people that need to hear it the most.

### **SHRIMP FMP AMENDMENT 2 – ADAPTIVE MANAGEMENT – PROTECTION OF CRITICAL SEA GRASS HABITAT THROUGH SHRIMP TRAWL AREA CLOSURES**

Chair Blanton said we need to vote on options to bring to MFC and opened the floor for discussions. Hamann wanted clarification on what the AC can recommend all, each, defer. Blanton said can make any motion we want.

**Mary Sue Hamann made the motion to defer a vote until all public comments are heard and summarized to us a full set of options from the experts are made available. Second by Michael Hardison.**

**Lauren Burch then moved to amend the motion to recommend more funding for further research in already closed areas and not close any new areas until there is a determination of a correlation to SAV loss by trawling activity. Second by Ted Wilgis.**

Discussion by the committee continued. Hardison asked for more funding, what are we looking for to understand losses and how do you quantify losses and cause, seems generic. Referenced losses identified on page 2 in the paper. Stewart said that is the value from the APNEP study. Hardison asked how do you quantify what causes the loss and the economic value of SAV? Mike Marshall recommends the amendment supersedes the motion because the motion can be carried out quickly whereas the other motion cannot be done quickly and therefore are at odds with one another. Suggested they should be considered as two separate motions. Wilgis asked if we need to have one all-encompassing motion or several motions. After further discussion the Chair suggested there are ways to address this. One we could have the maker withdraw the amended motion and vote on the first motion or we can take a vote on the amended one to make it all or part of the original motion.

**Burch agreed to withdraw her motion to amend the original motion, which was approved by the second, Ted Wilgis.**

Willis asked what is meant by the full set of options in the motion. Hamann clarified she wanted to see more options after gaining more public comment on shrimp trawling closures. Easier if we had the full set of options rather than thinking of all that could occur on our own.

A call to vote by Chair Blanton. **The motion failed 2-4 with 2 abstentions.**

**A motion made by Lauren Burch to recommend more funding for further research in already closed areas and not close any new areas until a determination of a correlation of SAV loss by trawling activity, second by Ted Wilgis.**

Discussion on what kind of research? Burch said she did not want to specify because it would limit what could occur for research. Hardison said it may have value to look further into the economic value of SAV and determine the causes to its loss.

**Motion to amend made by Mary Sue Hamann to add the continued collection and synthesis of stakeholder input, second by Tim Willis.**

Blanton noted DMF will be reaching out further to stakeholder groups. Already looking for those groups to gain their input. Your motion would mimic the intentions of what is already occurring. Hamann said this would be an endorsement to DMF to know the importance this information is to us. Wilgis asked if this information from the MFC ACs plus the stakeholder groups will go back to the MFC? Poland responded that DMF will bring all information back to the MFC and use the information gained to adjust the options. It will be up to the MFC to determine if they would send the information collected back out to the MFC ACs. Burch asked if information can be published for these meetings in fish houses not online. Poland said DMF plans to reach out individually to fishermen to get targeted, individual level in small groups together for input in regions with most impact.

**Motion to amend passed 4-2 with 2 abstentions.** Which becomes part of the main motion which now reads:

**A fully amended motion made by Lauren Burch to recommend further research to determine if there is a correlation of SAV loss in open and closed areas to shrimp trawling, continue collection, and synthesis of stakeholder input. No closure of new areas until a determination of a correlation of SAV loss by trawling activity. And seek more funding for monitoring, second by Ted Wilgis.**

Marshall noted we also need research in non-closed areas. If sampling only in closed areas how do you tell the difference? Have to have correlation in loss or gain of SAV in open and closed areas. Further discussion amongst the committee adjusted the motion to its final state. Both the first and second of the motion accepted the changes to the motion.

**The motion passed 6-0, with 2 abstentions.**

### **ISSUES FROM ADVISORY COMMITTEE MEMBERS**

Mike Marshall stated that this whole thing seems extremely awkward, and staff did what they were tasked to do. You may want to get some structure together on habitat issues. It needs a little work. Wilgis added to that point, these are items through the CHPP which doesn't have much regulatory teeth. Could the EMC, CRC, and MFC have a joint meeting and work through some of the issues more. Blanton said it would be difficult.

Tim Willis made a motion to adjourn. Seconded by Lauren Burch. The meeting adjourned at 8:38 p.m.

# Director's Report

May 2024 Business Meeting

## Document

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Atlantic States Marine Fisheries  
Commission Meeting Report

Mid-Atlantic Fishery Mgmt.  
Council Meeting Summary Report

South Atlantic Fishery Mgmt.  
Council Meeting Report

Marine Patrol Quarterly  
Update Memo

Protected Resource Program  
Update Documents





# Atlantic States Marine Fisheries Commission

## ASMFC 2024 Spring Meeting

*Sustainable and Cooperative Management of Atlantic Coastal Fisheries*

ASMFC Spring Meeting  
April 29 – May 2, 2024

For more information, please  
contact Toni Kerns, ISFMP,  
Tina Berger, Communications  
or the identified individual at  
703.842.0740

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## **ATLANTIC COASTAL COOPERATIVE STATISTICS PROGRAM COORDINATING COUNCIL (APRIL 29, 2024)**

### ***Meeting Summary***

The Atlantic Coastal Cooperative Statistics Program (ACCSP) Coordinating Council met to review and approve the FY2025 RFP (Request for Proposals) and review project and program updates.

The Council voted to approve the FY2025 RFP as presented by the Operations Committee and Advisory Panel. The Council was presented an update of ACCSP program activities, including software development timelines and projects, major cross-team projects, recreational initiatives, new ACCSP Data Warehouse reports, updates to the recreational sections of the ACCSP website, and the status of ACCSP regional partner coordination.

The Council reviewed the SciFish project that launched April 1, 2024, as the result of a 3-year multi-partner project effort that was funded through the ACCSP RFP. SciFish projects will focus on data collection for marine and/or diadromous fisheries along the Atlantic coast that fill data gaps or data deficiencies, address identified research needs, and clearly articulate how collected data will be used in management and/or stock assessments. The Council received an update on the Atlantic Recreational Discards Pilot Project that has been designed by a subgroup of the Recreational Technical Committee to address counts and lengths of released catch. Eight states plan to participate in the pilot if funding is approved.

ACCSP announced that the public release of 2023 data is scheduled for May 7<sup>th</sup>. The data will be available in the Data Warehouse and shared with NOAA as the consolidated landings. Highlights include a new American Eel dataset contact/provider for Florida freshwater data, reflection of conversion factor changes in SAFIS in the historical dealer data in the Data Warehouse, and an update from Maine for 2022.

For more information, please contact Geoff White, ACCSP Director, at [Geoff.White@accsp.org](mailto:Geoff.White@accsp.org).

### ***Motions***

**Move to approve the 2025 ACCSP RFP and funding documents as presented to the Coordinating Council.**

Motion made by Mr. Carmichael and seconded by Mr. Gary, Motion passes by unanimous consent.

## **AMERICAN LOBSTER MANAGEMENT BOARD (APRIL 30, 2024)**

### ***Meeting Summary***

The American Lobster Management Board met to receive a report from the Lobster Technical Committee (TC) on the lobster resource and fishery on the Northern Edge of Georges Bank, an update from the Plan Development Team (PDT) on its evaluation of the measures of Addendum XXI and XXII and changes in the Southern New England (SNE) fishery, and a progress update on the 2025 benchmark stock assessment.

The TC provided a report to the Board summarizing available information on the lobster population and fishery on the Northern Edge of Georges Bank. The Board tasked the TC with compiling information presence and abundance of lobsters, including ovigerous females, on a seasonal basis, as well as seasonal fishery effort in the area because the New England Fishery Management Council (NEFMC) is considering scallop fishery access on the Northern Edge. The report finds that lobsters are present on top of George's Bank year-round but numbers are much higher in the late summer into fall, especially for large females. Fishery-dependent data show consistently female-skewed sex ratios and catch that is comprised of large lobsters, mostly over 100 mm carapace length. Moderate levels of fishing activity occur from July through November in the area, overlapping with the proposed scallop access options.

The lobster PDT met in April to address the Board task to review the conservation measures originally set in Addenda XXI and XXII and make recommendations for alternate measures to achieve those reductions. Addenda XXI and XXII, approved in 2013, included aggregate ownership caps in Lobster Conservation Management Areas (LCMAs) 2 and 3 and maximum trap cap reductions in LCMA 3 intended to scale the southern new England fishery to the diminished size of the stock. NOAA fisheries has not implemented the measures from these addenda, but recently published an interim rule to do so on January 1, 2025. The Board and lobster industry have expressed concern that the fishery has changed significantly and therefore implementing the measures in the current context could have unintended impacts. The PDT report showed that there have been reductions since 2023 in allocations and maximum traps fished in LCMAs 2 and 3. The Board agreed the PDT should consider input from both Lobster Conservation Management Teams (LCMTs) for LCMAs 2 and 3 before providing recommendations to the Board for possible alternative management measures.

The Board also heard comments from the public regarding concerns about the implementation of the minimum gauge size increase under Addendum XXVII, which is scheduled to occur January 1, 2025. Industry is concerned that the increase will negatively impact catch and value in the lobster fishery, and put the US market at a disadvantage if Canada's minimum size does not change. The Board plans to send a letter to Canada Department of Fisheries and Oceans and relevant Canadian industry associations urging Canada to increase the minimum size for lobster in the Gulf of Maine on the same schedule established in Addendum XXVII. The public also expressed privacy concerns regarding the requirement of Addendum XXIX for 24/7 vessel monitoring of the federal lobster fleet. The Board tasked the vessel tracking workgroup with investigating possible modifications to allow the trackers to only collect data during lobster fishing trips.

A benchmark stock assessment for American lobster is ongoing and is expected for completion in 2025. The Stock Assessment Subcommittee will meet for the Assessment Methods Workshop in July. The Board also elected Renee Zobel as Vice Chair.

For more information, please contact Caitlin Starks, Senior Fishery Management Plan Coordinator, at [cstarks@asmfc.org](mailto:cstarks@asmfc.org) or 703.842.0740.

## **Motions**

### **Move to elect Renee Zobel as Vice Chair.**

Motion made by Mr. McKiernan and seconded by Mr. Reid. Motion passes by consent.

**Move to task the Addendum XXIX vessel tracking implementation workgroup, with input from the LEC, to investigate modifications to the 24/7 vessel tracking requirement which still ensure monitoring of fishing activity while acknowledging that fishermen also use boats for personal/non-fishing reasons. This should include a review of existing processes for when VMS devices can be turned off.**

Motion made by Mr. Train and seconded by Mr. Borden. Motion passes by consent.

**Motion to draft a formal letter to Canada DFO and relevant Canadian industry associations as identified by the board chair and the executive director. This letter would request Canada increase the minimum size for lobster in the Gulf of Maine on the same schedule as ASMFC or as soon as possible as captured in Addendum XXVII.**

Motion made by Mr. McKiernan and seconded by Mr. Borden. Motion passes by consent.

## **SCIAENIDS MANAGEMENT BOARD (APRIL 30, 2024)**

### ***Meeting Summary***

The Sciaenids Management Board met to consider several items: the Spot Fishery Management Plan (FMP) Review and state compliance reports; an update on the ongoing benchmark stock assessments for red drum, spot, and Atlantic croaker; direction to the Spot and Atlantic Croaker Technical Committee on updating their respective traffic light analyses; and election of a Vice-Chair.

The Board reviewed and approved the Spot FMP Review and state compliance reports for the 2022 fishing year, as well as *de minimis* status for New Jersey, Delaware, and Georgia. Delaware has exceeded the 1% *de minimis* threshold for three years in a row, ranging between 1.05% and 1.20%. Under Addendum III, any state that exceeds the 1% threshold would be required to implement recreational and commercial regulations. Delaware requested and was granted *de minimis* status by the Board for the 2025 fishing year because landings minimally exceeded the threshold. Delaware will continue to monitor its fishery relative to the FMP's *de minimis* standards.

The Board received an update on the ongoing red drum, spot, and Atlantic croaker benchmark stock assessments. The red drum benchmark stock assessment is scheduled for peer review the week of August 12, 2024, and will be presented to the Board at the 2024 Annual Meeting. After the Board agreed to decouple the spot and Atlantic croaker benchmark stock assessments at its October 2023 meeting, the Spot and Atlantic Croaker Stock Assessment Subcommittee has been conducting modeler calls to develop the Atlantic croaker stock synthesis model. The second assessment workshop and subsequent meetings, including the Peer Review Workshop, will be scheduled once sufficient progress has been made in model development. The spot assessment will be completed approximately one year following the completion of the Atlantic croaker assessment.

Additionally, the Board discussed the potential for updating the spot and Atlantic croaker traffic light analyses this year, after forgoing an update last year. The Board directed the Spot and Atlantic Croaker Technical Committee to conduct abbreviated traffic light analyses for both species this year, focusing only on updating the harvest and abundance composite metrics used to make management decisions.

Finally, the Board approved Shanna Madsen of Virginia as the new Vice-Chair. For more information, please contact Tracey Bauer, FMP Coordinator, at [tbauer@asmfc.org](mailto:tbauer@asmfc.org).

### ***Motions***

**Move to approve the Spot FMP Review for the 2022 fishing year, state compliance reports, and *de minimis* status for New Jersey and Georgia.**

Motion made by Mr. Woodward and seconded by Mr. Cimino. Motion carries without opposition.

**Move to approve *de minimis* status for Delaware.**

Motion made by Mr. Woodward and seconded by Mr. Clark. Motion carries (8 in favor, 1 opposed).

**Move to nominate Shanna Madsen as Vice-Chair of the Sciaenids Management Board.**

Motion made by Mr. Clark and seconded by Mr. Batsavage. Motion passes by consent.

## **ATLANTIC MENHADEN MANAGEMENT BOARD (APRIL 30, 2024)**

### ***Meeting Summary***

The Atlantic Menhaden Management Board met to review a report on an acoustic survey of overwintering Atlantic menhaden offshore of New Jersey; receive updates from Maryland and Virginia on work relating to the study and management of menhaden in Chesapeake Bay; and receive progress reports on the ecological reference point (ERP) benchmark stock assessment and single-species stock assessment update.

The Board reviewed the results of an acoustic survey ([Nesslage et al., 2024](#)) that aimed to generate estimates of biomass and characterize size, age, and sex, and maturity of the portion of the Atlantic menhaden stock that overwinters off the coast of New Jersey. In addition to confirming that a portion of the adult stock resides overwinter along the shelf in the Mid-Atlantic region, the study demonstrated alternative acoustic survey designs can effectively account for the patchy distribution of large schools across the landscape and may prove useful in future monitoring.

The Board received updates from Maryland and Virginia on recent developments in the study and management of Atlantic menhaden in Chesapeake Bay. Maryland representative Lynn Fegley updated the Board on an upcoming communications tool that synthesizes Maryland data to describe the status of predator-prey balance in the Bay. The communication tool is expected to be released in fall 2024. Virginia representative Pat Geer updated the Board on the proposed and enacted legislative and regulatory changes since 2022; more information can be found [here](#).

The Board received progress reports on the ERP benchmark stock assessment and the single-species stock assessment update. The ERP Workgroup met in October 2023 to conduct a Data and Methods Workshop to review new data sources; discuss high priority updates to the ecosystem models, including identifying potential new predators to add to the model; and discuss ongoing ecosystem indicator work in Maryland and Virginia. The Board also reviewed the needs and timeframes for potential spatial components to the ERP models. The ERP benchmark stock assessment and single-species stock assessment update are both scheduled to be presented to the Board at the 2025 Annual Meeting.

Under other business, the Board requested staff to coordinate a presentation by US Geological Survey staff for the Summer Meeting regarding osprey abundance, spatial and temporal distribution, dietary demands, and timing of fledge in the Chesapeake Bay region.

Additionally, the Board elected John Clark as Vice-Chair. For more information, please contact James Boyle, Fishery Management Plan Coordinator at [jboyle@asmfc.org](mailto:jboyle@asmfc.org).

### ***Motions***

#### **Move to nominate John Clark as Vice-Chair of the Atlantic Menhaden Board.**

Motion made by Jeff Kaelin and seconded by Mr. Train. Motion approved by consent.

### **LAW ENFORCEMENT COMMITTEE (APRIL 30 & MAY 1, 2024)**

#### ***Meeting Summary***

The Law Enforcement Committee (LEC) conducted a hybrid meeting during the 2024 Spring meeting of the Atlantic States Marine Fisheries Commission (ASMFC) in Arlington, VA. The committee welcomed Captain Brian Scott of the NJ Fish and Wildlife as the new LEC representative from New Jersey. Captain Scott Pearce of the Florida Fish and Wildlife Conservation Commission transitioned into the role of the Chair of the LEC and Lt. Delayne Brown from the NH Fish and Game Department was elected to the position of Vice -Chair.

#### **Species Discussion**

**Atlantic Striped Bass** –Staff updated the LEC on the implementation of Addendum II of Amendment 7 of the Atlantic Striped Bass plan. Specific discussion was of the adopted compliance measures found in Section 3.0 of the plan. With special attention given to the public comments on the fillet requirement. The LEC appreciated the opportunity to participate in this addendum development.

**Atlantic Cobia** – Staff updated the LEC on the Cobia draft Addendum II of Amendment 1 in consideration of Recreational Allocation, Harvest Target Evaluation, and Measures Setting. The LEC will monitor this addendum development and provide comments when appropriate.

**Spiny Dogfish** – Staff provided an update of actions taken by the MAFMC and NEFMC to reduce sturgeon bycatch in the Federal Large Mesh Gillnet fisheries. The LEC discussed the compliance measures considered by the councils and will support and advise the ASMFC in their deliberations on this issue.

**American Lobster** – The LEC discussed the status of Addendum XXX of Amendment 3 of the Lobster FMP with staff. Specifically, discussion centered around the “Mitchell Provision” and how this addendum will interface with Addendum XXVII. The LEC will continue to follow the development of Addendum XXX and offer comments as appropriate.

### **Business Discussion**

The LEC members approved the final draft document of the *Guidelines for Resource Managers on the Enforceability of Fishery Management Measures (July 2024)*. Over the past year a sub-committee of six LEC members reviewed this document and made recommendations to the LEC for consideration. With the always evolving strategies to address the development of fishery management plans, the LEC wished to keep this document relevant for the fishery managers of today. The document was updated with the following:

- A new section identifying regulatory language for “Enforcement Tools.”
- The addition of a new management measure addressing the tagging, labeling, or marking of marine species.
- An updated survey by committee members on enforceability ratings of defined management measures.
- Clarifying language updates to Section 5, Enforcement Strategies and Recommendations.

This document was presented to the ISFMP Policy Board for approval in the Spring of 2024.

**North American Wildlife Law Enforcement Accreditation (NAWLEA)** - Colonel John Cobb and Captain Rob Ham III of the Virginia Department of Wildlife Resources provided a presentation on the new wildlife law enforcement accreditation process being implemented through the Southeast Association of Fish and Wildlife Agencies (SEAFWA). Created in 2022 NAWLEA offers a comprehensive accreditation program for wildlife law enforcement agencies. Their team is composed of experts in the field who are dedicated to ensuring the highest standards of professionalism among member agencies. Assessors work with agencies to ensure that they meet rigorous standards for professionalism and effectiveness in protecting our natural resources. They are a credentialing entity that is recognized by the United States, Department of Justice for law enforcement accreditation.

**Elver Fishery Enforcement** – Representatives from the Maine Marine Patrol and the USFW Service, Office of Law Enforcement presented on the current state of the Elver fishery. Information was shared about the Canadian elver fishery closure and its impacts on our domestic fishery. Success stories were discussed as a deterrent to the illegal trade of this high values resource.

**Interstate Wildlife Violators Compact (IWVC)** - The committee continued discussions on how best to implement and use the Interstate Wildlife Violators Compact. Specifically, State agencies shared best practices among each state on how to model their respective state programs.



A closed session of our meeting was afforded to openly discuss new and emerging law enforcement issues. Respective agencies were provided with time to highlight their agencies and offer current enforcement efforts. For more information, please contact Kurt Blanchard, LEC Coordinator, [kurt.blanchard@verizon.net](mailto:kurt.blanchard@verizon.net).

### **Motions**

#### **Motion to approve the revised edition of the *Guidelines for Resource Managers on the Enforceability of Fishery Management Measures* for approval by the ISFMP Board.**

Motion made by Scott Pearce (FL) and seconded by Keith Williams (CT). Motion approved by consensus.

#### **Motion to elect Lt. Delayne Brown of New Hampshire Fish and Game Department as Vice-Chair of the Law Enforcement Committee.**

Motion made by Keith Williams (CT) and seconded by Rob Beal (ME). Motion approved by consensus.

### **HORSESHOE CRAB MANAGEMENT BOARD (APRIL 30, 2024)**

#### ***Press Release***

#### **ASMFC Horseshoe Crab Board Approves Coastwide Stock Assessment for Management Use and Responds to Delaware Bay Management External Criticism**

Arlington, VA – The Commission’s Horseshoe Crab Management Board reviewed the 2024 Horseshoe Crab Stock Assessment Update, which indicates improvements in stock status from the 2019 assessment. The Board also received a response by the Adaptive Resource Management (ARM) Subcommittee to an external review of the ARM Framework.

The 2024 Horseshoe Crab Stock Assessment Update evaluated the stock status of the resource by region, finding the coastwide population to be in a good condition. Regionally, the Delaware Bay and Southeast regions were also in good condition, the Northeast was considered neutral, and the New York region remains in poor condition. While the Southeast region stock status remains good, there are some indices that are trending down in recent years and trends in the Southeast should be monitored in addition to those in the New York region, which has not improved substantially since the last assessment.

The Board also received a report from the ARM Subcommittee responding to the critique of the revised ARM Framework produced by Earthjustice. After conducting a thorough review and technical evaluation of the specific issues raised in the critique, the ARM Subcommittee maintains the red knot and horseshoe crab population models used in the ARM Framework represent the best use of the available data. Further, the trawl surveys and egg density data all indicate an increase in horseshoe crab populations in the region, a result consistent with the stock assessment update. The Subcommittee concluded that the Earthjustice critique was largely unfounded and failed to offer any alternative management approaches. As science and modeling approaches evolve, the Subcommittee will continue to revise and improve the ARM Framework for managing the Delaware Bay horseshoe crab fishery.

A more detailed description of the stock assessment results, the 2024 Horseshoe Crab Stock Assessment Update Report, and the ARM Subcommittee’s response to the critique by Earthjustice will be available on the Commission website, [www.asmfc.org](http://www.asmfc.org), on the Horseshoe Crab webpage next week. For more information, please contact Caitlin Starks, Fishery Management Plan Coordinator, at [cstarks@asmfc.org](mailto:cstarks@asmfc.org) or 703.842.0740.

###

PR24-12

### ***Meeting Summary***

In addition to accepting the 2024 stock assessment update, and considering the technical response to critiques of the ARM Framework, the Horseshoe Crab Management Board also received a summary of the current demand for horseshoe crabs as bait in the American eel and whelk fisheries. With some states limiting the harvest of horseshoe crabs, the Board requested this information to understand potential impacts of bait harvest restrictions in these fisheries. States indicated that effort trends in the eel and whelk fisheries along the coast have varied, and information is not collected on trends in bait usage.

The Board also received an update on planning for the Delaware Bay stakeholder workshop. The workshop will convene a group of key stakeholders to identify potential management goals the horseshoe crab fishery in the Delaware Bay region to inform future management decisions. The workshop will be held in July near the coast of the Delaware Bay, and a report including recommendations developed during the workshop will be provided to the Board in October.

For more information, please contact Caitlin Starks, Fishery Management Plan Coordinator, at [cstarks@asmfc.org](mailto:cstarks@asmfc.org) or 703.842.0740.

### ***Motions***

**Move to accept the 2024 Horseshoe Crab Assessment Update for management use.**

Motion made by Ms. Madsen and seconded by Mr. McManus. Motion passes by unanimous consent.

### **CAPTAIN DAVID H. HART AWARD AND ANNUAL AWARDS OF EXCELLENCE RECEPTION (APRIL 30, 2024)**

### ***Press Releases***

#### **Dr. Michael Armstrong Named 2024 Captain David H. Hart Award Recipient**

Arlington, VA – At its 2024 Spring Meeting in Arlington, Virginia, the Atlantic States Marine Fisheries Commission presented Dr. Michael P. Armstrong, Deputy Director of the Massachusetts Division of Marine Fisheries (MA DMF), the Captain David H. Hart Award for 2024 for his many notable scientific and management contributions to the betterment of the fisheries of the Atlantic coast. 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, who dedicated himself to the advancement and protection of marine fishery resources, Captain David H. Hart, from the State of New Jersey.

As Deputy Director at MA DMF, Mike is responsible for overseeing the Division's programs in fish biology, recreational and diadromous fisheries, and stock assessment and surveys, as well as supervising the Cat Cove Marine Laboratory. Over three decades at the Division, he has contributed to numerous Commission technical and stock assessment committees and later began serving on many management boards, including more than a few times as chair.



From Left: ASMFC Chair Joe Cimino, Executive Director Bob Beal, AAE Recipient Mike Armstrong and ASMFC Vice Chair Dan McKiernan

Mike is well-known for his commitment to scientifically justified management decisions, both at home in Massachusetts and around the Commission table. He draws upon his background in fish biology, marine ecology, data analysis, and stock assessments as a foundation for sound management. He's willing to make the hard, sometimes unpopular decisions to safeguard the health of the resource. Examples for northern shrimp, striped bass, and river herring come to mind. To support this philosophy of science-based decision making, he recently reorganized the Division's fisheries managers and stock assessment scientists to be under the same roof to ensure a constant flow of information.

Mike's passion for applied research to address fisheries management questions is evident in a long list of publications in fisheries science and his endless initiatives to tackle knowledge gaps. In recent years, he has set into motion plans to investigate cod stock structure and site fidelity, understand and assess striped bass release mortality, examine black sea bass spawning behavior, and research winter flounder maturity and habitat use, among others. Mike was personally responsible for the creation of the Division's Age & Growth Lab that provides state staff as well as state and federal partners fish ageing data that are critical to stock assessments. This lab has been a major contributor to standardizing and advancing ageing techniques to improve regional stock assessments.

By way of his leadership and encouraging other state staff to engage in research and publish, Mike has grown the Division's contribution to the scientific literature dramatically. He has helped attract and develop some of the best talent in fisheries science at the Division and created partnerships with numerous institutions to increase the Division's productivity and reach. He serves as mentor to fellow

researchers, committee members, and Commission staff, and continues to lecture to university classes to produce the next wave of fact-driven fisheries scientists and managers.

His mark on the management of recreational fisheries in Massachusetts is of particular note. He has elevated the Division's focus on recreational fisheries to equal that of commercial fisheries. Mike has focused attention on improving the quality of recreational data collection and catch estimation, and shaped the Division's use of recreational permit fees to address critical recreational fisheries needs and give back to anglers with public access improvements.

Mike has grown to be a leading voice around the management table in supporting scientific advice for sound, defensible decision-making. He's able to build consensus on actions with this as his beacon. In accepting the award, Mike humbly stated, "I just show up every day and do what I think is right."

###

PR24-11

### ASMFC Presents 2024 Annual Awards of Excellence

Arlington, VA – Last evening, the Atlantic States Marine Fisheries Commission presented its Annual Awards of Excellence to a number of individuals for their outstanding contributions to management, scientific, and law enforcement efforts along the Atlantic coast. Specifically, the 2024 award recipients are Phil Edwards for management and policy contributions; Nicole Lengyel Costa and Laura Lee for technical and scientific contributions; and Deputy Chief Jason Snellbaker for law enforcement contributions.



From left: ASMFC Executive Director Bob Beal, AAE Recipients Deputy Chief Jason Snellbaker, Laura Lee, Nicole Lengyel Costa and Phil Edwards, and ASMFC Chair Joe Cimino

"Every year a great many people contribute to the success of fisheries management along the Atlantic coast. The Commission's Annual Awards of Excellence recognize outstanding efforts by professionals who have made a difference in the way we manage and conserve our fisheries," said Awards Committee Chair Spud Woodward of Georgia. "I am humbled by the breadth and extent of accomplishments of the recipients and am grateful for their dedication to Atlantic coast fisheries."

## **Management and Policy Contributions**

### ***Phil Edwards of the Rhode Island Department of Environmental Management***

Phil has been an active and integral member on several Commission species management boards over the years, including serving as Chair of the American Eel, and Shad and River Herring Boards. Management of

these diadromous resources is challenging due to data limitations and the various threats they face throughout their extensive range between freshwater and ocean ecosystems. Under his leadership, Phil has been able to deftly guide management of these species. As board chair and member on other boards, Phil has brought a wealth of knowledge and policy acumen to all his Commission endeavors, and the Commission at-large has benefitted from Phil's work ethic, leadership, and expertise.

Phil's strong policy and fisheries management skills are backed by over 20 years of participation on various technical committees and assessment work for Commission species. His extensive knowledge and years of work on fish passage has improved conservation of diadromous fish in Rhode Island, and by extension along the East Coast, and serves as an example of his dedication to these efforts.

## **Scientific and Technical Contributions**

### ***Nicole Lengyel Costa of the Rhode Island Department of Environmental Management***

For many years, Nicole has been an engaged and important member of several Commission technical committees, fish ageing projects, and plan development teams, and has served as Chair of the Atlantic Striped Bass Technical Committee for the past few years.

Aside from her technical contributions, Nicole has helped the Commission develop several particularly tricky management actions for striped bass, including recent actions to stop overfishing and aid in stock rebuilding. These actions were structurally complex and Nicole, working closely with her colleagues at the Commission, put together well-crafted documents in order for the public to understand and comment on these complicated proposed measures.

In addition to her efforts with striped bass, Nicole is a long serving member of the ACCSP Operations Committee and has been involved with age and growth work used in stock assessments across Commission species. Nicole brings to all her endeavors a strong scientific skill set and a keen understanding of fisheries management policy. Her efforts not only benefit Rhode Island but fisheries science and management activities along the entire East Coast.

### ***Laura Lee of the US Fish and Wildlife Service and formerly with the North Carolina Division of Marine Fisheries (NC DMF)***

Laura has been involved in Commission stock assessments for nearly 25 years, including some of the first stock assessments for species such as Atlantic croaker, American eel, and spot. She has advanced fisheries science through the development of innovative approaches to common issues faced by stock assessments and the contribution of years of expertise and mentorship to numerous stock assessment subcommittees and scientists along the Atlantic coast. There is hardly a coastal Atlantic species Laura has not worked on, having been involved with or serving as chair on technical committees or stock assessment subcommittees for a multitude of species. During her time as a stock assessment scientist

with NC DMF, she developed numerous codes for routine analyses used by the majority of Commission stock assessments today. With her new position as an ecologist at the US Fish and Wildlife Service, Laura will continue her productive fisheries career.

Aside from these professional accomplishments, Laura is an invaluable resource on Atlantic coast fish species and stock assessment methods. She is generous with her time and has mentored several fisheries scientists through complex analyses and approaches. Laura provided advanced statistical analysis and guidance to DMF staff for virtually every FMP adopted during her tenure. Some of these scientists have

gone on serve on Commission technical committees and to further their careers at other state agencies, NOAA Fisheries, and in academia. Despite her formal transition off Commission and Division committees due to her new role, she has continued to show her dedication to Atlantic species by regularly participating in committee meetings and providing valuable feedback to keep science projects moving forward.

### **Law Enforcement Contributions**

#### ***Deputy Chief Jason Snellbaker of the New Jersey Department of Environmental Protection's Bureau of Law Enforcement***

Since becoming a member of the Commission's Law Enforcement Committee (LEC) in 2014, Jason has promoted the role of law enforcement in fisheries management. He has represented the Committee on a number of species management boards, including tautog; summer flounder, scup, and black sea bass; Atlantic sturgeon; and bluefish. He has been the voice of the LEC on critical topics such as commercial tautog tagging and the summer flounder research set aside program.

During Jason's time with the LEC, he was selected by his peers to serve in a leadership role as Vice-chair and Chair. He accepted these roles during the pandemic, a particularly challenging time for the LEC as members were drawn to other responsibilities in their home states. Jason kept the flow of communication open and provided steady leadership by staying on as Chair for an extended period. At the state level, Jason's exceptional leadership has been recognized by both NOAA's Office of Law Enforcement for his efforts in support of the Cooperative Enforcement Program, and by the Commission for his work as part of a team of officers working in the New Jersey Fish and Wildlife marine region. He has also promoted marine fisheries law enforcement in forums such as the National Association of Conservation Law Enforcement Chiefs where he took on an advisory role and participated in an exchange program with an agency in Belize.

###

PR24-10



## **EXECUTIVE COMMITTEE (MAY 1, 2024)**

### ***Meeting Summary***

The Executive Committee (Committee) met to discuss several issues, including the proposed FY25 Budget; a Legislative Committee update and the Executive Director's Performance review. The following action items resulted from the Committee's discussions:

- ASMFC Vice-Chair Dan McKiernan presented the proposed FY25 Commission budget which was reviewed by the Administrative Oversight Committee (AOC).
- Staff reported on the recent activities of Congress, upcoming budget hearings, the appropriations process, and proposed cuts to essential programs within the President's FY25 budget for NOAA. Within the appropriations update, staff discussed three new requests from the Commission to Congress for funding for FY25; 1) An industry-based trawl survey pilot program (\$3 million); 2) funding to complete all research outlined in the Virginia Institute of Marine Science Menhaden Report (\$2.7 million); and 3) one-time Congressionally-directed spending to retrofit the R/V Lady Lisa (\$1 million).
- Staff provided an update on upcoming Annual Meetings, with the 2024 meeting to be held in Annapolis, Maryland. The 2025 meeting will be held in Delaware and the 2026 meeting will be held in South Carolina
- The Executive Committee convened a closed session to discuss the Executive Director's Performance Review.

For more information, please contact Laura Leach, Director of Finance & Administration, at [lleach@asmfc.org](mailto:lleach@asmfc.org) or 703.842.0740.

### ***Motions***

**On behalf of the Administrative Oversight Committee, move to approve the FY25 budget.**

Motion made by Mr. McKiernan. Motion approved by consent.

## **COASTAL PELAGICS MANAGEMENT BOARD (MAY 1, 2024)**

### ***Press Release***

#### **Coastal Pelagics Board Approves Atlantic Cobia Draft Addendum II for Public Comment to Consider Recreational Allocation and Management Process**

Arlington, VA – The Commission's Coastal Pelagics Management Board approved for public comment Draft Addendum II to Amendment 1 to the Interstate Fishery Management Plan (FMP) for Atlantic Cobia. The Draft Addendum considers recreational allocation, harvest target evaluation, and the timeline for setting management specifications.

The Board initiated the Draft Addendum to consider updating recreational allocations using harvest data, which reflects increased cobia landings in some Mid-Atlantic states in recent years. Draft Addendum II presents options for Atlantic cobia management, including a framework for recreational allocation, ways

to account for data uncertainty and respond to quota overages, and an extended multi-year specification setting. For the recreational allocation framework, Draft Addendum II considers options for the data timeframe to form the basis for allocations, and options for the geographic scope of allocations (state-by-state, regional, or coastwide).

Public hearings on Draft Addendum II will be conducted in the coming months; the details of which will be released in a subsequent press release. The Draft Addendum will be available on the Commission's website under Public Input at <https://asmfc.org/about-us/public-input> in late May.

For more information, please contact Emilie Franke, Fishery Management Plan Coordinator, at [efranke@asmfc.org](mailto:efranke@asmfc.org).

###

PR24-14

### ***Meeting Summary***

In addition to approving Atlantic Cobia Draft Addendum II for public comment, the Coastal Pelagics Board received two updates regarding Spanish mackerel.

First, the Board received a presentation on the white paper prepared by the Spanish Mackerel Technical Committee (TC) summarizing state Spanish mackerel fisheries. The TC developed the paper in response to the Board's task to better understand current state Spanish mackerel fisheries to inform potential future Board action on Spanish mackerel.

Finally, the Board received an update from the South Atlantic Fishery Management Council (SAFMC) on the ongoing Spanish and king mackerel [port meetings](#) along the coast to gather input from mackerel stakeholders on the fishery. The next set of port meetings are webinar meetings for New England states schedule for mid-May.

For more information, please contact Emilie Franke, Fishery Management Plan Coordinator, at [efranke@asmfc.org](mailto:efranke@asmfc.org).

### ***Motions***

**Move to postpone Draft Addendum II to Amendment I until such time the final MRIP FES Report has been presented to the Commission.**

Motion made by Mr. Haymans and seconded by Mr. Clark. Motion fails (2 in favor, 8 opposed, 3 abstentions).

**Move to remove the timeframes for the weighted 10-year/3-year averages from Draft Addendum II Section 3.1 (Option B3, C3, C6, C9, and C12).**

Motion made by Ms. Madsen and seconded by Ms. Fegley. Motion approved without opposition.

**Move to remove any of the options considering 3 regions from section 3.1 C4, C5, C10, C11.**

Motion made by Ms. Madsen and seconded by Mr. Hornstein. Motion approved without opposition.



**Move to approve Atlantic Cobia Draft Addendum II for public comment as modified today.**

Motion made by Ms. Fegley and seconded by Mr. Clark. Motion carries with one objection.

**ATLANTIC STRIPED BASS MANAGEMENT BOARD (MAY 1, 2024)**

***Meeting Summary***

The Atlantic Striped Bass Management Board met to consider revisions to Addendum II state implementation plans; receive an update on recreational release mortality study results; consider tasks for a Board Work Group on recreational release mortality; consider an Advisory Panel nomination; and elect a Vice Chair.

Three jurisdictions, Pennsylvania, Maryland, and Potomac River Fisheries Commission (PRFC) submitted revised state implementation plans for Addendum II. States are required to implement Addendum II measures by May 1, 2024. In March 2024, the Board approved Addendum II state implementation plans with the following exceptions: 1) Pennsylvania's proposed timeline for implementing its new spring slot and bag limit; 2) Maryland and PRFC's proposed timeline for paying back any potential 2024 commercial quota overage. Pennsylvania's revised implementation plan specifies that it has implemented its new spring slot and bag limit as of May 1, 2024. Maryland and PRFC's revised implementation plans specify that they will monitor 2024 commercial landings and develop projections as needed to estimate whether landings will exceed the 2024 quota to inform 2025 commercial tag and permit distribution. The Board approved the revised implementation plans for all three jurisdictions.

The Board received an overview of a Massachusetts Division of Marine Fisheries (MA DMF) study to characterize striped bass recreational release mortality. The first phase of the study focused on the efficacy of circle hooks and comparing release mortality from J-hooks vs. circle hooks. The second phase of the study focused on comparison of release injury and mortality across various terminal tackle using citizen science data collected by striped bass anglers. Data collection for this phase will continue into 2024 with recruitment of citizen participants from other states. The third phase of the study will focus on a survey of striped bass anglers on terminal tackle use over the next few years. MA DMF noted that additional analysis of collected data and future publication will be pursued in the coming years. Visit <https://mادمf.shinyapps.io/striper/> for more information.

The Board discussed the establishment of a Board Work Group to discuss release mortality. The Board approved four tasks for the Work Group with an expected progress update from the Work Group at the 2024 Summer Meeting, and a report to the Board at the 2024 Annual Meeting. The first Work Group task is to review existing no-targeting closures (state and federal waters), including any information on impacts to striped bass catch, effort, enforceability, and how anglers may respond to no-targeting closures (i.e., shifting effort). The second task is to review the MA DMF release mortality study and other relevant reports to evaluate the efficacy of potential gear modifications. The third task is to identify stock assessment sensitivity runs to potentially inform Board discussion of release mortality as well as tradeoffs of reducing the release mortality rate vs. reducing the number of releases overall. The fourth task is to consider public scoping (e.g., survey) on potential measures to address release mortality.

The Board approved the nomination of Peter Jenkins, a recreational angler from Rhode Island, to the Atlantic Striped Bass Advisory Panel. Finally, the Board elected Chris Batsavage from North Carolina as Vice Chair.

For more information, please contact Emilie Franke, Fishery Management Plan Coordinator, at [efranke@asmfc.org](mailto:efranke@asmfc.org).

### ***Motions***

#### **Move to approve the revised Addendum II implementation plans for Pennsylvania, Potomac River Fisheries Commission, and Maryland.**

Motion made by Mr. Armstrong and seconded by Mr. Luisi. Motion passes by unanimous consent.

#### **Move to approve the tasks for the Board Work Group on recreational release mortality as discussed today.**

Motion made by Mr. Hasbrouck and seconded by Mr. Luisi. Motion passes by unanimous consent.

#### **Move to approve Peter Jenkins of Rhode Island to the Atlantic Striped Bass Advisory Panel.**

Motion made by Dr. McNamee and seconded by Dr. Davis. Motion passes by unanimous consent.

#### **Move to elect Chris Batsavage as Vice-Chair of the Atlantic Striped Bass Management Board.**

Motion made by Mr. Gary and seconded by Mr. Geer. Motion passes by unanimous consent.

### **AMERICAN EEL MANAGEMENT BOARD (MAY 1, 2024)**

#### ***Press Release***

#### **American Eel Board Approves Addenda VI and VII**

#### **Addenda Maintain Maine's Glass Eel Quota and Modify Yellow Eel Management**

Arlington, VA – The Commission's American Eel Management Board has approved Addenda VI and VII to the Interstate Fishery Management Plan for American Eel. Addendum VI maintains Maine's quota at the current level of 9,688 pounds for three years. Addendum VII reduces the coastwide cap for yellow eel commercial landings to 518,281 pounds, modifies annual young-of-year (YOY) monitoring requirements, and changes the policy for evaluating de minimis status.

#### ***Addendum VI***

Maine's glass/elver eel quota of 9,688 pounds was established by Addendum IV starting in 2015 and maintained under Addendum V through 2024. The Board initiated Addendum VI to establish a quota for 2025 and beyond. The Board will review the quota before the 2028 fishing year and can extend it via Board action.

Maine commercial glass eel landings have not exceeded the quota since its implementation. The Maine Department of Marine Resources (ME DMR) manages the quota using a program that requires dealers to enter daily landings data and enables ME DMR to analyze those data within 24 hours of

receipt. The quota management program allows ME DMR to track the glass eels from initial purchase to export out of the state.

Maine will continue to maintain daily trip level reporting and require a pound-for-pound payback in the event of quota overages in its glass eel fishery. Additionally, the state will continue to conduct the fishery-independent life cycle survey covering glass, yellow, and silver eels as required by Addendum V.

### **Addendum VII**

Addendum VII responds to the findings of the 2023 Benchmark Stock Assessment and Peer Review Report, which indicated the stock is at or near historically low levels due to a multitude of factors, including historical overfishing, habitat loss, food web alterations, turbine mortality, environmental

changes, contaminants, and disease. The assessment and peer review recommended reducing harvest levels of the yellow eel life stage, while also recognizing that stock status is affected by other factors. The assessment proposed a new index-based tool, called *I<sub>TARGET</sub>*, for setting the yellow eel coastwide cap, since there is not a statistical model for estimating the population size of American eel. Addendum VII adopts the use of *I<sub>TARGET</sub>* to provide catch limit recommendations based on fishery-independent indices of abundance and catch data with the goal of increasing abundance levels. The new coastwide cap of 518,281 pounds, a reduction from 916,473 pounds, can be updated after three years using the additional years of abundance and catch data.

“In approving Addendum VII and its reduced landings cap, the Board sought to balance responding to the recommendations of the benchmark stock assessment to aid in the recovery of American eel while also allowing for a commercial fishery,” stated Board Chair Kris Kuhn of Pennsylvania. “*I<sub>TARGET</sub>* provides the Board a much-needed tool for setting the coastwide cap.”

The Board slightly modified the requirements of the annual YOY survey by making the biological sampling requirement for YOY surveys optional, as recommended by the assessment and peer review. In addition, Addendum VII establishes use of a three-year average of landings to determine if a state qualifies for de minimis status and can be exempt from implementing fishery regulations and monitoring requirements.

Addenda VI and Addendum VII will be available on the Commission website on the American Eel webpage by mid-May. For more information, please contact Caitlin Starks, Senior Fishery Management Plan Coordinator, at [cstarks@asmfc.org](mailto:cstarks@asmfc.org).

###

PR24-13

### **Motions**

**For Draft Addendum VI, move to select under 3.1 Maine Glass Eel Quota, Option 1: Status Quo (9,688 lbs. quota) and under 3.2 Timeframe for Maine Glass Eel Quota, Option 3 (Three years, with the ability to extend via Board action).**

Motion made by Ms. Ware and seconded by Mr. Grout. Motion passes by consent.

**Move to approve Addendum VI to the American Eel FMP, as modified today.**

Motion made by Ms. Ware and seconded by Mr. Clark. Motion approved by consent.

### **Main Motion**

**Move to approve under 3.1 Issue 1 Option 1 status quo.**

Motion made by Mr. Clark and seconded by Mr. Dize.

### **Motion to Substitute**

**Motion to substitute to replace “under 3.1 Issue 1 Option 1 status quo” with “under 3.1 Issue 1 Option 2 (202,453 lbs.).**

Motion made by Dr. Davis and seconded by Mr. Jacobson. Motion fails (3 in favor, 16 opposed).

### **Motion to Substitute**

**Motion to substitute to approve under 3.1 Issue 1 Option 3 to set the coastwide cap at 518,281 pounds.**

Motion made by Ms. Madsen and seconded by Mr. McKiernan. Motion passes (12 in favor, 6 opposed).

### **Main Motion as Substituted**

**Move to approve under 3.1 Issue 1 Option 3 to set the coastwide cap at 518,281 pounds.**

### **Motion to Substitute**

**Move to substitute to approve under 3.1 Issue 1 Option 5 to set the coastwide cap at 716,497 pounds.**

Motion made by Ms. Fegley and seconded by Mr. Train. Motion fails (7 in favor, 12 opposed).

### **Main Motion as Substituted**

**Move to approve under 3.1 Issue 1 Option 3 to set the coastwide cap at 518,281 pounds.**

Motion passes (15 in favor, 4 opposed).

### **Move to approve:**

- **For Section 3.1, Issue 2, Option 1 [Status Quo, >1% coastwide landings]**
- **For section 3.5, Option 2 (3-year landings average for *de minimis*)**

Motion made by Ms. Fegley and seconded by Mr. Clark. Motion passes (15 in favor, 2 opposed, 2 abstentions).

**Move to approve for Section 3.2, Option 1 (three years coastwide cap duration)**

Motion made by Ms. Madsen and seconded by Mr. Clark. Motion passes 18 in favor, 1 abstention).

## **Main Motion**

### **Move to approve:**

- **For Section 3.3, Option 1 (Status Quo);**
- **For Section 3.4, Option 1 (mandatory CPUE data collection)**

Motion by made Mr. Kaelin and seconded by Ms. Fegley.

## **Motion to Amend**

### **Move to amend to replace Option 1 with Option 2 for section 3.3.**

Motion made by Mr. Clark and seconded by Mr. Grout. Motion passes (16 in favor, 2 opposed, 1 abstention).

## **Main Motion as Amended**

### **Move to approve:**

- **For Section 3.3, Option 1 (Status Quo);**
- **For Section 3.4, Option 1 (mandatory CPUE data collection)**

Motion passes (18 in favor, 1 opposed).

### **Move to approve Addendum VII to the American Eel FMP, as modified today.**

Motion made by Mr. Hasbrouck and seconded by Mr. Miller. Motion passes by consent.

### **Move to approve an implementation date of January 1, 2025.**

Motion made by Mr. Clark and seconded by Mr. Cimino. Motion passes (18 in favor, 1 opposed).

### **Move to elect Jesse Hornstein as Vice-Chair.**

Motion made by Mr. Cimino and seconded by Ms. Fegley. Motion passes by consent.

## **COASTAL SHARKS MANAGEMENT BOARD (MAY 2, 2024)**

### ***Press Release***

### **Coastal Sharks Board Sets Possession Limits to Zero for Oceanic Whitetip Sharks**

Arlington, VA – The Commission’s Coastal Sharks Management Board established a zero possession limit for oceanic whitetip sharks for recreational and commercial fisheries. States will begin rulemaking to implement the new possession limit, effective immediately.

NOAA Fisheries issued a final rule in January prohibiting the retention and possession of oceanic whitetip sharks in US waters of the Atlantic Ocean, which became effective February 2, 2024. This rule responds to the 2018 determination that oceanic whitetip sharks warranted listing as a threatened species under the Endangered Species Act throughout its range, and a 2020 Biological Opinion that encouraged the inclusion of the species on the Highly Migratory Species (HMS) list of prohibited sharks for recreational and commercial HMS fisheries.

The Board action closes a potential loophole allowing take of oceanic whitetip in state waters. The Board also indicated it will consider moving oceanic whitetip sharks from the pelagic species group to the

prohibited species group as part of the next addendum or amendment action, as a complementary measure to the NOAA final rule.

For more information, please contact Caitlin Starks, Senior Fishery Management Plan Coordinator, at [cstarks@asmfc.org](mailto:cstarks@asmfc.org).

###

PR24-15

### ***Meeting Summary***

In addition to taking action on oceanic whitetip possession limits, the Board received updates on several ongoing and future actions for NOAA Fisheries Division of Highly Migratory Species (HMS). A final rule on Amendment 15 the 2006 Consolidated HMS FMP is expected in the summer of 2024. Amendment 15 extends the boundary of the Mid-Atlantic shark closed area and shifts the timing of the closed seasons to November 1 - May 31. Last year, NOAA accepted public comments on an advance notice of proposed rulemaking to modify or expand electronic reporting requirements for HMS, and a proposed rule on this action is expected later this year. In May 2023, NOAA released a scoping document for Amendment 16. Amendment 16 could result in substantial changes to the entire commercial and recreational shark fishery, and is necessary to implement the revised framework for establishing quotas and related management measures for Atlantic shark fisheries, as set forth in Amendment 14. Comments were received through mid-August 2023, and the development of Draft Amendment 16 is dependent upon the completion of the SEDAR 77 hammerhead stock assessment, expected end of 2024.

For more information, please contact Caitlin Starks, Senior Fishery Management Plan Coordinator, at [cstarks@asmfc.org](mailto:cstarks@asmfc.org) or 703.842.0740.

### ***Motions***

**Move to set the state waters commercial and recreational possession limit for oceanic whitetip sharks to zero, effective immediately.**

Motion made by Mr. Miller and seconded by Mr. Batsavage. Motion approved by unanimous consent.

### ***Main Motion***

**Move to initiate an addendum to change the species group for oceanic whitetip sharks to the prohibited species group.**

Motion made by Mr. Batsavage and seconded by Dr. McNamee.

### ***Motion to Substitute***

**Move to substitute to move to include oceanic whitetip on the prohibited species group in the next addendum or amendment action.**

Motion made by Mr. Clark and seconded by Ms. Meserve. Motion carries by unanimous consent.

### ***Main Motion as Substituted***

**Move to include oceanic whitetip on the prohibited species group in the next addendum or amendment action.**

Motion carries by unanimous consent.

## **SPINY DOGFISH MANAGEMENT BOARD (MAY 2, 2024)**

### ***Meeting Summary***

The Spiny Dogfish Management Board met to review the preferred alternatives recommended to NOAA Fisheries by the Mid-Atlantic and New England Fishery Management Councils in Spiny Dogfish Framework 6 to reduce sturgeon bycatch in the spiny dogfish fishery and consider complementary action.

The Board reviewed the recommended alternatives and discussed the inconsistency between the Interstate Fishery Management Plan for Spiny Dogfish and Spiny Dogfish Framework 6 if it is implemented by NOAA Fisheries. Framework 6 proposes prohibiting overnight soaks for federal spiny dogfish permit holders on gillnets with 5"-10" mesh in November and May for a certain area of state and federal waters off of New Jersey, as well as for gillnets of 5.25"-10" mesh in November through March in specified areas off of Delaware, Maryland, and Virginia.

The Board discussed initiating an addendum to consider maintaining consistency by establishing matching restrictions in state waters for harvesters that possess state spiny dogfish permits but do not have a federal spiny dogfish permit. However, the Board postponed the decision to initiate an addendum until the Commission Summer Meeting after staff can compile more information on the potential impacts on state fisheries, particularly states that issue multispecies gillnet permits vs. a directed dogfish permit similar to the federal permit.

For more information, please contact James Boyle, Fishery Management Plan Coordinator at [jboyle@asmfc.org](mailto:jboyle@asmfc.org).

### ***Motions***

#### **Main Motion**

**Move to initiate an addendum to maintain consistency between the Spiny Dogfish FMP and the recommended alternatives of Spiny Dogfish Framework Adjustment 6.**

Motion made by Ms. Meserve and seconded by Mr. Hasbrouck.

#### **Motion to Postpone**

**Move to postpone until the next meeting of the Spiny Dogfish Board.**

Motion made by Mr. Clark and seconded by Dr. Davis. Motion carries by consent.

## **INTERSTATE FISHERIES MANAGEMENT PROGRAM POLICY BOARD (MAY 2, 2024)**

### ***Meeting Summary***

The ISFMP Policy Board met to review the 2024 State of the Ecosystem Reports; receive an update from the Northeast Trawl Advisory Panel on an industry-based survey pilot project; consider approval of the revised *Guidelines for Resource Managers on the Enforceability of Fishery Management Measures*; receive a summary of the Law Enforcement Committee activities (see LEC meeting summary); receive an update on the sturgeon and river herring benchmark stock assessments; and consider two letters from the American Lobster Board.

Dr. Sarah Gaichas (Northeast Fisheries Science Center) presented key findings from the 2024 Mid-Atlantic and New England State of the Ecosystem reports. The reports provide information on the status and trends of relevant ecological, environmental, economic, and social components of the Mid-Atlantic and New England ecosystems. The reports evaluate the performance of different ecosystem indicators relative to management objectives and the potential climate and ecosystem risks to meeting those management objectives.

Highlights from the 2024 reports include:

- Commercial seafood landings and total revenue in the Mid-Atlantic were near historic lows driven by declining landings and price of ocean quahog, Atlantic surf clam, and scallops. Commercial landings within New England show no long-term trend for Georges Bank, and a long-term decline in the Gulf of Maine.
- Recreational harvest remains below the long-term average, but recreational effort (in number of trips) is above the long-term average. Overall, recreational harvest has also declined in New England; however, harvest has rebounded somewhat from the historical low level in 2020.
- Many fish stocks and protected species distributions are changing in the Mid-Atlantic due to increasing temperature, changing oceanographic features, the spatial distribution of suitable habitat, and the availability of prey. In New England, adult fish diversity indices are stable while zooplankton diversity is increasing, indicating potential instability. Several climate and oceanography metrics are changing and should be monitored as warning signs for a potential regime shift or ecosystem restructuring.
- 2023 sea surface temperatures in the North Atlantic were the warmest on record and were linked, along with low oxygen and acidification, to fish and shellfish die-offs off New Jersey and the Elephant Trunk region. However, Northeast US continental shelf temperatures were more variable, with near record highs in winter and near average in other seasons. Northward shifts of the Gulf Stream, including a prolonged shift in the fall, resulted in unusually warm and salty surface waters in the southern Mid-Atlantic. This shift severely constricted the waters between the shelf break and Gulf Stream and inhibited warm core rings.

The Policy Board received an update on the development of an industry-based survey pilot project by the Northeast Trawl Advisory Panel. The goal of the project is to test the viability of an industry-based survey as described in the white paper titled “Draft Proposed Plan for a Novel Industry Based Multispecies Bottom Trawl Survey on the Northeast U.S. Continental Shelf.” The Northeast Trawl Advisory Panel (NTAP) met on February 8, 2024, and the NTAP Bigelow Contingency Plan Working Group met on February 29, 2024, to continue their discussions of the pilot project and develop recommendations for Council consideration. Although the NTAP and NTAP Working Group have made substantial progress, there are still a number of details that need to be further developed at future meetings. The Policy Board continued to emphasize the importance of this project and its continued development.

The Law Enforcement Committee (LEC) presented the updated the *Guidelines for Resource Managers on the Enforceability of Fishery Management Measures* document. The document covers a variety of management strategies that are employed in Commission FMPs. It is intended to help managers to



take into account the enforceability of all management regulations that are developed. The Guidelines are intended to support and strengthen the effectiveness of Commission efforts to conserve fisheries resources.

The Board approved two letters recommended by the American Lobster Management Board (see American Lobster Board meeting summary). The first letter is to the New England Fishery Management Council highlighting key points of the Lobster Technical Committee report on the conduct of the lobster fishery on the Northern Edge of Georges Bank. The second letter is to Fisheries and Oceans Canada and Canadian industry associations, encouraging Canada to raise its lobster minimum size limit to match the upcoming changes in the United States to address potential trade concerns.

Lastly, under other business, the Board approved a letter to the US Ambassador in Canada to encourage Canada to swiftly implement rules and laws to ensure the protection of the American eel resource. The Board was presented with information indicating Canada is becoming a center for the illegal, unregulated, and unreported trafficking of glass eel. This illegal activity could potentially have negative impacts to the resource which is depleted. In addition, there are possible negative impact on eel value in the US, thus causing a loss of revenue to the highly regulated US fishing industry.

For more information, please contact Toni Kerns, Fisheries Policy Director, at [tkerns@asmfc.org](mailto:tkerns@asmfc.org).

#### ***Motions***

**Move to approve the *Revised Guidelines for Resource Managers on the Enforceability of Fishery Management Measures*.**

Motion made by Mr. Keliher and seconded by Mr. Clark. Motion passes by consent

**On behalf of the American Lobster Management Board move the Commission to send a letter to Canada DFO and relevant Canadian industry associations as identified by the board chair and the executive director. This letter would request Canada increase the minimum size for lobster on the same schedule as ASMFC or soon as possible as captured in Addendum XXVII.**

Motion made by Mr. Keliher. Motion approved by consent.

**Move to send a letter to the US Ambassador in Canada encouraging Canada to implement rules and laws as quickly as possible to ensure the protection of the American eel resource.**

Motion made by Mr. Keliher and seconded by Ms. Patterson. Motion approved by consent.



## April 2024 Council Meeting Summary

The Mid-Atlantic Fishery Management Council met April 9-11, 2024, in Atlantic City, New Jersey. The following is a summary of actions taken and issues considered during the meeting. Presentations, briefing materials, motions, and webinar recordings are available at <http://www.mafmc.org/briefing/april-2024>.

### **HIGHLIGHTS**

During this meeting, the Council:

- Took final action on a joint framework action with the New England Fishery Management Council to reduce the bycatch of Atlantic sturgeon in the monkfish and spiny dogfish gillnet fisheries
- Approved a modified range of alternatives for the Summer Flounder Commercial Mesh Exemptions Framework, removing one alternative from the draft range for each issue (joint meeting with the ASMFFC Summer Flounder, Scup, and Black Sea Bass Board)
- Reviewed the 2023 Mid-Atlantic State of the Ecosystem Report
- Received an update on the development of the draft 2024 EAFM risk assessment report
- Voted to submit the Golden Tilefish IFQ Program Review package to NMFS
- Received a presentation on the golden tilefish research track assessment
- Discussed recent progress on development of an industry-based survey pilot project
- Received an update from the NOAA Fisheries regional office on habitat and offshore wind activities of interest in the Mid-Atlantic region
- Discussed fisheries compensatory mitigation programs for offshore wind energy development
- Reviewed findings from recent research on the impacts of offshore wind construction sounds on longfin squid and black sea bass
- Agreed to submit comments on proposed changes to the regulations governing confidential information under the Magnuson-Stevens Act.

### Framework to Reduce Atlantic Sturgeon Interactions in the Monkfish/Dogfish Gillnet Fisheries

The Council took final action on a joint framework action with the New England Fishery Management Council (NEFMC) to reduce the bycatch of Atlantic sturgeon in the monkfish and spiny dogfish gillnet fisheries. During this meeting, the Council reviewed the recommendations from the FMAT/PDT, Monkfish and Spiny Dogfish Advisory Panels, and the Joint Monkfish and Dogfish Committee. For federal vessels targeting spiny dogfish, the Council approved overnight soak prohibitions during months of high sturgeon interactions within bycatch hotspot polygons in the New Jersey and Delaware, Maryland, and Virginia regions. In addition, they approved an exemption from the overnight soak prohibition for vessels using a mesh size less than 5.25 inches in the Delaware, Maryland, and Virginia hotspot polygons. For federal vessels targeting monkfish in state and federal waters, the Council approved a year-round low-profile gear requirement in the New Jersey bycatch hotspot polygon. The Council also agreed to write a letter to the Northeast Fisheries Science Center (NEFSC) observer program to recommend the development of a sturgeon tagging program for both live discards and dead discards for all the fisheries and gear types where sturgeon interactions occur. The NEFMC approved the same alternatives during their meeting the following week. The Councils will submit the framework to the Secretary of Commerce for review and rulemaking. Visit <https://www.mafmc.org/actions/sturgeon-bycatch-framework> for additional information and updates.

## Summer Flounder Commercial Mesh Exemptions Framework Meeting #1

The Council met jointly with the Atlantic States Marine Fisheries Commission’s Summer Flounder, Scup, and Black Sea Bass Board (Board) to review draft alternatives for a joint framework action/addendum to modify two summer flounder commercial minimum mesh size exemptions. This action considers changes to the exempted area associated with the Small Mesh Exemption Program, as well as updates to the gear definition associated with the flynet exemption to the minimum mesh size requirements. The Council and Board approved a modified range of alternatives, removing one alternative from the draft range for each issue in order to simplify the options under consideration. A revised document with additional analysis will be reviewed by the Council and Board via a webinar meeting in late spring/early summer 2024. As part of this meeting, the Board will approve a draft addendum for public comment, as required under the Commission’s process to support a minimum 30-day public comment period with optional public hearings. This public comment period will take place this summer, with final action expected in August 2024.

## 2024 State of the Ecosystem Report

Dr. Sarah Gaichas (NEFSC) presented the key findings from the 2024 Mid-Atlantic State of the Ecosystem report. This report has been provided annually to the Council since 2017 and gives information on the status and trends of relevant ecological, environmental, economic, and social components of the Mid-Atlantic Bight ecosystem. The report evaluates the performance of different ecosystem indicators relative to management objectives and the potential climate and ecosystem risks to meeting those management objectives. Highlights from the 2024 report include:

- Commercial seafood landings and total revenue were near historic lows driven by declining landings and price of ocean quahog, Atlantic surfclam, and scallops.
- Recreational harvest remains below the long-term average, but recreational effort (in number of trips) is above the long-term average.
- Recreational catch diversity remains stable and above the long-term average and diversity is being driven by southern species.
- Many fish stocks and protected species distributions are changing in the Mid-Atlantic due to increasing temperature, changing oceanographic features, the spatial distribution of suitable habitat, and the availability of prey.
- 2023 sea surface temperatures in the North Atlantic were the warmest on record and were linked, along with low oxygen and acidification, to fish and shellfish die-offs off New Jersey and the Elephant Trunk region.

## 2024 Ecosystem Approach to Fisheries Management (EAFM) Risk Assessment Report

The Council received an update on the development of the draft 2024 EAFM risk assessment report. The risk assessment is intended to track ecosystem elements that may threaten the Council’s ability to achieve the management objectives desired for Council-managed fisheries. In 2023, the Council conducted a comprehensive review of the risk assessment and approved a number of changes, including the development of four new elements and revisions to many of the existing risk element components. Council and NEFSC staff will work with the Council’s Ecosystem and Ocean Planning Committee and Advisory Panel to complete the risk assessment and present a final report to the Council later this year for approval.

## Golden Tilefish Catch Share Program Review

Council staff presented a summary of public comments received on the Review of the Golden Tilefish Individual Fishing Quota (IFQ) Program Twelve-Year Review. This report was structured around the National Marine Fisheries Service (NMFS) guidance for conducting catch share program reviews; and constitutes the second program review

for this Limited Access Privilege Program. After reviewing public comments, the Council voted to submit the Golden Tilefish Individual Fishing Quota Program Twelve-Year Review package to NMFS. In addition, the Council passed a motion to write a letter to NOAA Fisheries encouraging them to evaluate the possibility of expanding the use of the Fish Online web portal to track golden tilefish IFQ allocation transfers and track current allocation to assist with quota and program management. The full report is available at <https://www.mafmc.org/tilefish>.

### Golden Tilefish Assessment Overview

The Council received a presentation on the golden tilefish research track assessment which was peer reviewed in March 2024. Several improvements were made to the assessment, including transitioning the assessment model from the Age Structured Assessment Program (ASAP) to the state-space Woods Hole Assessment Model framework (WHAM; using 2021 management track data). In addition, the research track assessment developed an ecosystem and socioeconomic profile (ESP), developed a new recreational catch time series, evaluated various data sources that may be used to better understand trends in abundance, and developed method to transition vessel trip report landings (VTR) per unit effort (LPUE) index to newly developed catch accounting and monitoring system (CAMS)-based LPUE index amongst others.

The next steps in the assessment process include a management track assessment in June 2024 (to include data streams up to 2023) to provide updated estimates of stock status and set catch limits for the 2025-2027 fishing years. Future management track assessments will address research recommendations identified by the peer review.

### Northeast Trawl Advisory Panel Industry-Based Survey Pilot Project Update

The Council received an update on development of an industry-based survey pilot project by the Northeast Trawl Advisory Panel. The goal of the project is to test the viability of an industry-based survey as described in the white paper titled "[Draft Proposed Plan for a Novel Industry Based Multispecies Bottom Trawl Survey on the Northeast U.S. Continental Shelf](#)." The Northeast Trawl Advisory Panel (NTAP) met on February 8, 2024, and the NTAP Bigelow Contingency Plan working group met on February 29, 2024, to continue their discussions of the pilot project and develop recommendations for Council consideration. Staff noted that although the NTAP and NTAP Working Group have made substantial progress, there are still a number of details that need to be further developed at future meetings. Staff also noted that the NTAP Working Group recommended meeting with regional scientific survey staff and vessel owners/operators that may be interested in participating in the pilot project to discuss the topic.

### Habitat Activities Update

Jessie Murray, from GARFO Habitat and Ecosystem Services Division (HESD), provided updates on recent habitat consultations related to coastal development, infrastructure, and upcoming federal navigation and civil work projects from the New York and Philadelphia Districts of the Army Corp of Engineers. She shared information on the Historic Area Remediation Site (HARS) and early Environmental Protection Agency (EPA) considerations for an offshore fishery enhancement beneficial use site in the New York Bight. It was noted that EPA will be reaching out for input on HARS in the future. She also updated the Council on the status of NOAA's activities related to the Bipartisan Infrastructure Law and Inflation Reduction Act habitat funding opportunities. Doug Cristel (also of HESD) provided an overview of recent offshore wind consultations and highlighted the socioeconomic impacts reports and other products being utilized to evaluate port specific fishery impacts from offshore wind development.

## Offshore Wind Fisheries Compensation Programs

The Council discussed fisheries compensatory mitigation programs for offshore wind energy development. The discussion focused on the Vineyard Wind 1 commercial fisheries compensatory mitigation fund, as it is currently accepting applications with a deadline of June 3, 2024. To qualify for payments from this program, applicants must demonstrate that they fished in the Vineyard Wind 1 lease area in at least three years during 2016-2022 and must provide documentation of total annual revenue from commercial fishing activities (not just from within the Vineyard Wind 1 lease area) for the associated years. Several types of data can be used as evidence of fishing activity within the lease area, including, but not limited to, vessel trip reports, vessel monitoring system data, automatic identification system information, observer information, and other trip-level reporting. Fishermen may need to request some of this information from NOAA Fisheries. Concerns have been raised about the ability of NOAA Fisheries to respond to these data requests in a timely manner to ensure fishermen can apply by the June 3 deadline. However, Vineyard Wind has indicated that applications that are otherwise complete and submitted by June 3 will not be rejected due to outstanding data requests to NOAA Fisheries. More information on the qualification criteria, how to apply, and guidance for data requests can be found at:

<https://vw1fisheriescomp.com/>.

Council members and members of the public expressed several concerns with this program, including that many fishermen who will be impacted by Vineyard Wind 1 are not eligible for compensation because they are not homeported in Massachusetts, Rhode Island, Connecticut, New York, or New Jersey. In addition, this program does not provide compensation for impacts to for-hire or private recreational fishing. The program also does not allow commercial fishing vessel crew to receive direct compensation. Only owner/operators are eligible. The funds do not account for impacts such as devaluation of permits and increased transit times once Vineyard Wind 1 is constructed. It was also noted that before receiving financial compensation, fishermen must sign a waiver stating they will not join future lawsuits against Vineyard Wind 1. The specific language in this waiver is only shared with fishermen after they have submitted applications for compensation. Stakeholders said this is problematic because some fishermen will not want to sign the waiver and they should be aware of that requirement before going through the time-consuming application process and submitting personal fishing and financial information. The Council recommended that Vineyard Wind or NOAA Fisheries do additional targeted outreach to ensure all potentially eligible fishermen are aware of the program, application process, and deadlines.

## Impacts of Offshore Wind Energy Construction Sounds on Behavior of Longfin Squid and Black Sea Bass

The Council received a presentation from Dr. Aran Mooney and Nathan Formel with the Woods Hole Oceanographic Institution on multiple studies of the impacts of offshore wind construction sounds on longfin squid and black sea bass. These studies examined the impacts of recorded pile driving sounds from construction of the Block Island Wind Farm replayed in a laboratory setting as well as on the water studies of pile driving in an experimental setting in Woods Hole. The sound levels used in all these studies are less intense than those that will be produced during installation of the larger foundations planned for other offshore wind energy projects off the East Coast. However, similar studies have not been done during construction of these projects. Key findings presented for squid include strong initial alarm responses of resting squid, increased energy usage during alarm responses, and distraction from feeding, but sustained mating behaviors and no significant change in school area during noise. The researchers concluded that longfin squid are generally resilient to pile driving noise. Key findings presented for black sea bass include increased sheltering behavior of adults and reduced juvenile counts during pile driving. The researchers suggested there could be potential displacement and impacts to foraging behavior.

## Proposed Rule to Update Regulations Associated with the Magnuson-Stevens Fishery Conservation and Management Act's Confidentiality Requirements

Laura Keeling, from NOAA Fisheries Office of Sustainable Fisheries, provided a briefing on a proposed rule that would modify the regulations governing the confidentiality of information submitted in compliance with requirements of the Magnuson-Stevens Fishery Conservation and Management Act (MSA). Ms. Keeling noted that the proposed rule aims to streamline access for the fishing industry as well as Regional Fishery Management Councils, states, commissions, and other entities that need such information for fishery conservation and management purposes. It would bring implementing regulations into compliance with the Congressional amendments and address their application to some more recent issues. The rule would also prohibit unauthorized disclosure of confidential information, clarify exceptions to the MSA that allows for the release of confidential information, and provide a general framework for the handling of confidential information under the MSA. The final rule is expected to be published this summer, and internal control procedures will be developed to guide the implementation of the rule. Following the presentation, the Council agreed to submit comments on the proposed rule. Given the length and complexity of the rule, the Council also directed staff to develop a redline version showing the proposed changes to the existing regulatory text.

### Next Meeting

The next Council meeting will be held **June 4-6, 2024, in Riverhead, NY**. A complete list of upcoming meetings can be found at <https://www.mafmc.org/council-events>.





# *South Atlantic Fishery Management Council*

## *News Release*

FOR IMMEDIATE RELEASE  
March 11, 2024

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### **Federal Fishery Managers Review Assessment for Black Sea Bass, Red Snapper Projects, and Address Other Issues During March Meeting**

Black Sea Bass are managed along the Atlantic coast in federal waters from Cape Hatteras, NC southward along the east coast of Florida by the South Atlantic Fishery Management Council. Based on the recent stock assessment conducted through SEDAR 76, the stock is overfished and declining in abundance. With a current recreational bag limit of 7 fish per person and a 13-inch minimum size limit, the number of undersized fish released by the recreational fishery has increased in recent years while total landings have declined. Black Sea Bass inhabit offshore reef areas as well as nearshore structure and around half of the estimated regulatory discards occur in state waters. The overall discard mortality rate is approximately 14%. In addition, the stock assessment shows continued trends in low recruitment, or the number of new fish entering the population each year.

During its March meeting last week in Jekyll Island, Georgia, the Council reviewed stock projections for Black Sea Bass from NOAA Fisheries, considered recommendations from its Scientific and Statistical Committee, and a management response options presentation from Council staff addressing [Population Conditions and Management Challenges for Black Sea Bass](#). The presentation shows strong evidence the stock is in significant decline. Climate change may be contributing to low recruitment and loss of the stock at the southern end of its range, and there is an urgent need to reduce both discards and landings.

The Council will continue to discuss Black Sea Bass during its June 10-14, 2024 meeting, including options for management to take out to public scoping. Public scoping meetings for Snapper Grouper Amendment 56 addressing measures for Black Sea Bass are tentatively planned for this summer.

#### **Red Snapper Exempted Fishing Projects**

Council members received an overview of three projects proposed by the Florida Fish and Wildlife Conservation (FWC) that require Exempted Fishing Permits. The projects are expected to be funded by NOAA Fisheries to explore new and innovative approaches to better understand and reduce Red Snapper discards and increase fishing opportunities in the snapper grouper fishery. A [total of five projects](#) are recommended for funding.

The [three FWC proposals](#) involve the use of Exempted Fishing Permits to allow harvest of Red Snapper. The individual projects would collaborate with fishermen to obtain catch and discard data, test innovative strategies to reduce discards, and allow additional harvest opportunities. In addition, the projects include a reporting app, an education course, and an angler satisfaction evaluation.

The proposals include both private recreational anglers and for-hire vessels in northeast Florida and private recreational vessels in southeast Florida. Fishermen will be selected to participate and test aggregate bag limits of snapper grouper species, including retention of Red Snapper. The projects could potentially begin in July 2024 and continue for one year, with possible funding available for an additional year. The Council provided comments on the proposals. NOAA Fisheries will also solicit public comment on the Exempted Fishing Permits needed for the three project proposals.

*(Continued)*

## Red Snapper Management

During the meeting, the Council received a letter from NOAA Fisheries stating the agency is considering interim measures to reduce overfishing of Red Snapper during the 2024 fishing year. In the letter, Regional Administrator Andy Strelcheck noted the need to take “expeditious action to meet legal obligations, now and in the long term: including thorough consideration of the benefits and tradeoffs of different management opportunities to increase Red Snapper access, reduce discards, and rebuild other snapper grouper stocks.” The Council received notification on July 23, 2021 that the Red Snapper stock was experiencing overfishing, primarily due to release mortality in the recreational fishery.

The Council developed Snapper Grouper Regulatory Amendment 35 to address overfishing for Red Snapper, reduce the number of fish caught and released, and reduce mortality of released fish. However, during its December 2023 meeting, the Council rescinded approval of the amendment, acknowledging that taking additional time to work on the regulatory amendment poses little risk as the Red Snapper stock is rebuilding faster than expected, exhibiting strong recruitment, increasing abundance, and expanding age structure.

The Council is addressing long-term management measures for Red Snapper and other snapper grouper species through development of a Management Strategy Evaluation for the Fishery. To help reduce release mortality, the Council has implemented requirements for descending devices to be onboard and readily available when fishing for snapper grouper species and hook specifications to help ensure released fish survive. The Council has also continued expansion of outreach efforts including the Council’s Best Fishing Practices and Citizen Science Programs.

When asked about the 2024 Red Snapper season, Regional Administrator Andy Strelcheck stated they have no season projections to date, and a final decision will be made later this spring. The length of any season is determined by NOAA Fisheries.

## For-Hire Reporting

The Council also continued discussing the Southeast For-Hire Integrated Electronic Reporting Program and the need to improve compliance with reporting requirements. To begin identifying needed changes and get feedback from those who are required to report, the Council approved assembling an advisory panel whose charge would be to explore approaches to improve the existing program. The Council established the structure of this advisory body and will solicit applicants this spring with the intent of appointing members at their June 2024 meeting.

## Management of the Commercial Snapper Grouper Fishery

The Council continued discussion of the snapper grouper commercial fishery, including the current permit structure and trends in the fishery. The Council will take a focused look at both short-term and long-term changes needed for the fishery. Council members requested additional information on vessels active in the fishery, leasing of permitted vessels, trends in imports, and permit trends. The Council will continue to solicit input from its Snapper Grouper Advisory Panel, scheduled to meet March 26-28, 2024 in Charleston, SC.

## Additional Information

Additional information about the March 2024 Council meeting in Jekyll Island, Georgia, including meeting materials and committee reports, is available from the Council’s website at: <https://safmc.net/events/march-2024-council-meeting/>. The next meeting of the South Atlantic Fishery Management Council will be held June 10-14, 2024 in Daytona Beach Shores, Florida.

**The South Atlantic Fishery Management Council, one of eight regional councils, conserves and manages fish stocks from three to 200 miles offshore of North Carolina, South Carolina, Georgia and east Florida.**



**South Atlantic Fishery Management Council  
Full Council and Committee  
SUMMARY MOTIONS  
March 4-8, 2024**

This is a summary of the motions approved by the Council. Motions addressing actions and alternatives for FMP amendments are followed by text showing the result of the approved motion. Complete details on motions and other committee recommendations are provided in the Committee Reports available on the SAFMC website.

**Full Council Session I**

**MOTION 1:** APPROVE THE FOR-HIRE REPORTING AP STRUCTURE AND MAKE APPOINTMENTS IN JUNE 2024.

\*\*\*\*GUIDANCE TO INCLUDE HEADBOAT OPERATORS\*\*\*\*

**MOTION 2:** DIRECT STAFF TO DO THE FOLLOWING:

- ADVERTISE FOR SEATS ON THE FOR-HIRE REPORTING AP FOR REVIEW IN JUNE 2024.
- PREPARE A DISCUSSION DOCUMENT WITH ITEMS TO BEGIN TO IMPROVE SEFHIER COMPLIANCE FOR REVIEW IN JUNE 2024.
- CONTINUE WORK ON FOR-HIRE LIMITED ACCESS AMENDMENT FOR DISCUSSION IN JUNE 2024.

**Mackerel Cobia Committee**

**MOTION 3:** APPROVE THE KING AND SPANISH MACKEREL PORT MEETINGS PLAN FOR IMPLEMENTATION.

**MOTION 4:** ADOPT THE FOLLOWING TIMING AND TASKS:

- Begin conducting port meetings for king and Spanish mackerel. Update the Council on North Carolina and New England port meetings at the June 2024 Council meeting.

**SEDAR Committee**

**MOTION 5:** CHANGE SEDAR 90 (RED SNAPPER) TO A BENCHMARK ASSESSMENT.

**MOTION 6:** APPROVE SEDAR 96 (YELLOWTAIL SNAPPER) TERMS OF REFERENCE.

**MOTION 7:** APPOINT JIM GARTLAND, KAI LORENZEN, STEVE TURNER, BEV SAULS AND TIFFANY CROSS TO THE TOPICAL WORKING GROUP FOR SEDAR 96.

**MOTION 8:** APPOINT GARLAND YOPP, JESS KELLER, AND RYAN YADEN TO THE SYSTEM MANAGEMENT PLAN WORKGROUP

## Snapper Grouper Committee

### *Amendment 48 (Wreckfish)*

**MOTION 9:** APPROVE THE REVISED LANGUAGE FOR ACTION 13, PREFERRED ALTERNATIVE 2

**Action 13. Modify offloading site requirements and establish approved landing locations for wreckfish.**

**Preferred Alternative 2.** Remove the offloading site requirements for wreckfish. Individual transferable quota wreckfish must be landed at an approved landing location. Landing locations must be approved by NMFS Office for Law Enforcement prior to a vessel landing individual transferable wreckfish at these sites. Landing locations must be publicly accessible via freely traversable roads and navigable waters and no other condition may impede free and immediate access to the site by an authorized law enforcement officer.

\*\*Note: the NMFS Office of Law Enforcement may choose to revoke approval of a pre-landing location if it is determined that officers do not have free and immediate access to the site.

**MOTION 10:** APPROVE ALL MOTIONS AND RECOMMENDATIONS MADE BY THE WRECKFISH SUB-COMMITTEE, AS PRESENTED IN THE FEBRUARY 2024 SUB-COMMITTEE REPORT (APPENDED TO SG COMMITTEE REPORT).

**MOTION 11:** APPROVE ALL ADDITIONAL WRECKFISH MOTIONS PASSED BY THE SNAPPER GROUPEER COMMITTEE AT THE MARCH 2024 COUNCIL MEETING. (MOTIONS 5, 8, 10, AND 11 OF THE WRECKFISH SUBCOMMITTEE REPORT).

### *Scamp/Yellowmouth Grouper (SG Amendment 55)*

**MOTION 12:** APPROVE THE PURPOSE AND NEED STATEMENT.

**Purpose:** The purpose of this amendment is to modify the Other South Atlantic Shallow Water Grouper complex by removing yellowmouth grouper from the complex and establishing a new Scamp and Yellowmouth Grouper complex. For the new complex, establish conservation and management measures, stock status determination criteria, a rebuilding plan, catch levels, sector allocations, and accountability measures based on the results of the SEDAR 68 operational assessment (2022) stock assessment. For the South Atlantic Other Shallow Water Grouper complex, modify catch levels.

**Need:** The need for this amendment is to rebuild the scamp and yellowmouth grouper stock, and achieve optimum yield while minimizing, to the extent practicable, adverse social and economic effect.

**MOTION 13:** SELECT ALTERNATIVE 2 AS THE PREFERRED ALTERNATIVE FOR ACTION 5.

**Action 5. Establish sector allocations and sector annual catch limits for the Scamp and Yellowmouth Grouper complex**

**Alternative 2.** Commercial and recreational allocations would change each year from 2025-2029, where they would remain in place until modified, based on the total average commercial and recreational landings of scamp and yellowmouth grouper from 2018 through 2022. (Split Reduction Method – 5 yrs.)

**MOTION 14:** MOVE ALTERNATIVES 4 AND 5 FROM ACTION 5 TO CONSIDERED BUT REJECTED.

**Action 5. Establish sector allocations and sector annual catch limits for the Scamp and Yellowmouth Grouper complex**

**Alternative 4.** Allocate 63.40% of the total annual catch limit of Scamp and Yellowmouth Grouper complex to the commercial sector and 36.60% to the recreational sector.

**Alternative 5.** Allocate 64.90% of the total annual catch limit of Scamp and Yellowmouth Grouper complex to the commercial sector and 35.10% to the recreational sector.

**MOTION 15:** MOVE ACTION 6 ALTERNATIVE 2, AS MODIFIED, TO CONSIDERED BUT REJECTED APPENDIX

**Action 6. Reduce the recreational fishing season for scamp and yellowmouth grouper**

**Alternative 2.** Reduce the recreational fishing season for scamp and yellowmouth grouper in the exclusive economic zone to be open May 1 through July 31. The season will be closed January 1 through April 30 (spawning season closure) and August 1 through December 31.

**MOTION 16:** SELECT ALTERNATIVE 3 AS THE PREFERRED ALTERNATIVE FOR ACTION 6.

**Action 6. Reduce the recreational fishing season for scamp and yellowmouth grouper**

**Alternative 3.** Reduce the recreational fishing season for scamp and yellowmouth grouper in the exclusive economic zone to be open May 1 through August 31. The season will be closed January 1 through April 30 (spawning season closure) and September 1 through December 31.

**MOTION 17:** SELECT ALTERNATIVE 3 (300 POUNDS GUTTED WEIGHT), AS MODIFIED, AS THE PREFERRED ALTERNATIVE FOR ACTION 8.

**Action 8. Establish an aggregate commercial trip limit for scamp and yellowmouth grouper**

**Alternative 3.** Establish an aggregate commercial trip limit for scamp and yellowmouth grouper of 300 pounds gutted weight.

**MOTION 18:** SELECT ALTERNATIVE 3 AS THE PREFERRED ALTERNATIVE FOR ACTION 9.

**Action 9. Establish commercial accountability measures for the Scamp and Yellowmouth Grouper complex**

**Alternative 3.** If commercial landings for the Scamp and Yellowmouth Grouper complex reach or are projected to reach the complex commercial annual catch limit,

commercial harvest of scamp and yellowmouth grouper is closed for the remainder of the fishing year.

If commercial landings for the Scamp and Yellowmouth Grouper complex exceed the complex commercial annual catch limit, regardless of stock status or whether the total annual catch limit was exceeded the complex commercial annual catch limit for the following fishing year will be reduced by the amount of the complex commercial annual catch limit overage in the prior fishing year.

**MOTION 19:** SELECT ALTERNATIVE 5 AS THE PREFERRED ALTERNATIVE FOR ACTION 10.

**Action 10. Establish recreational accountability measures for the Scamp and Yellowmouth Grouper complex**

**Alternative 5.** If recreational landings for the Scamp and Yellowmouth Grouper complex exceed the recreational annual catch limit for the complex the length of the following year's recreational fishing season for the complex will be reduced by the amount necessary to prevent the recreational annual catch limit for the complex from being exceeded in the following year, regardless of stock status.

**MOTION 20:** SELECT ALTERNATIVE 2 AS THE PREFERRED ALTERNATIVE FOR ACTION 11.

**Action 11. Revise the total annual catch limit and sector annual catch limits for the Other South Atlantic Shallow Water Grouper complex**

**Alternative 2.** The acceptable biological catch for the updated Other South Atlantic Shallow Water Grouper complex is 104,190 pounds whole weight. The total annual catch limit is 100,151 and is inclusive of recreational estimates from the Marine Recreational Information Program's Coastal Household Telephone Survey. The commercial annual catch limit is 53,380 pounds whole weight and the recreational annual catch limit is 46,771 pounds whole weight.

**MOTION 21:** APPROVE AMENDMENT 46 (RECREATIONAL PERMIT) AND ALL ACTIONS, AS REVISED, FOR FURTHER DEVELOPMENT

**MOTION 22:** DIRECT STAFF TO DO THE FOLLOWING:

- Continue to develop Snapper Grouper Amendment 48 (Wreckfish) as detailed in the timing and tasks motion from the Wreckfish Sub-Committee report (appended to SG Committee report).
- Continue development of Amendment 46 for review at the June 2024 Council meeting. Prepare the amendment for approval for public hearings for September 2024.
- Convene the Technical AP and Private Angler AP to review Amendment 46.
- Convene the Outreach and Communications AP to request feedback on the education component.
- Convene the Snapper Grouper AP.
- Update commercial permit information and present to the Committee in the latter half of 2024 or early 2025 (depending on availability of updated permit, logbook, and landings data).

- Continue development of Regulatory Amendment 36 for review in June 2024.
- Send letters to black sea bass pot endorsement holders to inform them of the upcoming management changes for black sea bass.
- Compile requested information for Amendment 56 and prepare for review in June 2024.
- Compile requested information on management strategies for red snapper and snapper grouper discard reduction and prepare for review in June 2024.



ROY COOPER  
*Governor*

ELIZABETH S. BISER  
*Secretary*

KATHY B. RAWLS  
*Director*

May 22, 2024

## MEMORANDUM

**TO:** N.C. Marine Fisheries Commission  
**FROM:** Col. Carter Witten  
**SUBJECT:** Law Enforcement Report

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### Issue

Quarterly update on Marine Patrol law enforcement activities.

### Action Needed

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

### Overview

Marine Patrol officers continue to monitor all fishing activity. Officers Patrick Jones and Adam Gee have been certified and sworn in, and we're continuing to work on filling other vacancies.

There have been an assortment of cases since the last Marine Fisheries Commission business meeting. Some examples of those cases include: officers took out warrants on a commercial fisherman for setting illegal gill nets on two separate occasions; officers charged two fishermen for illegal use of gill nets and having no commercial licenses to sell seafood. Officers also made cases for taking oysters from polluted waters, possessing undersized black sea bass, and taking red porgy out of season. Officers also charged a recreational fisherman for possession of undersized vermilion snapper.

Marine Patrol officers are required to do at least 24 hours of in-service training every year to remain certified with Criminal Justice and Training Standards. Our officers are currently working on getting those training hours completed. Additionally, officers attended the Catawba Flood exercise, the Swiftwater Boat Operator class and various other required and non-required trainings.

In other work, officers participated in Shellfish Relay efforts, assisted with the FDA's peer evaluation for control of harvest, posted new signage for various boundaries, and recovered a missing person from Oregon Inlet.

As always, engaging in education and outreach opportunities throughout the state has been a big focus of the Marine Patrol. One major event that the Marine Patrol was honored to participate in Casting with Cops, which gave 40 underprivileged children the opportunity to fish with officers from the Marine Patrol, the Wildlife Resources Commission, the Beaufort and Martin County Sheriff's Departments, and the Belhaven Police Department. In addition to that, officers have participated in a variety of other outreach events since your last meeting, including the Dixie Deer Classic, events at UNC-W and Fort Fisher, and attended a Career Day at a local middle school.

Lastly, our staff are continuing to work on a Marine Patrol Junior Academy for 12 middle school aged children. This week-long event is slated to begin June 10<sup>th</sup> of this year, and it will give opportunities for cadets to learn about conservation law enforcement, fish and gear identification, boat handling, water safety, and ethical angling practices.



ROY COOPER  
*Governor*

ELIZABETH S. BISER  
*Secretary*

KATHY B. RAWLS  
*Director*

May 1, 2024

## MEMORANDUM

**TO:** N.C. Marine Fisheries Commission

**FROM:** Barbie Byrd, Biologist Supervisor  
Protected Resources Program, Fisheries Management Section

**SUBJECT:** Protected Resources Program Update

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### Issue

Summary information is provided from the Division's Protected Resources Program for the most recent annual reports for Atlantic Sturgeon and Sea Turtle ESA Section 10 Incidental Take Permits (ITPs). The reports were submitted in February to the National Marine Fisheries Service (NMFS) as required for the 2023 ITP Year (September 1, 2022 – August 31, 2023). Note that the annual reports include preliminary Trip Ticket Program data for 2023, and updates can occur in addendums to these reports submitted to NMFS in June 2024.

The Division did not receive the renewed ITP before the sea turtle ITP expired at the end of August 2023. However, NMFS provided a letter authorizing the Division to continue operating under the sea turtle ITP until a final determination is made on the application. The letter did not reference the Atlantic sturgeon ITP because it does not expire until the end of August 2024. The public comment period for the draft Environmental Assessment of the ITP renewal application closed on September 11<sup>th</sup>. The NMFS is working through public comments and an Endangered Species Act (ESA) Section 7 consultation, which is an interagency process “..designed to assist federal agencies in fulfilling their duty to ensure any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat” (<https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-consultations-greater-atlantic-region>). The Division has participated with the Section 7 office to answer their directed questions about the application. It is not known at this time when a determination will be made on the ITP application.

The Division continues to coordinate with the NC Department of Information Technology to develop the Observer Trip Scheduling System (OTSS). The OTSS will help ensure that ITP observer coverage requirements are met, and that the observer coverage is distributed evenly among participants and is more representative of the fishery. The Observer Program is currently completing internal testing of the OTSS and has begun to identify and reach out to members of the commercial fishing industry, including those on the Marine Fisheries Commission, to further test the system. An implementation date for requiring participation in the OTSS has not been set but is



expected to occur in 2024. Public information meetings will occur and trainings materials will be provided before the OTSS is fully implemented.

### **Action Needed**

For informational purposes only; **no action is needed at this time.**

### **Overview of the ITP annual reports**

During the 2023 ITP year, take levels of Atlantic Sturgeon and sea turtles in estuarine anchored gill nets did not reach or exceed allowable thresholds for any combination of species and management unit. There were 346 observations of large-mesh ( $\geq 5$ -inch stretched mesh) gill net trips and 134 observations of small-mesh ( $< 5$ -inch stretched mesh) gill net trips. Required observer coverage was met across all seasons and managements except for the following:

Fall: Management Unit A small-mesh gill nets (0.8% coverage)

Fall: Management Unit C small-mesh gill nets (0% coverage)

Spring: Management Unit D1 small-mesh gill nets (0% coverage)

During the 2023 ITP Year, NCDMF used proclamation authority to close all or partial MUs when there was a risk of not obtaining minimum observer coverage on a MU and seasonal basis as required by the Sea Turtle ITP. In some cases, this resulted in fishers contacting the Division to request for their area to be reopened and agreeing to arrange observer trips. This approach contributed to observer coverage requirements being met at the MU and season level. The Division will continue to consider this option to ensure compliance with the ITP requirements for observer coverage is maintained.

Observers documented 15 Atlantic Sturgeon in large-mesh and three Atlantic Sturgeon in small-mesh gill nets. An additional sturgeon that could not be identified to species was also observed in a large-mesh gill net. No fishers reported sturgeon interactions during the 2023 ITP Year. Most sturgeon takes were released alive (Atlantic Sturgeon 17 out of 18; unidentified sturgeon 1 of 1). Interactions occurred primarily during fall (79%; 15 of 19) and in MU A (84%; 16 of 19).

Observers documented 30 sea turtles (24 Green Sea Turtles, 4 Kemp's Ridley Sea Turtles, 1 Loggerhead Sea Turtle, and 1 unidentified sea turtle) in large-mesh gill nets and two Green Sea Turtles in a small-mesh gill nets. Two self-reported sea turtle interactions were received by the Observer Program. All 32 observed sea turtle interactions occurred during fall. Observed interactions occurred primarily in MU B ( $n = 21$ ), followed by MU E ( $n = 7$ ) and MU C ( $n = 4$ ). Overall, 84% (27 of 32) of observed interactions were alive. Three of the live Green Sea Turtles were in poor condition and were transferred to veterinary care arranged by NCWRC. Two died overnight and one was released on 21 October (Godfrey, NCWRC, personal communication).

The Observer Program continues to have difficulty scheduling observed trips with fishers. Out of 1,876 phone calls and in-person contacts across all seasons, observers spoke with a fisher 42% ( $n = 795$ ) of the time but were only successful in scheduling a trip 5% ( $n = 94$  trips) out of the 1,876 contact or contact attempts. Observers and Marine Patrol officers made an additional 1,026 (91 and 935, respectively) unsuccessful attempts to find and observe a trip using alternative platform across all seasons.

During the 2023 ITP Year, Marine Patrol officers issued 37 citations (Fall,  $n = 16$ ; Winter,  $n = 6$ ; Spring,  $n = 7$ ; Summer,  $n = 8$ ) and 27 Notice of Violations (Fall,  $n = 8$ ; Winter,  $n = 3$ ; Spring,  $n = 11$ ; Summer,  $n = 5$ ).

The final documents can be found at the following links:

[2023 Annual Sea Turtle ITP Report](#)

[2023 Annual Atlantic Sturgeon ITP Report](#)



Annual Sea Turtle Interaction Monitoring of the Estuarine Anchored Gill-Net Fisheries  
in North Carolina for Incidental Take Permit Year 2023  
(1 September 2022–31 August 2023)

Annual Completion Report for Activities under Endangered Species Act  
Section 10 Incidental Take Permit No. 16230

Matthew R. Doster, Barbie L. Byrd, and Dave Ushakow

North Carolina Department of Environmental Quality  
North Carolina Division of Marine Fisheries  
Protected Resources Program  
3441 Arendell Street  
Morehead City, NC 28557

29 February 2024

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## 1 INTRODUCTION

The North Carolina Division of Marine Fisheries (NCDMF) has actively addressed the incidental take of sea turtles in commercial estuarine anchored gill nets since 2000. Between 2000 and 2011, the NCDMF had a series of Incidental Take Permits (ITPs) from the National Marine Fisheries Service (NMFS) under Section 10(a)(1)(B) of the Endangered Species Act (ESA) of 1973 (Public Law 93-205) to “minimize, monitor, and mitigate” sea turtle interactions in estuarine anchored gill nets primarily in Pamlico Sound (Daniel 2013). These ITPs covered the five species of sea turtles that can occur in North Carolina: the Green Sea Turtle (*Chelonia mydas*), Kemp’s Ridley Sea Turtle (*Lepidochelys kempii*), Loggerhead Sea Turtle (*Caretta caretta*), Hawksbill Sea Turtle (*Eretmochelys imbricata*), and Leatherback Sea Turtle (*Dermochelys coriacea*). Anchored gill nets are a passive gear deployed with an anchor, stake, or boat at one or both ends of the net string; they do not include run-around, strike, drop, or drift gill nets. For this report, the term “gill net” refers to estuarine anchored gill nets and mesh sizes are provided as inches stretched mesh (ISM) unless stated otherwise.

Evidence of incidental takes of sea turtles outside of Pamlico Sound was documented in June 2009 by NMFS observations of gill-net fisheries operating in Core Sound and nearby waterbodies (Byrd et al. 2016). These takes resulted in a series of temporary measures to address sea turtle interactions until the NCDMF obtained an ITP from NMFS for the estuarine anchored gill-net fishery state-wide (see McConnaughey et al. 2019). On 11 September 2013, the NCDMF received the Sea Turtle ITP (No. 16230), which was set to expire on 31 August 2023 (78 FR 57132<sup>1</sup>). The permit defines an ITP Year as 1 September through 31 August of the following year, defines mesh-size categories as large mesh ( $\geq 4$  ISM) and small mesh ( $< 4$  ISM), and includes three seasons (fall, spring, and summer). The permit also establishes annual authorized levels of incidental takes for the two mesh-size categories and six geographic regions defined as Management Units (MUs) A, B, C, D1, D2, and E (Tables 1–5; Figure 1). The ITP includes a Conservation Plan to monitor, minimize, and mitigate incidental takes of sea turtles in otherwise lawful anchored gill-net fisheries operating in North Carolina estuarine waters. Part of the plan outlines a state-wide estuarine gill-net observer program to monitor interactions that can be counted and, when applicable, extrapolated across the fishery within a given season and MU. Required observer coverage thresholds are set for each MU within each season as a minimum of 7% with a goal of 10% for large-mesh gill nets and a minimum of 1% with a goal of 2% for small-mesh gill nets. The Conservation Plan also incorporated an adaptive management approach to mitigate incidental takes should observer data indicate that takes were approaching or exceeding authorized thresholds; this approach would include implementation of temporary management options when needed using the NCDMF director’s proclamation authority (General Statute 143B-289.52; NCGS § 113-221.1).

To maintain incidental takes below authorized levels, the Conservation Plan consisted of a variety of measures for gill nets operating in estuarine waters across the state. These measures primarily included the continuation of restrictions implemented previously as temporary measures to reduce sea turtle takes in the large-mesh gill-net fishery for Southern Flounder (*Paralichthys lethostigma*). These restrictions are implemented annually through proclamation. They include mitigation measures such as restricting soak time and days of the week, limiting net lengths, requiring separations between net shots in a single string, requiring low-profile net configurations, and implementing time and area closures (Table 6). However, not all regulations for nets  $\geq 4$  ISM are

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<sup>1</sup> <https://www.federalregister.gov/documents/2013/09/17/2013-22592/endangered-species-file-no-16230>

applied in the same manner in each Management Unit based on historical information for where risk of incidental takes of sea turtles was the greatest. Additionally, the NCDMF mirrors by proclamation the federal deep-water closure in Pamlico Sound during 1 September–15 December (50 C.F.R. § 223.206 (d)(7)). The Conservation Plan also requires the continuation of seasonal attendance requirements for anchored small-mesh gill nets that were outlined in the original application.

In May 2020, the NCDMF contacted the NMFS to request clarification regarding sea turtle tagging protocols. Although the ITP requires that incidentally captured sea turtles be tagged, staff at the NMFS Southeast Fisheries Science Center (SEFSC; Beaufort, NC) communicated to the NCDMF that there had been recent changes to their tagging protocols. These changes affected the type of training that NMFS SEFSC staff provided, which meant that observers did not have the training necessary to fulfill the tagging requirement per the ITP. On 1 September 2020, the NMFS provided a notification letter to the NCDMF removing the ITP requirement for observers to apply flipper and Passive Integrated Transponders (PIT) tags to incidentally captured sea turtles (Byrd et al. 2021).

After the issuance of the Sea Turtle ITP in 2013, the NCDMF also received an ITP (No. 18102) in 2014 to address incidental takes of Atlantic Sturgeon (*Acipenser oxyrinchus*) in gill-net fisheries operating in estuarine waters across the state (79 FR 43716<sup>2</sup>). Although the Atlantic Sturgeon and Sea Turtle ITPs and their Conservation Plans addressed different taxa, the fisheries included therein were the same. Both ITPs were reliant on observer coverage to document incidental takes and to estimate total incidental takes where possible. Data from observed trips are used for both ITPs. Notably, however, the ITPs defined large mesh differently; the Sea Turtle ITP defined large-mesh gill nets as  $\geq 4$  ISM and the Atlantic Sturgeon ITP defined them as  $\geq 5$  ISM. The Atlantic Sturgeon ITP also required observer coverage thresholds to be met across all MUs within a season rather than within each MU within each season. Finally, the Atlantic Sturgeon ITP included required observer coverage and authorized take levels during winter.

In recent years, regulatory changes related to several Fishery Management Plans (FMPs) have significantly reduced fishing effort using estuarine large-mesh gill nets. One such example is the adoption of Amendment 2 of the Southern Flounder FMP on 23 August 2019 by the Marine Fisheries Commission (MFC; NCDMF 2019). Regulatory measures in this amendment were a result of the most recent Southern Flounder stock assessment, which indicated that the stock was overfished and overfishing was occurring. North Carolina state law requires management actions be taken to end overfishing within two years and to recover the stock from an overfished condition within 10 years. To meet these legal requirements, the NCDMF determined a 62% reduction in overall harvest was necessary for 2019 and a 72% harvest reduction would be needed beginning in 2020. Amendment 2 was expedited to begin rebuilding the stock immediately (NCDMF 2022). Due to the shortened time frame for development, Amendment 2 incorporated a seasonal approach to meet reductions while deferring more complex and comprehensive strategies to be developed in Amendment 3. For the commercial gill-net fishery, these regulations severely limited when large-mesh gill nets harvesting flounder were allowed. For example, for fall 2019–2021, the Southern Flounder commercial fisheries were constrained by setting specific dates when fishing was allowed across three Flounder Management Areas (MAs): Northern, Central, and Southern. Prior to fall 2019, the fishery was most active during the fall, but could operate January through

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<sup>2</sup> <https://www.federalregister.gov/documents/2014/07/28/2014-17645/endangered-species-file-no-18102>

November. Amendment 3 was adopted by the MFC on 26 May 2022 to establish new and continued regulations that would facilitate the rebuilding of the Southern Flounder stock. Amendment 3 established a quota-managed fishery for mobile gears (e.g., estuarine anchored large-mesh gill nets and gigs) and pound nets with separate sub-allocations by MA (NCDMF 2022). Estuarine Flounder Dealer Permits were required for any fish dealer to possess, purchase, sell, or offer for sale flounder taken from estuarine waters. As a condition of the permit, dealers were required to report flounder landings from a given day by noon the following day or, for landings on Fridays or Saturdays, by noon the following Monday. Other changes included the consolidation of mobile gear MAs from three areas in Amendment 2 to two areas (Northern MA: ITP MUs A, B, and C; Southern MA: ITP MUs D1, D2 and E; Figure 1) and the gradual reallocation of the fishing quota to 50/50 recreational/commercial by 2026. Some regulations from Amendment 2 were maintained, such as limiting the allowed yardage of gill nets (i.e., 1,500 yards in MUs A, B, and C, and 750 yards in MUs D and E) and limiting gear soak time to overnight soaks state-wide of gill nets targeting flounder.

Regulatory changes related to the management of American Shad (*Alosa sapidissima*) and Striped Bass (*Morone saxatilis*) have also affected large-mesh gill-net fisheries in MUs A and C. The NC American Shad Sustainable Fishery Plan, which set sustainability parameters for the American Shad stock, was approved by the MFC in 2013. Due to sustainability parameters being exceeded in MU A, the allowed season for anchored gill nets configured for harvesting American Shad in MU A was initially limited to 1 February–14 April and then further reduced in 2014 to 3–24 March (NCDMF and North Carolina Wildlife Resources Commission [NCWRC] 2017). The duration of the season has been shortened at times due to the concurrent harvest of Striped Bass. Striped Bass are a desirable bycatch species in the American Shad fishery in MU A. As a quota-managed species, Striped Bass bycatch in the shad fishery can force the fishery to close early if the quota is met before the defined end to the shad season. Striped Bass management has also led to recent regulatory changes due to the adoption of the 2020 Revision of Amendment 1 to the North Carolina Estuarine Striped Bass FMP (NCDMF and NCWRC 2020). As a result of this amendment, Total Allowable Landings (TAL) of Striped Bass were reduced from 275,000 pounds to 51,216 pounds, effective 1 January 2021. Furthermore, midway through the 2021 shad season, the lower Chowan River and western Albemarle Sound were closed to the use of gill nets due to the historical bycatch of Striped Bass in that area (Proclamation M-9-2021; Table 7). This closure was included in the proclamation that opened MU A for the 2023 shad fishery for the same reason (Proclamation M-5-2023; Table 7).

Regulations implemented in MU C have all but ended the large-mesh gill-net shad fishery in that area. Since 15 March 2019, all gill nets have been prohibited in upstream portions of the Pamlico and Neuse rivers, greatly reducing the areas of MU C open to gill nets (Proclamation M-6-2019; Table 7). In accordance with Supplement A to Amendment 1 and Amendment 2 to the Estuarine Striped Bass Fishery Management Plan (NCDMF and NCWRC 2019) commercial harvest of striped bass in MU C has been prohibited since 2019. To that end, tie-down and distance-from-shore restrictions remain in place for large-mesh gill nets in the western Pamlico Sound and associated rivers as an effort to minimize Striped Bass bycatch. These restrictions reportedly make it difficult to successfully catch shad using anchored gill-net gear in MU C. Decreasing trends in reported trips support this anecdotal information as reported large-mesh gill-net trips in MU C went from an average of 966 trips during spring during 2016–2018 to an average of 17 trips during 2019–2021.

Per ITP requirements, the Observer Program provides seasonal and annual reports to NMFS each ITP year. Additionally, weekly progress reports are provided following each week in which an observed sea turtle interaction occurred. During the 2023 ITP Year seasonal reports were provided for fall (September–November 2022), spring (March–May 2023), and summer (June–August 2023). In contrast to the Atlantic Sturgeon ITP, the Sea Turtle ITP does not require observer coverage or seasonal reports for winter because sea turtles are less likely to be present in North Carolina estuarine waters during this time. This annual report outlines observer activity, fishing activity, and total or estimated takes of sea turtles for three seasons during the 2023 ITP Year, 1 September 2022–31 August 2023. Fishing activity (i.e., effort) was measured as the number of reported fishing trips; these data are finalized only for fall 2022. After the preliminary data for 2023 are finalized in May 2024, observer coverage and authorized estimated sea turtle takes will be recalculated and finalized estimates will be provided to the NMFS in the form of an addendum.

## **2 METHODS**

### **2.1 Observer Activity**

A sea-day schedule of projected observer trips for each season by month and MU during the 2023 ITP Year was developed during the prior season. The number of projected observer trips was based on the maximum goals for coverage outlined in the Conservation Plan: 10% coverage of total large-mesh gill-net fishing trips and 2% coverage of total small-mesh gill-net fishing trips. Data on commercial fishing effort were sourced from the NCDMF Trip Ticket Program (TTP), whereby fish dealers complete a trip ticket every time a commercial fisher sells finfish and/or shellfish. Trip tickets record information such as gear type, area fished, species harvested, and total weight by species. For anchored gill nets, the TTP defines large-mesh ( $\geq 5$  ISM) and small-mesh ( $< 5$  ISM), which is different than the definitions of mesh-size categories as outlined by the Sea Turtle ITP. It is uncommon, however, for gill nets to have a mesh size between these two sizes and in many cases those mesh sizes are prohibited; therefore, we assumed effort by mesh categories in the TTP dataset would not be greatly affected by the difference in definitions of mesh size. As such, projected observer trips were stratified across each month within three seasons and six MUs proportional to TTP data of reported fishing trips. The seasons crossed calendar years and were defined as follows: fall (September–November 2022), spring (March–May 2023), and summer (June–August 2023). Consistent with federal rule (50 C.F.R. § 223.206 (d)(7)), large-mesh gill nets operating in Pamlico Sound (Management Unit B) during 1 September–15 December were confined to specific subunits (Shallow Water Gill-Net Restricted Areas 1-4, and Mainland Gill-Net Restricted Area). This has effectively closed the fishery in the deep waters of Pamlico Sound and in corridors near Ocracoke, Hatteras, and Oregon inlets (Proclamation M-15-2022; Table 7; Figure 1).

Historically, projecting observer trips for the sea-day schedule was calculated as the average of reported gill-net trips by mesh-size category (large and small), month and MU from the previous five years (e.g., 2017–2021 for the 2022 fall season). Though this approach was used to estimate small-mesh gill-net fishing effort, it was not a viable prediction of large-mesh fishing effort during the 2023 ITP Year due to regulation changes described above. The fall 2022 flounder season was the first to be quota-managed per Amendment 3 and created uncertainty as to how fishers would respond to a fishery that was open until the quota was filled rather than a specific number of days per Amendment 2. With that uncertainty, two approaches to estimate effort were explored. The

first approach evaluated the previous year's landings and selected the week for each MU with the maximum number of participants, and then assumed each person would fish every day the season was open. This provided an estimated number of fishing trips per day. The second approach evaluated landings data during 2019–2021 (post Amendment 2) and selected the year with the greatest number of daily trips unique for each MU. For example, MU A had the greatest number of daily trips during 2020, but MU B had the greatest number of daily trips during 2021. For most MUs, the first approach produced a higher estimate of daily fishing effort. To be risk-averse, this approach was used to plan for the number of observed trips for each MU per day based on 10% of the estimated fishing trips unique to each MU. It was assumed that no fishing effort occurred in MU D1 because it has been closed to anchored large-mesh gill nets since 9 November 2017 when estimated Green Sea Turtle takes exceeded the authorized threshold (McConnaughey et al. 2019, Byrd et al. 2023). Additionally, per the Sea Turtle ITP, MU D1 is closed to large-mesh gill nets annually during 8 May–14 October. In the estuarine large-mesh gill-net fishery for American Shad, the method to estimate fishing effort was also adapted to accommodate recent changes in the management of this fishery. For MUs A and C, only the last three years (2020–2022) of reported fishing trips were used to project observer trips. Outside of these seasons and MUs, projected large-mesh observer trips were set to zero because large-mesh gill nets were not allowed.

The constrained seasons for the large-mesh gill-net fisheries concentrated fishing effort and the required observer effort to sufficiently cover the fisheries. Post-COVID changes to the hiring climate have made it difficult for NCDMF to hire seasonal observers to the extent needed. As a result, other NCDMF programs provided staff to help observe during the fall flounder and spring shad fisheries. The sea-day schedule continued to be shared with Marine Patrol officers, who conducted alternative platform observations as part of their regular duties.

Efforts to observe gill-net trips were facilitated by the continued requirement for fishers that use estuarine anchored gill nets to obtain an Estuarine Gill Net Permit (EGNP; Proclamation M-24-2014; Table 7). Permit holders provide their contact information so that observers can call and schedule observed trips. However, as the permit is free, many fishers get an EGNP but do not report trips using estuarine gill nets (Byrd et al. 2021). To optimize observer efforts to contact fishers, the NCDMF License and Statistics Section provided data on EGNP holders that had reported anchored estuarine fishing trips during the last three years. The dataset included all reported trips, associated mesh-size category, MU, permittee name, and contact information. This dataset was used to create a priority call list that observers used to call permit holders and attempt to schedule trips in advance. Observers also visited boat ramps to intercept fishers and attempt to get onboard trips or follow them out to observe them fishing their gear.

Observers were trained to identify, measure, evaluate the condition of, and resuscitate sea turtles by experienced NCDMF staff and Dr. Matthew Godfrey (NCWRC). Michele Lamping at the NC Aquarium Pine Knoll Shores also provided training sessions for sea turtle handling. Data collected on observed sea turtles included date, time, location (latitude and longitude, when possible), certain gear parameters, condition (e.g., no apparent harm, injury including a description of the nature of the injury, or mortality), species, sex (if determinable), curved carapace length (CCL, mm), and curved carapace width (CCW, mm). Photographs of sea turtles and data on environmental parameters (e.g., salinity, water temperature) were also collected when feasible. Dead or debilitated sea turtles were retained by the observer when possible and delivered to the NCWRC sea turtle biologist for either necropsy or rehabilitation. Individual reports of observed interactions were communicated with NMFS and NCWRC within 24 hours.

In addition to data specific to sea turtles, observers also collected data on catch and gear parameters. On alternative platform trips, the catch data were limited when compared to on-board trips. For unsuccessful alternative platform attempts (hereafter termed “No Contact” trips), observers recorded date, MU, and waterbodies surveyed. All data were coded onto NCDMF data sheets and uploaded to the NCDMF Biological Database for storage and analysis. Observers and Marine Patrol officers also logged data into a mobile ArcGIS application, Collector, in real time including set locations, gear parameters, and sea turtle interactions to provide daily total counts of trips and interactions.

Ongoing estimates of observer coverage were calculated by comparing the number of observed trips logged into Collector to the predicted number of fishing trips by mesh-size category, MU, and month. The numbers of No Contact trips were not included in these calculations. At the end of the calendar year, the TTP provided actual numbers of reported fishing trips to calculate observer coverage. The TTP data for 2022 (September–November) were finalized, but the data for 2023 (March–August) were preliminary. As a result, observer coverage calculated for spring and summer may change once finalized data are available in May or June 2024.

## 2.2 Incidental Takes

The ITP outlines authorized levels of incidental takes expressed as either estimated total takes based on observer data or counts of observed takes (Tables 1–5). Both types (estimated and counted) were necessary in development of authorized levels because there were insufficient data available for modeling predicted estimated takes in the ITP application for some combinations of species, MU, and mesh-size category (Daniel 2013). As a result, authorized levels of annual estimated interactions were only available for Green and Kemp’s Ridley Sea Turtles in MUs B, D1, and E in the large-mesh gill-net fishery, and for Kemp’s Ridley Sea Turtles in D2 in the large-mesh gill-net fishery. Authorized levels for all other combinations were based on counts of actual observed (i.e., not estimated) takes. Therefore, comparisons of interactions during the 2023 ITP Year to authorized interactions were based either on annual counts of observed sea turtle takes or annual estimates of sea turtle takes. During summer 2015, a minor modification to the ITP was enacted through the NMFS combining authorized takes for MUs A ( $n = 4$ ) and C ( $n = 4$ ) for a total authorized take limit of eight sea turtles from large-mesh or small-mesh gill nets and any species or disposition (Boyd 2016). Estimates of incidental take as outlined above were calculated using the stratified ratio method where the bycatch rate calculated from observer data (sea turtles caught per observed trip) was multiplied by the total reported fishing trips.

$$\text{Estimated Takes} = \left( \frac{\text{Observed Sea Turtle Takes}}{\text{Observed Gill-Net Trips}} \right) * \text{Total Reported Gill-Net Trips}$$

This calculation was used each time an incidental take was observed to determine the estimated number of interactions by date of capture, MU, species, and disposition. The predicted number of fishing trips was used to calculate real-time incidental take estimates. Estimated numbers of interactions and running totals of observed interactions were additive across interaction dates to determine if interactions were approaching authorized take thresholds. The ongoing comparisons allowed for the implementation of management measures, if needed, to prevent interactions from exceeding authorized levels. The estimated and/or total observed interactions were provided in weekly (when required), monthly, and seasonal reports.

At the end of the ITP year, the estimated number of interactions was recalculated using actual number of fishing trips, albeit preliminary for 2023, reported in the TTP rather than the estimated

numbers of fishing trips. Nonparametric confidence intervals (95%) were calculated using standard bootstrapping techniques (Efron and Tibshirani 1993) using the ‘boot’ package in R (Canty and Ripley 2015; Davison and Hinkley 1997; R Core Team 2019). Bootstrap replicates were generated by sampling observer trips with replacement 5,000 times within strata (mesh-size category/MU).

### **2.3 Compliance**

The Observer Program used various methods to contact fishers to schedule trips. The most common method was by phone, due to fishers leaving from private launches and overall efficiency. For each contact attempt made to schedule a trip (phone call, text message, or in-person), observers logged the contact in a database, assigned a category of the response, and noted any additional information (e.g., fisher stated they will not fish until October). Response categories included the following: 1) Left message with someone else; 2) Not fishing general; 3) Fishing other gear; 4) Not fishing because of weather; 5) Not fishing because of boat issues; 6) Not fishing because of medical issues; 7) Booked trip; 8) Hung up, got angry, trip refused; 9) Call back later time/date; 10) Saw in person; 11) Disconnected; 12) Wrong number; 13) No answer; 14) No answer, left voicemail; 15) Not fishing because of natural disaster (e.g., hurricane). Observers also documented calls returned from fishers, including the response category and notes. Contact log data were summarized by season and response category to determine the percentage of contacts that resulted in observer trips.

As part of their regular duties, Marine Patrol officers checked gill nets for compliance. Citations and/or Notice of Violations (NOVs) were issued to fishers when gear or fishing practices were out of compliance. A citation is an enforcement action taken by a Marine Patrol officer for person(s) found to be in violation of General Statutes, Rules, or Proclamations under the authority of the Marine Fisheries Commission and is considered a proceeding for District Court. An NOV is the NCDMF administrative process to suspend a permit (e.g., EGNP) and is initiated by an officer or NCDMF employee when a permit holder is found to be in violation of general or specific permit conditions. A citation and NOV may both be initiated by the same violation; however, they are two separate actions. In past years, relevant citations and NOVs were compiled based on the codes “EGNP” and “NETG”, as they are applicable to the EGNP and gill-net violations. Marine Patrol violation codes have been in the process of being changed from the former codes to the actual MFC rule and General Statute code. With these updates, violation descriptions have been changed to specify the rule or statute language and, where appropriate, proclamation number that was violated. All relevant citations and NOVS were compiled, which consist of old and new codes.

## **3 RESULTS**

### **3.1 Observer Activity**

Overall state-wide observer coverage across the three seasons covered for 2023 ITP Year was 25.9% of the large-mesh gill-net fishery and 2.1% of the small-mesh gill-net fishery (Tables 8 and 9; Figure 2). This level of coverage was based on 346 observed large-mesh gill-net trips and 107 observed small-mesh gill-net trips during fall, spring, and summer. Additionally, there were 683 No Contact trips (Table 10). When anchored gill nets could not be found, occasional observations of drift ( $n = 4$ ) and runaround ( $n = 38$ ) gill-net trips occurred (Table 11).

During the 453 observed trips, observers documented 30 sea turtles (24 Green Sea Turtles, 4 Kemp’s Ridley Sea Turtles, 1 Loggerhead Sea Turtle, and 1 unidentified sea turtle) in large-mesh gill nets and two Green Sea Turtles in small-mesh gill nets (Table 12; Figure 2). All observed



interactions occurred during fall. See Section 3.2 for further information on these interactions. Two sea turtles were reported by fishers, one Green Sea Turtle in a large-mesh gill net and one unidentified sea turtle in a small-mesh gill net (Table 13).

Proclamations relative to anchored gill-net fisheries are listed in Table 7. Required attendance of anchored small-mesh (<5 ISM) gill nets occurs annually across different spatiotemporal scopes in NC estuarine waters, as a strategy to decrease dead discards of various fish species (e.g., Red Drum [*Sciaenops ocellatus*], Striped Bass). Many of the net attendance requirements are in rule; NCDMF published an interactive map package online that provides visual references for these gill-net attendance regulations in rule (<https://deq.nc.gov/about/divisions/marine-fisheries/rules-proclamations-and-size-and-bag-limits/rules/interactive-map-current-rules>). Several other net attendance requirements are maintained through proclamations. For example, net attendance was required during December–April in MU A (Proclamations M-26-2022, M-10-2023), year around within 200 yards from shore in most of MU C (Proclamation M-3-2023), and during May–November in an area near Oregon Inlet, MU B (Proclamation M-3-2023; Table 7).

### 3.1.1 Fall 2022

During fall 2022, the allowed mobile gear (e.g., gill nets, gigs) quota for Southern Flounder was 123,879 pounds in the Northern MA and 62,309 pounds in the Southern MA (Proclamation FF-40-2022; Table 7). The fishery opened state-wide on 15 September 2022 except for D1 (Proclamations M-15-2022, M-17-2022; Table 7). However, 18 sea turtle interactions were observed within the first two days of the season in the southeastern portion of MU B (Figure 4). As a result, a proclamation was issued on the afternoon of 16 September, closing the following MU B subunits to anchored large-mesh gill nets: Core Sound Gill Net Restricted Area, Shallow Water Gill Net Restricted Area (SGNRA) 1, and SGNRA 2 (Proclamation, M-19-2022; Figure 1). On 22 September, the Northern and Southern flounder MAs were closed to mobile gears, including estuarine anchored large-mesh gill nets, based on reported landings compared to the quota (Proclamations FF-46-2022, M-20-2022 and M-21-2022; Table 7).

The small-mesh gill-net fishery opened state-wide at the beginning of fall (Proclamation M-16-2022; Table 7). However, MU B was closed to anchored small-mesh gill nets on 4 November in response to observed Green Sea Turtle interactions approaching authorized levels outlined in the Sea Turtle ITP (Proclamation M-25-2022; Table 7). Observer efforts were adjusted accordingly.

During fall, the Observer Program achieved 28.9% state-wide coverage of large-mesh gill-net trips, exceeding 7% coverage in each MU (Table 8; Figures 3-8). In fact, observer coverage calculations with actual reported fishing effort indicated that coverage levels were much higher in several MUs than anticipated using estimated fishing effort. For small-mesh gill nets, the Observer Program achieved 1.8% state-wide coverage, exceeding 1% observer coverage in each MU except MU A where observer coverage was 0.8% and MU C where observer coverage was 0% (Table 9; Figures 3-8). Of the 266 No Contact trips during fall, 111 of them occurred in MUs A and C primarily looking for small-mesh gill-net effort (Table 10). Occasionally, observations occurred of drift gill nets ( $n = 1$ ) and runaround gill nets ( $n = 26$ ; Table 11). Thirteen of the 26 runaround gill-net observations occurred in MU C when no anchored gill-net effort could be found.

All 32 sea turtle interactions were observed during fall, with all but two of them (both Green Sea Turtles) occurring in large-mesh gill nets (Table 12; Figures 4, 5 and 8). As mentioned above, there were also two self-reported interactions during fall. See Section 3.2 for further information on these interactions.

### 3.1.2 Spring 2023

During spring 2023, MU A was open to anchored large-mesh gill nets during 2-17 March (Proclamations M-5-2023, M-6-2023; Table 7). Management Unit C stayed open from when it was opened during winter (Proclamation M-4-2023). However, scheduling trips and finding effort in MU C continued to be a struggle as it was during winter. After no success of scheduling or finding large-mesh trips to observe during winter and early spring, NCDMF closed MU C to large-mesh gill nets on 31 March (Proclamation M-7-2023; Table 7). Similar to winter, TTP data confirmed that, in fact, no large-mesh gill-net trips were reported during spring (Table 8).

The small-mesh gill-net fishery was open state-wide at the beginning of spring. Observers struggled to find small-mesh gill-net effort in MUs D1, D2, and E. To ensure compliance with the ITP, several management actions were taken. On 28 April, MUs D1 and D2 were closed to anchored gill nets (Proclamation M-9-2023; Table 7). While MU D1 remained closed throughout the rest of spring, three fishers contacted staff about the MU D2 closure and agreed to arrange observed trips if the MU was reopened. Therefore, MU D2 was reopened on 8 May and observers arranged trips with those fishers (Proclamation M-12-2023; Table 7). Though one observed trip was completed in MU E, additional conversations with fishers indicated that effort was sparse to none. As a result, MU E was closed on 26 May (Proclamation M-13-2023; Table 7) and remained closed throughout the rest of spring. Observer efforts were adjusted accordingly. In MU A, the net attendance requirement for small-mesh gill nets was implemented on 30 April (Proclamation M-10-2023; Table 7). Other net attendance requirements came into effect on 1 May (<https://deq.nc.gov/about/divisions/marine-fisheries/rules-proclamations-and-size-and-bag-limits/rules/interactive-map-current-rules>).

During spring, the Observer Program achieved an estimated 18.4% coverage of the large-mesh gill-net trips in MU A (Table 8; Figure 9). No fishing trips were reported in MU C. For small-mesh gill-net trips, the Observer Program achieved an estimated 2.1% state-wide coverage exceeding 1% observer coverage in each MU except for D1 (Table 9; Figures 9-13). Though D1 was closed mid spring, seven reported fishing trips had already occurred. Of the 186 No Contact trips, 104 of them occurred in MUs D1, D2, and E looking for small-mesh gill-net effort (Table 10). Additionally, there were four observed runaround gill-net trips (Table 11).

There were no observed sea turtle interactions in gill nets during spring.

### 3.1.3 Summer 2023

During summer 2023, the estuarine anchored large-mesh gill-net fishery remained closed state-wide. However, closures to the estuarine anchored small-mesh gill-net fishery varied by month and MU. At the beginning of summer, MUs D1 and E remained closed from actions during spring. Fishers in MU E contacted staff about the extant closure there and agreed to arrange observed trips if the MU was reopened. Therefore, on 10 August, MU E was reopened (M-14-2023; Table 7). Management Unit D1 remained closed throughout summer. Observers and Marine Patrol officers were unable to locate small-mesh gill-net effort in MU B outside of SNGRA 2 and 4. To ensure continued compliance with the ITP, areas of MU B outside of SGNRA 2 and 4 were closed to anchored gill nets on 10 August (Proclamation M-14-2023; Table 7). This closure remained in effect throughout the remainder of summer.

The Observer Program did not observe any large-mesh gill-net trips during summer as the gear was prohibited state-wide (Table 8). For small-mesh gill-net trips, the Observer Program achieved an estimated 3.3% state-wide coverage, exceeding 1.0% in each open MU (Table 9; Figures 14-

18). In fact, there were two observed trips but only one reported fishing trip in MU D2. There were 231 No Contact trips, three observed drift gill-net trips, and eight observed runaround gill-net trips (Tables 10 and 11).

There were no observed sea turtle interactions in gill nets during summer.

### 3.2 Incidental Takes

All observed sea turtle interactions occurred during fall and most occurred (30 of 32) in large-mesh gill nets (Table 12; Figures 2, 4, 5, and 8). Most observed interactions were Green Sea Turtles (21 alive; 5 dead), followed by Kemp's Ridley Sea Turtles (4 alive), Loggerhead Sea Turtles (1 alive), and unidentified sea turtles (1 alive). The unidentified sea turtle was released by the fisher before a positive species identification could be made. The observer reminded the fisher of the requirement to give the animal to the observer. Observed interactions occurred primarily in MU B ( $n = 21$ ), followed by MU E ( $n = 7$ ) and MU C ( $n = 4$ ). Overall, 84% (27 of 32) of observed interactions were alive. Three of the live Green Sea Turtles were in poor condition and were transferred to veterinary care arranged by NCWRC. Two died overnight and one was released on 21 October (Godfrey, NCWRC, personal communication).

Measured Green Sea Turtles ( $n = 17$  of 26) ranged from 250 to 360 mm CCL ( $\bar{x} = 294.7$ , standard deviation [SD] = 24.5) and 204 to 300 mm CCW ( $\bar{x} = 251.0$ , SD = 26.8; Figure 19). Measured Kemp's Ridley Sea Turtles ( $n = 3$  of 4) ranged from 266 to 380 mm CCL ( $\bar{x} = 332.3$ , SD = 59.2) and 241 to 400 mm CCW ( $\bar{x} = 334.7$ , SD = 83.2; Figure 19). The one observed Loggerhead Sea Turtle was 510 mm CCL and 495 mm CCW (Figure 19).

Observed take levels during the 2023 ITP Year did not reach the thresholds of allowed takes for any species or MU (Tables 1–5). Of the 32 observed takes, 25 of them were included in take estimations across the fishery:  $n = 21$  Green Sea Turtles (16 live, 5 dead), large-mesh, MUs B & E; and  $n = 4$  (all live) Kemp's Ridley Sea Turtles, large-mesh, MUs B & E. For Green Sea Turtles, the resulting 48.5 estimated live takes accounted for 15% of the authorized number of 330 and the 12.9 estimated dead takes accounted for 8% of the authorized number of 165 (Table 5). For Kemp's Ridley Sea Turtles, the resulting 12.6 estimated live takes accounted for 13% of the authorized number of 98. The remaining seven of the 32 observed takes were not extrapolated across the fishery:  $n = 2$  Green Sea Turtles, small-mesh, MU B;  $n = 3$  Green Sea Turtles, large-mesh, MU C,  $n = 1$  Loggerhead Sea Turtle, large-mesh, MU B; and  $n = 1$  unidentified sea turtle, large-mesh, MU C. For Green Sea Turtles, the combined five live takes accounted for 28% of the authorized number of 18. The single observed Loggerhead Sea Turtle accounted for 4% of the authorized number of 24.

Two sea turtles were reported by fishers, one Green Sea Turtle in a large-mesh gill net and one unidentified sea turtle in a small-mesh gill net (Table 13).

### 3.3 Compliance

During the 2023 ITP Year, there were 2,438 fishers with an EGNP; 92% ( $n = 2,254$ ) of the permit holders also held a Standard Commercial Fishing License (SCFL) or Retired Standard Commercial Fishing License (RSCFL) and 8% ( $n = 184$ ) held a Recreational Commercial Gear License (RCGL). Of the commercial fishing permit holders, only 630 (28%) reported trips using anchored estuarine gill-net gear.

Using the priority call list of EGNP holders, 1,504 phone calls or in-person contacts were made with 43% ( $n = 649$ ) representing occasions where observers and fishers spoke to each other. Of

the 649 conversations, 93 of them (14%) were a result of fishers returning observer phone calls. Nevertheless, only 6% ( $n = 90$ ) of the 1,504 contacts resulted in a booked trip (Figure 20). The greatest number of calls occurred during spring, and the least number of calls occurred in summer.

During the 2023 ITP Year, Marine Patrol officers issued 31 citations (Fall,  $n = 16$ ; Spring,  $n = 7$ ; Summer,  $n = 8$ ; Table 14) and 24 NOVs (Fall,  $n = 8$ ; Spring,  $n = 11$ ; Summer,  $n = 5$ ; Table 15).

### **3.4 Marine Mammals**

There were no observed marine mammal interactions during the 2023 ITP Year.

## **4 DISCUSSION**

Incidental takes of sea turtles during the 2023 ITP Year were below authorized levels. The NCDMF Observer Program used a combination of real-time monitoring of sea turtle interactions and an adaptive management approach when necessary to successfully control the number of interactions in estuarine anchored gill-net fisheries. Overall, most observed sea turtles were released alive, thereby limiting negative effects of these interactions. Interactions continue to be more common in anchored large-mesh than small-mesh gill nets. This trend may be a result of differences in interaction rates between the two mesh-size categories and the fact that more than twice as many large-mesh gill nets are observed.

During the 2023 ITP Year, the Observer Program worked with other NCDMF programs and Marine Patrol to leverage assistance in obtaining coverage. For the fall large-mesh fishery, observer coverage in most MUs was 2-3 times greater than the goal of 10% once reported fishing trip data were available. This high level of coverage was a result of the Division's risk-averse approach to estimating effort for the first quota-managed flounder season. Accomplishing this high level of coverage required mobilization of many more Division staff than typical for this fishery. Adjustments to estimating fishing effort in future flounder seasons will be discussed internally and with NMFS to improve this estimate of fishing effort to optimize the use of Division staff.

Minimum levels of required observer coverage of small-mesh gill nets were met in most cases at the seasonal and MU level. Starting in spring 2023, NCDMF began exercising proclamation authority more often to close all or partial MUs when there was a risk of not obtaining minimum observer coverage on a MU and seasonal basis as required by the Sea Turtle ITP. In some cases, this resulted in fishers contacting NCDMF to request for their area to be reopened and agreeing to arrange observer trips. This approach contributed to observer coverage requirements being met at the MU and season level. The NCDMF will continue to consider this option to ensure compliance with the ITP requirements for observer coverage is maintained.

Scheduling observed trips continues to be a challenge for the NCDMF Observer Program, a challenge shared by other observer programs (e.g., Lyssikatos and Garrison 2018). The EGNP is a useful tool to improve compliance by including specific permit conditions requiring fishers to allow observers aboard their vessels to monitor catch and by providing contact information for permit holders. Phone calls made to EGNP holders contributed to observers scheduling some trips, but the success rate of scheduling trips was low (~6%). Although refusal of an observed trip by a fisher can result in a suspension of their EGNP, non-compliance typically does not include such a direct refusal. More often, avoidance of accepting or returning observer phone calls occurs. As such, non-compliance continues to be a hurdle for ensuring the observer coverage requirements of both ITPs are met.

The Division has been coordinating with the NC Department of Information Technology to develop a call-in system, the Observer Trip Scheduling System (OTSS). The OTSS will help ensure that ITP observer coverage requirements are met, and that the observer coverage is distributed evenly among participants and representative of the fishery. During spring 2023, the Observer Program held five public outreach meetings across the state to gather input from fishers on the development of the OTSS and to share information as to the necessity of the system. This input was used to tailor the OTSS as much as possible to the needs of the users and ensure fisher compliance. Currently, the OTSS is in the internal testing phase. Once this testing phase is complete, the Observer Program will reach out to members of the commercial fishing industry, including those on the MFC, to further test the system. An implementation date for requiring participation in the OTSS has not been set, but the target date is early 2024. Public information meetings and trainings will occur before the OTSS is fully implemented.

Although onboard observations are the preferred method, alternative platform observations played a critical role in the continuation of observing gill nets during the 2023 ITP Year. There are several advantages to an alternative platform approach. For example, this approach does not rely on previous contact with fishers to obtain an observable trip. Alternative platform observations also allow Marine Patrol officers to conduct observations as part of daily patrols; their observed trips contribute a substantial portion of the total alternative platform observations. Even for fishers who would willingly take an observer, many vessels used by gillnetters in estuarine waters are too small to easily accommodate an observer, making alternative platform observations ideal for capturing trips with this size class of vessel (Kolkmeier et al. 2007). Nevertheless, the alternative platform method has several drawbacks. Alternative platform observations require two observers, halving observer effort and program efficiency. Obtaining alternative platform observations does not always compensate for the difficulty in scheduling trips in advance. Because few observer trips were scheduled in advance, a significant amount of time was spent searching for fishing activity, especially when fishing activity was less concentrated. However, this effort by observers and Marine Patrol officers was sometimes unsuccessful at finding trips to observe. The OTSS should improve the Observer Program's ability to schedule trips in advance and to meet the observer coverage requirements of the ITP.

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## 6 TABLES

**Table 1.** For large-mesh ( $\geq 4$  inches stretched mesh) gill nets, annual estimated authorized and actual takes of sea turtles by species and Management Unit (B, D1, D2, and E) for the 2023 Incidental Take Permit (ITP) Year. Estimated actual takes were calculated from 21 (16 live, 5 dead) observed Green Sea Turtles and four (all live) observed Kemp’s Ridley Sea Turtles; 95% confidence intervals are provided in parentheses. Takes of Green Sea Turtles in Management Unit D2 are denoted as not applicable (n/a) because authorized takes in the ITP are expressed as counts observed takes not estimated takes (see Table 2).

Species	B				D1				D2			
	Estimated Takes				Estimated Takes				Estimated Takes			
	Authorized		Actual		Authorized		Actual		Authorized		Actual	
	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead
Green	225	112	40.3 [11.6, 122.1]	9.1 [0, 21.2]	9	5	0	0	n/a	n/a	n/a	n/a
Kemp's Ridley	53	26	10.59 [0, 25.0]	0	15	7	0	0	6	3	0	0
Total	278	138	50.92	9.08	24	12	0	0	6	3	0	0

Species	E				Total			
	Estimated Takes				Estimated Takes			
	Authorized		Actual		Authorized		Actual	
	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead
Green	96	48	8.2 [0, 28.6]	3.8 [0, 11.8]	330	165	48.5	12.9
Kemp's Ridley	24	13	2.1 [0, 6.1]	0	98	49	12.6	0
Total	120	61	10.23	3.84	428	214	61.1	12.9



**Table 2.** For large-mesh ( $\geq 4$  inches stretched mesh) gill nets, annual authorized and actual counts of observed (not estimated) takes of sea turtles by species and Management Units (MUs) B, D1, D2, and E for the 2023 Incidental Take Permit Year (ITP). Takes of Kemp’s Ridley Sea Turtles and Green Sea Turtles in some MUs are denoted as not applicable (n/a) because authorized takes in the ITP are expressed as estimated takes for the fishery, not counts of observed takes (see Table 1).

Species	B		D1		D2		E		Total	
	Observed (live/dead)		Observed (live/dead)		Observed (live/dead)		Observed (live/dead)		Observed (live/dead)	
	Authorized	Actual	Authorized	Actual	Authorized	Actual	Authorized	Actual	Authorized	Actual
Green	n/a	n/a	n/a	n/a	6	0	n/a	n/a	6	0
Kemp's Ridley	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Hawksbill	1	0	1	0	1	0	1	0	4	0
Leatherback	1	0	1	0	1	0	1	0	4	0
Loggerhead	3	1	3	0	3	0	3	0	12	1
Total	5	1	5	0	11	0	5	0	26	1

**Table 3.** For large-mesh ( $\geq 4$  inches stretched mesh) and small-mesh ( $< 4$  inches stretched mesh) gill nets combined, annual authorized and actual counts of observed (not estimated) takes of sea turtles by Management Unit (A and C) for the 2023 Incidental Take Permit Year. Authorized levels per management unit are four sea turtles of any species.

Species	A		C		Total	
	Authorized (live/dead)	Actual (live/dead)	Authorized (live/dead)	Actual (live/dead)	Authorized (live/dead)	Actual (live/dead)
Green		0		3		3
Kemp's Ridley		0		0		0
Hawksbill	4 (any species)	0	4 (any species)	0	8 (any species)	0
Leatherback		0		0		0
Loggerhead		0		0		0

**Table 4.** For small-mesh (<4 inches stretched mesh) gill nets, annual authorized and actual counts of observed (not estimated) takes of sea turtles by species and Management Units B, D1, D2, and E for the 2023 Incidental Take Permit Year.

Species	B		D1		D2		E		Total	
	Observed (live/dead)		Observed (live/dead)		Observed (live/dead)		Observed (live/dead)		Observed (live/dead)	
	Authorized	Actual	Authorized	Actual	Authorized	Actual	Authorized	Actual	Authorized	Actual
Green	3	2	3	0	3	0	3	0	12	2
Kemp's Ridley	3	0	3	0	3	0	3	0	12	0
Hawksbill	1	0	1	0	1	0	1	0	4	0
Leatherback	1	0	1	0	1	0	1	0	4	0
Loggerhead	3	0	3	0	3	0	3	0	12	0
Total	11	2	11	0	11	0	11	0	44	2

**Table 5.** Total annual authorized and actual takes (either counts of observed or estimated) of sea turtles by species and, for estimated takes, by condition for the 2023 Incidental Take Permit (ITP) Year. Takes expressed as estimated numbers are denoted as not applicable (n/a) for species whose authorized takes in the ITP are expressed only as counts. The observed sea turtle interaction that was unidentified (Management Unit C, large-mesh [ $\geq 4$  inches stretched mesh] gill net, live) is listed under Any Species.

Species	Observed (live/dead)		Estimated			
	Authorized	Actual	Authorized		Actual	
	Live/Dead	Live/Dead	Alive	Dead	Alive	Dead
Green	18	5	330	165	48.5	12.9
Kemp's Ridley	12	0	98	49	12.6	0
Hawksbill	8	0	n/a	n/a	n/a	n/a
Leatherback	8	0	n/a	n/a	n/a	n/a
Loggerhead	24	1	n/a	n/a	n/a	n/a
Any Species	8	1	n/a	n/a	n/a	n/a
Total	78	7	428	214	61.2	12.9

**Table 6.** Restrictions implemented for estuarine anchored gill nets  $\geq 4$  inches stretched mesh included in the current NCDMF Sea Turtle (No. 16230) and Atlantic Sturgeon (No.18102) Incidental Take Permits. Cells highlighted in gray had no restrictions per the ITPs. MU = Management Unit.

MU	Soak time	Days of the week	Net Length	Gear configuration	Low-profile requirements	Area Closure
A north of US Hwy 64 bridge	Must be < 24 hours soak time and fished before noon each day		Maximum net length per fishing operation is 2,000 yd (1.83 km)			Western Albemarle Sound in the vicinity of the mouth of the Roanoke River including the entire Roanoke River up to the dam in Weldon, permanently closed to all gill nets.
A south of US Hwy 64 bridge	One hour before sunset to one hour after sunrise	Monday night - Friday morning	Maximum net length per fishing operation is 2,000 yd (1.83 km)	Net-shot lengths < 100 yd with a 25-yd separation between each net-shot	Nets must not exceed 15 meshes in height and must have a lead core or leaded bottom line. Nets must not have cork, floats, or other buoys except those required for identification.	
B	One hour before sunset to one hour after sunrise	Monday night - Friday morning	Maximum net length per fishing operation is 2,000 yd (1.83 km)	Net-shot lengths < 100 yd with a 25-yd separation between each net-shot	Nets must not exceed 15 meshes in height and must have a lead core or leaded bottom line. Nets must not have cork, floats, or other buoys except those required for identification.	Prohibition of large mesh gillnets in the deep-water portions of the Pamlico Sound and in Oregon, Hatteras, and Ocracoke inlets September 1 through December 15.
C	Must be < 24 hours soak time and fished before noon each day		Maximum net length per fishing operation is 2,000 yd (1.83 km)			
D1	One hour before sunset to one hour after sunrise	Monday night - Friday morning	Maximum net length per fishing operation is 2,000 yd (1.83 km)	Net-shot lengths < 100 yd with a 25-yd separation between each net-shot	Nets must not exceed 15 meshes in height and must have a lead core or leaded bottom line. Nets must not have cork, floats, or other buoys except those required for identification.	Closed May 8 through October 14
D2	One hour before sunset to one hour after sunrise	Sunday night - Friday morning	Maximum net length per fishing operation is 1,000 yd (0.91 km)	Net-shot lengths < 100 yd with a 25-yd separation between each net-shot	Nets must not exceed 15 meshes in height and must have a lead core or leaded bottom line. Nets must not have cork, floats, or other buoys except those required for identification.	
E	One hour before sunset to one hour after sunrise	Sunday night - Friday morning	Maximum net length per fishing operation is 1,000 yd (0.91 km)	Net-shot lengths < 100 yd with a 25-yd separation between each net-shot	Nets must not exceed 15 meshes in height and must have a lead core or leaded bottom line. Nets must not have cork, floats, or other buoys except those required for identification.	

**Table 7.** Regulations by effective date for estuarine anchored gill nets during the 2023 Incidental Take Permit (ITP) Year or referenced in the text for previous ITP years. Proclamations occurring during winter months affected fishing effort in subsequent months.

Year	Effective Date	Proclamation Number	Regulation
2014	1-Sep	M-24-2014	This proclamation established the requirement that makes it unlawful for holders of a Standard Commercial Fishing License (SCFL), Retired Standard Commercial Fishing License (RSCFL), or Recreational Commercial Gear License (RCGL) to deploy gill nets in Internal Coastal Waters with an exception for run around, strike, drop or drift gill nets, without possessing a valid Estuarine Gill Net Permit issued by the Division of Marine Fisheries.
2019	18-Mar	M-6-2019	This proclamation supersedes proclamation M-5-2019, dated March 7, 2019. This proclamation prohibits the use of ALL gill nets upstream of the ferry lines from the Bayview Ferry to Aurora Ferry on the Pamlico River and the Minnesott Beach Ferry to Cherry Branch Ferry on the Neuse River. It maintains tie-down (vertical net height restrictions) and distance from shore restrictions for gill nets with a stretched mesh length 5 inches and greater in the western Pamlico Sound and rivers (excluding the areas described in Section I. B.) in accordance with Supplement A to Amendment 1 to the N.C. Estuarine Striped Bass Fishery Management Plan.
2021	12-Mar	M-9-2021	This proclamation supersedes proclamation M-7-2021 dated February 25, 2021. It closes a portion of Management Unit A to the use of all gill nets and reduces the maximum amount of yards allowed for gill nets configured for harvesting American shad.
2022	14-Sep	M-15-2022	This proclamation supersedes proclamation M-8-2022 dated April 12, 2022. This proclamation opens Management Units B (subunits only), C, D2, and E 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 Amendment 3 to the N.C. Southern Flounder Fishery Management Plan and the Federal Incidental Take Permits for endangered and threatened Sea Turtles and endangered Atlantic sturgeon.
2022	1-Sep	M-16-2022	This proclamation supersedes proclamation M-10-2022 dated April 27, 2022. It opens Management Unit A to the use of small mesh anchored gill nets and implements small mesh gill net attendance requirements in accordance with the Division’s Fishery Management Plans for Estuarine Striped Bass and River Herring and the Incidental Take Permits for threatened or endangered sea turtles and endangered Atlantic sturgeon. It keeps open a portion of Management Unit A to the use of run-around, strike, drop, and trammel gill nets with a stretched mesh length of 5 ½ inches through 6 ½ inches for harvesting blue catfish.

Year	Effective Date	Proclamation Number	Regulation
2022	15-Sep	FF-40-2022	This proclamation supersedes Proclamation FF-40-2021, dated June 28, 2021. It establishes commercial flounder season dates for Internal Coastal Waters by Flounder Management Area and Gear Category. This action is being taken to comply with the requirements of Amendment 3 to the N.C. Southern Flounder Fishery Management Plan and maintain harvest within the total allowable landings.
2022	14-Sep	M-17-2022	This proclamation supersedes proclamation M-16-2022 dated August 26, 2022. It opens Management Unit A to the use of gill nets for the purpose of harvesting flounder in accordance with Amendment 3 to the N.C. Southern Flounder Fishery Management Plan and the Incidental Take Permits for threatened or endangered sea turtles and endangered Atlantic sturgeon. It maintains the exempted areas in MUA open to the use of run-around, strike, drop, and trammel gill nets to harvest blue catfish. It also maintains small mesh gill net attendance requirements in the entirety of Management Unit A.
2022	16-Sep	M-19-2022	This proclamation supersedes proclamation M-15-2022 dated August 26, 2022. This proclamation closes Management Unit B subunits SGNRA1, SGNRA2, and CGRNA to the use of gill nets with a stretched mesh length of 4 inches through 6 ½ inches (except as described in Section III.) accordance with Amendment 3 to the N.C. Southern Flounder Fishery Management Plan and the Incidental Take Permits for endangered and threatened Sea Turtles and endangered Atlantic sturgeon. It maintains openings in Management Units C, D2, and portions of Management Unit E (except those portions described in Section II.)
2022	21-Sep	FF-46-2022	This proclamation supersedes Proclamation FF-40-2022, dated July 8, 2022. It closes the commercial flounder season for the Southern Management Area Wednesday, September 21, 2022, and the Mobile Gear Northern Area Thursday, September 22, 2022, and maintains the season, size, and gear restrictions for the Pound Net Northern, Central, and Southern Management Areas. This proclamation also establishes a 1,000-pound daily trip limit for the commercial pound net fishery in the Pound Net Northern Management Area beginning September 22, 2022. If the division determines quota is available for additional harvest days further proclamations will be released. This action is being taken to comply with the requirements of Amendment 3 to the N.C. Southern Flounder Fishery Management Plan and maintain harvest within the total allowable landings (TAL).
2022	22-Sep	M-20-2022	This proclamation supersedes proclamation M-19-2022 dated September 16, 2022. This proclamation closes Management Units D2 and E at 12:00 P.M. on September 21, 2022, and Management Units B and C at 10:00 A.M. on September 22, 2022, 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 Amendment 3 to the N.C. Southern Flounder Fishery Management Plan.

Year	Effective Date	Proclamation Number	Regulation
2022	22-Sep	M-21-2022	This proclamation supersedes proclamation M-17-2022 dated September 6, 2022. It closes Management Unit A to the use of large mesh anchored gill nets with overnight soaks for harvesting flounder. It maintains small mesh gill net attendance requirements and keeps open a portion of Management Unit A to the use of run-around, strike, drop, and trammel gill nets with a stretched mesh length of 5 ½ inches through 6 ½ inches for harvesting blue catfish.
2022	4-Nov	M-25-2022	This proclamation supersedes proclamation M-24-2022 dated November 2, 2022. It closes Management Unit B to the use of fixed or stationary gill nets with a stretched mesh length less than 4 inches and maintains exemptions for actively fished gill nets.
2022	1-Dec	M-26-2022	This proclamation supersedes proclamation M-21-2022 dated September 21, 2022. In Management Unit A, it removes attendance requirements and imposes vertical height restrictions for anchored gill nets with a stretched mesh length of 3 inches through 3 ¾ inches. It maintains the exempted portion of Management Unit A that allows the use of run-around, strike, drop, and trammel gill nets with a stretched mesh length of 5 ½ inches through 6 ½ inches to harvest blue catfish.
2023	13-Jan	M-3-2023	This proclamation supersedes proclamation M-25-2022 dated November 4, 2022. It opens Management Unit B to the use of fixed or stationary gill nets with a stretched mesh length less than 4 inches and increases the yardage limits for the small mesh gill net fishery in portions of Management Unit B.
2023	15-Feb	M-4-2023	This proclamation supersedes proclamation M-20-2022, dated September 21, 2022. This proclamation opens Management Unit C to the use of gill nets with a stretched mesh length of 4 inches through 6 ½ inches and implements gear exemptions for the shad fishery in all areas south of Management Unit A in accordance with Amendment 3 to the N.C. Southern Flounder Fishery Management Plan.
2023	2-Mar	M-5-2023	This proclamation supersedes proclamation M-2-2023 dated December 21, 2022. It opens a portion of Management Unit A to the use of floating gill nets configured for harvesting American shad by removing vertical height and setting restrictions for all gill nets with stretched mesh lengths of 5 ¼ through 6 ½ inches.
2023	17-Mar	M-6-2023	This proclamation supersedes proclamation M-5-2023 dated February 28, 2023. In Management Unit A, it removes gill nets configured for harvesting American shad and it remains unlawful to use fixed or stationary gill nets with a stretched mesh length other than 3 ¼ inches. It opens an exempted portion of Management Unit A that allows the use of run-around, strike, and drop gill nets with a stretched mesh length of 5 ½ inches through 6 ½ inches to harvest blue catfish.

Year	Effective Date	Proclamation Number	Regulation
2023	31-Mar	M-7-2023	This proclamation supersedes proclamation M-4-2023, dated February 13, 2023. This proclamation closes Management Unit C to the use of set gill nets with a stretched mesh length of 4 inches through 6 ½ inches and maintains gear exemptions for the shad fishery in all areas south of Management Unit A in accordance with Amendment 3 to the N.C. Southern Flounder Fishery Management Plan and the Incidental Take Permits for endangered and threatened Sea Turtles and endangered Atlantic sturgeon.
2023	28-Apr	M-9-2023	This proclamation supersedes proclamation M-3-2023 dated January 11, 2023. It reduces the yardage limits for gill nets less than 4 inches stretched mesh used in Management Unit B, establishes a drift gill net yardage limit for the Spanish Mackerel fishery that occurs in Management Unit B and closes Management Units D1 and D2 to the use of fixed or stationary gill nets less than 4 inches stretch mesh while allowing an exemption for actively fished nets.
2023	30-Apr	M-10-2023	This proclamation supersedes proclamation M-6-2023 dated March 15, 2023. In Management Unit A, it implements small mesh gill net attendance requirements and keeps open a portion of Management Unit A to the use of run-around, strike, and drop gill nets with a stretched mesh length of 5 ½ inches through 6 ½ inches for harvesting blue catfish.
2023	8-May	M-12-2023	This proclamation supersedes proclamation M-9-2023 dated April 26, 2023. It opens Management Unit D2 to the use of fixed or stationary gill nets less than 4 inches stretch mesh.
2023	26-May	M-13-2023	This proclamation supersedes proclamation M-12-2023 dated May 5, 2023. It closes Management Unit E to the use of fixed or stationary gill nets less than 4 inches stretch mesh.
2023	10-Aug	M-14-2023	This proclamation supersedes proclamation M-13-2023 dated May 24, 2023. It closes portions of Management Unit B and opens Management Unit E to the use of fixed or stationary gill nets less than 4 inches stretched mesh.

**Table 8.** For large-mesh gill nets, observer coverage (observed trips/fishing trips) calculated from observer data ( $\geq 4$  inches stretch mesh) and reported trips from the Trip Ticket Program ( $\geq 5$  inches stretch mesh) by season and management unit (MU) for the 2023 Incidental Take Permit (ITP) Year. Observer coverage was calculated using estimated fishing trips based on the Trip Ticket Program data and actual reported fishing trips from the program for the ITP year. Anchored large-mesh gill nets were prohibited in MU D1 during all seasons and in other MUs during one or more seasons (“closed”). Trip Ticket Program data are considered finalized for 2022 and preliminary for 2023. For MUs with no reporting fishing trips, coverage is not applicable (n/a).

Season	Management Unit	Large Mesh				
		Estimated Fishing Trips	Reported Fishing Trips	Observed Trips	Coverage of Estimated Fishing Trips	Coverage of Reported Fishing Trips
Fall 2022	A	720	368	113	15.7	30.7
	B	365	227	46	12.6	20.3
	C	144	147	50	34.7	34.0
	D1	closed	closed	closed	closed	closed
	D2	36	39	5	13.9	12.8
	E	348	179	63	18.1	35.2
	Overall	1,613	960	277	17.2	28.9
Spring 2022	A	695	374	69	9.9	18.4
	B	closed	closed	closed	closed	closed
	C	6	0	0	0.0	n/a
	D1	closed	closed	closed	closed	closed
	D2	closed	closed	closed	closed	closed
	E	closed	closed	closed	closed	closed
	Overall	701	374	69	9.8	18.4
Summer 2022	A	closed	closed	closed	closed	closed
	B	closed	closed	closed	closed	closed
	C	closed	closed	closed	closed	closed
	D1	closed	closed	closed	closed	closed
	D2	closed	closed	closed	closed	closed
	E	closed	closed	closed	closed	closed
	Overall	closed	closed	closed	closed	closed
Annual		2,314	1,334	346	15.0	25.9



**Table 9.** For small-mesh gill nets, observer coverage (observed trips/fishing trips) calculated from observer trips (<4 inches stretched mesh) and reported trips from the Trip Ticket Program (<5 inches stretched mesh) by season and management unit (MU) for the 2023 Incidental Take Permit (ITP) Year. Observer coverage was calculated using estimated fishing trips based on the Trip Ticket Program data and actual reported fishing trips from the program for the ITP year. Small-mesh gill nets were prohibited in MU D1 (“closed”) during all of summer. See text for description of openings and closings of MUs during part of a season. Trip Ticket Program data are considered finalized for 2022 and preliminary for 2023.

Season	Management Unit	Small Mesh				
		Estimated Fishing Trips	Reported Fishing Trips	Observed Trips	Coverage of Estimated Fishing Trips	Coverage of Reported Fishing Trips
Fall 2022	A	305	363	3	1.0	0.8
	B	733	1,135	19	2.6	1.7
	C	157	321	0	0.0	0.0
	D1	31	42	1	3.2	2.4
	D2	141	31	4	2.8	12.9
	E	384	326	13	3.4	4.0
	Overall	1,751	2,218	40	2.3	1.8
Spring 2023	A	622	725	18	2.9	2.5
	B	1,503	1,267	21	1.4	1.7
	C	172	134	4	2.3	3.0
	D1	24	7	0	0.0	0.0
	D2	12	5	3	25.0	60.0
	E	108	85	1	0.9	1.2
	Overall	2,441	2,223	47	1.9	2.1
Summer 2023	A	191	179	5	2.6	2.8
	B	915	353	8	0.9	2.3
	C	65	58	2	3.1	3.4
	D1	closed	closed	closed	closed	closed
	D2	17	1	2	11.8	200.0
	E	64	18	3	4.7	16.7
	Overall	1,252	609	20	1.6	3.3
Annual		5,444	5,050	107	2.0	2.1

**Table 10.** Number of "No Contact" trips ( $n = 683$ ) by season and management unit completed by Marine Patrol officers and observers during the 2023 Incidental Take Permit Year. No Contact refers to unsuccessful attempts to find and observe anchored gill-net effort. Anchored gill nets were prohibited in Management Unit D1 ("closed") during all of summer.

Season	Management Unit	Marine Patrol No Contact Trips	Observer No Contact Trips	Total No Contact Trips
Fall 2022	A	46	3	49
	B	15	2	17
	C	50	12	62
	D1	13	1	14
	D2	2	2	4
	E	120	0	120
	Overall	246	20	266
Spring 2023	A	34	9	43
	B	1	2	3
	C	33	3	36
	D1	3	2	5
	D2	13	6	19
	E	80	0	80
	Overall	164	22	186
Summer 2023	A	70	0	70
	B	27	10	37
	C	56	2	58
	D1	closed	closed	closed
	D2	20	4	24
	E	42	0	42
	Overall	215	16	231
Annual		625	58	683

**Table 11.** Number of drift and runaround gill-net observations by season and management unit completed during the 2023 Incidental Take Permit Year.

Season	Management Unit	Drift Gill-net Trips	Runaround Gill-net Trips	Total Mobile Gear Trips
Fall 2022	A	0	0	0
	B	0	2	2
	C	0	13	13
	D1	0	0	0
	D2	0	1	1
	E	1	10	11
	Overall	1	26	27
Spring 2022	A	0	0	0
	B	0	0	0
	C	0	4	4
	D1	0	0	0
	D2	0	0	0
	E	0	0	0
	Overall	0	4	4
Summer 2022	A	0	0	0
	B	1	3	4
	C	0	5	5
	D1	0	0	0
	D2	1	0	1
	E	1	0	1
	Overall	3	8	11
Annual		4	38	42

**Table 12.** Summary of observed sea turtle interactions ( $n = 30$ ) in large-mesh ( $\geq 4$  inches stretched mesh) and ( $n = 2$ ) in small-mesh ( $< 4$  inches stretched mesh) gill nets during the 2023 Incidental Take Permit Year. Sea turtles with the same superscripted letter were caught on the same trip. CCL=Curved Carapace Length. CCW=Curved Carapace Width. n/r=not recorded.

Date	Management Unit	Mesh-size Category	Latitude (N)	Longitude (W)	Species	Disposition	CCL (mm)	CCW (mm)
09/15/2022	C	Large	35.06556	76.61701	Green	Alive	300	258
09/15/2022	E	Large	33.91075	77.98346	Green	Dead	n/r	n/r
09/15/2022	B	Large	34.88490	76.29530	Kemp's Ridley <sup>a</sup>	Alive	266	241
09/15/2022	B	Large	34.86522	76.31285	Green <sup>a</sup>	Alive	292	228
09/15/2022	B	Large	34.91255	76.24804	Green	Alive	360	300
09/15/2022	B	Large	35.07167	76.08889	Green <sup>b</sup>	Alive	279	250
09/15/2022	B	Large	35.07000	76.08944	Green <sup>b</sup>	Alive	280	250
09/15/2022	B	Large	35.05861	76.08639	Kemp's Ridley <sup>b</sup>	Alive	351	363
09/15/2022	B	Large	35.07194	76.08639	Loggerhead <sup>b</sup>	Alive	510	495
09/16/2022	E	Large	34.66801	77.13364	Green <sup>c</sup>	Alive	n/r	n/r
09/16/2022	E	Large	34.66558	77.13181	Green <sup>c</sup>	Alive	n/r	n/r
09/16/2022	E	Large	34.67059	77.12879	Green <sup>c</sup>	Alive	n/r	n/r
09/16/2022	E	Large	34.66827	77.13359	Green <sup>c</sup>	Dead	n/r	n/r
09/16/2022	E	Large	34.66512	77.12915	Kemp's Ridley <sup>c</sup>	Alive	n/r	n/r
09/16/2022	B	Large	34.85997	76.31948	Green <sup>d</sup>	Alive	320	260
09/16/2022	B	Large	34.86112	76.31775	Green <sup>d</sup>	Alive	301	280
09/16/2022	B	Large	34.86079	76.31371	Green <sup>d</sup>	Alive	301	260
09/16/2022	B	Large	34.85878	76.32066	Green <sup>d</sup>	Dead	300	204
09/16/2022	B	Large	34.86042	76.31917	Green <sup>d</sup>	Alive	n/r	n/r
09/16/2022	B	Large	34.85997	76.31948	Green <sup>d</sup>	Alive	250	208
09/16/2022	B	Large	34.86180	76.31703	Green <sup>d</sup>	Alive	n/r	n/r
09/16/2022	B	Large	34.85878	76.32066	Green <sup>d</sup>	Alive	301	270
09/16/2022	B	Large	34.85878	76.32066	Kemp's Ridley <sup>d</sup>	Alive	380	400
09/16/2022	E	Large	34.57522	77.36245	Green	Alive	n/r	n/r
09/16/2022	C	Large	35.01076	76.70729	Green	Alive	n/r	n/r

**Table 12. continued**

Date	Management Unit	Mesh-size Category	Latitude (N)	Longitude (W)	Species	Disposition	CCL (mm)	CCW (mm)
09/16/2022	B	Large	35.13778	75.95694	Green	Dead	303	255
09/16/2022	B	Large	35.32777	75.59721	Green	Dead	287	221
09/20/2022	C	Large	35.00193	76.72851	Unidentified	Alive	n/r	n/r
09/20/2022	B	Large	35.34692	76.13913	Green	Alive	304	290
09/22/2022	C	Large	35.01479	76.70437	Green	Alive	255	240
10/06/2022	B	Small	35.44401	76.01346	Green	Alive	279	262
10/26/2022	B	Small	35.43788	76.01712	Green	Alive	298	231

**Table 13.** Summary of sea turtle (Green:  $n = 1$ , Unidentified:  $n = 1$ ) interactions in estuarine gill nets reported by fishers during the 2023 Incidental Take Permit Year. Large-mesh =  $\geq 4$  inches stretched mesh. Small-mesh =  $< 4$  inches stretched mesh. CCL=Curved Carapace Length. CCW=Curved Carapace Width. No measurements were reported (“-“). An asterisk (\*) indicates that the location was approximated based on the provided waterbody description.

Date	Management Unit	Mesh-size Category	Latitude (N)	Longitude (W)	Species	Disposition	CCL (mm)	CCW (mm)
09/19/2022	C	Large	35.39397	76.50329	Green	Dead	-	-
10/29/2022	E	Small	34.67975*	77.12285*	Unidentified	Dead	-	-

**Table 14.** Citations ( $n = 31$ ) written by Marine Patrol officers for estuarine anchored gill nets by violation date and code during the 2023 Incidental Take Permit Year.

Season	Violation Date	Code	Description
Fall	09/04/2022	NETG01	Leave gill net in coastal waters unattended
Fall	09/14/2022	NETG45	Set or retrieve large mesh gill nets no sooner than one hour before sunset on Monday through Thursday
Fall	09/15/2022	NETG44	Use large mesh gill nets w/out leaving a space of at least 25 yards between separate lengths of net
Fall	09/15/2022	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Fall	09/16/2022	NETG40	Use cork floats or other buoys except those required for ID on large mesh gill nets
Fall	09/16/2022	EGNP01	Fishing gill net without a valid Estuarine Gill Net Permit
Fall	09/17/2022	NETG02	Using gill net without buoys or identification
Fall	10/09/2022	NETG30	Leave RCGL gill net unattended
Fall	10/24/2022	NETG01	Leave gill net in coastal waters unattended
Fall	10/24/2022	NETG02	Using gill net without buoys or identification
Fall	11/02/2022	NETG01	Leave gill net in coastal waters unattended
Fall	11/02/2022	NETG27	Gill Net set within 50 yards from shore
Fall	11/02/2022	NETG27	Gill Net set within 50 yards from shore
Fall	11/03/2022	EGNP30	Failure to comply with gill net configurations outlined in proclamation
Fall	11/03/2022	EGNP30	Failure to comply with gill net configurations outlined in proclamation
Fall	11/08/2022	NETG02	Using gill net without buoys or identification
Spring	04/26/2023	EGNP01	Fishing gill net without a valid Estuarine Gill Net Permit
Spring	04/26/2023	NETG02	Using gill net without buoys or identification
Spring	05/03/2023	NETG27	Gill Net set within 50 yards from shore
Spring	05/30/2023	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Spring	05/30/2023	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Spring	05/30/2023	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Spring	05/31/2023	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Summer	06/05/2023	EGNP11	Failure to attend nets
Summer	06/05/2023	NETG01	Leave gill net in coastal waters unattended
Summer	06/19/2023	NETG16	Use an unattended gill net in a restricted area

**Table 14. continued**

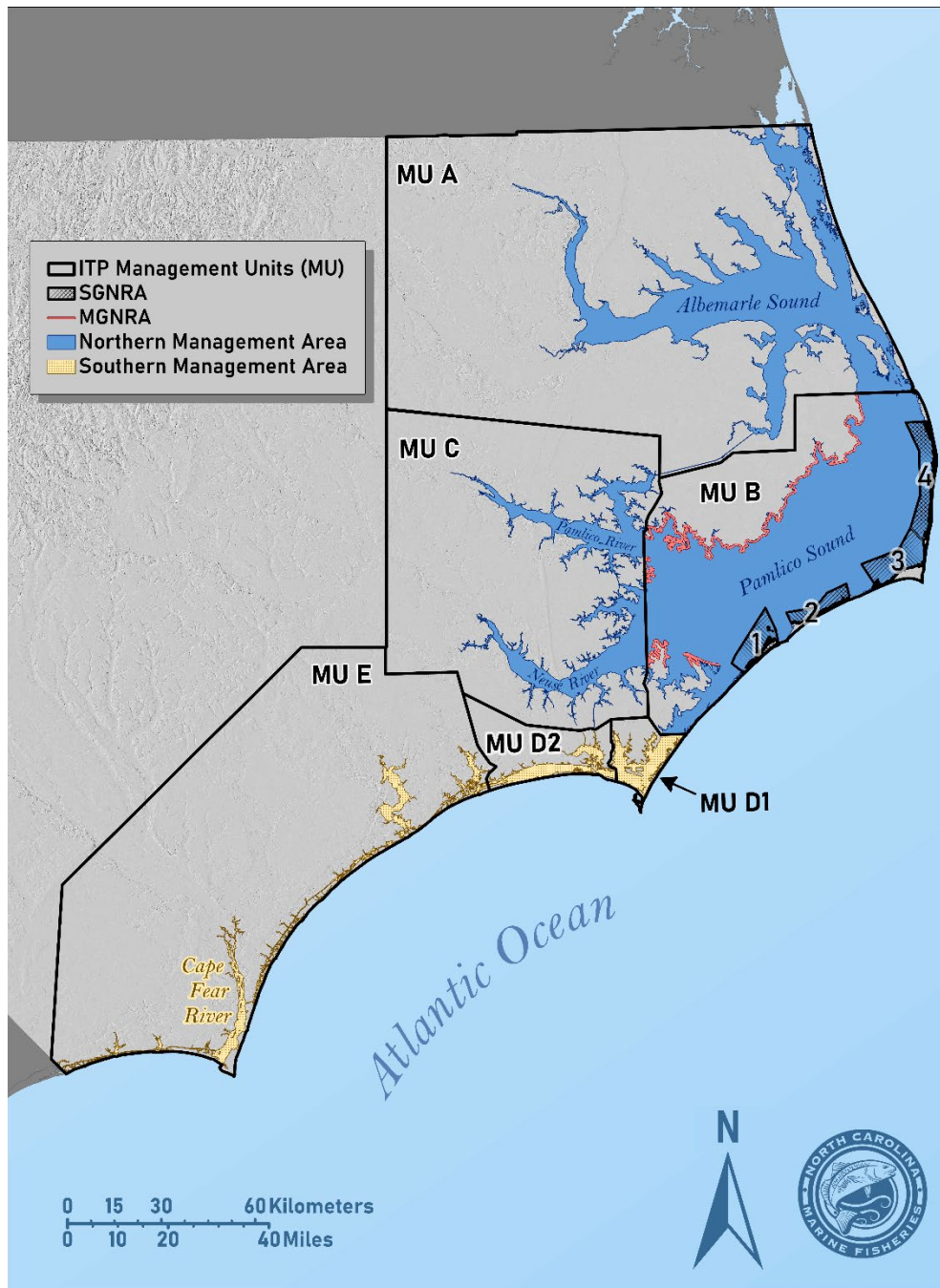
Season	Violation Date	Code	Description
Summer	07/01/2023	15A NCAC 03H .0103(a)	Fail to comply with proclamation requirements
Summer	07/11/2023	NETG22	Improperly set gill net
Summer	07/25/2023	EGNP01	Fishing gill net without a valid Estuarine Gill Net Permit
Summer	08/21/2023	NETG01	Leave gill net in coastal waters unattended
Summer	08/21/2023	NETG03	Using gill net with improper buoys or identification

**Table 15.** Notice of Violations ( $n = 24$ ) written by Marine Patrol officers for estuarine anchored gill nets by violation date and code during the 2023 Incidental Take Permit Year.

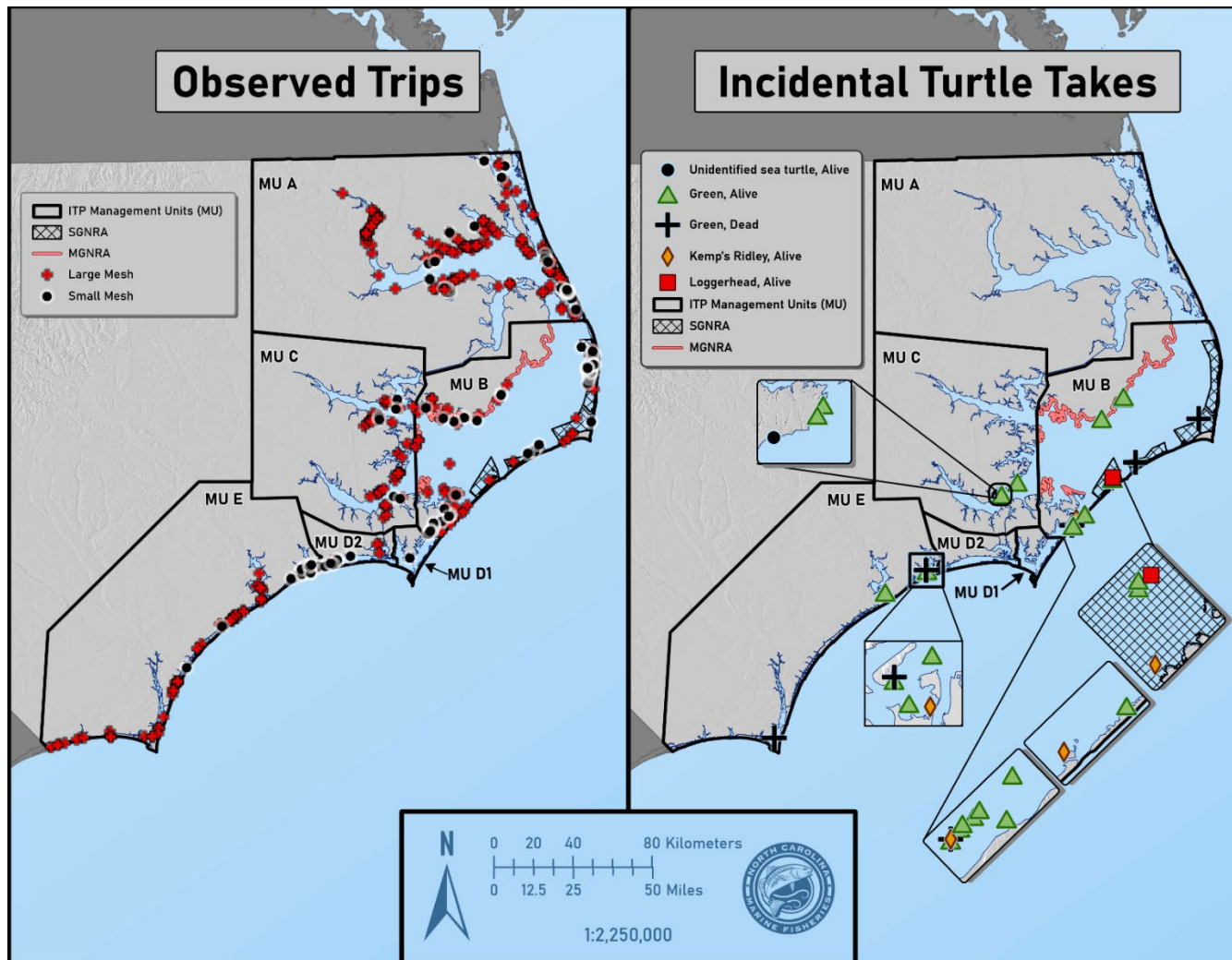
Season	Violation Date	Code	Description
Fall	09/04/2022	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Fall	09/14/2022	EGNP09	Failure to set or retrieve nets in accordance with time restrictions.
Fall	09/15/2022	EGNP09	Failure to set or retrieve nets in accordance with time restrictions.
Fall	09/15/2022	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Fall	09/17/2022	EGNP25	Refuse to allow fisheries observers onboard or collect data
Fall	11/02/2022	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Fall	11/02/2022	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Fall	11/02/2022	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Spring	03/06/2023	EGNP11	Failure to attend nets
Spring	03/14/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Spring	03/14/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Spring	03/14/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Spring	04/13/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Spring	04/13/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Spring	04/13/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Spring	04/13/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Spring	04/13/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Spring	04/13/2023	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Spring	05/30/2023	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Summer	06/05/2023	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Summer	06/21/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Summer	06/21/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Summer	06/21/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Summer	06/26/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days



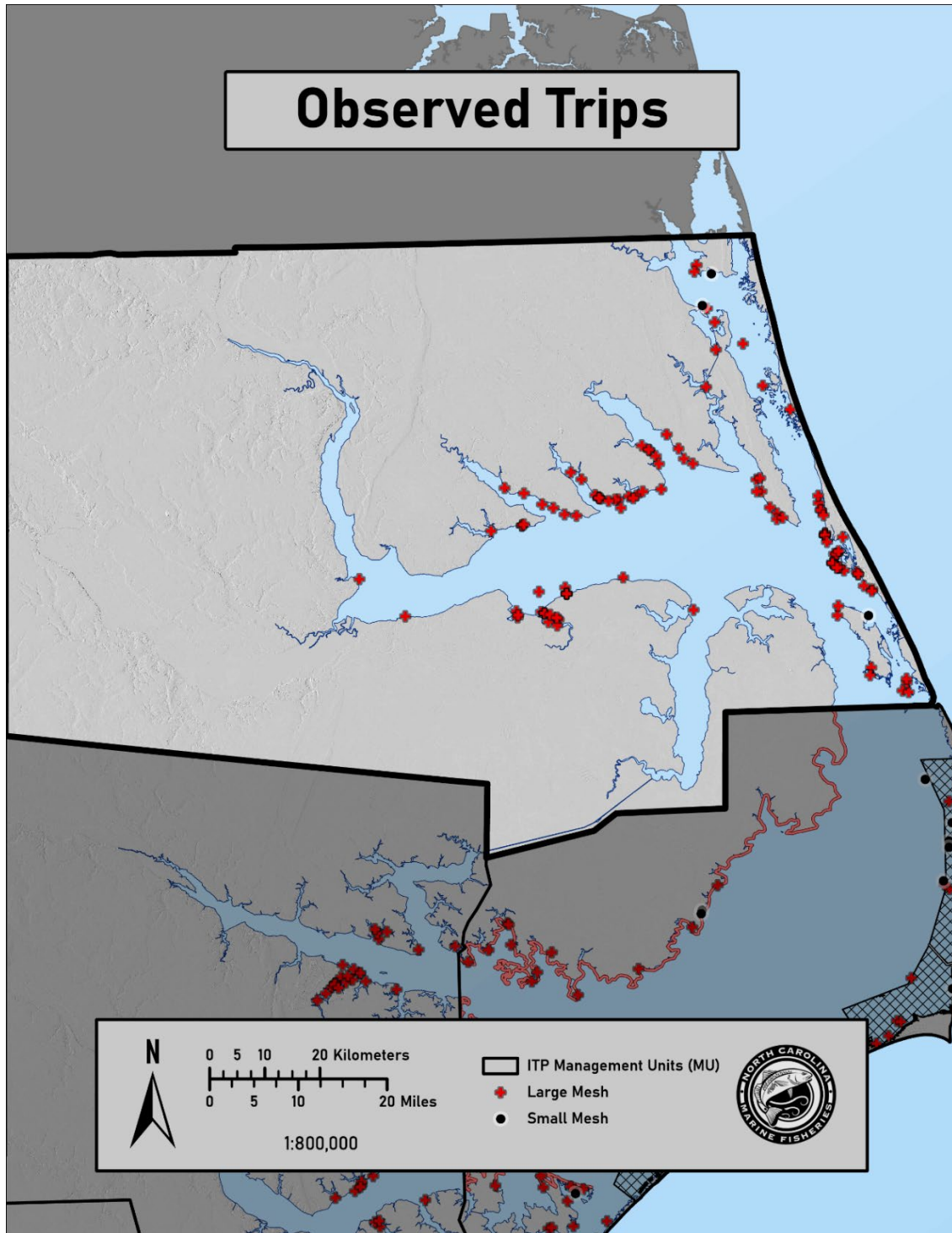
## 7 FIGURES



**Figure 1.** Management Units (A, B, C, D1, D2, and E) as outlined in the Incidental Take Permit (ITP) Conservation Plan and used by the Observer Program for the 2023 ITP Year. In the Pamlico Sound portion of MU B, large-mesh ( $\geq 4$  inches stretched mesh) gill nets were confined to Shallow Water Gillnet Restricted Areas (SGNRA) 1-4 and the Mainland Gillnet Restricted Area (MGNRA; 200 yards from shore) during 1 September–15 December. The two Southern Flounder Management Areas are differentiated by color: northern (blue) and southern (yellow).

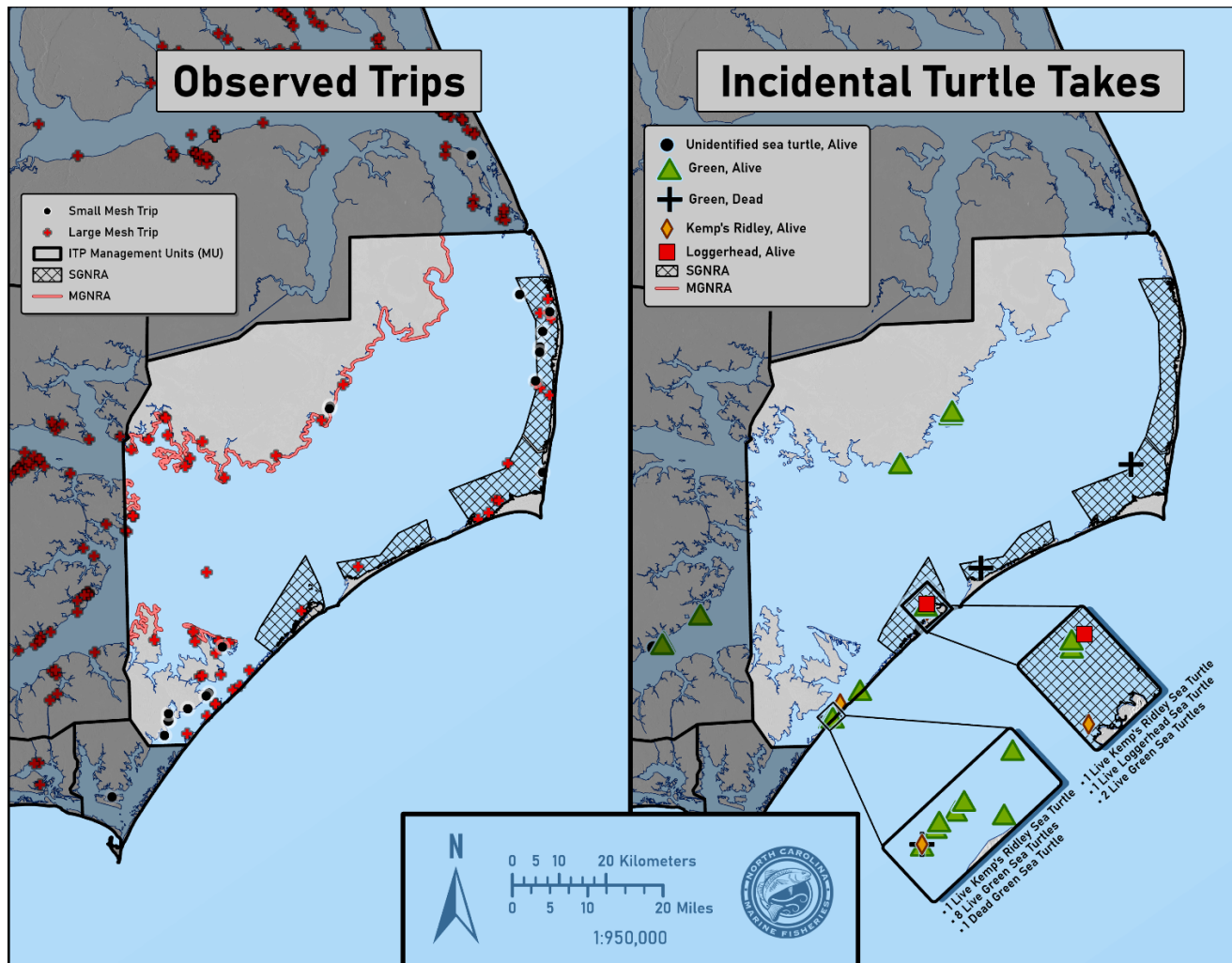


**Figure 2.** Observed gill-net trips (left) and incidental sea turtle takes (right) that occurred state-wide during the 2023 Incidental Take Permit (ITP) Year. Observed trips are separated by mesh-size category ( $n = 346$  large mesh [ $\geq 4$  inches stretched mesh];  $n = 107$  small mesh [ $< 4$  inches stretched mesh]). Observed sea turtles are separated by species and disposition (alive,  $n = 27$ ; dead,  $n = 5$ ). Note that due to the proximity of observations and the scale of the maps, it may appear that fewer observations are mapped than were observed.

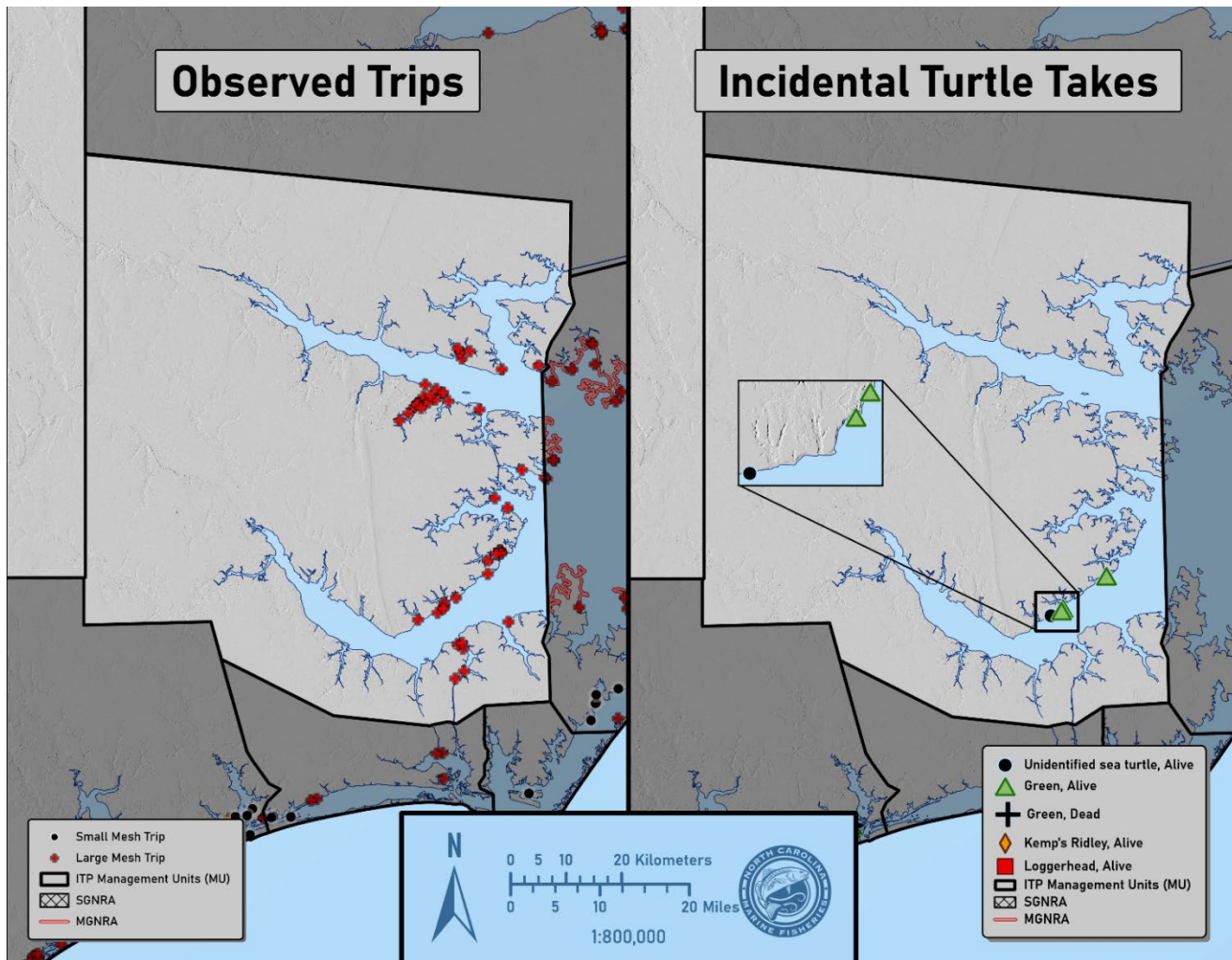


**Figure 3.** For fall 2022, observed gill-net trips in Management Unit A during the 2023 Incidental Take Permit (ITP) Year. Observed trips are separated by mesh-size category ( $n = 113$  large mesh [ $\geq 4$  inches stretched mesh];  $n = 3$  small mesh [ $< 4$  inches stretched mesh]). No sea turtles were observed in Management Unit A during fall. Note that due to the proximity of observations and the scale of the maps, it may appear that fewer observations are mapped than were observed.

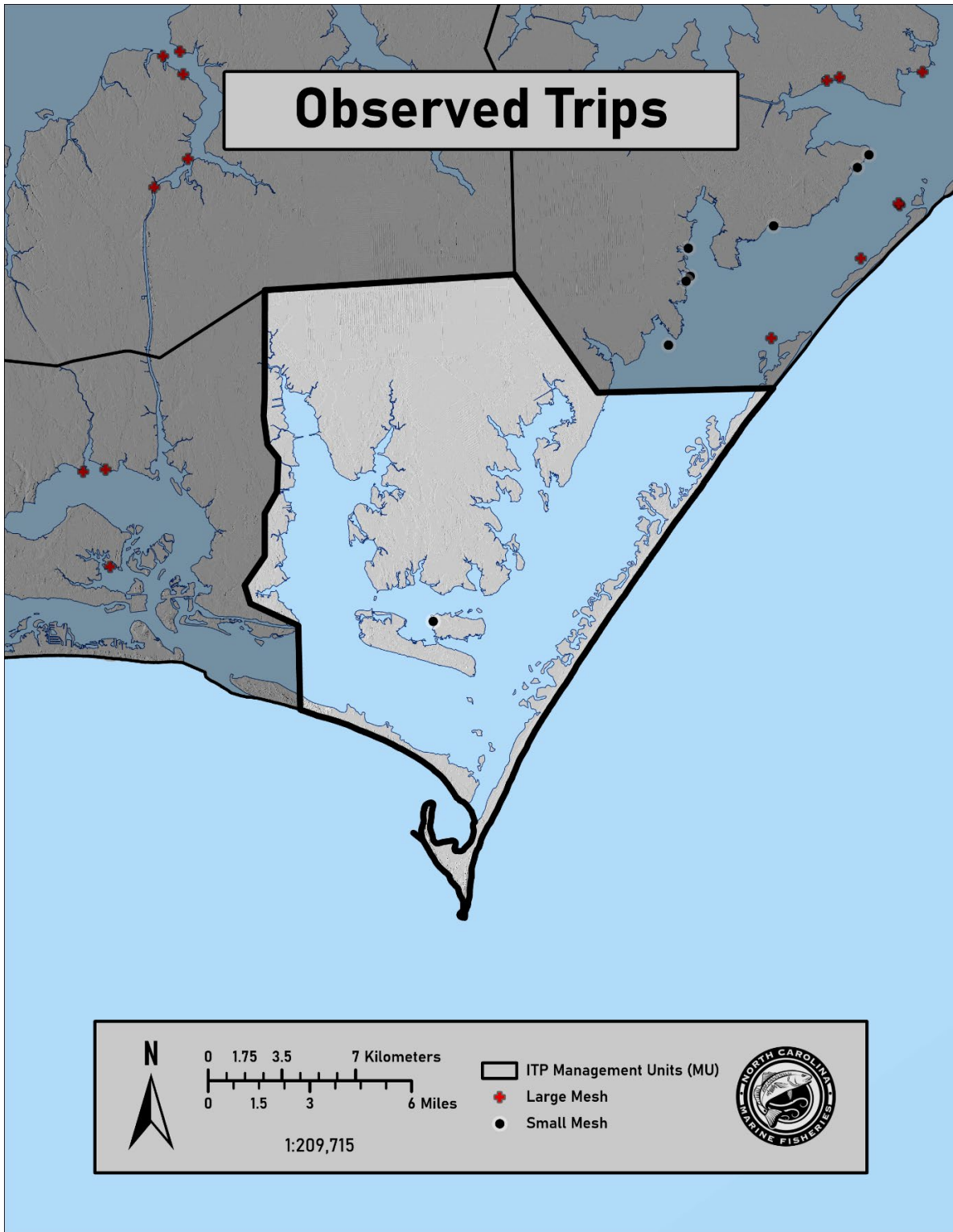




**Figure 4.** For fall 2022, observed gill-net trips (left) and incidental sea turtle takes (right) in Management Unit B during the 2023 Incidental Take Permit (ITP) Year. Observed trips are separated by mesh-size category ( $n = 46$  large mesh [ $\geq 4$  inches stretched mesh];  $n = 19$  small mesh [ $< 4$  inches stretched mesh]). Sea turtles are separated by species and disposition (alive,  $n = 18$ ; dead,  $n = 3$ ). Note that due to the proximity of observations and the scale of the maps, it may appear that fewer observations are mapped than were observed.

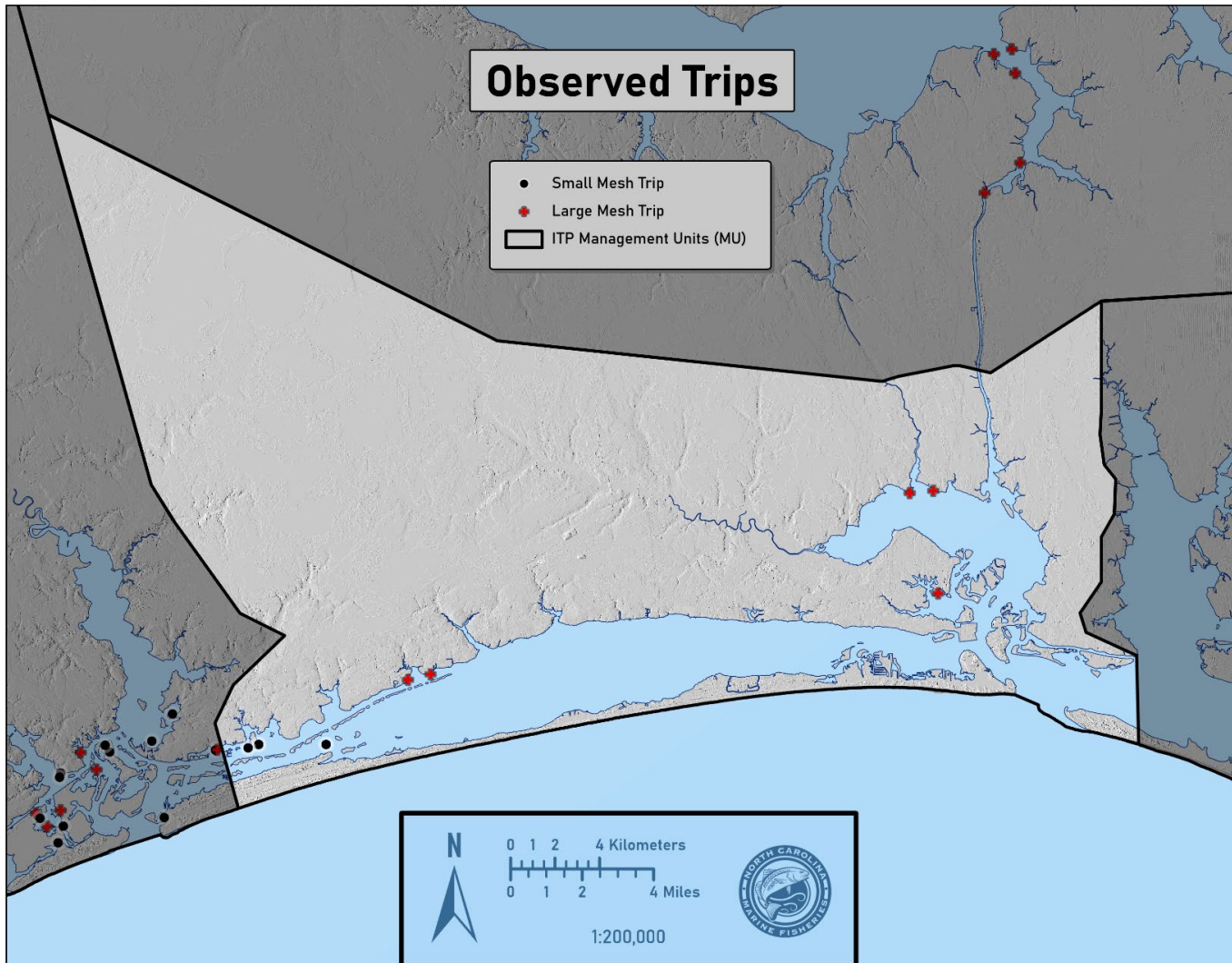


**Figure 5.** For fall 2022, observed gill-net trips (left) and incidental sea turtle takes (right) in Management Unit C during the 2023 Incidental Take Permit (ITP) Year. Observed trips are separated by mesh-size category ( $n = 50$  large mesh [ $\geq 4$  inches stretched mesh];  $n = 0$  small mesh [ $< 4$  inches stretched mesh]). Sea turtles are separated by species and disposition (alive,  $n = 4$ ; dead,  $n = 0$ ). Note that due to the proximity of observations and the scale of the maps, it may appear that fewer observations are mapped than were observed.

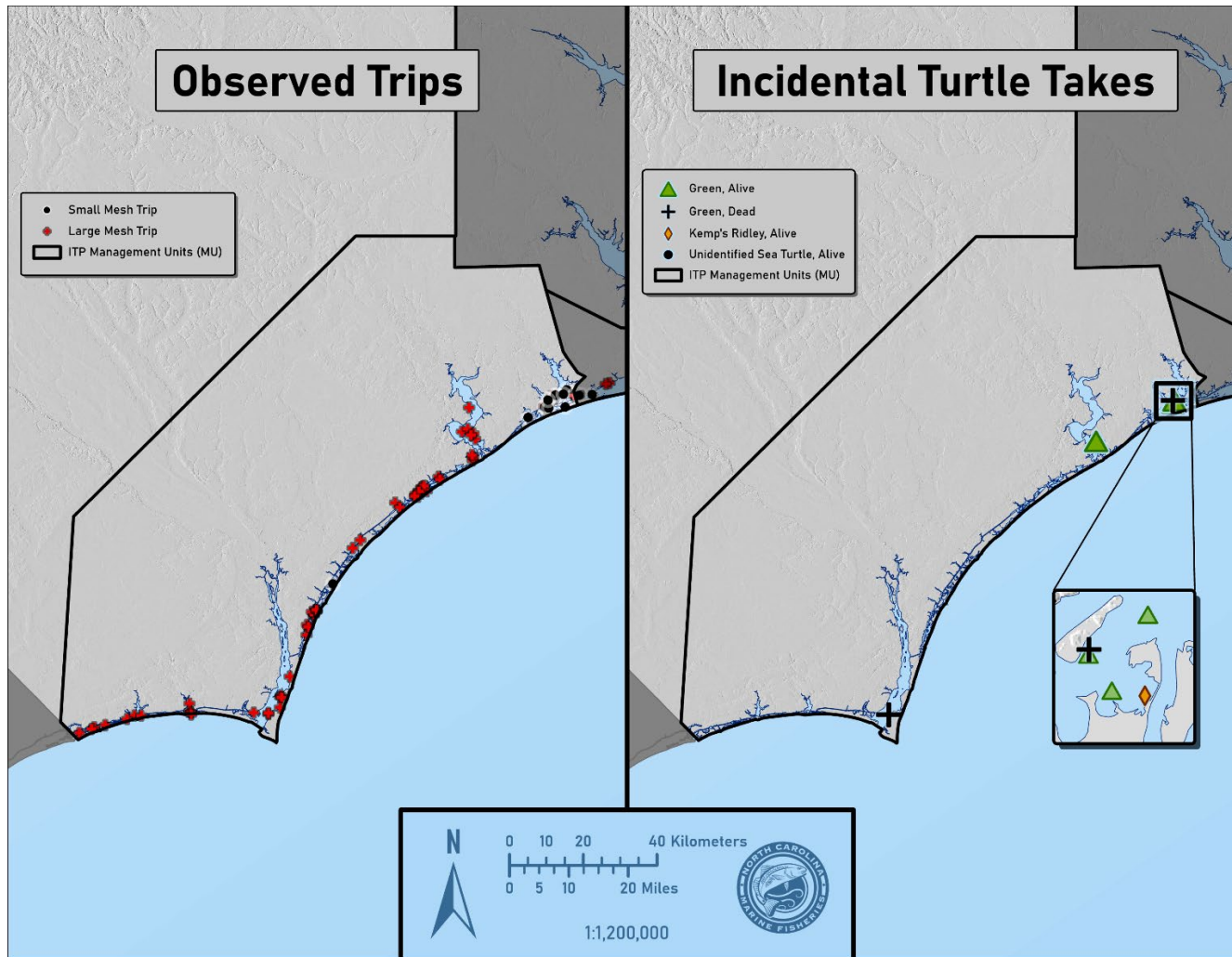


**Figure 6.** For fall 2022, observed gill-net trips in Management Unit D1 during the 2023 Incidental Take Permit (ITP) Year. Observed trips are separated by mesh-size category ( $n = 0$  large mesh [ $\geq 4$  inches stretched mesh];  $n = 1$  small mesh [ $< 4$  inches stretched mesh]). No sea turtles were observed in Management Unit D1 during fall.



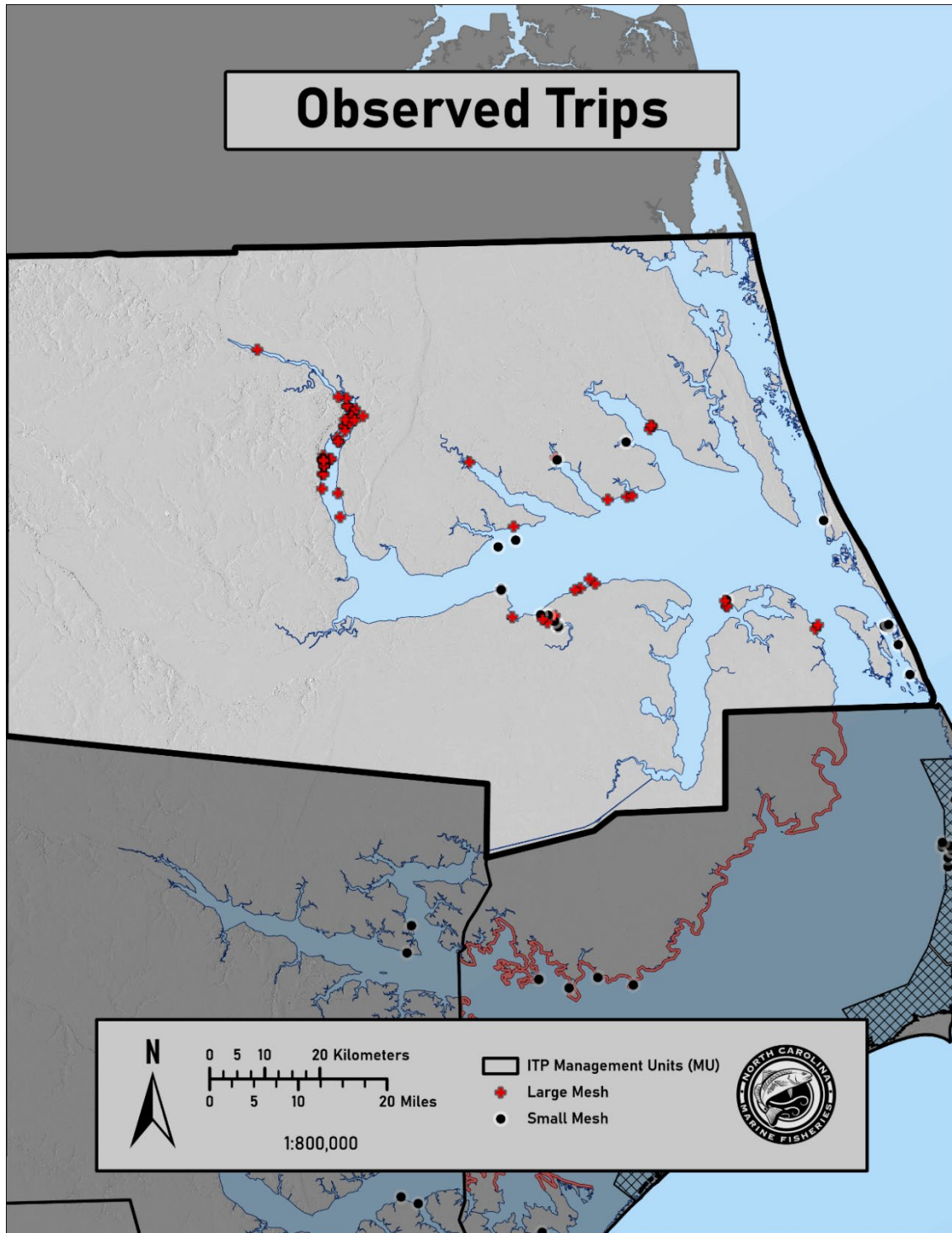


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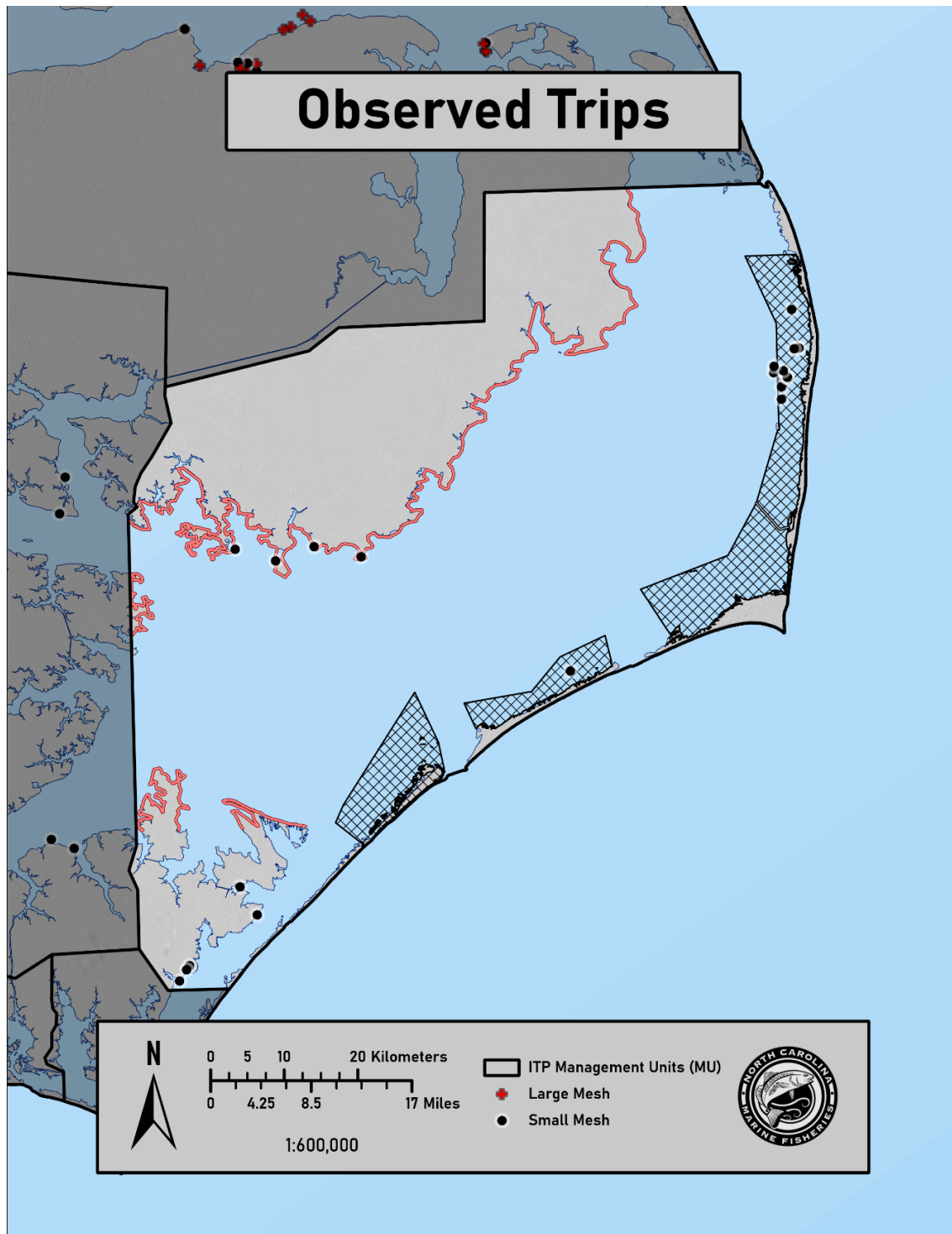


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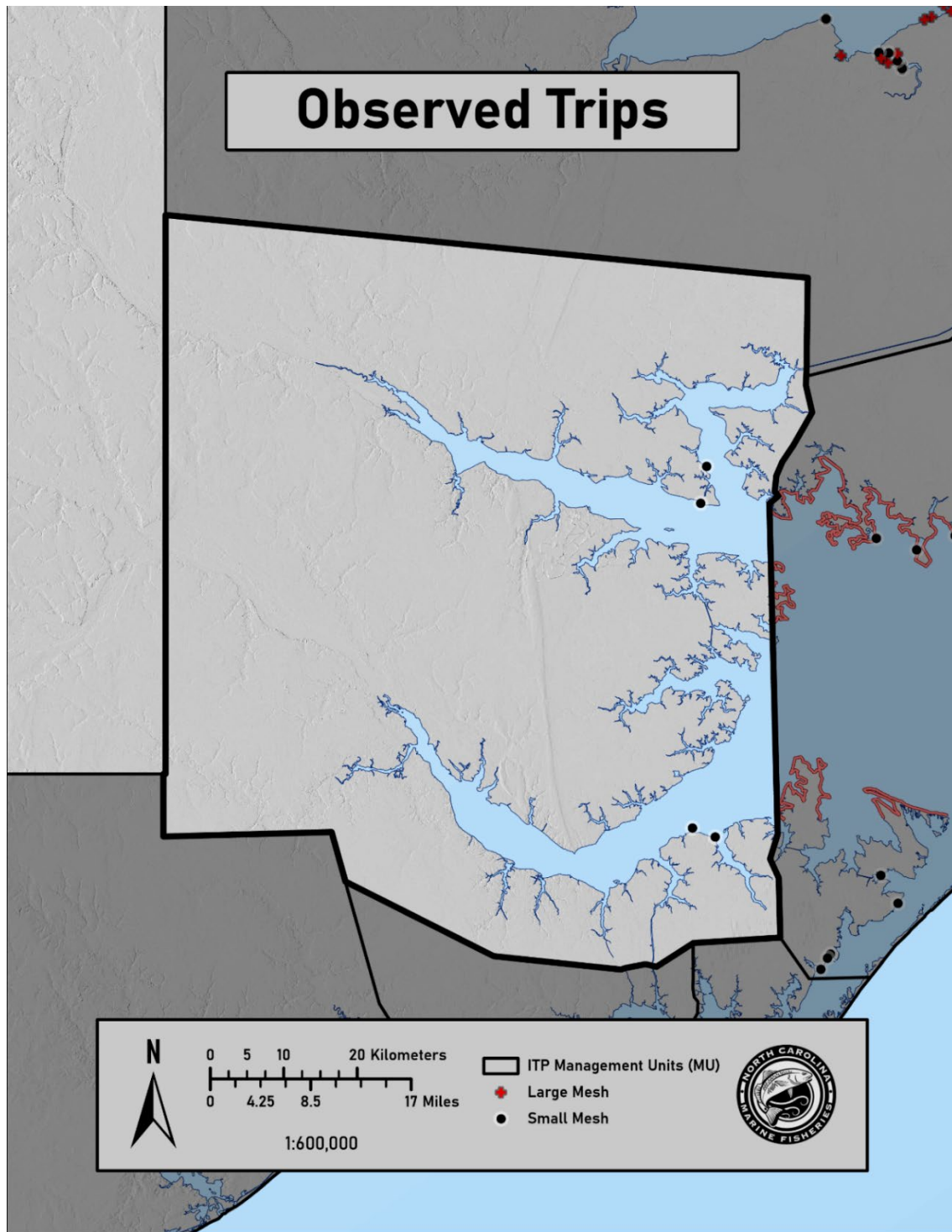




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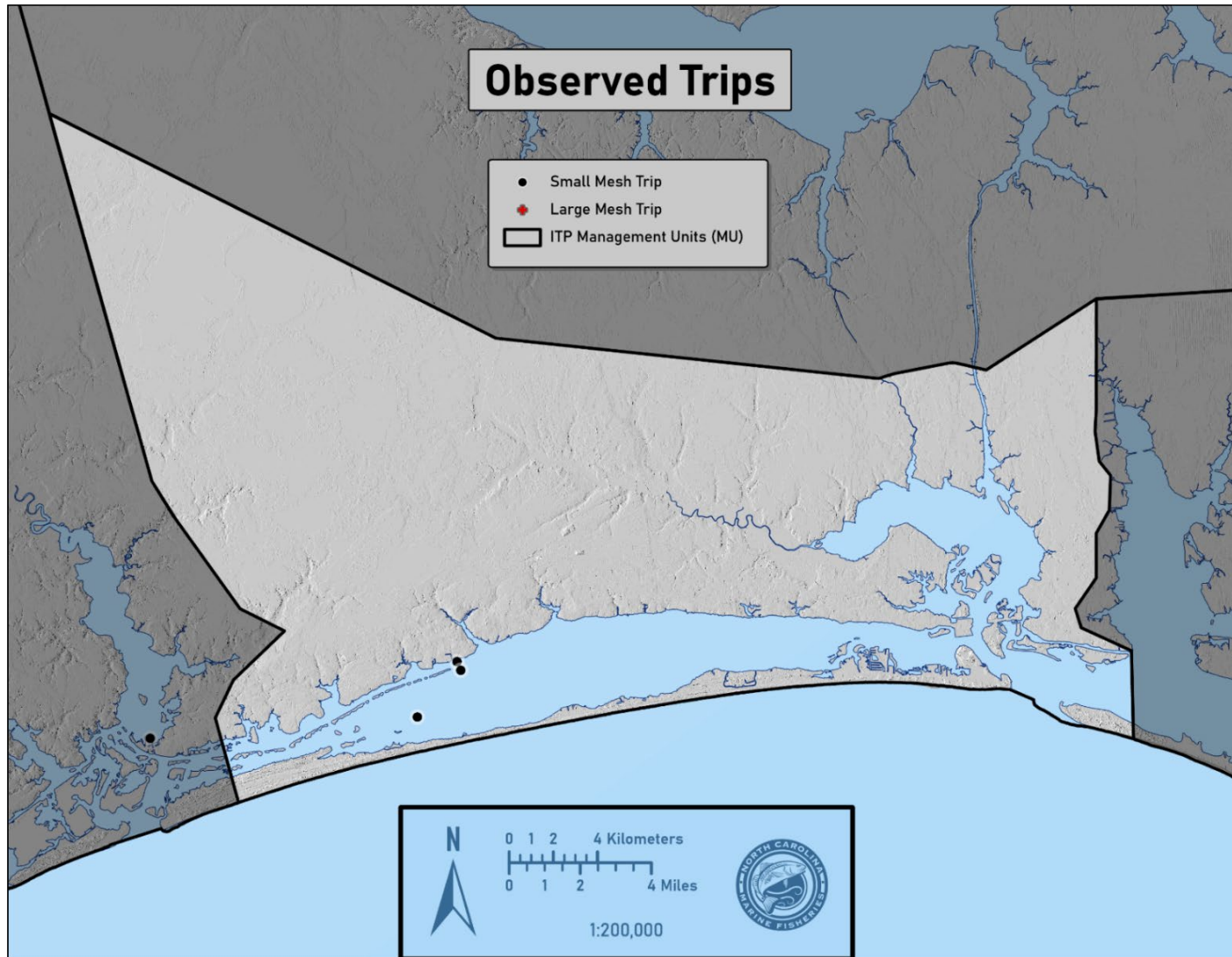


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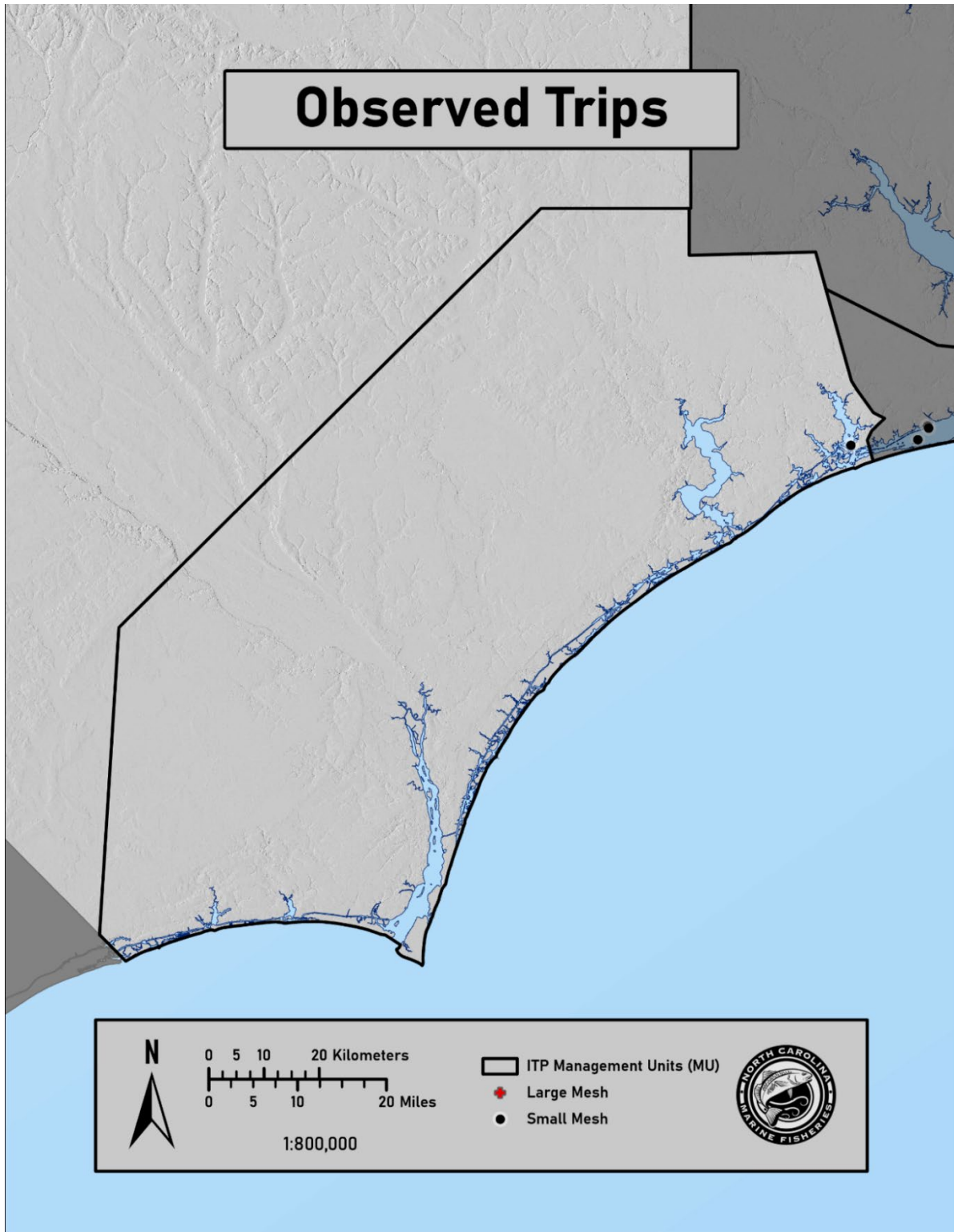


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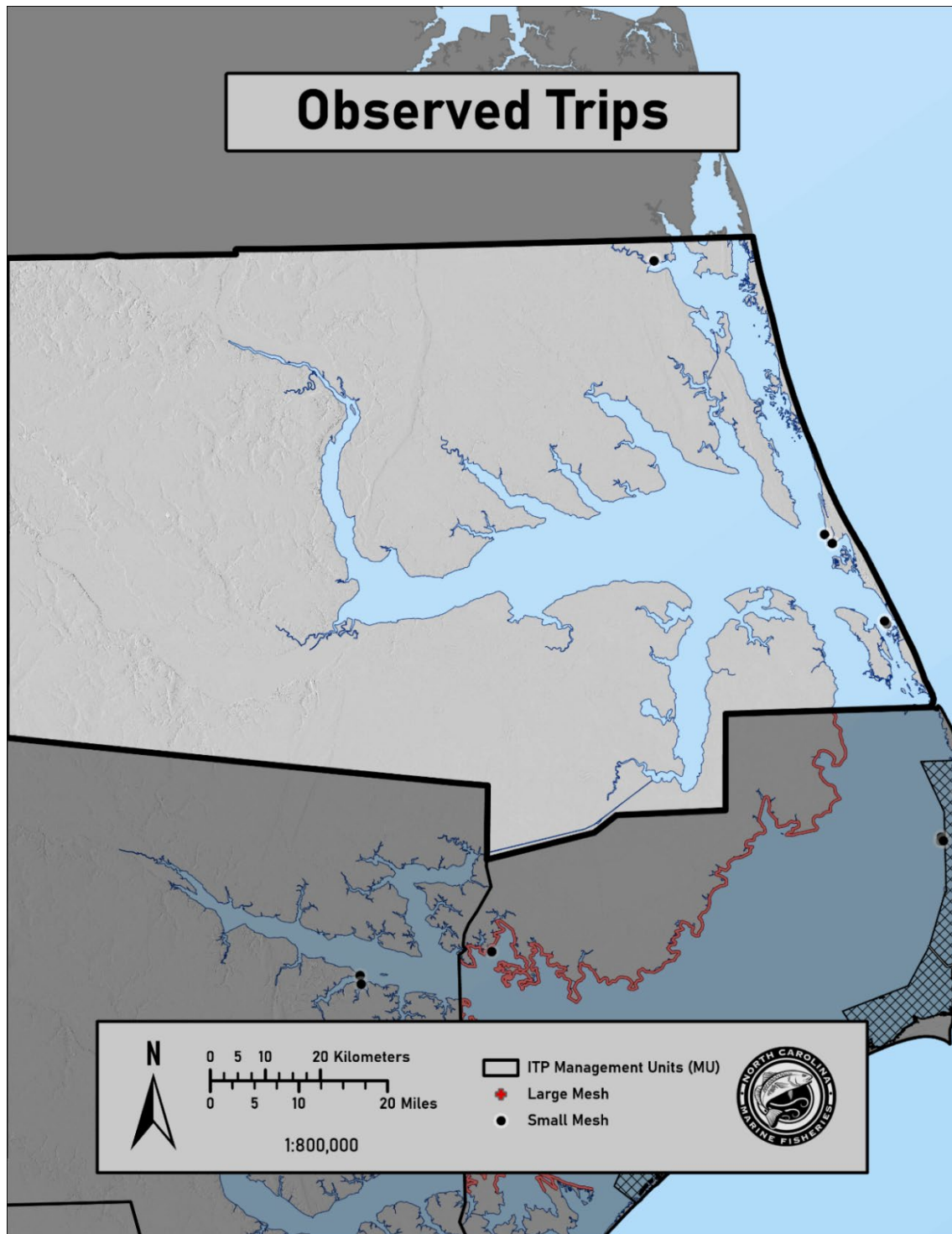




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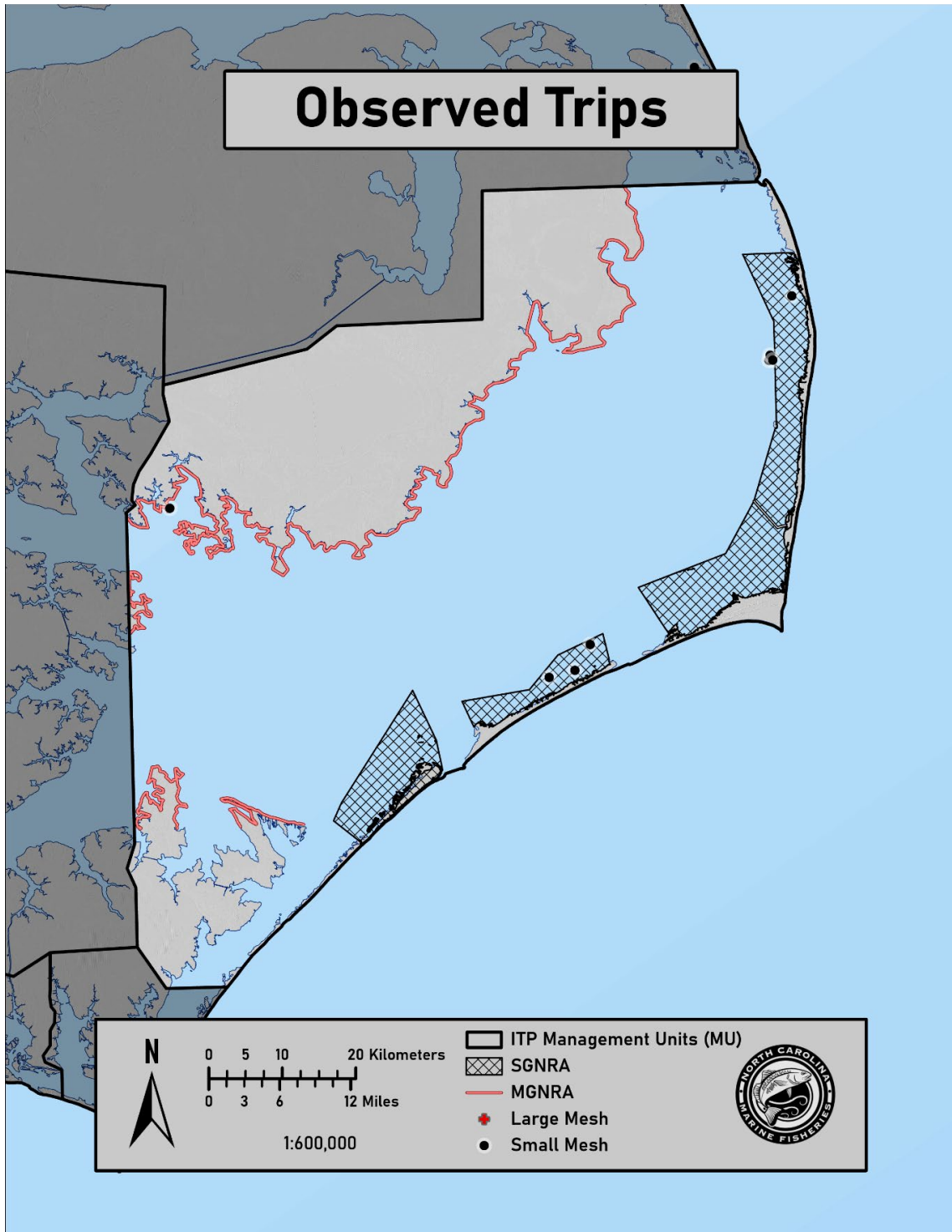


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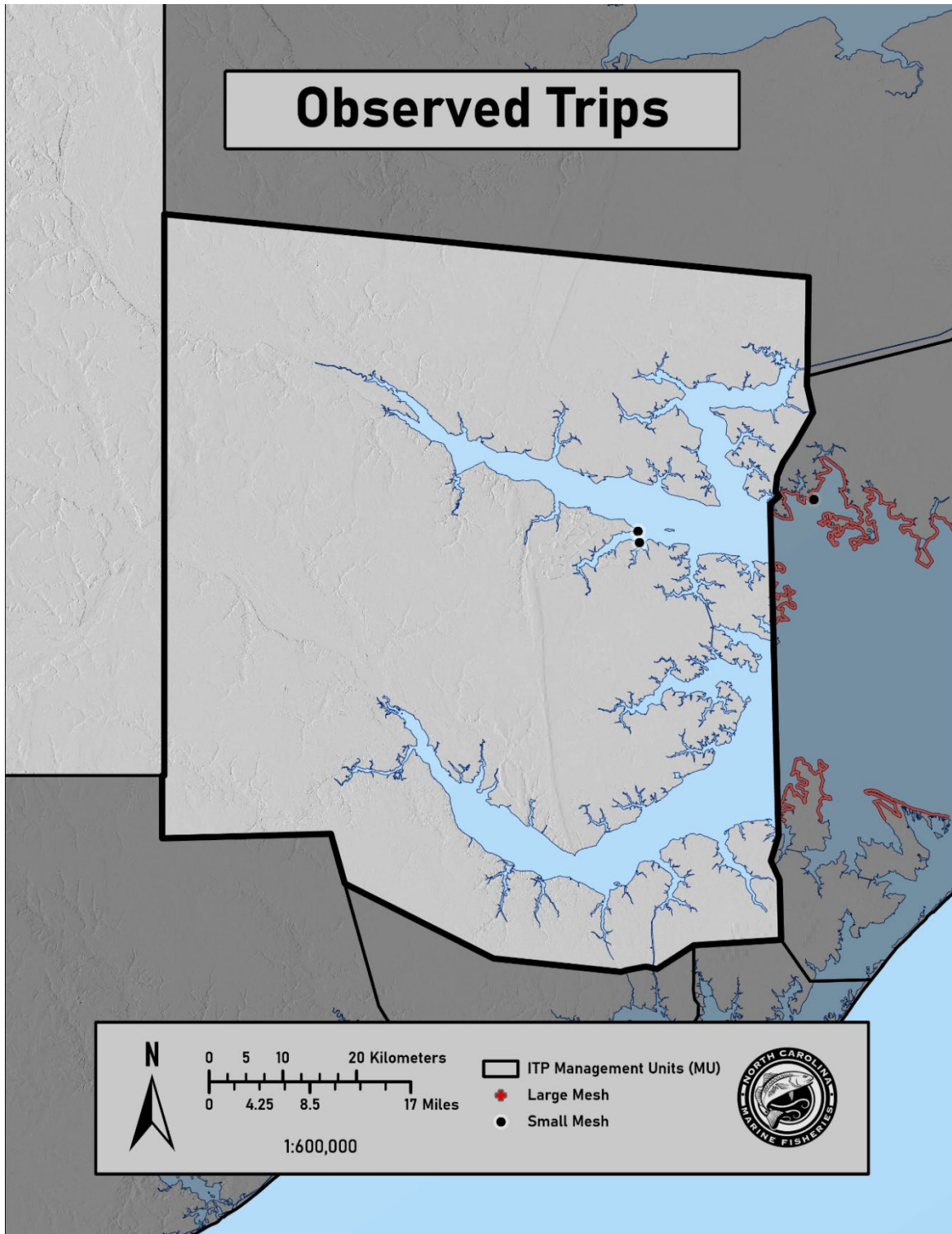


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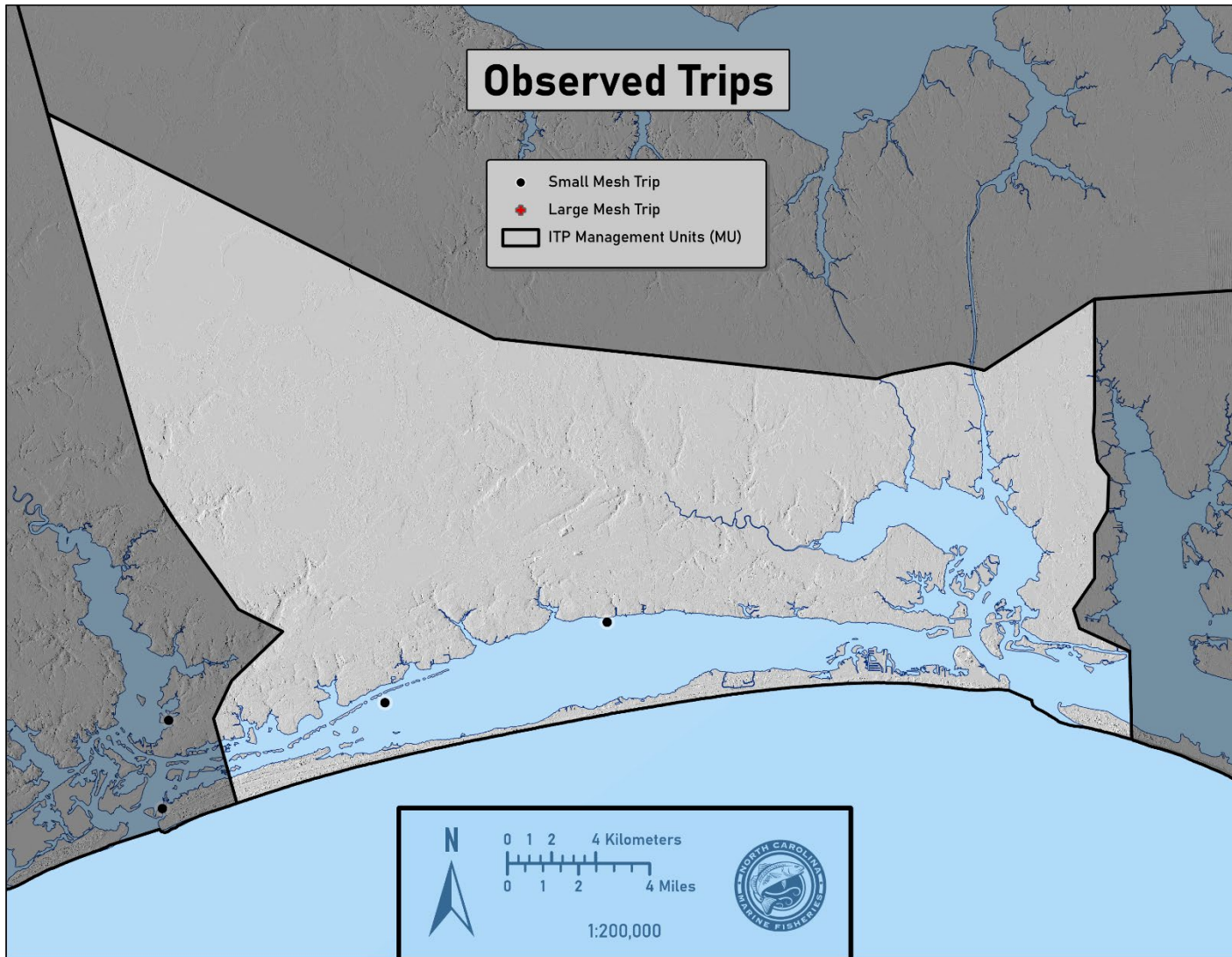


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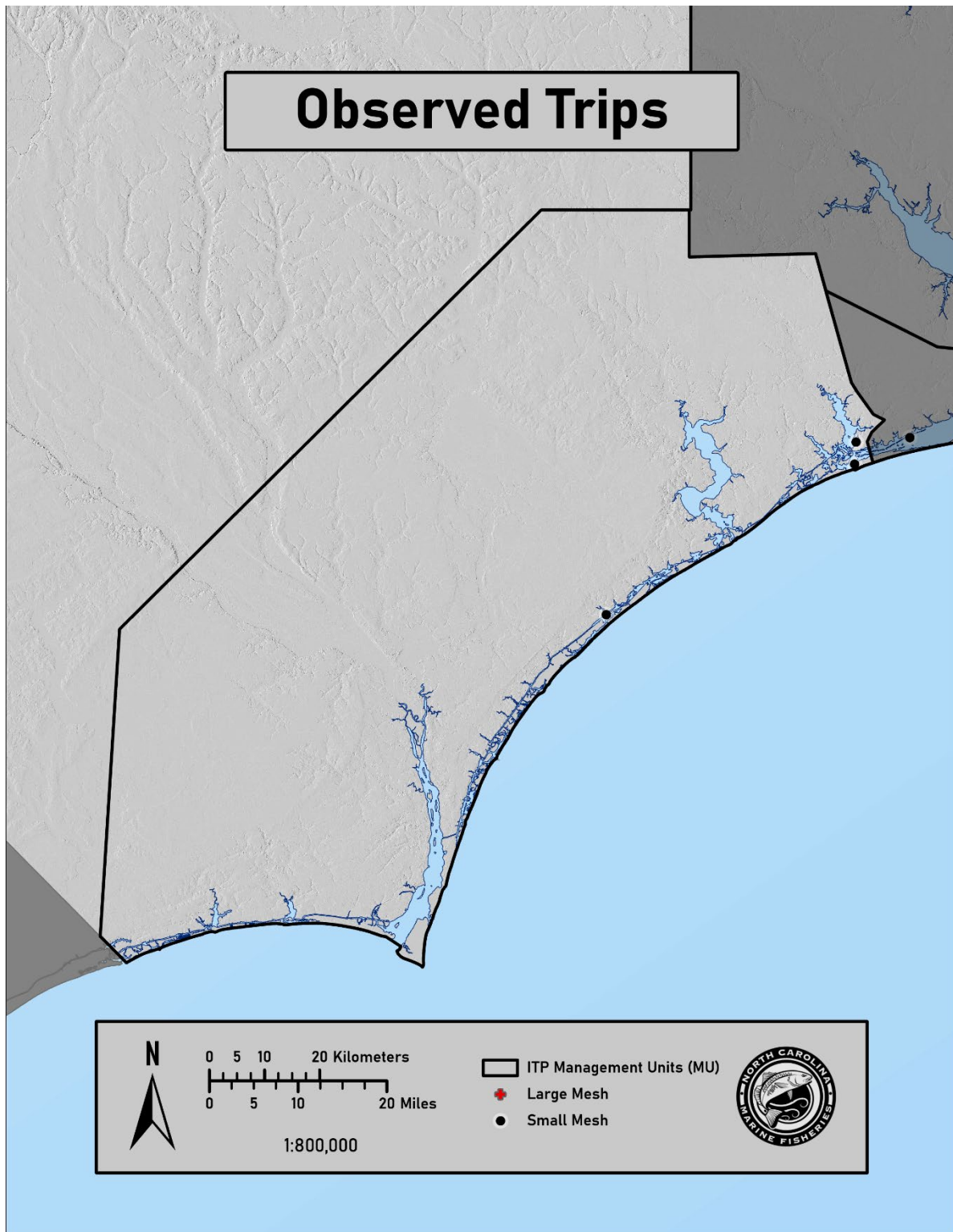


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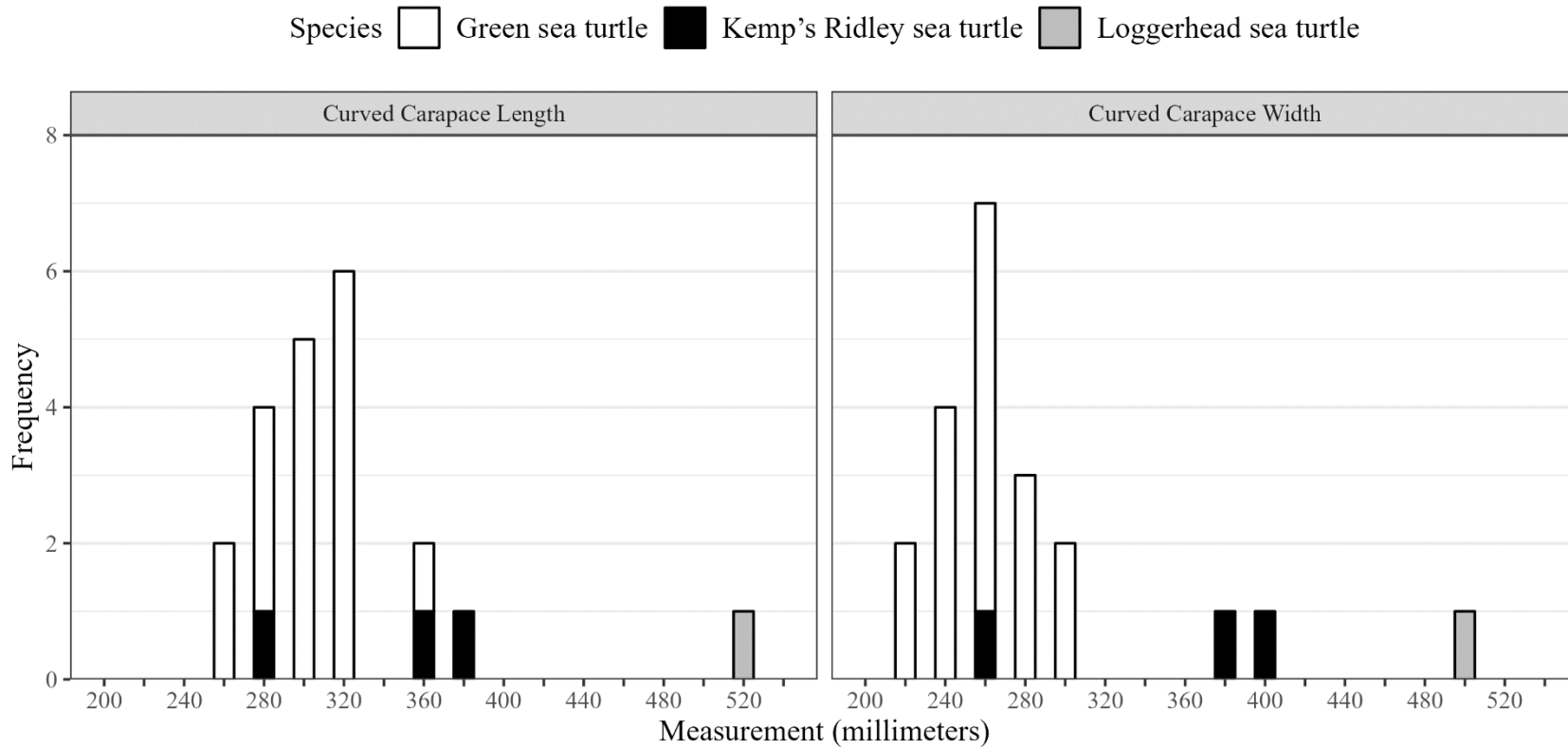




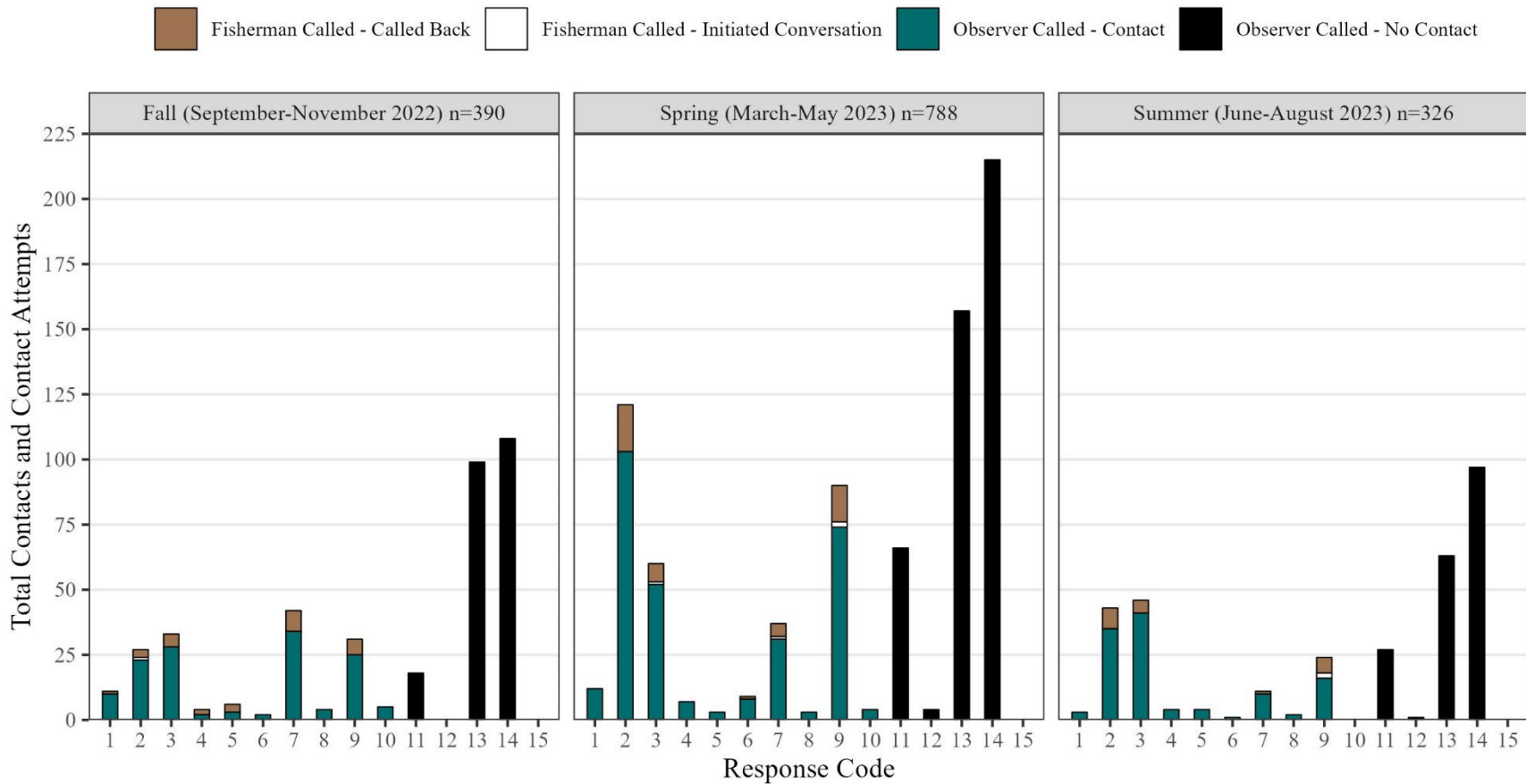
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Annual Atlantic Sturgeon Interaction Monitoring of Estuarine Anchored Gill-Net Fisheries  
in North Carolina for Incidental Take Permit Year 2023  
(1 September 2022–31 August 2023)

Annual Completion Report for Activities under Endangered Species Act  
Section 10 Incidental Take Permit No. 18102

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## 1 INTRODUCTION

The North Carolina Division of Marine Fisheries (NCDMF) applied to the National Marine Fisheries Service (NMFS) for an Incidental Take Permit (ITP) under Section 10(a)(1)(B) of the Endangered Species Act (ESA) of 1973 (Public Law 93-205, ESA) on 5 April 2012 for Atlantic Sturgeon (*Acipenser oxyrinchus*) interactions in anchored gill-net fisheries in North Carolina's estuarine waters. Anchored (i.e., stationary, set) gill nets are a passive gear deployed with an anchor, stake, or boat at one or both ends of the net string or operation; they do not include run-around, strike, drop, or drift gill nets. The application for the ITP was prompted by notification from NMFS in February 2012 indicating the intent to list the Carolina Distinct Population Segment (DPS) of Atlantic Sturgeon as endangered under the ESA. The application proposed a Conservation Plan that ensured only an authorized level of Atlantic Sturgeon incidental takes would occur, while allowing North Carolina's estuarine anchored gill-net fisheries to operate. The ITP authorizes such takes that are incidental to otherwise lawful fishing activity. For this report, the term "gill net" refers to estuarine anchored gill nets and mesh sizes are provided as inches stretched mesh (ISM) unless stated otherwise.

The NCDMF received the Atlantic Sturgeon ITP (No. 18102) on 22 July 2014 after a final application was submitted on 2 January 2014, which included revisions of previous versions (79 FR 43716<sup>1</sup>; McConnaughey et al. 2019a). The ITP has similarities with the Section 10 ITP (No. 16230) that NCDMF already had for incidental takes of sea turtles in the estuarine anchored gill-net fishery (78 FR 57132<sup>2</sup>). For example, the Atlantic Sturgeon ITP defines an ITP year as 1 September through 31 August of the following year, establishes annual authorized levels of incidental takes within geographic regions termed Management Units (MU; Tables 1 and 2), and includes a Conservation Plan to monitor, minimize, and mitigate incidental takes of Atlantic Sturgeon DPSs (i.e., of Gulf of Maine, New York Bight, Chesapeake, Carolina, and South Atlantic DPS) in otherwise lawful anchored gill-net fisheries operating in North Carolina estuarine waters. The Conservation Plan in both ITPs includes a state-wide estuarine gill-net observer program to monitor interactions that can be counted or extrapolated, when applicable, across the fishery within a given season and MU. The ITPs required observer coverage thresholds as a minimum of 7% with a goal of 10% for large-mesh gill nets and a minimum of 1% with a goal of 2% for small-mesh gill nets. The Conservation Plan also incorporated an adaptive management approach to mitigate incidental takes should observer data indicate that takes were approaching or exceeding authorized thresholds; this approach would include implementation of temporary management options using the NCDMF director's proclamation authority (143B-289.52; NCGS § 113-221.1).

There were a few differences, however, between the Atlantic Sturgeon and Sea Turtle ITPs. In contrast to the Sea Turtle ITP, the Atlantic Sturgeon ITP defined large-mesh gill nets as  $\geq 5$  ISM and small-mesh gill nets as  $< 5$  ISM, included the winter season along with spring, summer, and fall, and defined five (A, B, C, D, and E) not six MUs by combining the two MUs D1 and D2 from the Sea Turtle ITP into a single unit (Figure 1). The Atlantic Sturgeon ITP also set observer coverage requirements across MUs for a given season, not within each MU in a season like the Sea Turtle ITP.

To maintain incidental takes below authorized levels, the Conservation Plan consisted of a variety of measures for gill nets operating in estuarine waters across the state. These measures primarily

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<sup>1</sup> <https://www.federalregister.gov/documents/2014/07/28/2014-17645/endangered-species-file-no-18102>

<sup>2</sup> <https://www.federalregister.gov/documents/2013/09/17/2013-22592/endangered-species-file-no-16230>

included the continuation of restrictions put in place for the anchored large-mesh gill-net fishery for Southern Flounder (*Paralichthys lethostigma*) by the NCDMF Sea Turtle ITP<sup>2</sup>. These restrictions are implemented annually through proclamation. They include mitigation measures such as restricting gear soak time and fishable days of the week, limiting net lengths, requiring separations between net shots in a single string, requiring low-profile net configurations, and implementing time/area closures (Table 3). However, based on historical information on where risk of incidental takes of sea turtles was the greatest, not all regulations for nets  $\geq 4$  ISM are applied in the same manner in each MU. Additionally, NCDMF mirrors by proclamation the federal deep-water closure in Pamlico Sound from 1 September through 15 December (50 C.F.R. § 223.206 (d)(7)). The Conservation Plan also requires the continuation of seasonal attendance requirements for anchored small-mesh gill nets that were outlined in the original application.

On 13 July 2017, the NCDMF requested a minor modification to the Atlantic Sturgeon ITP allocation of authorized takes in MUs A and C to be listed as annual rather than seasonal takes. The NCDMF explained that annual take thresholds would provide greater flexibility in managing the fishery while minimizing the frequency of full seasonal closures. Furthermore, the NCDMF emphasized that they would actively monitor fisheries and take levels daily to limit takes, particularly dead takes. On 19 July 2017, the NMFS sent a letter to the NCDMF agreeing with the request for the minor modification but encouraged staff to incorporate any further anticipated minor modifications into the application process for an updated ITP (McConnaughey et al. 2019a).

In recent years, regulatory changes related to several Fishery Management Plans (FMPs) have significantly reduced fishing effort using estuarine large-mesh gill nets. One such example is the adoption of Amendment 2 of the Southern Flounder FMP on 23 August 2019 by the Marine Fisheries Commission (MFC; NCDMF 2019). Regulatory measures in this amendment were a result of the most recent Southern Flounder stock assessment, which indicated the stock was overfished and overfishing was occurring. North Carolina state law requires management actions be taken to end overfishing within two years and to recover the stock from an overfished condition within 10 years. To meet these legal requirements, the NCDMF determined a 62% reduction in overall harvest was necessary for 2019 and a 72% harvest reduction would be needed beginning in 2020. Amendment 2 was expedited to begin rebuilding the stock immediately (NCDMF 2022). Due to the shortened time frame for development, Amendment 2 incorporated a seasonal approach to meet reductions while deferring more complex and comprehensive strategies to be developed in Amendment 3. For the commercial gill-net fishery, these regulations severely limited when large-mesh gill nets harvesting flounder were allowed. For example, for fall 2019–2021, the Southern Flounder commercial fisheries were constrained by setting specific dates when fishing was allowed across three Flounder Management Areas (MAs): Northern, Central, and Southern. Prior to fall 2019, the fishery was most active during the fall, but could operate January through November. Amendment 3 was adopted by the MFC on 26 May 2022 to establish new and continued regulations that would facilitate the rebuilding of the Southern Flounder stock. Amendment 3 established a quota-managed fishery for mobile gears (e.g., estuarine anchored large-mesh gill nets and gigs) and pound nets with separate sub-allocations by MA (NCDMF 2022). Estuarine Flounder Dealer Permits were required for any fish dealer to possess, purchase, sell, or offer for sale flounder taken from estuarine waters. As a condition of the permit, dealers were required to report flounder landings from a given day by noon the following day or, for landings on Fridays or Saturdays, by noon the following Monday. Other changes included the consolidation of mobile gear MAs from three areas in Amendment 2 to two areas (Northern MA: ITP MUs A, B, and C; Southern MA: ITP MUs D1, D2 and E; Figure 1) and the gradual

reallocation of the fishing quota to 50/50 recreational/commercial by 2026. Some regulations from Amendment 2 were maintained, such as limiting the allowed yardage of gill nets (i.e., 1,500 yards in MUs A, B, and C, and 750 yards in MUs D and E) and limiting gear soak time to overnight soaks state-wide for large-mesh gill nets.

Regulatory changes related to the management of American Shad (*Alosa sapidissima*) and Striped Bass (*Morone saxatilis*) have also affected large-mesh gill-net fisheries in MUs A and C. The NC American Shad Sustainable Fishery Plan, which set sustainability parameters for the American Shad stock, was approved by the MFC in 2013. Due to sustainability parameters being exceeded in MU A, the allowed season for anchored gill nets configured for harvesting American Shad in MU A was initially limited to 1 February–14 April and then further reduced in 2014 to 3–24 March (NCDMF and North Carolina Wildlife Resources Commission [NCWRC] 2017). The duration of the season has been shortened at times due to the concurrent harvest of Striped Bass. Striped Bass are a desirable bycatch species in the American Shad fishery in MU A. As a quota-managed species, Striped Bass bycatch in the shad fishery can force the fishery to close early if the quota is met before the defined end to the shad season. Striped Bass management has also led to recent regulatory changes due to the adoption of the 2020 Revision of Amendment 1 to the North Carolina Estuarine Striped Bass FMP (NCDMF and NCWRC 2020). As a result of this amendment, Total Allowable Landings (TAL) of Striped Bass were reduced from 275,000 pounds to 51,216 pounds, effective 1 January 2021. Furthermore, midway through the 2021 shad season, the lower Chowan River and western Albemarle Sound were closed to the use of gill nets due to the historical bycatch of Striped Bass in that area (Proclamation M-9-2021; Table 4). This closure was included in the proclamation that opened MU A for the 2023 shad fishery for the same reason (Proclamation M-5-2023; Table 4).

Regulations implemented in MU C have all but ended the large-mesh gill-net shad fishery in that area. Since 15 March 2019, all gill nets have been prohibited in upstream portions of the Pamlico and Neuse rivers, greatly reducing the areas of MU C open to gill nets (Proclamation M-6-2019; Table 4). In accordance with Supplement A to Amendment 1 and Amendment 2 to the Estuarine Striped Bass Fishery Management Plan, (NCDMF and NCWRC 2019) commercial harvest of striped bass in MU C has been prohibited since 2019. To that end, tie-down and distance-from-shore restrictions remain in place for large-mesh gill nets in the western Pamlico Sound and associated rivers as an effort to minimize Striped Bass bycatch. These restrictions reportedly make it difficult to successfully catch shad using anchored gill-net gear in MU C. Decreasing trends in reported trips support this anecdotal information as reported large-mesh gill-net trips in MU C went from an average of 966 trips during spring between 2016–2018 to an average of 17 trips between 2019–2021.

This annual report outlines observer activity, fishing activity, and total observed or estimated takes of Atlantic Sturgeon for the 2023 ITP Year, 1 September 2022–31 August 2023. The original deadline for annual reports was 31 January per the ITP; however, in January 2017 the deadline was extended to the last day in February following a request by the NCDMF (McConnaughey et al. 2019a). Fishing activity (i.e., effort) was measured as the number of reported fishing trips; these data are finalized only for 2022 (fall and part of winter). After the preliminary data for 2023 are finalized in May 2024, observer coverage and authorized estimated Atlantic Sturgeon takes will be recalculated and finalized estimates will be provided to the NMFS in the form of an addendum.

## 2 METHODS

### 2.1 Observer Activity

A sea-day schedule of projected observer trips for each season by month and MU during the 2023 ITP Year was developed during the prior season. The number of projected observer trips was based on the maximum goals for coverage outlined in the Conservation Plan: 10% coverage of total large-mesh gill-net fishing trips and 2% coverage of total small-mesh gill-net fishing trips. Data on commercial fishing effort were sourced from the NCDMF Trip Ticket Program (TTP), whereby fish dealers complete a trip ticket every time a commercial fisher sells finfish and/or shellfish. Trip tickets record information such as gear type, area fished, species harvested, and total weight by species. For anchored gill nets, the TTP defines large-mesh ( $\geq 5$  ISM) and small-mesh ( $< 5$  ISM) gill nets the same as the Atlantic Sturgeon ITP. Projected observer trips were stratified across each month within four seasons and six MUs proportional to the TTP data of reported fishing trips. The seasons crossed calendar years and were defined as follows: fall (September–November 2022), winter (December 2022–February 2023), spring (March–May 2023), and summer (June–August 2023). Although the Conservation Plan outlined in the Atlantic Sturgeon ITP identified five MUs (A, B, C, D, and E), projected observer trips were allocated according to the Conservation Plan in the Sea Turtle ITP, which splits MU D into D1 and D2 (Figure 1). Consistent with federal rule (50 C.F.R. § 223.206 (d)(7)), large-mesh gill nets operating in Pamlico Sound (MU B) from 1 September through 15 December were confined to specific subunits (Shallow Water Gill-Net Restricted Areas 1-4, and the Mainland Gill-Net Restricted Area). This has effectively closed the fishery in the deep waters of Pamlico Sound and in corridors near the Ocracoke, Hatteras, and Oregon inlets (Proclamation M-15-2022; Table 4; Figure 1).

Historically, projecting observer trips for the sea-day schedule was calculated as the average of reported gill-net trips by mesh-size category (large and small), month, and MU from the previous five years (e.g., 2017–2021 for the 2022 fall season). Though this approach was used to estimate small-mesh gill-net fishing effort, it was not a viable prediction of large-mesh fishing effort during the 2023 ITP Year due to regulation changes described above. The fall 2022 flounder season was the first to be quota-managed per Amendment 3 and created uncertainty as to how fishers would respond to a fishery that was open until the quota was filled rather than a specific number of days per Amendment 2. With that uncertainty, two approaches to estimate effort were explored. The first approach evaluated the previous year's landings and selected the week for each MU with the maximum number of participants, and then assumed each person would fish every day the season was open. This provided an estimated number of fishing trips per day. The second approach evaluated landings data during 2019–2021 (post Amendment 2) and selected the year with the greatest number of daily trips unique for each MU. For example, MU A had the greatest number of daily trips during 2020, but MU B had the greatest number of daily trips during 2021. For most MUs, the first approach produced a higher estimate of daily fishing effort. To be risk-averse, this approach was used to plan for the number of observed trips for each MU per day based on 10% of the estimated fishing trips unique to each MU. It was assumed that no fishing effort occurred in MU D1 because it has been closed to anchored large-mesh gill nets since 9 November 2017, when estimated Green Sea Turtle takes exceeded the authorized threshold (McConnaughey et al. 2019b, Byrd et al. 2023). Additionally, per the Sea Turtle ITP, MU D1 is closed to large-mesh gill nets annually during 8 May–14 October. In the estuarine large-mesh gill-net fishery for American Shad, the method to estimate fishing effort was also adapted to accommodate recent changes in the management of this fishery. For MUs A and C, only the last three years (2020–2022) of reported

fishing trips were used to project observer trips. Outside of these seasons and MUs, projected large-mesh observer trips were set to zero because large-mesh gill nets were not allowed.

The constrained seasons for the large-mesh gill-net fisheries concentrated fishing effort and the required observer effort to sufficiently cover the fisheries. Post-COVID changes to the hiring climate have made it difficult for NCDMF to hire seasonal observers to the extent needed. As a result, other NCDMF programs provided staff to help observe during the fall flounder and spring shad fisheries. The sea-day schedule continued to be shared with Marine Patrol officers, who conducted alternative platform observations as part of their regular duties.

Efforts to observe gill-net trips were facilitated by the continued requirement for fishers that use estuarine anchored gill nets to obtain an Estuarine Gill Net Permit (EGNP; Proclamation M-24-2014; Table 4). Permit holders provide their contact information so that observers can call and schedule observed trips. However, as the permit is free, many fishers get an EGNP but do not report trips using estuarine gill nets (Byrd et al. 2021). To optimize observer efforts to contact fishers, the NCDMF License and Statistics Section provided data on EGNP holders that had reported anchored estuarine fishing trips during the last three years. The dataset included all reported trips, associated mesh-size category, MU, permittee name, and contact information. This dataset was used to create a priority call list that observers used to call permit holders and attempt to schedule trips in advance. Observers also visited boat ramps to intercept fishers and attempt to get onboard trips or follow them out to observe them fishing their gear.

Observers were trained by experienced NCDMF staff to identify, measure, evaluate condition of, and tag Atlantic Sturgeon. Tags used by NCDMF include Passive Integrated Transponder (PIT) tags and T-bar tags. Date, time, tag numbers, location (latitude and longitude), condition (e.g., no apparent harm, injury including a description of the nature of the injury, or mortality), total length (TL, mm), and fork length (FL, mm) were recorded for observed Atlantic Sturgeon interactions. Photographs, fin clips (for genetic analyses), and data on environmental parameters (e.g., salinity, water temperature) were also collected when feasible. Observers were instructed to retain any dead Atlantic Sturgeon when possible. Individual reports of observed interactions were provided to NMFS within 24 hours.

In addition to sturgeon-specific data, observers also collected data on catch and gear parameters. On alternative platform trips, catch data were limited when compared to on-board trips. For unsuccessful alternative platform attempts (hereafter termed “No Contact” trips), observers recorded date, MU, and waterbodies surveyed. All data were coded onto NCDMF data sheets and uploaded to the NCDMF Biological Database for storage and analysis. Observers and Marine Patrol officers also logged data into an ArcGIS application, Collector, in real-time including set locations, gear parameters, and Atlantic Sturgeon interactions to provide daily total counts of trips and interactions.

Ongoing estimates of observer coverage were calculated by comparing the number of observed trips logged into Collector to the predicted number of fishing trips by mesh-size category, MU, and month. The numbers of No Contact trips were not included in these calculations. At the end of the calendar year, the TTP provided actual numbers of reported fishing trips to calculate observer coverage. The TTP data for September–December 2022 were finalized, but the data for January–August 2023 were preliminary. As a result, observer coverage calculated for winter, spring, and summer may change once finalized data are available in May or June 2024.

## 2.2 Incidental Takes

The ITP outlines authorized levels of incidental takes as estimated takes calculated from observed takes in MU A and counts of observed takes in MUs B, C, D, and E (Tables 1 and 2). The use of both estimated takes and counts of takes was necessary in the development of authorized levels because there were insufficient data available for modeling predicted estimated takes in the ITP application for some combinations of MU and mesh-size category (Daniel 2014). To compare numbers of incidental takes of Atlantic Sturgeon during the 2023 ITP Year to authorized levels, actual observed takes were counted for MUs B, C, D, E and estimated for MU A. The DPS of the Atlantic Sturgeon could not be determined because genetic results were not available. Incidental take estimates for MU A were calculated using a stratified ratio method whereas the bycatch rate (Atlantic Sturgeon caught per observed trip) calculated from observer data is multiplied by the total reported fishing trips.

$$\text{Estimated Takes} = \left( \frac{\text{Observed Atlantic Sturgeon Takes}}{\text{Observed Gill-Net Trips}} \right) * \text{Total Reported Gill-Net Trips}$$

This calculation was used each time an incidental take was observed to determine the estimated number of takes in MU A by date of capture and disposition. The predicted number of fishing trips was used to calculate real-time incidental take estimates. Estimated numbers of interactions for MU A and running totals of observed interactions in MUs B, C, D, and E were additive across interaction dates to determine if interactions were approaching authorized take thresholds. The ongoing comparisons allowed for the implementation of management measures, if needed, to prevent interactions from exceeding authorized levels. The estimated and/or total observed interactions were provided in weekly (when required) and monthly reports.

At the end of the ITP year, the estimated number of interactions for MU A was recalculated using actual numbers of fishing trips, albeit preliminary for 2023, reported in the TTP rather than the projected numbers of fishing trips. Nonparametric confidence intervals (95%) were calculated using standard bootstrapping techniques (Efron and Tibshirani 1993) using the ‘boot’ package in R (Canty and Ripley 2015; Davison and Hinkley 1997; R Core Team 2019). Bootstrap replicates were generated by sampling observer trips with replacement 5,000 times within strata (mesh-size category/MU).

## 2.3 Compliance

The Observer Program used various methods to contact fishers to schedule trips. The most common method was by phone, due to fishers leaving from private launches and overall efficiency. For each contact attempt made to schedule a trip (phone call, text message, or in-person), observers logged the contact in a database, assigned a category of the response, and noted any additional information (e.g., fisher stated they will not fish until October). Response categories included the following: 1) Left message with someone else; 2) Not fishing general; 3) Fishing other gear; 4) Not fishing because of weather; 5) Not fishing because of boat issues; 6) Not fishing because of medical issues; 7) Booked trip; 8) Hung up, got angry, trip refused; 9) Call back later time/date; 10) Saw in person; 11) Disconnected; 12) Wrong number; 13) No answer; 14) No answer, left voicemail; 15) Not fishing because of natural disaster (e.g., hurricane). Observers also documented calls returned from fishers, including the response category and notes. Contact log data were summarized by season and response category to determine the percentage of contacts that resulted in observer trips.



As part of their regular duties, Marine Patrol officers checked gill nets for compliance. Citations and/or Notice of Violations (NOVs) were issued to fishers when gear or fishing practices were out of compliance. A citation is an enforcement action taken by a Marine Patrol officer for person(s) found to be in violation of General Statutes, Rules, or Proclamations under the authority of the Marine Fisheries Commission and is considered a proceeding for District Court. An NOV is the NCDMF administrative process to suspend a permit (e.g., EGNP) and is initiated by an officer or NCDMF employee when a permit holder is found to be in violation of general or specific permit conditions. A citation and NOV may both be initiated by the same violation; however, they are two separate actions. In past years, relevant citations and NOVs were compiled based on the codes “EGNP” and “NETG”, as they are applicable to the EGNP and gill-net violations. Marine Patrol violation codes have been in the process of being changed from the former codes to the actual MFC rule and General Statute code. With these updates, violation descriptions have been changed to specify the rule or statute language and, where appropriate, proclamation number that was violated. All relevant citations and NOVS were compiled, which consist of old and new codes.

### **3 RESULTS**

#### **3.1 Observer Activity**

Overall state-wide observer coverage during the 2023 ITP Year was 25.9% of the reported large-mesh gill-net trips and 2.1% of the small-mesh gill-net trips (Tables 5 and 6). This level of coverage was based on 346 observed large-mesh gill-net trips and 134 observed small-mesh gill-net trips (Figure 2). Additionally, there were 1,026 No Contact trips (Table 7). When anchored gill nets could not be found, occasional observations of drift ( $n = 4$ ) and runaround ( $n = 43$ ) gill-net trips occurred (Table 8).

During the 480 total observed trips, observers documented 15 Atlantic Sturgeon in large-mesh and three in small-mesh gill nets (Table 9, Figure 2). One sturgeon that could not be identified to species was also observed in a large-mesh gill net.

Proclamations relative to anchored gill-net fisheries are listed in Table 4. Required attendance of anchored small-mesh (<5 ISM) gill nets occurs annually across different spatiotemporal scopes in NC estuarine waters, as a strategy to decrease dead discards of various fish species (e.g., Red Drum [*Sciaenops ocellatus*], Striped Bass). Many of the net attendance requirements are in rule; NCDMF published an interactive map package online that provides visual references for these gill-net attendance regulations in rule (<https://deq.nc.gov/about/divisions/marine-fisheries/rules-proclamations-and-size-and-bag-limits/rules/interactive-map-current-rules>). Several other net attendance requirements are maintained through proclamations. For example, net attendance was required during December–April in MU A (Proclamations M-26-2022, M-10-2023), year round within 200 yards from shore in most of MU C (Proclamation M-3-2023), and during May–November in an area near Oregon Inlet, MU B (Proclamation M-3-2023; Table 4).

##### **3.1.1 Fall 2022**

During fall 2022, the allowed mobile-gear (e.g., gill nets, gigs) quota for Southern Flounder was 123,879 pounds in the Northern MA and 62,309 pounds in the Southern MA (Proclamation FF-40-2022; Table 4). The fishery opened state-wide on 15 September 2022 except for D1 (Proclamations M-15-2022, M-17-2022; Table 4). However, 18 sea turtle interactions were observed within the first two days of the season in the southeastern portion of MU B. As a result, a proclamation was issued on the afternoon of 16 September, closing the following MU B subunits

to anchored large-mesh gill nets: Core Sound Gill Net Restricted Area, Shallow Water Gill Net Restricted Areas (SGNRA) 1, and SGNRA 2 (Proclamation, M-19-2022; Figure 1). On 22 September, the Northern and Southern flounder MAs were closed to mobile gears, including estuarine anchored large-mesh gill nets, based on reported landings compared to the quota (Proclamations FF-46-2022, M-20-2022 and M-21-2022; Table 4).

The small-mesh gill-net fishery opened state-wide at the beginning of fall (Proclamation M-16-2022; Table 4). However, MU B was closed to anchored small-mesh gill nets on 4 November in response to observed Green Sea Turtle interactions approaching authorized levels outlined in the Sea Turtle ITP (Proclamation M-25-2022; Table 4). Observer efforts were adjusted accordingly.

During fall, the Observer Program achieved 28.9% state-wide coverage of large-mesh gill-net trips, exceeding 7% coverage in each MU (Table 5; Figure 3). In fact, observer coverage calculations with actual reported fishing effort indicated coverage levels were much higher in several MUs than anticipated using estimated fishing effort. For small-mesh gill nets, the Observer Program achieved 1.8% state-wide coverage, exceeding 1% observer coverage in each MU except MU A where observer coverage was 0.8% and MU C where observer coverage was 0% (Table 6; Figure 3). Of the 266 No Contact trips during fall, 111 of them occurred in MUs A and C primarily looking for small-mesh gill-net effort (Table 7). Occasionally, observations occurred of drift gill nets ( $n = 1$ ) and runaround gill nets ( $n = 26$ ; Table 8). Thirteen of the 26 runaround gill-net observations occurred in MU C when no anchored gill-net effort could be found.

There were 15 observed Atlantic Sturgeon interactions (live) during fall (Table 9; Figure 3). All interactions occurred in large-mesh gill nets set in MU A. See Section 3.2 for further information on these interactions.

### **3.1.2 Winter 2022-2023**

Two MUs that had been closed to anchored gill nets toward the end of fall, reopened during winter 2022–2023. On 13 January, MU B was opened to anchored small-mesh gill nets (Proclamation M-3-2023; Table 4). On 15 February, MU C was opened to anchored large-mesh gill nets targeting American Shad (Proclamations FF-8-2023, M-4-2023; Table 4). Additionally, attendance requirements for small-mesh gill nets in MU A were removed on 1 December (Proclamation M-26-2022; Table 4).

Though the large-mesh gill-net fishery was open in MU C during winter, the Observer Program did not find any large-mesh effort. Once the TTP data were available, they confirmed that, in fact, no large-mesh gill-net trips were reported during this time (Table 5). For small-mesh gill nets, the Observer Program achieved an estimated 1.8% state-wide coverage, exceeding 1% coverage in each MU except MU B (0.9% observer coverage) and MU D (0% observer coverage; Table 6; Figure 4). Of the 343 No Contact trips during winter, 45 of them occurred in MUs B and D primarily looking for small-mesh gill-net effort (Table 7). There also were five observed runaround gill-net trips (Table 8).

There were no observed Atlantic Sturgeon interactions in gill nets during winter.

### **3.1.3 Spring 2023**

During spring 2023, MU A was open to anchored large-mesh gill nets during 2-17 March (Proclamations M-5-2023, M-6-2023; Table 4). Management Unit C stayed open from when it was opened during winter (Proclamation M-4-2023). However, scheduling trips and finding effort in MU C continued to be a struggle as it was during winter. After no success of scheduling or

finding large-mesh trips to observe during winter and early spring, NCDMF closed MU C to large-mesh gill nets on 31 March (Proclamation M-7-2023; Table 4). Similar to winter, TTP data confirmed that, in fact, no large-mesh gill-net trips were reported during spring (Table 5).

The small-mesh gill-net fishery was open state-wide at the beginning of spring. Observers struggled to find small-mesh gill-net effort in MUs D1, D2, and E. To ensure compliance with the ITP, several management actions were taken. On 28 April 2023, MUs D1 and D2 were closed to anchored gill nets (Proclamation M-9-2023; Table 4). While MU D1 remained closed throughout the rest of spring, three fishers contacted staff about the MU D2 closure and agreed to arrange observed trips if the MU was reopened. Therefore, MU D2 was reopened on 8 May and observers arranged trips with those fishers (Proclamation M-12-2023; Table 4). Though one observed trip was completed in MU E, additional conversations with fishers indicated that effort was sparse to none. As a result, MU E was closed on 26 May (Proclamation M-13-2023; Table 4) and remained closed throughout the rest of spring. Observer efforts were adjusted accordingly. In MU A, the net attendance requirement for small-mesh gill nets was implemented on 30 April (Proclamation M-10-2023; Table 4). Other net attendance requirements came into effect on 1 May (<https://deq.nc.gov/about/divisions/marine-fisheries/rules-proclamations-and-size-and-bag-limits/rules/interactive-map-current-rules>).

During spring, the Observer Program achieved an estimated 18.4% coverage of the large-mesh gill-net trips in MU A (Table 5; Figure 5). No fishing trips were reported in MU C. For small-mesh gill-net trips, the Observer Program achieved an estimated 2.1% state-wide coverage exceeding 1% observer coverage in each MU (Table 6; Figure 5). Of the 186 No Contact trips, 104 of them occurred in MUs D and E looking for small-mesh gill-net effort (Table 7). Additionally, there were four observed runaround gill-net trips (Table 8).

There were three observed Atlantic Sturgeon interactions (two alive and one dead) and one observed unidentified sturgeon interaction (live) during spring (Table 9, Figure 5). All three Atlantic Sturgeon interactions were observed in MU B in small-mesh gill nets. The unidentified sturgeon was observed in MU A in a large-mesh gill net but fell out of the net before the species could be positively identified. See Section 3.2 for further information on these interactions.

### **3.1.4 Summer 2023**

During summer 2023, the estuarine anchored large-mesh gill-net fishery remained closed state-wide. However, closures to the estuarine anchored small-mesh gill-net fishery varied by month and MU. At the beginning of summer, MUs D1 and E remained closed from actions during spring. Fishers in MU E contacted staff about the extant closure there and agreed to arrange observed trips if the MU was reopened. Therefore, on 10 August, MU E was reopened (M-14-2023; Table 4). Management Unit D1 remained closed throughout summer. Observers and Marine Patrol officers were unable to locate small-mesh gill-net effort in MU B outside of SNGRA 2 and 4. To ensure continued compliance with the ITP, areas of MU B outside of SGNRA 2 and 4 were closed to anchored gill nets on 10 August (Proclamation M-14-2023; Table 4). This closure remained in effect throughout the remainder of summer.

The Observer Program did not observe any large-mesh gill-net trips during summer as the gear was prohibited state-wide (Table 5). For small-mesh gill-net trips, the Observer Program achieved an estimated 3.3% state-wide coverage, exceeding 1.0% in each open MU (Table 6; Figure 6). In fact, there were two observed trips but only one reported fishing trip in MU D2. There were 231

No Contact trips, three observed drift gill-net trips, and eight observed runaround gill-net trips (Tables 7 and 8).

There were no observed Atlantic Sturgeon interactions in gill nets during summer.

### 3.2 Incidental Takes

Of the sturgeon takes during the 2023 ITP Year, all but one were released alive (Atlantic Sturgeon 17 out of 18; unidentified sturgeon 1 of 1; Table 9). Interactions occurred primarily during fall (~79%; 15 of 19) and in MU A (~84%; 16 of 19). Of the 18 Atlantic Sturgeon interactions, most were observed in large-mesh gill nets (~83%; 15 of 18; Table 9). The size range of Atlantic Sturgeon measured by observers was 532–1,194 mm TL ( $n = 13$ ,  $\bar{x} = 793.7$ , standard deviation [SD] = 161.2) and 402–1,083 mm FL ( $n = 15$ ,  $\bar{x} = 684.5$ , SD = 163.0; Table 9; Figure 7). Of the three Atlantic Sturgeon that were not measured, one fell out of the net and two (on different trips) were released by the fisher instead of given to the observer on the alternative platform vessel. All three were positively identified as Atlantic Sturgeon by the observers. Additionally, the observers reminded the fishers of the requirement to give the animal to the observer. The one sturgeon that was not identified to species fell out of the net as it was being pulled in. Observers applied PIT tags to five Atlantic Sturgeon. For two of the five, observers also applied T-bar tags and collected fin clips. For another two of the five, observers collected fin clips but did not tag them. No fishers reported sturgeon interactions during the 2023 ITP Year.

Observed take levels during the 2023 ITP Year did not reach the thresholds of allowed takes for any MU (Tables 1 and 2). The 15 observed Atlantic Sturgeon takes (all live) in large-mesh gill nets in MU A resulted in an estimated 43.9 live takes (Table 1). This estimated number of takes represents 2.0% of the 2,203 state-wide authorized takes in large-mesh gill nets across all DPSs. The remaining three observed Atlantic Sturgeon takes (two live, one dead) occurred in small-mesh gill nets in MU B where takes are not extrapolated (Table 2). The two observed live takes represent 0.3% of the 724 state-wide authorized live takes across all DPSs; the single observed dead take represents 0.01% of the 68 authorized takes across all DPSs.

### 3.3 Compliance

During the 2023 ITP Year, there were 2,438 fishers with an EGNP; 92% ( $n = 2,254$ ) of the permit holders also held a Standard Commercial Fishing License (SCFL) or Retired Standard Commercial Fishing License (RSCFL) and 8% ( $n = 184$ ) held a Recreational Commercial Gear License (RCGL). Of the commercial fishing permit holders, only 630 (28%) reported trips using anchored estuarine gill-net gear.

Using the priority call list of EGNP holders, 1,876 phone calls or in-person contacts were made with 42% ( $n = 795$ ) representing occasions where observers and fishers spoke to each other. Of the 795 conversations, 110 of them (14%) were a result of fishers returning observer phone calls. Nevertheless, only 5% ( $n = 94$ ) of the 1,876 contacts resulted in a booked trip (Figure 8). The greatest number of calls occurred during spring, and the least number of calls occurred in summer.

During the 2023 ITP Year, Marine Patrol officers issued 37 citations (Fall,  $n = 16$ ; Winter,  $n = 6$ ; Spring,  $n = 7$ ; Summer,  $n = 8$ ; Table 10) and 27 NOVs (Fall,  $n = 8$ ; Winter,  $n = 3$ ; Spring,  $n = 11$ ; Summer,  $n = 5$ ; Table 11).

### 3.4 Marine Mammals

There were no observed marine mammal interactions during the 2023 ITP Year.

## 4 DISCUSSION

Incidental takes of Atlantic Sturgeon during the 2023 ITP Year were below authorized levels. The NCDMF Observer Program used a combination of real-time monitoring of Atlantic Sturgeon interactions and an adaptive management approach to successfully manage takes in estuarine anchored gill-net fisheries. Overall, most observed Atlantic Sturgeon were released alive, thereby limiting negative effects of these interactions on the DPSs. Interactions continue to be more common in anchored large-mesh than small-mesh gill nets. This trend may be a result of differences in interaction rates between the two mesh-size categories and the fact that more than twice as many large-mesh gill nets are observed. The one observed unidentified sturgeon was likely an Atlantic Sturgeon as the Observer Program has only documented two Shortnose Sturgeon, both in 2016 (Boyd 2017, 2018).

During the 2023 ITP Year, the Observer Program worked with other NCDMF programs and Marine Patrol to leverage assistance in obtaining coverage. Overall observer coverage during each season met or exceeded the minimum observer coverage levels outlined in the ITP for both mesh-size categories. For the fall large-mesh fishery, observer coverage in most MUs was 2-3 times greater than the goal of 10%. This high level of coverage was a result of the Division's risk-averse approach to estimating effort for the first quota-managed flounder season. Accomplishing this high level of coverage required mobilization of many more Division staff than typical for this fishery. Adjustments to estimating fishing effort in future flounder seasons will be discussed internally and with NMFS to improve this estimate of fishing effort to optimize the use of Division staff.

When examining observer coverage at the MU and season level, minimum levels were not met in MUs A and C for small-mesh gill nets during fall and in MUs B and D for small-mesh gill nets during winter. Starting in spring 2023, NCDMF began exercising proclamation authority more often to close all or partial MUs when there was a risk of not obtaining minimum observer coverage on a MU and seasonal basis as required by the Sea Turtle ITP. In some cases, this resulted in fishers contacting NCDMF to request for their area to be reopened and agreeing to arrange observer trips. This approach contributed to observer coverage requirements being met at the MU and season level. The NCDMF will continue to consider this option to ensure compliance with the ITP requirements for observer coverage is maintained.

Scheduling observed trips continues to be a challenge for the NCDMF Observer Program, a challenge shared by other observer programs (e.g., Lyssikatos and Garrison 2018). The EGNP is a useful tool to improve compliance by including specific permit conditions requiring fishers to allow observers aboard their vessels to monitor catch and by providing contact information for permit holders. Phone calls made to EGNP holders contributed to observers scheduling some trips, but the success rate of scheduling trips was low (~5%). Although refusal of an observed trip by a fisher can result in a suspension of their EGNP, non-compliance typically does not include such a direct refusal. More often, avoidance of accepting or returning observer phone calls occurs. As such, non-compliance continues to be a hurdle for ensuring the observer coverage requirements of both ITPs are met.

The Division has been coordinating with the NC Department of Information Technology to develop a call-in system, the Observer Trip Scheduling System (OTSS). The OTSS will help ensure that ITP observer coverage requirements are met, and that the observer coverage is distributed evenly among participants and representative of the fishery. During spring 2023, the Observer Program held five public outreach meetings across the state to gather input from fishers on the development of the OTSS and to share information as to the necessity of the system. This

input was used to tailor the OTSS as much as possible to the needs of the users and ensure fisher compliance. Currently, the OTSS is in the internal testing phase. Once this testing phase is complete, the Observer Program will reach out to members of the commercial fishing industry, including those on the MFC, to further test the system. An implementation date for requiring participation in the OTSS has not been set, but the target date is early 2024. Public information meetings and trainings will occur before the OTSS is fully implemented.

Although onboard observations are the preferred method, alternative platform observations played a critical role in the continuation of observing gill nets during the 2023 ITP Year. There are several advantages to an alternative platform approach. For example, this approach does not rely on previous contact with fishers to obtain an observable trip. Alternative platform observations also allow Marine Patrol officers to conduct observations as part of daily patrols; their observed trips contribute a substantial portion of the total alternative platform observations. Even for fishers who would willingly take an observer, many vessels used by gillnetters in estuarine waters are too small to easily accommodate an observer, making alternative platform observations ideal for capturing trips with this size class of vessel (Kolkmeier et al. 2007). Nevertheless, the alternative platform method has several drawbacks. Alternative platform observations require two observers, halving observer effort and program efficiency. Obtaining alternative platform observations does not always compensate for the difficulty in scheduling trips in advance. Because few observer trips were scheduled in advance, a significant amount of time was spent searching for fishing activity, especially when fishing activity was less concentrated. However, this effort by observers and Marine Patrol officers was sometimes unsuccessful at finding trips to observe. The OTSS should improve the Observer Program's ability to schedule trips in advance and to meet the observer coverage requirements of the ITP.

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**6 TABLES**

**Table 1.** For large-mesh ( $\geq 5$  inches stretched mesh) gill nets, a comparison of actual (alive,  $n = 15$ ; dead,  $n = 0$ ) annual incidental takes of Atlantic Sturgeon by management unit (MU) during the 2023 Incidental Take Permit Year to authorized thresholds expressed as either estimated total takes based on observed takes (MU A) or counts of observed takes (MUs B–E). Authorized takes in MUs D and E were for the Carolina Distinct Population Segment (DPS) only and listed as not applicable (n/a) for Other DPS. 95% confidence intervals are provided in brackets. Genetic results were not available to determine DPS of observed interactions.

Management Unit	Season	Authorized				Actual	
		Carolina DPS		Other DPS		All DPS	
		Alive	Dead	Alive	Dead	Alive	Dead
A	Annual	1,604	65	535	21	43.9 [16.0, 141.3]	0
B	Annual	24	6	9	0	0	0
C	Annual	11	5	4	0	0	0
D	Annual	8	2	n/a	n/a	0	0
E	Annual	8	2	n/a	n/a	0	0
Total	Annual	1,655	80	548	21	43.9	0

**Table 2.** For small-mesh (<5 inches stretched mesh) gill nets, a comparison of actual (alive,  $n = 2$ ; dead,  $n = 1$ ) annual incidental takes of Atlantic Sturgeon by management unit (MU) during the 2023 Incidental Take Permit Year to authorized thresholds expressed as either total takes based on observed takes (MU A) or counts of observed takes (MUs B–E). Authorized takes in MUs C, D, and E were for the Carolina Distinct Population Segment (DPS) only and listed as not applicable (n/a) for Other DPS. 95% confidence intervals are provided in brackets. Genetic results were not available to determine DPS of observed interactions.

Management Unit	Season	Authorized				Actual	
		Carolina DPS		Other DPS		All DPS	
		Alive	Dead	Alive	Dead	Alive	Dead
A	Annual	569	45	114	10	0	0
B	Annual	14	5	3	0	2	1
C	Annual	8	4	n/a	n/a	0	0
D	Annual	8	2	n/a	n/a	0	0
E	Annual	8	2	n/a	n/a	0	0
Total	Annual	607	58	117	10	2	1

**Table 3.** Restrictions implemented for estuarine anchored gill nets  $\geq 4$  inches stretched mesh included in the current NCDMF Sea Turtle (No. 16230) and Atlantic Sturgeon (No. 18102) Incidental Take Permits (ITPs). Cells highlighted in gray had no restrictions per the ITPs. MU = Management Unit.

MU	Soak time	Days of the week	Net Length	Gear configuration	Low-profile requirements	Area Closure
A north of US Hwy 64 bridge	Must be < 24 hours soak time and fished before noon each day		Maximum net length per fishing operation is 2,000 yd (1.83 km)			Western Albemarle Sound in the vicinity of the mouth of the Roanoke River including the entire Roanoke River up to the dam in Weldon, permanently closed to all gill nets.
A south of US Hwy 64 bridge	One hour before sunset to one hour after sunrise	Monday night - Friday morning	Maximum net length per fishing operation is 2,000 yd (1.83 km)	Net-shot lengths < 100 yd with a 25-yd separation between each net-shot	Nets must not exceed 15 meshes in height and must have a lead core or leaded bottom line. Nets must not have cork, floats, or other buoys except those required for identification.	
B	One hour before sunset to one hour after sunrise	Monday night - Friday morning	Maximum net length per fishing operation is 2,000 yd (1.83 km)	Net-shot lengths < 100 yd with a 25-yd separation between each net-shot	Nets must not exceed 15 meshes in height and must have a lead core or leaded bottom line. Nets must not have cork, floats, or other buoys except those required for identification.	Prohibition of large mesh gillnets in the deep-water portions of the Pamlico Sound and in Oregon, Hatteras, and Ocracoke inlets September 1 through December 15.
C	Must be < 24 hours soak time and fished before noon each day		Maximum net length per fishing operation is 2,000 yd (1.83 km)			
D1	One hour before sunset to one hour after sunrise	Monday night - Friday morning	Maximum net length per fishing operation is 2,000 yd (1.83 km)	Net-shot lengths < 100 yd with a 25-yd separation between each net-shot	Nets must not exceed 15 meshes in height and must have a lead core or leaded bottom line. Nets must not have cork, floats, or other buoys except those required for identification.	Closed May 8 through October 14
D2	One hour before sunset to one hour after sunrise	Sunday night - Friday morning	Maximum net length per fishing operation is 1,000 yd (0.91 km)	Net-shot lengths < 100 yd with a 25-yd separation between each net-shot	Nets must not exceed 15 meshes in height and must have a lead core or leaded bottom line. Nets must not have cork, floats, or other buoys except those required for identification.	
E	One hour before sunset to one hour after sunrise	Sunday night - Friday morning	Maximum net length per fishing operation is 1,000 yd (0.91 km)	Net-shot lengths < 100 yd with a 25-yd separation between each net-shot	Nets must not exceed 15 meshes in height and must have a lead core or leaded bottom line. Nets must not have cork, floats, or other buoys except those required for identification.	

**Table 4.** Regulations by effective date for estuarine anchored gill nets during the 2023 Incidental Take Permit (ITP) Year or referenced in the text for previous ITP years.

Year	Effective Date	Proclamation Number	Regulation
2014	1-Sep	M-24-2014	This proclamation established the requirement that makes it unlawful for holders of a Standard Commercial Fishing License (SCFL), Retired Standard Commercial Fishing License (RSCFL), or Recreational Commercial Gear License (RCGL) to deploy gill nets in Internal Coastal Waters with an exception for run around, strike, drop or drift gill nets, without possessing a valid Estuarine Gill Net Permit issued by the Division of Marine Fisheries.
2019	18-Mar	M-6-2019	This proclamation supersedes proclamation M-5-2019, dated March 7, 2019. This proclamation prohibits the use of ALL gill nets upstream of the ferry lines from the Bayview Ferry to Aurora Ferry on the Pamlico River and the Minnesott Beach Ferry to Cherry Branch Ferry on the Neuse River. It maintains tie-down (vertical net height restrictions) and distance from shore restrictions for gill nets with a stretched mesh length 5 inches and greater in the western Pamlico Sound and rivers (excluding the areas described in Section I. B.) in accordance with Supplement A to Amendment 1 to the N.C. Estuarine Striped Bass Fishery Management Plan.
2021	12-Mar	M-9-2021	This proclamation supersedes proclamation M-7-2021 dated February 25, 2021. It closes a portion of Management Unit A to the use of all gill nets and reduces the maximum amount of yards allowed for gill nets configured for harvesting American shad.
2022	14-Sep	M-15-2022	This proclamation supersedes proclamation M-8-2022 dated April 12, 2022. This proclamation opens Management Units B (subunits only), C, D2, and E 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 Amendment 3 to the N.C. Southern Flounder Fishery Management Plan and the Federal Incidental Take Permits for endangered and threatened Sea Turtles and endangered Atlantic sturgeon.
2022	1-Sep	M-16-2022	This proclamation supersedes proclamation M-10-2022 dated April 27, 2022. It opens Management Unit A to the use of small mesh anchored gill nets and implements small mesh gill net attendance requirements in accordance with the Division’s Fishery Management Plans for Estuarine Striped Bass and River Herring and the Incidental Take Permits for threatened or endangered sea turtles and endangered Atlantic sturgeon. It keeps open a portion of Management Unit A to the use of run-around, strike, drop, and trammel gill nets with a stretched mesh length of 5 ½ inches through 6 ½ inches for harvesting blue catfish.

Year	Effective Date	Proclamation Number	Regulation
2022	15-Sep	FF-40-2022	This proclamation supersedes Proclamation FF-40-2021, dated June 28, 2021. It establishes commercial flounder season dates for Internal Coastal Waters by Flounder Management Area and Gear Category. This action is being taken to comply with the requirements of Amendment 3 to the N.C. Southern Flounder Fishery Management Plan and maintain harvest within the total allowable landings.
2022	14-Sep	M-17-2022	This proclamation supersedes proclamation M-16-2022 dated August 26, 2022. It opens Management Unit A to the use of gill nets for the purpose of harvesting flounder in accordance with Amendment 3 to the N.C. Southern Flounder Fishery Management Plan and the Incidental Take Permits for threatened or endangered sea turtles and endangered Atlantic sturgeon. It maintains the exempted areas in MUA open to the use of run-around, strike, drop, and trammel gill nets to harvest blue catfish. It also maintains small mesh gill net attendance requirements in the entirety of Management Unit A.
2022	16-Sep	M-19-2022	This proclamation supersedes proclamation M-15-2022 dated August 26, 2022. This proclamation closes Management Unit B subunits SGNRA1, SGNRA2, and CGRNA to the use of gill nets with a stretched mesh length of 4 inches through 6 ½ inches (except as described in Section III.) accordance with Amendment 3 to the N.C. Southern Flounder Fishery Management Plan and the Incidental Take Permits for endangered and threatened Sea Turtles and endangered Atlantic sturgeon. It maintains openings in Management Units C, D2, and portions of Management Unit E (except those portions described in Section II.)
2022	21-Sep	FF-46-2022	This proclamation supersedes Proclamation FF-40-2022, dated July 8, 2022. It closes the commercial flounder season for the Southern Management Area Wednesday, September 21, 2022, and the Mobile Gear Northern Area Thursday, September 22, 2022, and maintains the season, size, and gear restrictions for the Pound Net Northern, Central, and Southern Management Areas. This proclamation also establishes a 1,000-pound daily trip limit for the commercial pound net fishery in the Pound Net Northern Management Area beginning September 22, 2022. If the division determines quota is available for additional harvest days further proclamations will be released. This action is being taken to comply with the requirements of Amendment 3 to the N.C. Southern Flounder Fishery Management Plan and maintain harvest within the total allowable landings (TAL).
2022	22-Sep	M-20-2022	This proclamation supersedes proclamation M-19-2022 dated September 16, 2022. This proclamation closes Management Units D2 and E at 12:00 P.M. on September 21, 2022, and Management Units B and C at 10:00 A.M. on September 22, 2022, 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 Amendment 3 to the N.C. Southern Flounder Fishery Management Plan.

Year	Effective Date	Proclamation Number	Regulation
2022	22-Sep	M-21-2022	This proclamation supersedes proclamation M-17-2022 dated September 6, 2022. It closes Management Unit A to the use of large mesh anchored gill nets with overnight soaks for harvesting flounder. It maintains small mesh gill net attendance requirements and keeps open a portion of Management Unit A to the use of run-around, strike, drop, and trammel gill nets with a stretched mesh length of 5 ½ inches through 6 ½ inches for harvesting blue catfish.
2022	4-Nov	M-25-2022	This proclamation supersedes proclamation M-24-2022 dated November 2, 2022. It closes Management Unit B to the use of fixed or stationary gill nets with a stretched mesh length less than 4 inches and maintains exemptions for actively fished gill nets.
2022	1-Dec	M-26-2022	This proclamation supersedes proclamation M-21-2022 dated September 21, 2022. In Management Unit A, it removes attendance requirements and imposes vertical height restrictions for anchored gill nets with a stretched mesh length of 3 inches through 3 ¾ inches. It maintains the exempted portion of Management Unit A that allows the use of run-around, strike, drop, and trammel gill nets with a stretched mesh length of 5 ½ inches through 6 ½ inches to harvest blue catfish.
2023	1-Jan	FF-8-2023	This proclamation sets the 2023 commercial and recreational seasons and harvest restrictions for the taking of American shad and hickory shad in Coastal and Joint Fishing waters.
2023	13-Jan	M-3-2023	This proclamation supersedes proclamation M-25-2022 dated November 4, 2022. It opens Management Unit B to the use of fixed or stationary gill nets with a stretched mesh length less than 4 inches and increases the yardage limits for the small mesh gill net fishery in portions of Management Unit B.
2023	15-Feb	M-4-2023	This proclamation supersedes proclamation M-20-2022, dated September 21, 2022. This proclamation opens Management Unit C to the use of gill nets with a stretched mesh length of 4 inches through 6 ½ inches and implements gear exemptions for the shad fishery in all areas south of Management Unit A in accordance with Amendment 3 to the N.C. Southern Flounder Fishery Management Plan.
2023	2-Mar	M-5-2023	This proclamation supersedes proclamation M-2-2023 dated December 21, 2022. It opens a portion of Management Unit A to the use of floating gill nets configured for harvesting American shad by removing vertical height and setting restrictions for all gill nets with stretched mesh lengths of 5 ¼ through 6 ½ inches.

Year	Effective Date	Proclamation Number	Regulation
2023	17-Mar	M-6-2023	This proclamation supersedes proclamation M-5-2023 dated February 28, 2023. In Management Unit A, it removes gill nets configured for harvesting American shad and it remains unlawful to use fixed or stationary gill nets with a stretched mesh length other than 3 ¼ inches. It opens an exempted portion of Management Unit A that allows the use of run-around, strike, and drop gill nets with a stretched mesh length of 5 ½ inches through 6 ½ inches to harvest blue catfish.
2023	31-Mar	M-7-2023	This proclamation supersedes proclamation M-4-2023, dated February 13, 2023. This proclamation closes Management Unit C to the use of set gill nets with a stretched mesh length of 4 inches through 6 ½ inches and maintains gear exemptions for the shad fishery in all areas south of Management Unit A in accordance with Amendment 3 to the N.C. Southern Flounder Fishery Management Plan and the Incidental Take Permits for endangered and threatened Sea Turtles and endangered Atlantic sturgeon.
2023	28-Apr	M-9-2023	This proclamation supersedes proclamation M-3-2023 dated January 11, 2023. It reduces the yardage limits for gill nets less than 4 inches stretched mesh used in Management Unit B, establishes a drift gill net yardage limit for the Spanish Mackerel fishery that occurs in Management Unit B and closes Management Units D1 and D2 to the use of fixed or stationary gill nets less than 4 inches stretch mesh while allowing an exemption for actively fished nets.
2023	30-Apr	M-10-2023	This proclamation supersedes proclamation M-6-2023 dated March 15, 2023. In Management Unit A, it implements small mesh gill net attendance requirements and keeps open a portion of Management Unit A to the use of run-around, strike, and drop gill nets with a stretched mesh length of 5 ½ inches through 6 ½ inches for harvesting blue catfish.
2023	8-May	M-12-2023	This proclamation supersedes proclamation M-9-2023 dated April 26, 2023. It opens Management Unit D2 to the use of fixed or stationary gill nets less than 4 inches stretch mesh.
2023	26-May	M-13-2023	This proclamation supersedes proclamation M-12-2023 dated May 5, 2023. It closes Management Unit E to the use of fixed or stationary gill nets less than 4 inches stretch mesh.
2023	10-Aug	M-14-2023	This proclamation supersedes proclamation M-13-2023 dated May 24, 2023. It closes portions of Management Unit B and opens Management Unit E to the use of fixed or stationary gill nets less than 4 inches stretched mesh.

**Table 5.** For large-mesh ( $\geq 5$  inches stretched mesh) gill nets, observer coverage (observed trips/fishing trips) calculated by season and management unit (MU) for the 2023 Incidental Take Permit (ITP) Year. Observer coverage was calculated using estimated fishing trips based on the Trip Ticket Program data and actual reported fishing trips from the program for the ITP year. Anchored large-mesh gill nets were prohibited in the eastern portion of MU D during all seasons and were prohibited seasonally in whole MUs during one or more seasons (“closed”). Trip Ticket Program data are considered finalized for 2022 and preliminary for 2023. For MUs with no reporting fishing trips, coverage is not applicable (n/a).

Season	Management Unit	Large Mesh				
		Estimated Fishing Trips	Reported Fishing Trips	Observed Trips	Coverage of Estimated Fishing Trips	Coverage of Reported Fishing Trips
Fall 2022	A	720	368	113	15.7	30.7
	B	365	227	46	12.6	20.3
	C	144	147	50	34.7	34.0
	D	36	39	5	13.9	12.8
	E	348	179	63	18.1	35.2
	Overall	1,613	960	277	17.2	28.9
Winter 2022 - 2023	A	closed	closed	closed	closed	closed
	B	closed	closed	closed	closed	closed
	C	3	0	0	0.0	n/a
	D	closed	closed	closed	closed	closed
	E	closed	closed	closed	closed	closed
	Overall	3	0	0	0.0	n/a
Spring 2023	A	695	374	69	9.9	18.4
	B	closed	closed	closed	closed	closed
	C	6	0	0	0.0	n/a
	D	closed	closed	closed	closed	closed
	E	closed	closed	closed	closed	closed
	Overall	701	374	69	9.8	18.4
Summer 2023	A	closed	closed	closed	closed	closed
	B	closed	closed	closed	closed	closed
	C	closed	closed	closed	closed	closed
	D	closed	closed	closed	closed	closed
	E	closed	closed	closed	closed	closed
	Overall	closed	closed	closed	closed	closed
Annual		2,317	1,334	346	14.9	25.9



**Table 6.** For small-mesh (<5 inches stretched mesh) gill nets, observer coverage (observed trips/fishing trips) calculated by season and management unit (MU) for the 2023 Incidental Take Permit (ITP) Year. Observer coverage was calculated using estimated fishing trips based on the Trip Ticket Program data and actual reported fishing trips from the program for the ITP year. See text for description of openings and closings of all or partial MUs. Trip Ticket Program data are considered finalized for 2022 and preliminary for 2023.

Small Mesh						
Season	Management Unit	Estimated Fishing Trips	Reported Fishing Trips	Observed Trips	Coverage of Estimated Fishing Trips	Coverage of Reported Fishing Trips
Fall 2022	A	305	363	3	1.0	0.8
	B	733	1,135	19	2.6	1.7
	C	157	321	0	0.0	0.0
	D	172	73	5	2.9	6.8
	E	384	326	13	3.4	4.0
	Overall		1,751	2,218	40	2.3
Winter 2022-2023	A	665	828	15	2.3	1.8
	B	381	329	3	0.8	0.9
	C	244	213	5	2.0	2.3
	D	40	5	0	0.0	0.0
	E	105	90	4	3.8	4.4
	Overall		1,435	1,465	27	1.9
Spring 2023	A	622	725	18	2.9	2.5
	B	1,503	1,267	21	1.4	1.7
	C	172	134	4	2.3	3.0
	D	36	12	3	8.3	25.0
	E	108	85	1	0.9	1.2
	Overall		2,441	2,223	47	1.9
Summer 2023	A	191	179	5	2.6	2.8
	B	840	353	8	1.0	2.3
	C	65	58	2	3.1	3.4
	D	17	1	2	11.8	200.0
	E	64	18	3	4.7	16.7
	Overall		1,177	609	20	1.7
Annual		6,804	6,515	134	2.0	2.1

**Table 7.** Number of “No Contact” trips ( $n = 1,026$ ) by season and management unit completed by Marine Patrol officers and observers during the 2023 Incidental Take Permit Year. No Contact refers to unsuccessful attempts to find and observe anchored gill-net effort.

Season	Management Unit	Marine Patrol No Contact Trips	Observer No Contact Trips	Total No Contact Trips
Fall 2022	A	46	3	49
	B	15	2	17
	C	50	12	62
	D	15	3	18
	E	120	0	120
	Overall	246	20	266
Winter 2022 - 2023	A	61	3	64
	B	11	3	14
	C	57	15	72
	D	20	11	31
	E	161	1	162
	Overall	310	33	343
Spring 2023	A	34	9	43
	B	1	2	3
	C	33	3	36
	D	16	8	24
	E	80	0	80
	Overall	164	22	186
Summer 2023	A	70	0	70
	B	27	10	37
	C	56	2	58
	D	20	4	24
	E	42	0	42
	Overall	215	16	231
Annual		935	91	1,026

**Table 8.** Number of drift and runaround gill-net observations by season and management unit completed during the 2023 Incidental Take Permit Year.

Season	Management Unit	Observed Drift Gill-net Trips	Observed Runaround Gill-net Trips	Total Observed Trips
Fall 2022	A	0	0	0
	B	0	2	2
	C	0	13	13
	D	0	1	1
	E	1	10	11
	Overall	1	26	27
Winter 2022 - 2023	A	0	0	0
	B	0	1	1
	C	0	3	3
	D	0	0	0
	E	0	1	1
	Overall	0	5	5
Spring 2023	A	0	0	0
	B	0	0	0
	C	0	4	4
	D	0	0	0
	E	0	0	0
	Overall	0	4	4
Summer 2023	A	0	0	0
	B	1	3	4
	C	0	5	5
	D	1	0	1
	E	1	0	1
	Overall	3	8	11
Annual		4	43	47

**Table 9.** Summary of observed Atlantic Sturgeon (AS:  $n = 18$ ) and unidentified sturgeon (US:  $n = 1$ ) interactions in large-mesh ( $\geq 5$  inches stretched mesh) and small-mesh ( $< 5$  inches stretched mesh) gill nets during the 2023 Incidental Take Permit Year. PIT=Passive Integrated Transponders. n/r=not recorded. Sturgeon with the same superscripted letter were caught on the same trip. MU=Management Unit. Disp.=Disposition. TL=Total Length. FL=Fork Length.

Date	Season	MU	Species	Mesh-size Category	Latitude (N)	Longitude (W)	Disp.	PIT Tag Number	T-Bar Tag Number	Fin clip collected	TL (mm)	FL (mm)
09/15/2022	Fall	A	AS	Large	36.14702	76.38291	Alive				736	660
09/15/2022	Fall	A	AS	Large	36.11771	76.29300	Alive	982.000362192051			532	504
09/16/2022	Fall	A	AS	Large	36.09866	76.23339	Alive	989.001032053608		yes	893	783
09/17/2022	Fall	A	AS	Large	35.93624	76.31359	Alive				914	900
09/20/2022	Fall	A	AS <sup>a</sup>	Large	36.37330	75.89418	Alive	989.001040409744	55102	yes	794	680
09/20/2022	Fall	A	AS <sup>a</sup>	Large	36.38083	75.89656	Alive	989.001040409723	55103	yes	1,194	1,083
09/20/2022	Fall	A	AS	Large	36.21152	76.10441	Alive				n/r	n/r
09/22/2022	Fall	A	AS <sup>b</sup>	Large	36.00445	76.6803	Alive				n/r	n/r
09/22/2022	Fall	A	AS <sup>b</sup>	Large	36.00522	76.68041	Alive				914	812
09/22/2022	Fall	A	AS <sup>b</sup>	Large	35.9954	76.67803	Alive				787	685
09/22/2022	Fall	A	AS <sup>b</sup>	Large	36.00089	76.67941	Alive				660	584
09/22/2022	Fall	A	AS <sup>b</sup>	Large	35.99719	76.67844	Alive				685	609
09/22/2022	Fall	A	AS <sup>b</sup>	Large	36.00507	76.68043	Alive				736	609
09/22/2022	Fall	A	AS <sup>b</sup>	Large	36.00030	76.67924	Alive				711	609
09/22/2022	Fall	A	AS	Large	35.94241	76.31014	Alive				762	660
03/16/2023	Spring	A	US	Large	36.17990	76.74974	Alive				n/r	n/r
03/28/2023	Spring	B	AS	Small	35.50172	75.51722	Dead				n/r	402
04/11/2023	Spring	B	AS	Small	35.52866	75.51001	Alive	982.000410598777		yes	n/r	688
04/12/2023	Spring	B	AS	Small	35.53209	75.50763	Alive				n/r	n/r

**Table 10.** Citations ( $n = 37$ ) written by Marine Patrol officers for estuarine anchored gill nets by violation date and code during the 2023 Incidental Take Permit Year.

Season	Violation Date	Code	Description
Fall	9/4/2022	NETG01	Leave gill net in coastal waters unattended
Fall	9/14/2022	NETG45	Set or retrieve large mesh gill nets no sooner than one hour before sunset on Monday through Thursday
Fall	9/15/2022	NETG44	Use large mesh gill nets w/out leaving a space of at least 25 yards between separate lengths of net
Fall	9/15/2022	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Fall	9/16/2022	NETG40	Use cork floats or other buoys except those required for ID on large mesh gill nets
Fall	9/16/2022	EGNP01	Fishing gill net without a valid Estuarine Gill Net Permit
Fall	9/17/2022	NETG02	Using gill net without buoys or identification
Fall	10/9/2022	NETG30	Leave RCGL gill net unattended
Fall	10/24/2022	NETG01	Leave gill net in coastal waters unattended
Fall	10/24/2022	NETG02	Using gill net without buoys or identification
Fall	11/2/2022	NETG01	Leave gill net in coastal waters unattended
Fall	11/2/2022	NETG27	Gill Net set within 50 yards from shore
Fall	11/2/2022	NETG27	Gill Net set within 50 yards from shore
Fall	11/3/2022	EGNP30	Failure to comply with gill net configurations outlined in proclamation
Fall	11/3/2022	EGNP30	Failure to comply with gill net configurations outlined in proclamation
Fall	11/8/2022	NETG02	Using gill net without buoys or identification
Winter	1/18/2023	NETG03	Using gill net with improper buoys or identification
Winter	1/18/2023	NETG22	Improperly set gill net
Winter	2/6/2023	NETG01	Leave gill net in coastal waters unattended
Winter	2/6/2023	NETG02	Using gill net without buoys or identification
Winter	2/23/2023	NETG03	Using gill net with improper buoys or identification
Winter	2/23/2023	NETG22	Improperly set gill net
Spring	4/26/2023	EGNP01	Fishing gill net without a valid Estuarine Gill Net Permit
Spring	4/26/2023	NETG02	Using gill net without buoys or identification
Spring	5/3/2023	NETG27	Gill Net set within 50 yards from shore
Spring	5/30/2023	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)

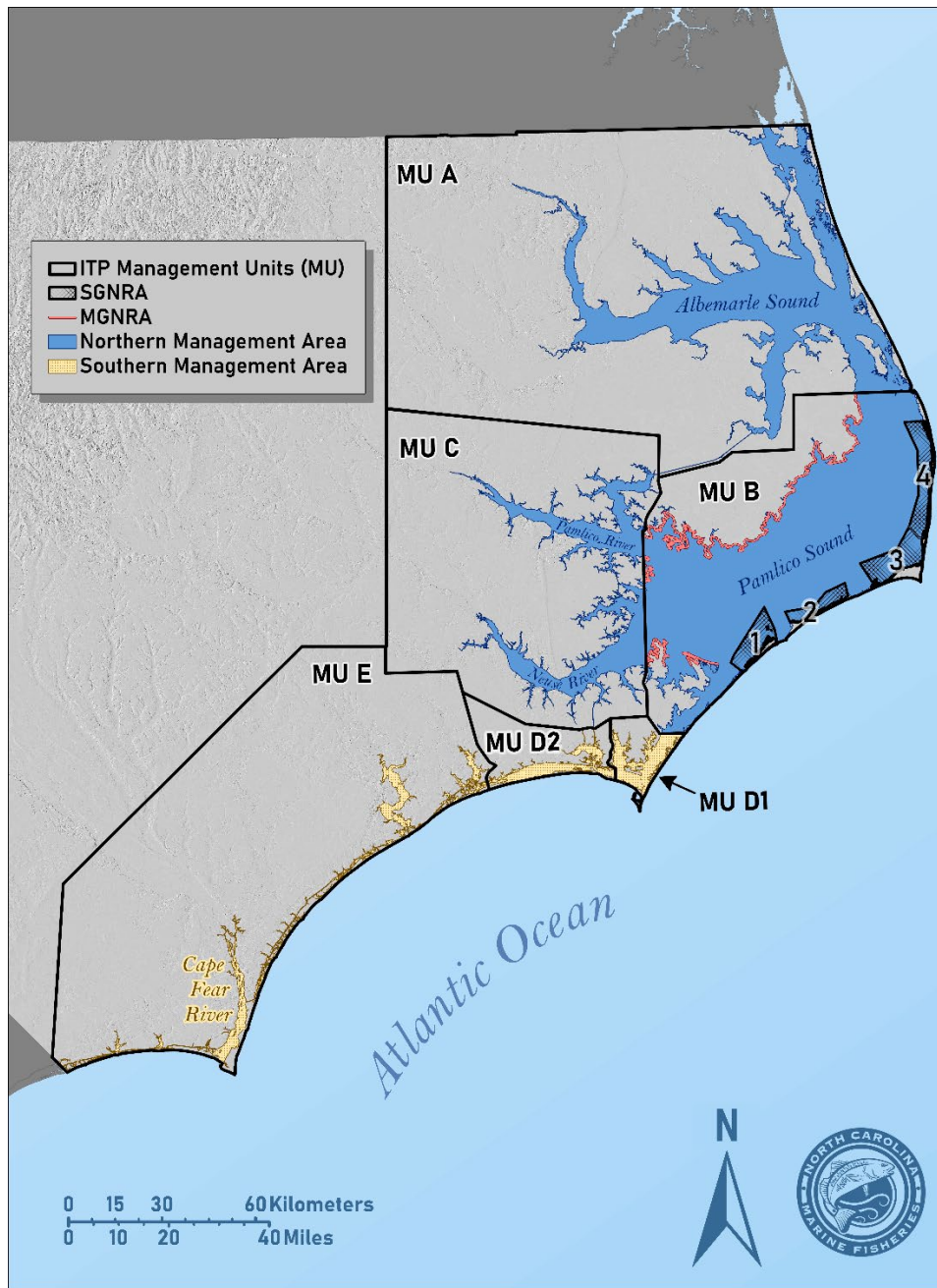
**Table 10.** continued

Season	Violation Date	Code	Description
Spring	5/30/2023	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Spring	5/30/2023	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Spring	5/31/2023	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Summer	6/5/2023	EGNP11	Failure to attend nets
Summer	6/5/2023	NETG01	Leave gill net in coastal waters unattended
Summer	6/19/2023	NETG16	Use an unattended gill net in a restricted area
Summer	7/1/2023	15A NCAC 03H .0103(a)	Fail to comply with proclamation requirements
Summer	7/11/2023	NETG22	Improperly set gill net
Summer	7/25/2023	EGNP01	Fishing gill net without a valid Estuarine Gill Net Permit
Summer	8/21/2023	NETG01	Leave gill net in coastal waters unattended
Summer	8/21/2023	NETG03	Using gill net with improper buoys or identification

**Table 11.** Notice of Violations ( $n = 27$ ) written by Marine Patrol officers for Estuarine Gill Net Permit (EGNP) holders using estuarine anchored gill nets by violation date and code during the 2023 Incidental Take Permit Year.

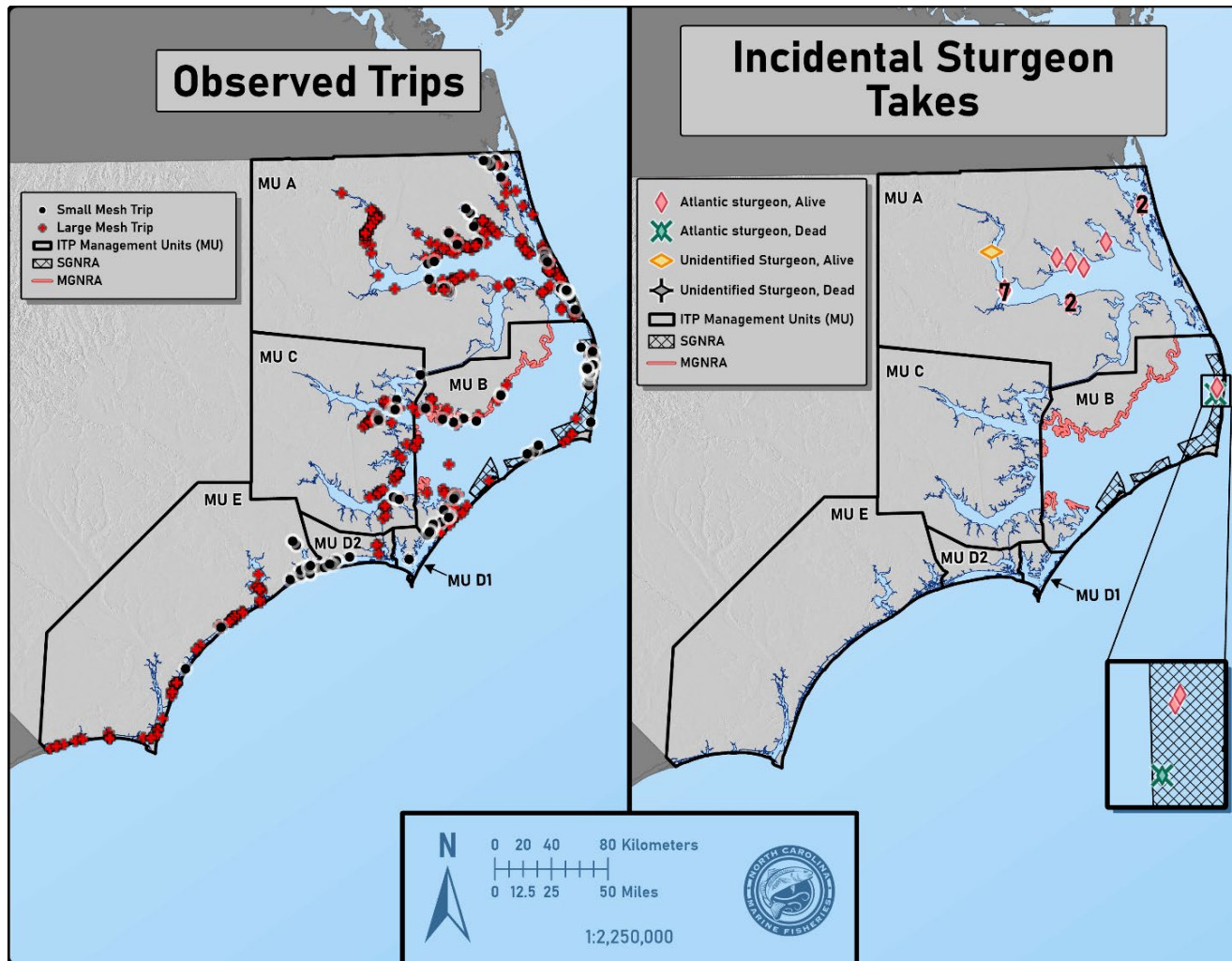
Season	Violation Date	Code	Description
Fall	9/4/2022	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Fall	9/14/2022	EGNP09	Failure to set or retrieve nets in accordance with time restrictions.
Fall	9/15/2022	EGNP09	Failure to set or retrieve nets in accordance with time restrictions.
Fall	9/15/2022	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Fall	9/17/2022	EGNP25	Refuse to allow fisheries observers onboard or collect data
Fall	11/2/2022	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Fall	11/2/2022	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Fall	11/2/2022	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Winter	2/17/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Winter	2/17/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Winter	2/17/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Spring	3/6/2023	EGNP11	Failure to attend nets
Spring	3/14/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Spring	3/14/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Spring	3/14/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Spring	4/13/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Spring	4/13/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Spring	4/13/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Spring	4/13/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Spring	4/13/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Spring	4/13/2023	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Spring	5/30/2023	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Summer	6/5/2023	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Summer	6/21/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Summer	6/21/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Summer	6/21/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days
Summer	6/26/2023	EGNP08	Failure to notify DMF of a change in phone number within 14 days

7 FIGURES

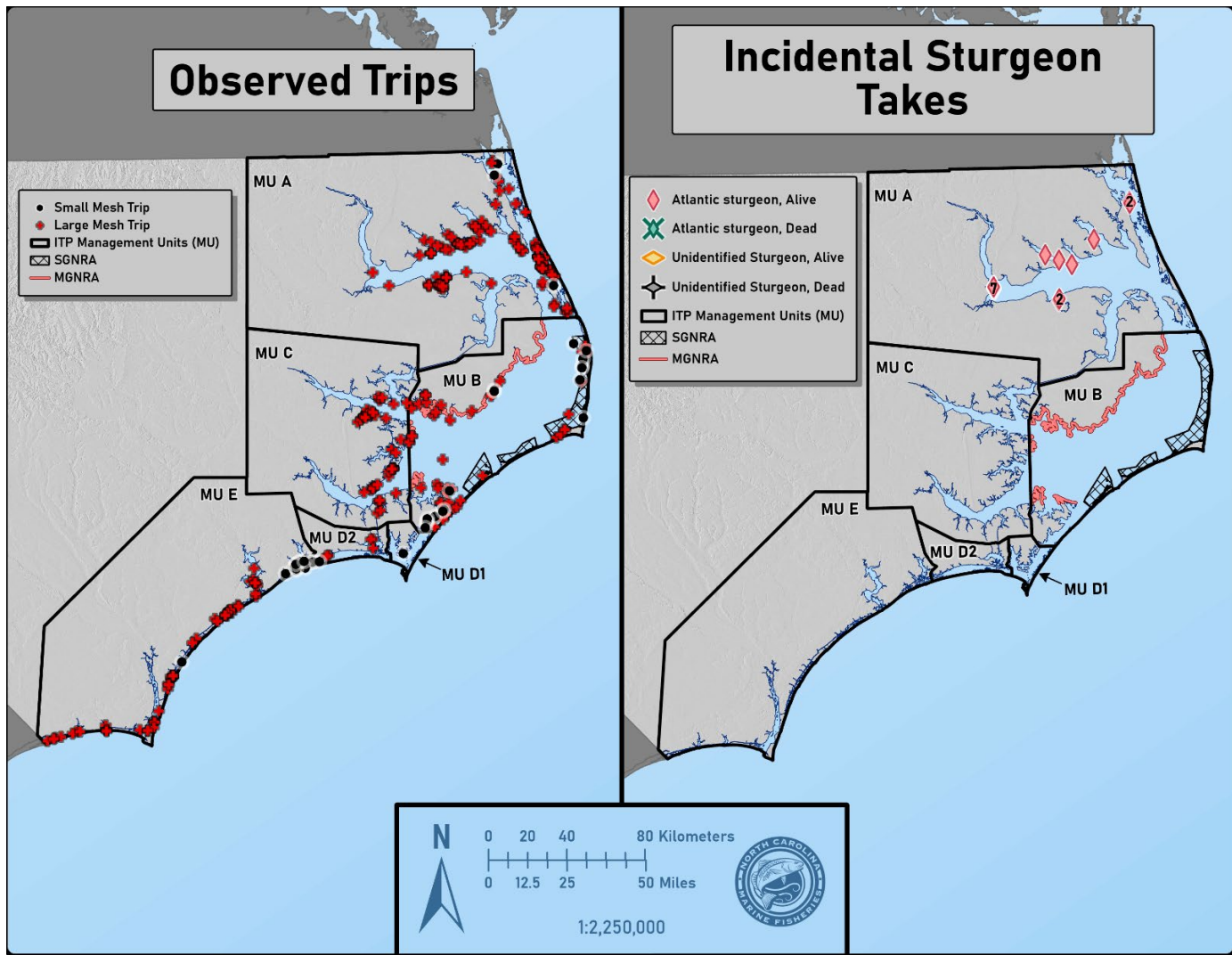


**Figure 1.** Management Units (A, B, C, D [D1 and D2], and E) as outlined in the Incidental Take Permit (ITP) Conservation Plan and used by the Observer Program for the 2023 ITP Year. In the Pamlico Sound portion of Management Unit B, gill nets with a mesh size of  $\geq 4$  inches were confined to Shallow Water Gill-Net Restricted Areas (SGNRA) 1–4 and the Mainland Gill-net Restricted Area (MGNRA; 200 yards from shore) 1 September–December 15. The two flounder Management Areas are differentiated by color: northern (blue) and southern (yellow).

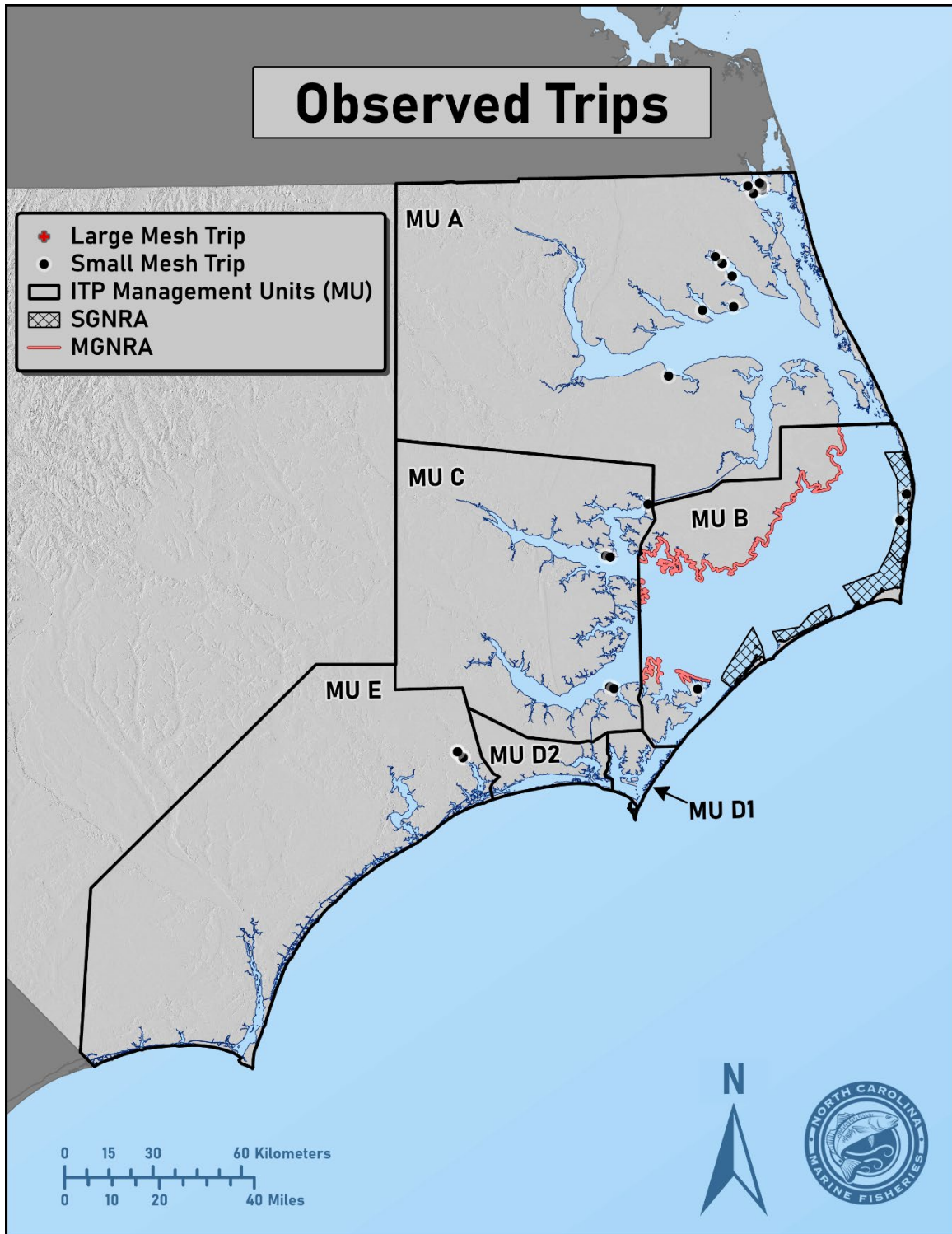




**Figure 2.** Observed gill-net trips (left) and incidental sturgeon takes (right) that occurred state-wide during the 2023 Incidental Take Permit (ITP) Year. Observed trips are split by mesh-size category ( $n = 346$  large-mesh [ $\geq 5$  inches stretched mesh];  $n = 134$  small-mesh [ $< 5$  inches stretched mesh]). Observed sturgeon are separated by species and disposition (Atlantic Sturgeon:  $n = 17$  alive,  $n = 1$  dead; unidentified sturgeon:  $n = 1$  alive). Note that due to the proximity of observations and the scale of the maps, it may appear that fewer observations are mapped than were observed.

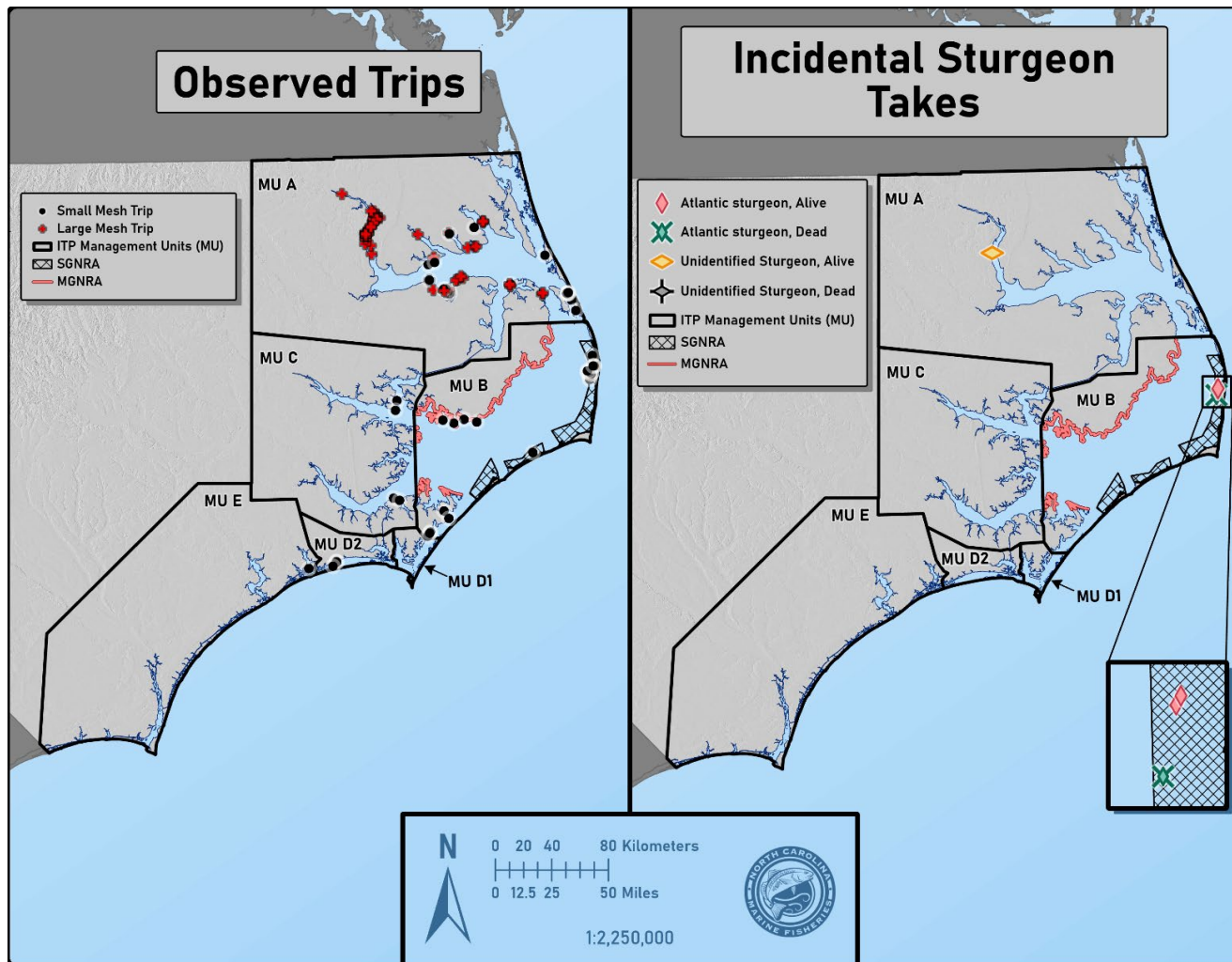


**Figure 3.** Observed gill-net trips (left) and incidental sturgeon takes (right) that occurred state-wide during fall 2022 of Incidental Take Permit Year 2023. Observed trips are split by mesh-size category ( $n = 277$  large-mesh [ $\geq 5$  inches stretched mesh];  $n = 40$  small-mesh [ $< 5$  inches stretched mesh]). All 15 Atlantic Sturgeon observed during fall were live. Note that due to the proximity of observations and the scale of the maps, it may appear that fewer observations are mapped than were observed.

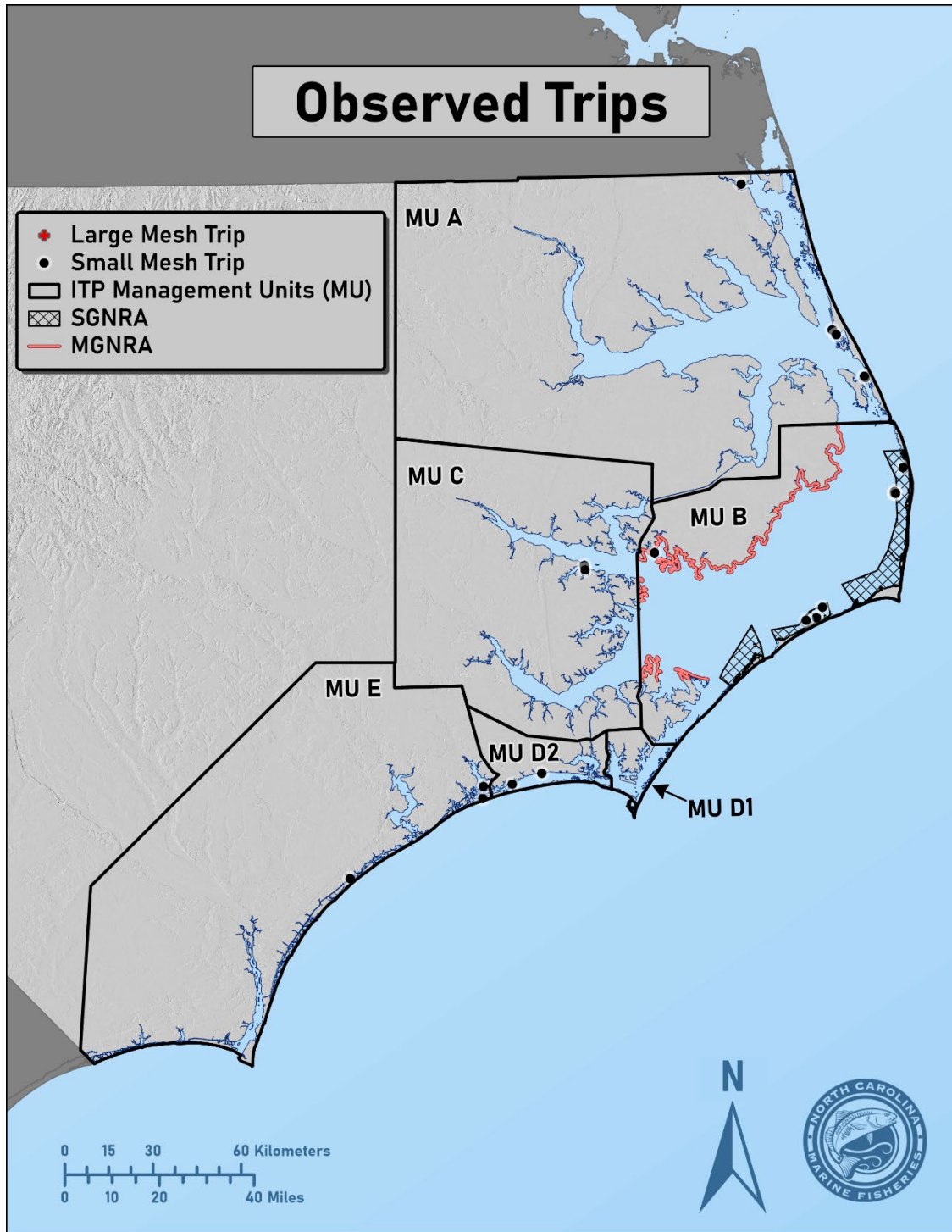


**Figure 4.** Observed small-mesh gill-net trips ( $n = 27$ ,  $<5$  inches stretched mesh) that occurred state-wide during winter 2022-2023 of Incidental Take Permit (ITP) Year 2023. No large-mesh gill-net trips and no sturgeon were observed during winter 2022-2023. Note that due to the proximity of observations and the scale of the maps, it may appear that fewer observations are mapped than were observed.

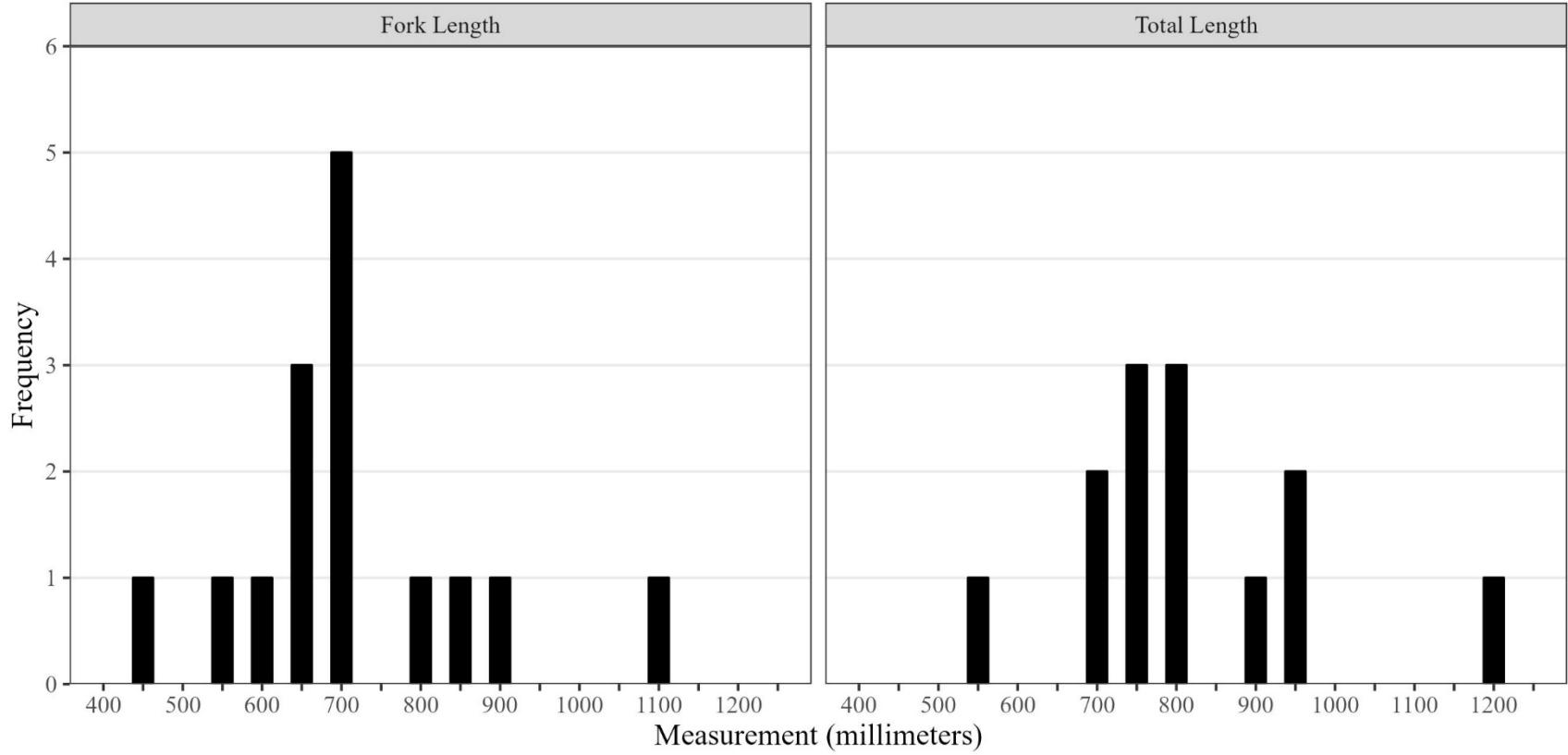




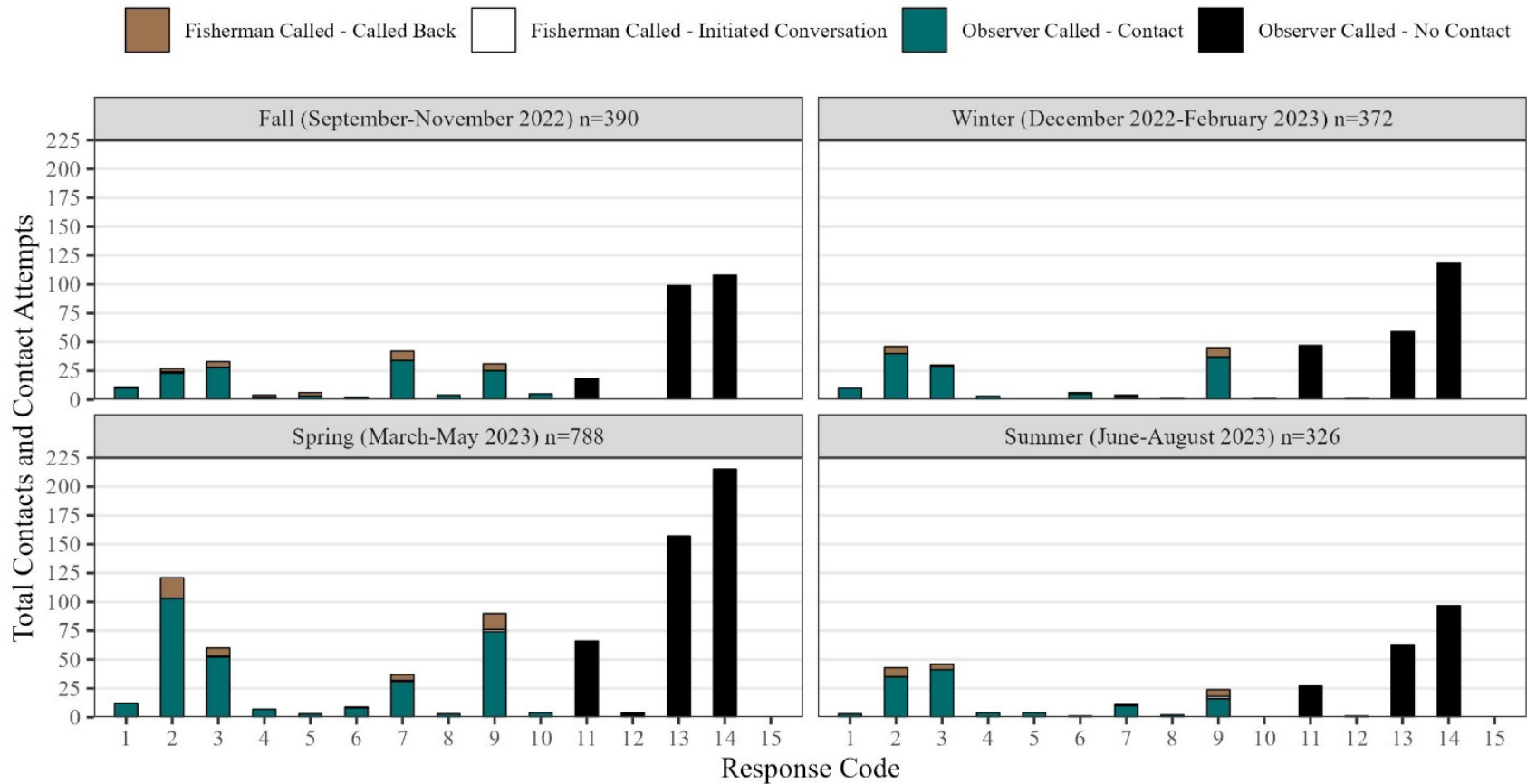
**Figure 5.** Maps of observed gill-net trips (left) and observed incidental sturgeon takes (right) that occurred state-wide during spring 2023 of the 2023 Incidental Take Permit (ITP) Year. Observed trips are split by mesh-size category ( $n = 69$  large-mesh [ $\geq 5$  inches stretched mesh];  $n = 47$  small-mesh [ $< 5$  inches stretched mesh]). Observed sturgeon are separated by species and disposition (Atlantic Sturgeon:  $n = 2$  alive,  $n = 1$  dead; unidentified sturgeon:  $n = 1$  alive). Note that due to the proximity of observations and the scale of the maps, it may appear that fewer observations are mapped than were observed.



**Figure 6.** Map of observed small-mesh gill-net trips ( $n = 20$ , <5 inches stretched mesh) that occurred state-wide during summer 2023 of the 2023 Incidental Take Permit (ITP) Year across Management Units. No large-mesh gill-net trips and no sturgeon were observed during summer 2023. Note that due to the proximity of observations and the scale of the maps, it may appear that fewer observations are mapped than were observed.



**Figure 7.** Size distributions for incidental takes of Atlantic Sturgeon during the 2023 Incidental Take Permit Year: Fork Length (left,  $n = 15$ ) and Total Length (right,  $n = 13$ ). Note that not all observed Atlantic Sturgeon were measured.



**Figure 8.** For the 2023 Incidental Take Permit Year, contacts attempted ( $n = 1,876$ ) by observers to schedule trips categorized by contact type (0-15). Contact type categories include the following: 1) Left message with someone else; 2) Not fishing general; 3) Fishing other gear; 4) Not fishing because of weather; 5) Not fishing because of boat issues; 6) Not fishing because of medical issues; 7) Booked trip; 8) Hung up, got angry, trip refused; 9) Call back later time/date; 10) Saw in person; 11) Disconnected; 12) Wrong number; 13) No answer; 14) No answer, left voicemail; 15) Not fishing because of natural disaster (e.g., hurricane). Contact types are shown as those when the observer talked to a fisher (teal bars), when the observer did not (black bars), when the fisher initiated a conversation (white bars), and when a fisher returned an observer's call (bronze bars).

# **Fishery Management Plans**

May 2024 Business Meeting

## Document

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Striped Mullet FMP Amendment 2  
Decision Document

Striped Mullet FMP Amendment 2  
(Draft)

2024 Revision to the N.C.  
Estuarine Striped Bass FMP  
Amendment 2 Memo

2024 Revision to the N.C.  
Estuarine Striped Bass FMP  
Amendment 2

Blue Crab Stock Assessment  
Update

Blue Crab Adaptive Management  
Decision Document



# DECISION DOCUMENT

## Striped Mullet Fishery Management Plan

### Amendment 2



This document was developed to help the MFC track previous activity and prepare for upcoming actions for Striped Mullet FMP Amendment 2.

*April 4, 2024*

## Background

The 2022 stock assessment indicated the striped mullet stock is overfished and overfishing is occurring. The North Carolina Fishery Reform Act of 1997 requires the State to implement management to end overfishing and to achieve a sustainable harvest within a 10-year time period. To achieve sustainable harvest within this time frame, management measures estimated to achieve a 20—33% reduction in total removals from 2019 landings are required.

Amendment 2 to the Striped Mullet Fishery Management Plan is being developed to address the overfished status of the North Carolina striped mullet stock. The recently adopted Supplement A to Amendment 1 to the Striped Mullet FMP implemented management measures to end overfishing with a season closure. Amendment 2 will contain additional management measures that will replace the supplemental management.

### Review of Supplement A to Amendment 1 Decisions and Discussion

In September 2022, the DEQ Secretary determined it was in the long-term interest of the striped mullet stock to develop temporary management through a Supplement. The Division developed the Striped Mullet Fishery Management Plan Amendment 1 Supplement A to address the overfishing status of the stock while the Division works on comprehensive management to address sustainable harvest in Amendment 2. At its May 2023 business meeting, the Marine Fisheries Commission approved the following season closures:

<b>Region</b>	<b>Closure Dates</b>
North of the Highway 58 Bridge	November 7 – December 31
South of the Highway 58 Bridge	November 10 – December 31

The management adopted in Supplement A is temporary and will be replaced with the management adopted in Amendment 2. While a season closure may still be a part of long-term management for the species, other options will be explored and could be used in combination to achieve the necessary harvest reductions.

Sustainable harvest primarily focuses on reductions in the commercial fishery, where most striped mullet harvest occurs. In 2019, recreational striped mullet harvest accounted for 1.7% of total harvest, while the commercial fishery accounted for 98.3% of total harvest. Likewise, from 1994 to 2019 recreational striped mullet harvest accounted for 4.2% of total harvest. While management options are proposed for the recreational fishery to improve the status of the stock, recreational harvest reductions are not quantifiable due to data limitations.

Several management tools are available to achieve sustainable harvest in the striped mullet fishery, including combinations of management measures. All are discussed fully

in Appendix 2 and Appendix 3 of Amendment 2 to the Striped Mullet FMP. References to those documents are included in the discussion of the management options below.

### Amendment Timing (Grey indicates a step is complete.)

Developed  
Temporary  
Management

September – October 2022	Division holds public scoping period
November 2022	MFC approves goal and objectives of FMP
November 2022 – May 2023	Supplemental Management ( <i>Supplement A to Striped Mullet FMP Amendment 1 Adopted</i> )
November 2022 – June 2023	Division drafts FMP
July 2023	Division held workshop to review and further develop draft FMP with the Striped Mullet FMP Advisory Committee
August – October 2023	Division updates draft plan
November 2023	MFC Reviews draft and votes on sending draft FMP for public and AC review
December - January 2024	Public Comment Period and MFC Advisory Committees meet to review draft FMP
February 2024	MFC selects preferred management options
March-April 2024	DEQ Secretary and Legislative review of draft FMP
<b>May 2024</b>	<b>MFC votes on final adoption of FMP</b>
TBD	DMF and MFC implement management strategies

You Are  
Here

### Goal and Objectives

The goal of Amendment 2 is to manage the striped mullet fishery to achieve a self-sustaining population that provides sustainable harvest using science-based decision-making processes. The following objectives will be used to achieve this goal.

Objectives:

- Implement management strategies within North Carolina that sustain and/or restore the striped mullet spawning stock with adequate age structure abundance to maintain recruitment potential and prevent overfishing.
- Promote the restoration, enhancement, and protection of critical habitat and environmental quality in a manner consistent with the Coastal Habitat Protection Plan, to maintain or increase growth, survival, and reproduction of the striped mullet stock.

- Use biological, social, economic, fishery, habitat, and environmental data to effectively monitor and manage the fishery and its ecosystem impacts.
- Advance stewardship of the North Carolina striped mullet stock by promoting practices that minimize bycatch and discard mortality.

## Management Options, Ordered by Issue

### Sustainable Harvest

*The intent of these management options is to allow for traditional use of striped mullet in the commercial fishery while meeting sustainable fishery requirements. They are predicted to reduce harvest of striped mullet in ways that are quantifiable using existing data. The data used to quantify harvest reductions are collected from commercial fishermen through the Division’s Trip Ticket and fish house sampling programs. Because they are quantifiable, they are used to meet the legal requirements of the Fisheries Reform Act to address overfishing and rebuild overfished stocks. Because harvest reductions from the recreational fishery are not quantifiable, sustainable harvest options are specific to the commercial fishery, where most striped mullet harvest occurs.*

A 21.3 to 35.4% reduction in commercial harvest relative to commercial landings in 2019 is needed to rebuild the striped mullet spawning stock biomass to a sustainable level. Because of low recruitment observed in recent years (p.45 of FMP, Figure 2.1), the Division recommends a harvest reduction closer to the upper end of the reduction range to increase the probability of rebuilding success.

#### Option 1: Size Limit Options (Striped Mullet FMP Amendment 2, p. 48)

*On its own, implementation of a striped mullet minimum size limit set at the L50, or the length at which 50% of the population are mature, would be unlikely to meet sustainability objectives and would eliminate the bait fishery for finger mullet. A maximum size limit, focused on the spawning season (October-December), would have a more direct impact on the spawning stock; however, it would negatively affect the roe fishery, the most valuable portion of the commercial striped mullet fishery. Slot limits should not be considered because it would exclude harvest of both “finger mullet” for bait as well as large roe mullet. Implementing a minimum or maximum size limit would need to be accompanied by corresponding changes to minimum or maximum mesh sizes used in gill nets to reduce dead discards. This would likely impact other small mesh gill net fisheries targeting other species. To read full discussion of size limits, see p. 48 in draft Amendment 2.*

- Status Quo – Manage fishery without minimum or maximum size limits (0% Reduction)*
- Minimum Size Limit and 3.25 ISM Minimum Gill Net Mesh Size*

Example Size Limit Options (Inches FL)	
Minimum	Percent Reduction

13.5	27.2
14.0	37.2

c. *Maximum Size Limit and 3.75 or 4.0 ISM Maximum Gill Net Mesh Size*

Example Size Limit Options (Inches FL)	
Maximum	Percent Reduction
15.0	39.8
15.5	28.4

d. *Seasonal Maximum Size Limit and 3.75 or 4.0 ISM Maximum Gill Net Mesh Size*

Example Size Limit Options (Inches FL)	
Oct-Dec Maximum	Percent Reduction
14.5	51.4
15.0	27.0

Option 2. Season Closure Options (Striped Mullet FMP Amendment 2, p. 55)  
*Season closures, specifically end of year season closures, are considered an effective and efficient management option to end overfishing of the striped mullet stock and rebuild SSB. To read the full discussion of seasonal closures, see p.55 in Amendment 2.*

2.a No Season Closure (0% Reduction)

	Season Closure	Reduction
2.b*	October 29 - December 31	33.7
2.c	November 7 - December 31	22.1

\*Adding one more closure day exceeds the minimum 35.4% reduction necessary to reach the SSB Target.

	Season Closure		Reduction
	North	South	
2.d	Oct. 28-Dec. 31	Oct. 30-Dec.31	35.6
2.e	Nov. 7-Dec. 31	Nov. 10-Dec. 31	21.7

Option 3: Trip limits (Striped Mullet FMP Amendment 2, p. 57)

*Unless otherwise specified all trip limit options are daily trip limits and applied to a commercial fishing operation regardless of the number of persons, license holders, or vessels involved. Yardage limits on runaround gill nets in tandem with trip limits could be helpful in minimizing discards but would affect other fisheries. To read the full discussion of trip limits, see p.57 in Amendment 2.*

Table 2.10. Percent harvest reduction from 2019 commercial landings based on various daily trip limits and time periods.

Trip Limit (lb)	Reduction (%)		
	Jan-Sept, Dec	Oct-Nov	Total
50	33.1	50.4	83.4
75	30.3	47.8	78.1
100	27.9	45.5	73.5
150	24.3	41.7	66.0
200	21.3	38.5	59.8
300	16.8	33.3	50.2
400	13.6	29.4	42.9
500	11.0	26.1	37.2
600	9.0	23.4	32.4
1,000	3.8	15.5	19.3
1,100	3.0	14.1	17.1
1,250	2.1	12.3	14.4
1,500	1.2	10.0	11.2
1,750	0.7	8.2	9.0
2,000	0.4	6.8	7.2
2,500	0.1	4.8	4.9

Option 4: Day of week closures (Striped Mullet FMP Amendment 2, p. 59)

*To read the full discussion of day of week closures, see p.59 in Amendment 2.*

Table 2.11. Percent of harvest by day of week or combination of days, 2019 and 2017-2021.

Day(s) of Week	2019 Landings	Landings (%)	2017-2021 Landings	Landings (%)
Sunday	162,709	11.9	780,061	10.4
Monday	209,707	15.4	1,201,290	16.1
Tuesday	247,756	18.2	1,273,991	17.0
Wednesday	190,343	14.0	1,148,997	15.4
Thursday	191,313	14.0	1,038,243	13.9
Friday	173,090	12.7	1,048,743	14.0
Saturday	187,294	13.7	984,763	13.2
Saturday-Sunday	350,003	25.7	1,764,823	23.6
Friday-Sunday	523,093	38.4	2,813,566	37.6
Saturday-Monday	559,710	41.1	2,966,113	39.7
Friday-Monday	732,800	53.8	4,014,856	53.7

Table 2.12. Percent of commercial landings by day of week for each month, 2017-2021.

Month	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
January	8.5	18.2	18.7	16.4	15.2	13.5	9.5
February	8.6	14.7	20.6	13.8	15.2	14.1	13.1
March	9.7	20.2	15.8	15.8	17.1	14.2	7.1
April	11.0	13.7	15.1	17.6	16.2	12.0	14.4
May	11.7	10.4	17.4	19.0	14.0	13.1	14.3
June	10.9	16.3	15.4	14.4	12.8	17.0	13.2
July	10.1	16.0	15.5	15.9	16.8	15.3	10.4
August	9.1	19.6	14.4	13.4	15.4	17.4	10.7
September	14.3	14.3	14.2	15.1	13.2	12.5	16.4
October	10.8	16.7	19.1	15.0	11.4	11.4	15.5
November	9.7	14.7	17.9	16.0	15.1	15.3	11.4
December	10.2	18.1	10.0	14.8	15.2	19.3	12.5

Option 5: Combination of Measures (Striped Mullet FMP Amendment 2, p. 60)

Table 2.13. Management measure combinations to end overfishing and achieve sustainable harvest, compared to 2019 commercial landings. Unless otherwise specified, all options for day of week closures or day of week reduced trip limits are applied year-round. All trip limit options are daily trip limits and applied to a commercial fishing operation regardless of the number of persons, license holders, or vessels involved.

Option	Season Closure	Daily Trip Limit (lb.)	Day of Week Closure	% Reduction	% Reduction with 30k Stop Net Cap
5.a*	.	.	Sat-Sun	25.7	24.0
5.b	Dec 1-Dec 31	Jan-Sep 1,000; Sat-Sun 50 lb	.	28.1	26.4
5.c*	.	Jan-Sep 1,000	Sat-Sun	28.5	26.9
5.d	Dec 1-Dec 31	Jan-Oct 15 1,000; Sat-Sun 50 lb	.	28.9	27.3
5.e	Nov 12-Dec 31	1,000	.	29.1	27.5
5.f*	.	Jan-Oct 15 1,000 lb	Sat-Sun	29.3	27.7
5.g	.	.	Jan-Oct Sat-Sun; Nov-Dec Sat-Mon	30.0	28.5
5.h	.	Jan-Oct 15 and Dec 500; Sat-Sun 50 lb	.	31.3	29.8
5.i	Dec 1-Dec 31	Jan-Sep 1,000	Sat-Sun	31.8	30.2
5.j	.	Jan and Dec 100 lb; Feb-Sep 500 lb; Sat-Sun 50 lb	.	32.4	30.9
5.k	Dec 1-Dec 31	Jan-Oct 15 1,000	Sat-Sun	32.6	31.1
5.l	Nov 8-Dec 31	1,000	.	34.6	33.1
5.m	.	Jan and Dec 50 lb; Sat-Sun 50 lb; Feb-Oct 15 500 lb	.	34.6	33.2
5.n+‡	.	.	Jan-Sept Sat-Sun; Oct-Dec Sat-Mon	34.9	33.4
5.o	.	Jan-Oct 15 and Dec 500	Sat-Sun	35.4	33.9
5.p	.	Jan1-31 and Nov16-Dec31 50 lb., Sat-Sun 50 lb, Feb1-Oct15 500lb	.	36.9	35.5
5.q	.	Jan and Dec 100 lb; Feb-Sep 500 lb	Sat-Sun	36.5	36.0
5.r	Nov 12-Dec 31	1,000	Sat	38.6	37.2

MFC's Preferred Management Option

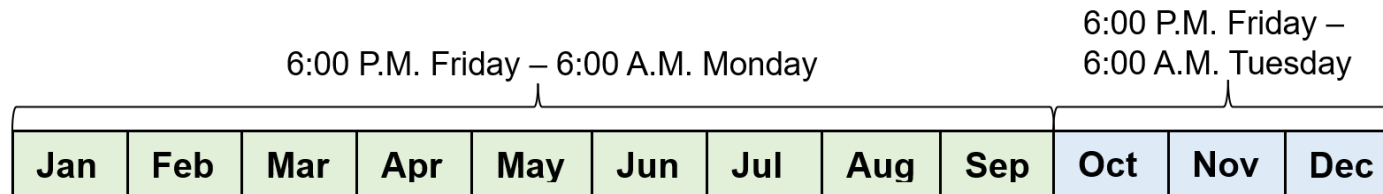
\*Endorsed by Striped Mullet FMP AC

+DMF Recommendation

‡Selected by MFC

‡Harvest will be closed from 6:00 P.M. Friday through 6:00 A.M. Monday for Jan-Sept and from 6:00 P.M. Friday through 6:00 A.M. Tuesday for Oct-Dec.

Visual Representation of Option 5.n





Option 6: Stop Net Fishery Management (Striped Mullet FMP Amendment 2, p. 63)

a. Status Quo – DMF recommends managing the stop net fishery with the same management measures applied to the rest of the fishery. Further, DMF recommends the stop net season open annually no sooner than October 15 and close no later than December 31. All other stop net and associated gill net regulations will be set by proclamation consistent with, but not limited to, previous management (see proclamations M-17-2020, M-18-2020, M-20-2021, M-21-2021, M-22-2022, and M-23-2022).

b. Stop Net Specific Catch Cap –

Option 7: Seasonal Catch Limit (Striped Mullet FMP Amendment 2, p. 64)

a. Status Quo – Manage fishery without Seasonal Catch Limit

b. Implement Statewide Seasonal Catch Limit

c. Implement Regional (North/South) Seasonal Catch Limit

Option 8: Area Closures (Striped Mullet FMP Amendment 2, p. 68)

Option 9: Limited Entry (Striped Mullet FMP Amendment 2, p. 69)

Option 10: Adaptive Management Framework (Striped Mullet FMP Amendment 2, p. 72)  
*If adaptive management is adopted as part of Amendment 2, the specifications would apply to the commercial and recreational fisheries for mullet. Parts 1-3 are explicitly tied to a stock assessment update. Part 4 allows for adjustment of management to ensure compliance with and effectiveness of management strategies and would be a tool to respond to concerns with stock conditions and fishery trends.*

- 1) Update the stock assessment at least once in between full reviews of the FMP, timing at discretion of the division.
  - a. If current management is not projected to meet management targets (management targets are minimum SSB remaining between  $SSB_{Threshold}$  and  $SSB_{Target}$ , and maximum F remaining between  $F_{Threshold}$  and  $F_{Target}$ ), then management measures shall be adjusted via an adaptive management update and implemented using the Fisheries Director's proclamation authority to reduce harvest to a level that is projected to meet the  $F_{Target}$  and  $SSB_{Target}$ .
  - b. If management targets are being met, then new management measures would not be needed, or current management measures could possibly be relaxed provided projections still meet the management targets. When management targets are met, a striped mullet industry workgroup will be convened to discuss the possibility of "guard rail management" to maintain a sustainable harvest for the striped mullet stock.
- 2) Management measures that may be adjusted using adaptive management include:

- a. Season closures
  - b. Day of week closures
  - c. Trip limits
  - d. Gill net yardage or mesh size restrictions in support of the measures listed in a-c
- 3) Use of the Director's proclamation authority for adaptive management to meet management targets is contingent on:
- a. Consultation with the Northern, Southern, and Finfish advisory committees
  - b. Approval by the Marine Fisheries Commission.
- 4) Upon evaluation by the division, if a management measure adopted to achieve sustainable harvest (either through Amendment 2 or a subsequent revision) is not achieving its intended purpose, it may be revised or removed and replaced using the Director's proclamation authority; provided it conforms to part 2 above and provides similar protection to the striped mullet stock. If a revised management measure is anticipated to reduce or increase harvest compared to measures implemented through Amendment 2, it must comply with parts 2 and 3 above.

## Recreational Fishery

*The intent of these management options is to allow traditional use of striped mullet in the recreational fishery while supporting sustainability objectives. Due to recreational fishery data collection methods and recreational fishery practices, it is not possible to calculate harvest reductions from the proposed management options. While recreational harvest currently accounts for only a small percentage of the striped mullet harvest, there is concern that the reduced availability of commercially harvested bait could lead to a significant shift in directed recreational harvest. The proposed options will reduce the potential for that type of shift and therefore support successfully meeting sustainability objectives.*

### Option 1. Recreational Vessel and Bag Limit (Striped Mullet FMP Amendment 2, p. 81)

- a. Status Quo
- b. Reduce Recreational Bag Limit (100 fish)
- c. Reduce Recreational Bag Limit (100 fish) and Implement Vessel Limit (400 fish)
- d. Bag Limit (10, 15, 20, 25, etc.) for Fish Over 8-Inches
- e. Seasonal (October-December) Bag Limit (10, 15, 20, 25, etc.) for Fish Over 8-Inches

### Option 2. For Hire Vessel and Bag limit (Striped Mullet FMP Amendment 2, p. 83)

- a. For Hire Vessel Limit (500 fish, etc.)

- b. Exception for For Hire Vessel Operations to Possess a Bag Limit for the Number of Anglers They are Licensed to Carry (Including in Advance of a Trip).
- c. Exception for For Hire Vessel Operations to Possess a Bag Limit for the Number of Anglers Fishing Up to the 400-fish Maximum (Including in Advance of a Trip).
- d. Mirror Option 1 management decision

### Next Steps

The MFC selected its preferred management options at its February 2024 business meeting. The Fisheries Reform Act of 1997, section 113-182.1(e), requires that the DEQ Secretary monitor progress in the development and adoption of Fishery Management Plans and report to the Joint Legislative Oversight Committee on Agriculture and Natural and Economic Resources and the Fiscal Research Division. The draft Striped Mullet Fishery Management Plan Amendment 2 was submitted to the appropriate legislative entities for review, and the MFC will be presented any comments and recommendations from that review at its May 2024 business meeting. The MFC will then vote on final adoption of Amendment 2.

## List of the Marine Fisheries Commission's Preferred Management Options

- **Day of Week Closures**

**January-September:** Saturday and Sunday Closures (harvest closed from 6:00 p.m. Friday through 6:00 a.m. Monday)

**October-December:** Saturday, Sunday, Monday Closures (harvest closed from 6:00 p.m. Friday through 6:00 a.m. Tuesday)

- **Stop Net Fishery Management**

The stop net fishery will be managed with the same management measures as applied to the rest of the fishery. The stop net season will open annually no sooner than October 15 and close no later than December 31. All other stop net and associated gill net regulations will be set by proclamation consistent with, but not limited to, previous management (see proclamations M-17-2020, M-18-2020, M-20-2021, M-21-2021, M-22-2022, and M-23-2022).

- **Recreational Fishery**

Reduce recreational bag limit to 100 fish and implement a 400 fish vessel limit. For-Hire Vessel Operations may possess a bag limit for the number of anglers fishing up to the 400 fish maximum (including in advance of a trip).

- **Adaptive Management Framework**

- 1) Update the stock assessment at least once in between full reviews of the FMP, timing at discretion of the division.
  - a. If current management is not projected to meet management targets (management targets are minimum SSB remaining between SSBThreshold and SSBTarget, and maximum F remaining between FThreshold and FTarget), then management measures shall be adjusted via an adaptive management update and implemented using the Fisheries Director's proclamation authority to reduce harvest to a level that is projected to meet the FTarget and SSBTarget.
  - b. If management targets are being met, then new management measures would not be needed, or current management measures could possibly be relaxed provided projections still meet the management targets. When management targets are met, a striped mullet industry workgroup will be convened to discuss the possibility of "guard rail management" to maintain a sustainable harvest for the striped mullet stock.

- 2) Management measures that may be adjusted using adaptive management include:
  - a. Season closures
  - b. Day of week closures
  - c. Trip limits
  - d. Gill net yardage or mesh size restrictions in support of the measures listed in a-c
- 3) Use of the Director's proclamation authority for adaptive management to meet management targets is contingent on:
  - a. Consultation with the Northern, Southern, and Finfish advisory committees
  - b. Approval by the Marine Fisheries Commission.
- 4) Upon evaluation by the division, if a management measure adopted to achieve sustainable harvest (either through Amendment 2 or a subsequent revision) is not achieving its intended purpose, it may be revised or removed and replaced using the Director's proclamation authority; provided it conforms to part 2 above and provides similar protection to the striped mullet stock. If a revised management measure is anticipated to reduce or increase harvest compared to measures implemented through Amendment 2, it must comply with parts 2 and 3 above.

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# STRIPED MULLET FISHERY MANAGEMENT PLAN AMENDMENT 2

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**Disclaimer:** Data in this Fishery Management Plan may have changed since publication based on updates to source documents.

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## ACKNOWLEDGMENTS

Amendment 2 to the North Carolina Striped Mullet Fishery Management Plan was developed by the Department of Environmental Quality, Division of Marine Fisheries under the auspices of the Marine Fisheries Commission with the advice of the Striped Mullet Advisory Committee. Deserving special recognition are the members of the Striped Mullet Advisory Committee and the Division Plan Development Team who contributed their time and knowledge to this effort.

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The following division staff were also invaluable in assisting with the development of this document: Corrin Flora, Debbie Manley, Carter Witten, Casey Knight, Steve Poland, Tina Moore, and Catherine Blum.



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## **EXECUTIVE SUMMARY**

North Carolina's historic striped mullet fishery had a prominent role in the early development of the North Carolina commercial fishing industry. Striped mullet were ranked as the most abundant and important saltwater fish of North Carolina in the early 1900s, and were originally harvested primarily by the historic beach seine fishery that still exists today off of Bogue Banks in Carteret County. Striped mullet are prized for their roe in the commercial fishery and are an important bait species for recreational anglers, especially for anglers targeting flounder and red drum.

The 2022 stock assessment of the North Carolina striped mullet stock, including data through 2019, determined the stock is overfished and overfishing is occurring. North Carolina law requires management action be taken to end overfishing within two years and to recover the stock from an overfished status within 10 years, with at least a 50% probability of success from the date the plan is adopted. A 9.3% reduction in total removals relative to 2019 commercial harvest is needed to end overfishing of the striped mullet stock. Supplement A to Amendment 1 of the Striped Mullet Fishery Management Plan (FMP) was adopted in May 2023 with the goal of ending overfishing in one year by implementing an end of season closure to reduce commercial harvest by 22.1%. A minimum reduction of 21.3-35.4% in commercial removals by weight relative to 2019 commercial harvest is needed to rebuild spawning stock biomass to a sustainable level within 10 years. Management measures under Supplement A to Amendment 1 will expire once Amendment 2 measures are adopted by the Marine Fisheries Commission.

The goal of Amendment 2 is to manage the striped mullet fishery to achieve a self-sustaining population that provides sustainable harvest using science-based decision-making processes. The following objectives will be used to achieve this goal: implement management strategies within North Carolina that sustain and/or restore the striped mullet spawning stock with adequate age structure abundance to maintain recruitment potential and prevent overfishing; promote the restoration, enhancement, and protection of critical habitat and environmental quality in a manner consistent with the Coastal Habitat Protection Plan, to maintain or increase growth, survival, and reproduction of the striped mullet stock; use biological, social, economic, fishery, habitat, and environmental data to effectively monitor and manage the fishery and its ecosystem impacts; and advance stewardship of the North Carolina striped mullet stock by promoting practices that minimize bycatch and discard mortality.

To meet statutory requirements to achieve a self-sustaining striped mullet stock, sustainable harvest is addressed in this FMP to ensure the long-term viability of the commercial and recreational fisheries. Quantifiable management measures are discussed for management of the commercial fishery while non-quantifiable management options are discussed for the recreational fishery, and information about the small mesh gill net fishery for striped mullet is also presented. Specific management measures selected by the NCMFC at its February 2024 business meeting are as follows:

- 1) Sustainable Harvest:
  - Implement a Saturday through Sunday commercial harvest closure for January 1 through September 30 and a Saturday through Monday closure for October 1 through December 31 to achieve a 34.9% reduction in harvest relative to 2019 commercial landings.
  - Manage the stop net fishery with the same management measures as the rest of the fishery.

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- Adopt an adaptive management framework that allows the Fisheries Director to use proclamation authority to specifically adjust season closures, day of week closures, trip limits, and gill net yardage or mesh restrictions to help ensure management targets are being met, based on the results of stock assessment updates or in response to concerning stock conditions or fishery trends observed outside of a stock assessment update.

### 2) Recreational Fishery:

- Implement an individual bag limit of 100 fish per person per day.
- Implement a vessel limit of 400 fish per vessel.
- Provide an exception for For Hire Vessel Operations to possess a bag limit for the number of anglers fishing, up to the 400-fish maximum, including in advance of a trip.

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### INTRODUCTION

This is Amendment 2 to the Striped Mullet Fishery Management Plan (FMP). By law, each FMP must be reviewed at least once every five years (G.S. 113-182.1). The N.C. Division of Marine Fisheries (DMF) reviews each FMP annually and a comprehensive review is undertaken about once every five years. FMPs are the product that brings all information and management considerations for a species into one document. The DMF prepares FMPs for adoption by the North Carolina Marine Fisheries Commission (MFC) for all commercially and recreationally significant species or fisheries that comprise state marine or estuarine resources. The goal of these plans is to ensure long-term viability of these fisheries. All management authority for the North Carolina striped mullet fishery is vested in the State of North Carolina. The MFC adopts rules and policies and implements management measures for the striped mullet fishery in Coastal Fishing Waters in accordance with G.S. 113-182.1. Until Amendment 2 is approved for management, striped mullet are managed under Supplement A to Amendment 1 to the Striped Mullet Fishery Management Plan (NCDMF 2023).

Results of the [2022 Striped Mullet Stock Assessment](#) (NCDMF 2022) indicate striped mullet in North Carolina are overfished and that overfishing is occurring, the terminal year of the assessment was 2019. An external peer review panel and the DMF concluded the 2022 assessment model and results are suitable for providing management advice for at least the next five years and considers the current assessment to be a substantial improvement from previous assessments, representing the best scientific information available for the stock. For More information about previous and current management and results of previous stock assessments, see the original [Striped Mullet FMP](#) (NCDMF 2006), [Amendment 1 to the Striped Mullet FMP](#) (NCDMF 2015), [Supplement A to Amendment 1](#) (NCDMF 2023) and previous stock assessments (NCDMF 2013, NCDMF 2018, NCDMF 2022). These are available on the North Carolina Division of Marine Fisheries [Fishery Management Plan website](#).

#### Fishery Management Plan History

Original FMP Adoption:	April 2006
Amendments:	Amendment 1 (2015)
Revisions:	None
Supplements:	Supplement A to Amendment 1 (2023)
Information Updates:	None
Schedule Changes:	None
Comprehensive Review:	

Past versions of the Striped Mullet FMP (NCDMF 2006, NCDMF 2015, NCDMF 2023) are available on the [DMF fishery management plan website](#).

#### Management Unit

The management unit of this FMP includes all striped mullet inhabiting North Carolina coastal and inland fishing waters.

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### Goal and Objectives

The goal of Amendment 2 is to manage the striped mullet fishery to achieve a self-sustaining population that provides sustainable harvest using science-based decision-making processes. The following objectives will be used to achieve this goal.

#### Objectives:

- Implement management strategies within North Carolina that sustain and/or restore the striped mullet spawning stock with adequate age structure abundance to maintain recruitment potential and prevent overfishing.
- Promote the restoration, enhancement, and protection of critical habitat and environmental quality in a manner consistent with the Coastal Habitat Protection Plan, to maintain or increase growth, survival, and reproduction of the striped mullet stock.
- Use biological, social, economic, fishery, habitat, and environmental data to effectively monitor and manage the fishery and its ecosystem impacts.
- Advance stewardship of the North Carolina striped mullet stock by promoting practices that minimize bycatch and discard mortality.

## DESCRIPTION OF THE STOCK

### Biological Profile

#### *PHYSICAL DESCRIPTION*

Striped Mullet (*Mugil cephalus*) have a long, rounded, silvery body, with a dark bluish green back, fading into silver sides and a white underside. Several dark, horizontal stripes run head to tail along the body. The mouth is small, and the snout is short and blunt.

#### *DISTRIBUTION*

Striped mullet occur in fresh, brackish, and marine waters in tropical and subtropical latitudes worldwide. In the western Atlantic, striped mullet have been documented from Nova Scotia to Brazil (Able and Fahay 1998) with striped mullet occurring year-round from North Carolina southward (Bacheler, Wong and Buckel 2005). Their widespread distribution results in them being known by many names: jumping mullet, black mullet, grey mullet, popeye mullet, whirligig mullet, common mullet, molly, callifavor, menille, liza, and lisa (Ibanez Aguirre, Gallardo Cabello and Sanchez Rueda 1995, Leard, et al. 1995). Striped mullet are used as food and bait, supporting commercial and recreational fisheries worldwide. In North Carolina, striped mullet are distributed coastwide and are found in most coastal habitats including rivers, estuaries, marshes, and the ocean. Tagging studies in North Carolina suggest a residential adult stock (Wong 2001; Bacheler et al. 2005) since most (98.2%) striped mullet dart-tagged in North Carolina between 1997 and 2001 were recovered in state waters (Wong 2001). In general, striped mullet tagging studies reveal a small mark-recapture distance and a general southward spawning migration along the South Atlantic Bight (SAB; Mahmoudi et al. 2001; McDonough 2001; Wong 2001). A northward movement pattern during and after the spawning period suggests adults return to North Carolina estuarine habitats (Bacheler et al. 2005).

#### *SPECIES*

Three Mugilid species exist in North Carolina: striped mullet, white mullet (*Mugil curema*), and mountain mullet (*Agonostomus monticola*). Striped mullet and white mullet sometimes overlap spatially but can be distinguished by the presence of longitudinal stripes in striped mullet, anal fin

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ray counts, or pectoral fin measurements (Figure 1, Figure 2) (M. R. Collins 1985a, M. R. Collins 1985b). As juveniles, both striped and white mullet cohabitate in estuarine waters making differentiation difficult (Martin and Drewry 1978); however, adult white mullet (age 1 +) rarely occur north of Florida and therefore are not associated with the commercial "roe" mullet fishery in North Carolina (Able and Fahay 1998). The mountain mullet is rare in North Carolina; known only from one specimen noted in Brunswick County, North Carolina (Rohde 1976).

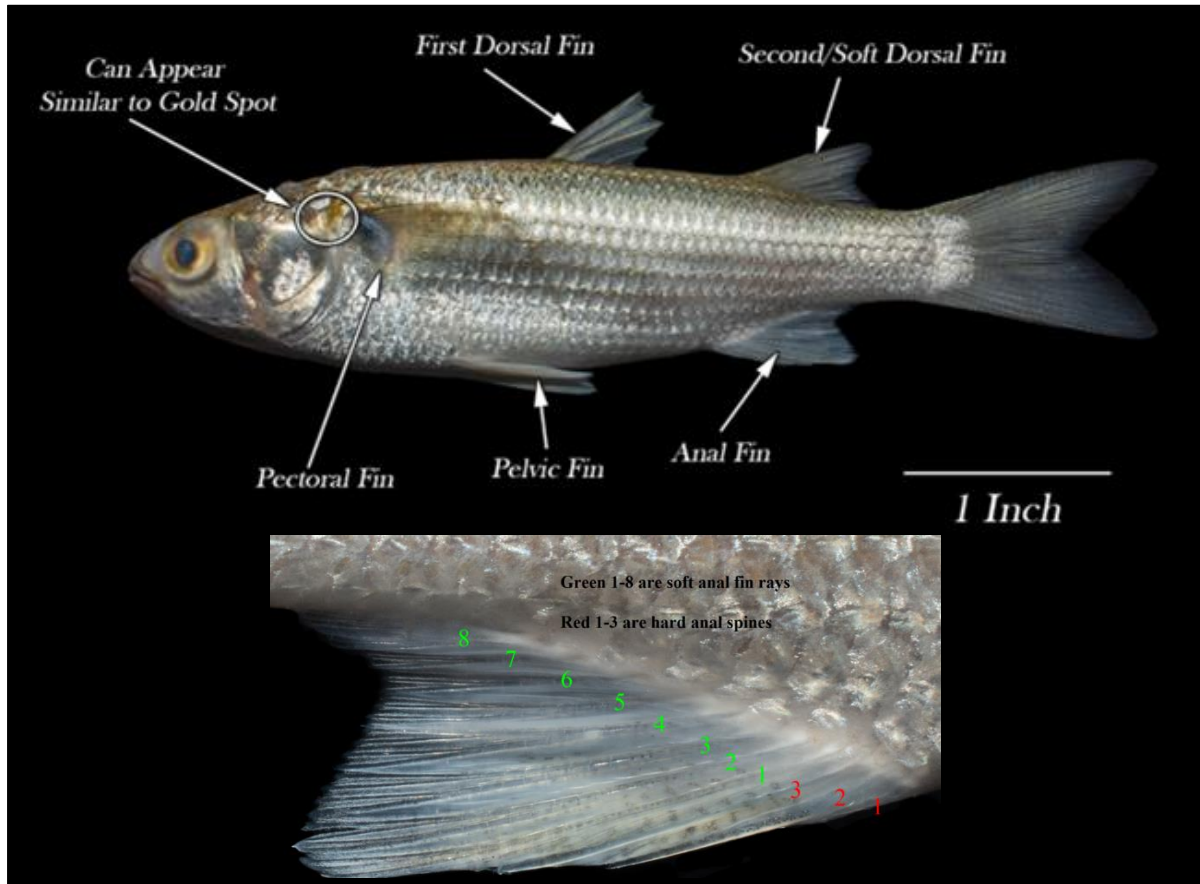


Figure 1. Identifying features for striped mullet. Striped mullet have eight soft anal fin rays and do not have a gold spot on the opercle that white mullet sometimes have. Photo By Scott Smith.

### AGE AND GROWTH

Large variability in size at age has been observed for striped mullet in North Carolina (Figure 3), South Carolina, and Georgia (Charmichael and Gregory 2001, Foster 2001, C. J. McDonough 2001). Male and female fish tend to reach similar lengths at early ages (before age 2), after which, females grow larger and live longer (Mahmoudi, et al. 2001). Adult striped mullet grow at a rate of 38 mm to 64 mm (1.5 to 2.5 inches) per year (Broadhead 1953, Wong 2001) and grow twice as fast during the spring and summer than during the winter (Broadhead 1953, Rivas 1980). Male and female maximum ages of 14 and 13 years respectively have been observed in striped mullet collected by the DMF, and one striped mullet of undetermined sex was observed at 15 years old in the Neuse River, making it the oldest ever to be recorded in North Carolina (NCDMF 2022). Maximum reported sizes have ranged from 698 mm (27.5 inches) TL in North Carolina (NCDMF 2022) to 914 mm (36 inches) TL in India (Gopalakrishnan 1971).



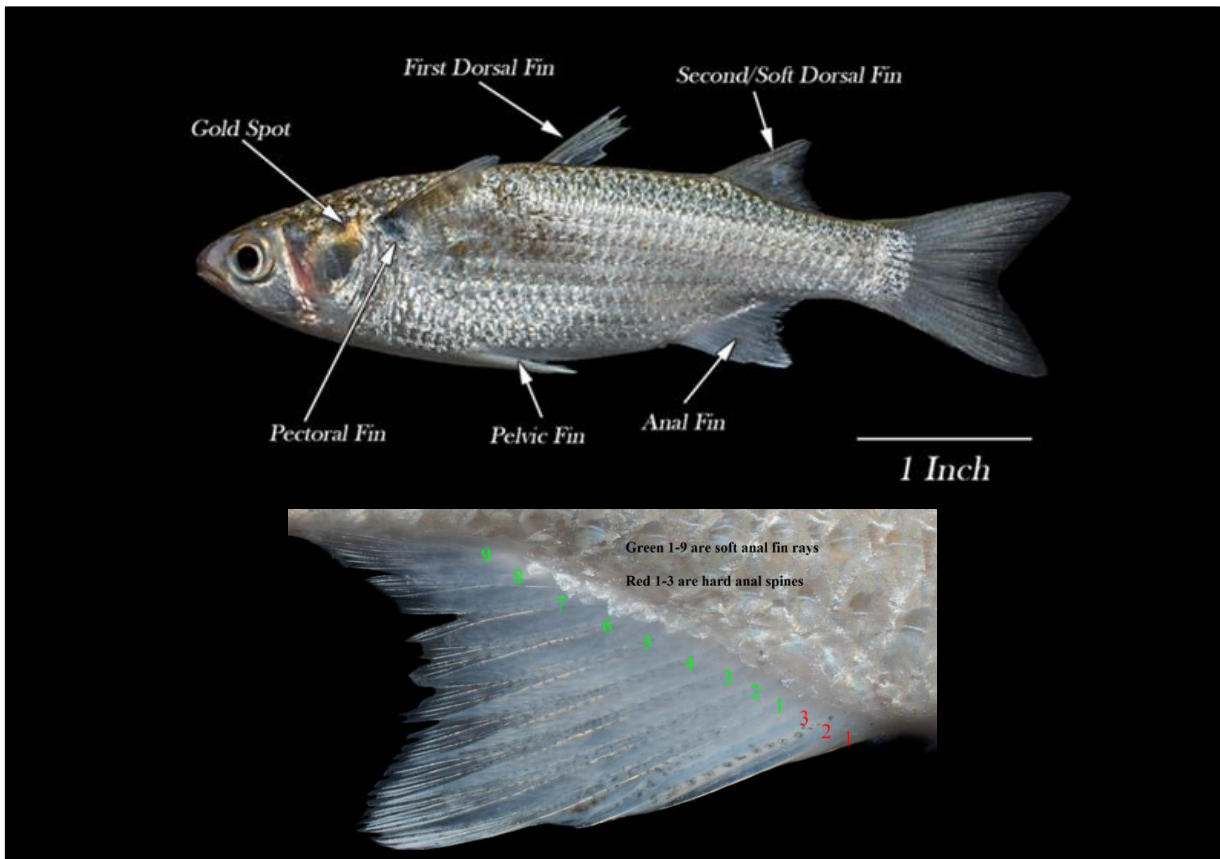


Figure 2. Identifying features for white mullet. White mullet have nine soft anal fin rays and a gold spot on the opercle. Photo By Scott Smith.

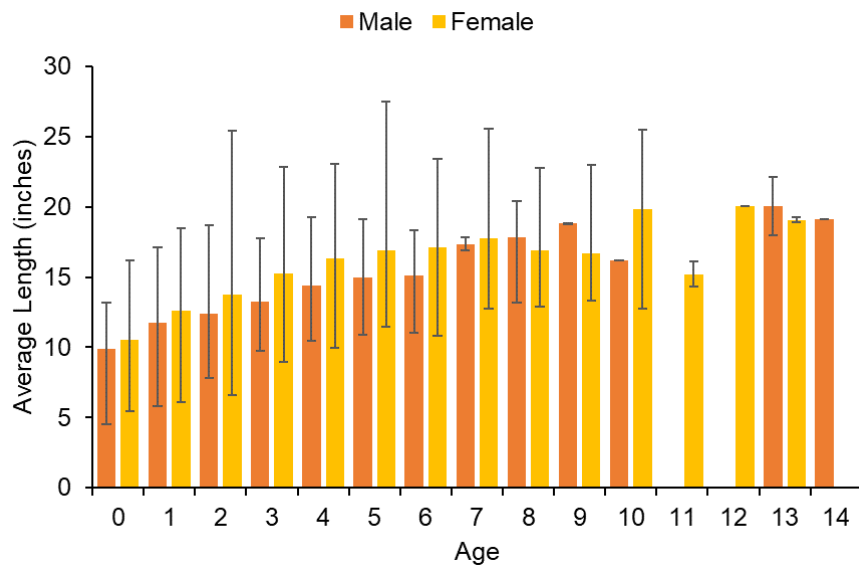


Figure 3. Average length at age for male and female striped mullet from DMF data. For some ages, only one sex or one specimen has been observed. Error bars show the range of lengths observed at each age by sex.

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### *LIFE CYCLE*

Larval and juvenile striped mullet begin their lives offshore, eventually moving inshore into a range of estuarine and shallow-water habitats as they reach adulthood (Anderson 1958, Leard, et al. 1995) where they remain from spring into summer (Leard, et al. 1995). In the southeast US, most adult movement occurs in the fall and winter months during the spawning migration from rivers and estuaries to ocean spawning grounds (M. R. Collins 1985a, Leard, et al. 1995, J. B. Bichy 2000). Increased migratory movement has been associated with north or northwest winds and cold fronts (Jacot 1920, Apekin and Vilenskaya 1979, Mahmoudi, et al. 2001) while hurricanes and unseasonably warm fall water temperatures may delay or disrupt the usual timing of spawning migrations (Thompson, et al. 1991).

### *REPRODUCTION*

Striped mullet spawn once per year and may spawn many times throughout their lives. In North Carolina, striped mullet reach maturity at greater lengths compared to other regions, with males reaching maturity at 283 mm (J. B. Bichy 2004) and females reaching maturity at 319 mm (NCDMF 2021). It is estimated that 50% of striped mullet in North Carolina reach maturity at one year old for both males and females (J. B. Bichy 2000), one to two years earlier than in states south of North Carolina (Pafford 1983, Mahmoudi, et al. 2001). Maximum fecundity is reported to be from 0.5 to 4.2 million eggs per female, with fecundity being positively related to body size (larger fish produce more eggs) (Whitfield and Blaber 1978, Pafford 1983, J. B. Bichy 2000, Wenner 2001, Bichy and Taylor 2002, McDonough, Roumillat and Wenner 2003)

Striped mullet are catadromous, migrating in large schools from freshwater or brackish water habitats to marine spawning areas (Martin and Drewry 1978, M. R. Collins 1985a, S. M. Blaber 1987). The spawning location of North Carolina striped mullet is inferred largely based on indirect evidence, and likely occurs offshore, in and around the edge of the South Atlantic Bight (Broadhead 1953, Anderson 1958, Arnold and Thompson 1978, Martin and Drewry 1978, Powles 1981, Collins and Stender 1989, Ditty and Shaw 1996, Able and Fahay 1998). Spawning also likely occurs in nearshore coastal waters, lower estuarine areas, sounds, and (rarely) in freshwater (Jacot 1920, Breder 1940, Johnson and McClendon 1969, Shireman 1975, Martin and Drewry 1978, Collins and Stender 1989, Bettaso and Young 1999). Spawning is believed to occur at night near the surface (Anderson 1958, Arnold and Thompson 1978) and temporally around new and full moon spring tides (Greeley, Calder and Wallace 1987). The spawning season usually lasts from September to March in North Carolina, peaking in October and November (Jacot 1920, Bichy and Taylor 2002).

### *PREDATOR-PREY RELATIONSHIPS*

Striped mullet act as an important ecological bridge among a wide range of trophic levels connecting base food chain items such as detritus, diatomaceous microalgae, phytoplankton, zooplankton, and marine snow (Odum 1968, Moore 1974, M. R. Collins 1985a, Larson and Shanks 1996, Cardona 2000, Torras, Cardona and Gisbert 2000), with top-level predators such as birds, sharks, and dolphins (Breuer 1957, J. M. Thompson 1963, M. R. Collins 1985a, Barros and Odell 1995, Fertl and Wilson 1997, Bacheler, Wong and Buckel 2005, Kiszka, et al. 2014). However, striped mullet likely contribute minimally to the diets of red drum (Facendola and Scharf 2012, Peacock 2014), striped bass (Rudershausen, et al. 2005) and other finfish species (Binion-Rock 2018). Carnivorous feeding on copepods, mosquito larvae, and microcrustaceans is common in striped mullet larvae and small juveniles (Desilva 1980, Harrington and Harrington 1961) followed by an increasing dependence on benthic and epiphytic detritus, microalgae, and microorganisms with increasing body size (DeSilva and Wijeyaratne 1977, Ajah and Udoh 2013, Bekova, et al. 2013). Adult striped mullet are primarily “interface feeders”, feeding on the water

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surface, water bottom, or surfaces of objects, but will occasionally feed on mid-water polychaetas and live bait of anglers in non-interface areas (Bishop and Miglares 1978).

### *HABITAT*

Striped mullet live in both fresh and saline water (M. R. Collins 1985a, Hotos and Vlahos 1998) and can be found in rivers, estuaries, and ocean habitats. Adult striped mullet are found in almost all shallow marine and estuarine habitats including beaches, tidal flats, lagoons, bays, rivers, channels, marshes, and seagrass beds (Moore 1974, Pattillo, et al. 1999, Nordlie 2000). Striped mullet are highly mobile, allowing them to use a wide range of habitats (Baker, et al. 2013). Field specimens have been collected in salinities ranging from 0 to 75 parts per thousand (ppt); however, striped mullet prefer a salinity range of 20 ppt to 26 ppt (M. R. Collins 1985a, Leard, et al. 1995, Pattillo, et al. 1999). Young-of-the-year striped mullet are capable of full osmoregulation and can tolerate freshwater to full seawater salinities by 40 mm, when they are 7 to 8 months old (Nordlie 2000).

Striped mullet do not seem to live permanently in waters with temperatures below 16°C (M. R. Collins 1985a), but have been observed in waters colder than 2°C in low salinity habitats (<2 ppt) in North Carolina (NCDMF unpublished data). Smaller striped mullet (<50 mm) prefer higher water temperatures, 30.0°C to 32.4°C, while larger fish prefer cooler temperatures, 19.5°C to 29.0°C (Major 1977, M. R. Collins 1985a). Peak growth of juveniles of mixed *Mugil* species (striped mullet and white mullet) occurs at temperatures greater than 25°C in laboratory settings (Peterson, et al. 2000). Additionally, striped mullet can tolerate low levels of dissolved oxygen and can capture air from the surface to supplement their oxygen supply for respiration (Pattillo, et al. 1999). They live at depths ranging from a few centimeters to over 1,000 meters but are mostly observed within 40 meters of the surface. Once inshore, they prefer depths of 3 meters or less.

### Unit Stock and Management Unit

Based on available movement, migration, and life history data, the unit stock and management unit for striped mullet are defined as all striped mullet inhabiting North Carolina coastal and inland fishing waters.

### Assessment Methodology

The stock assessment used a model to estimate historical and current population sizes for striped mullet in North Carolina. Data used in the assessment were collected from 1950 to 2019, from fish within North Carolina coastal and inland fishing waters (the range of the assumed biological unit stock). Commercial harvest data used in the assessment were collected by the North Carolina Trip Ticket Program, and recreational harvest data were collected through the National Oceanic and Atmospheric Administration's (NOAA) Marine Recreational Information Program (MRIP). Biological samples and environmental data were collected by DMF as part of several fishery-independent and fishery-dependent data collection programs. Several environmental variables including salinity, dissolved oxygen, water temperature, and bottom composition were incorporated into calculation of abundance indices. Following completion of the stock assessment, an external peer review workshop was held in April 2022. The DMF and peer review panel both concluded that the assessment model and results are suitable for providing management advice for at least the next five years.

Stock assessments often use a measure of female spawning stock biomass (SSB) to determine the status of the population relative to the level that is adequate for the recruitment class of a fishery to replace the spawning class of the fishery. Female spawning stock biomass includes

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female fish that are mature and capable of producing offspring. The fishing mortality rate ( $F$ ) is a measure of how quickly fish are being removed from the population by commercial and recreational fisheries combined. Removals include those fish that are kept and those that die after being released or discarded.

The 2019 estimates for female SSB and  $F$  were compared to thresholds that are considered sustainable. Sustainable harvest is defined as the amount of fish that can be taken from a fishery on a continuing basis without reducing the stock biomass of the fishery or causing the fishery to become overfished (G.S. 113-129 14a). These levels are based on two types of established reference points: a target level and a threshold level. The threshold is the minimum level required to end overfishing or allow the stock to rebuild from an overfished status. The target is intended to provide a buffer that accounts for variable conditions that may impact the efficacy of management actions. Managing to the target may increase the probability of successfully limiting fishing mortality to a level that allows the fishery to achieve sustainable harvest levels. If female SSB is less than the SSB threshold the stock is overfished, meaning that the spawning stock biomass of the fishery is below the level that is adequate for the recruitment class of a fishery to replace the spawning class of the fishery (G.S. 113-129 12c). If  $F$  is above the  $F$  threshold the rate of removals is too high and overfishing is occurring. Overfishing is fishing that causes a level of mortality that prevents a fishery from producing a sustainable harvest (G.S. 113-129 12d).

The threshold and target fishing mortality and spawning stock biomass reference points used in stock assessments are selected to achieve a desired spawning potential ratio (SPR). SPR describes the expected reproductive output of an “average” individual fish over its lifetime when the population is fished, compared to what would be expected for that same individual in the absence of fishing. When choosing an SPR level for management decisions, the goal is to ensure the number of new fish (recruits) joining the spawning stock each year is not greatly decreased compared to what the stock would produce if it were not experiencing fishing pressure. Higher SPR levels do not necessarily result in more fish recruiting to the spawning stock because as more fish are added to the population, they compete for resources such as food and habitat, and survival decreases. Alternatively, when SPR drops too low, not enough new fish are produced and recruitment to the adult population declines, eventually resulting in a stock that is overfished. The appropriate SPR for a given stock is dependent on life history characteristics of the species and how associated fisheries operate. An SPR level of 20-50% is usually appropriate (Caddy and Mahon 1995). A greater SPR level is used when a more conservative management strategy is desired for the fishery.

For more details about assessment methodology, please refer to the 2022 Striped Mullet Stock Assessment (NCDMF 2022).

### Stock Status

The North Carolina striped mullet stock is overfished, and overfishing is occurring in 2019, the terminal year of the 2022 stock assessment (NCDMF 2022). The observed data and model predictions suggest a decreased presence of larger, older striped mullet in the population. The model estimates declining trends in age-0 recruitment and SSB over the last several decades (Figure 4). Model results also indicate consistent overestimation of biomass and the greatest risk for overfishing.

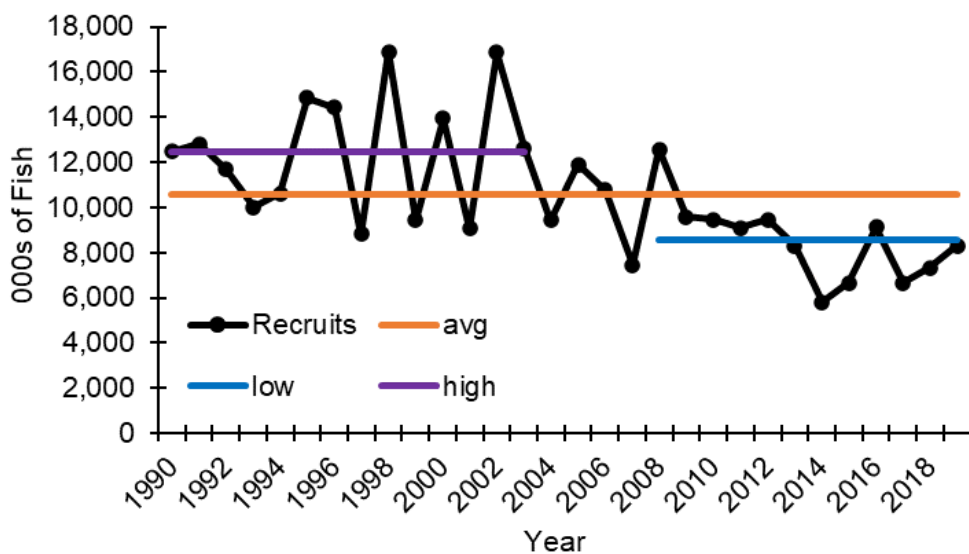


Figure 4. Estimates of striped mullet recruitment from the 2022 striped mullet stock assessment (NCDMF 2022). Average recruitment is the average number of recruits from 1990 to 2019, high recruitment is the average number of recruits from 1990 to 2003, and low recruitment is the average number of recruits from 2008 to 2019.

The stock assessment model estimated a value of 0.37 for the  $F_{25\%}$  threshold and a value of 0.26 for the  $F_{35\%}$  target. In 2019, the terminal year of the assessment,  $F$  was 0.42, greater than the  $F_{25\%}$  threshold, indicating overfishing is occurring (Figure 5). The probability that the stock is undergoing overfishing is 80%. The model estimated a value of 1,364,895 pounds for the  $SSB_{25\%}$  threshold and a value of 2,238,075 pounds for the  $SSB_{35\%}$  target. Female  $SSB$  in 2019 was estimated at 579,915 pounds, lower than the  $SSB_{25\%}$  threshold, indicating the stock is overfished (Figure 6). The probability that the stock is overfished is 95%

*PROJECTIONS*

Please refer to the 2022 stock assessment (NCDMF 2022) and the Achieving Sustainable Harvest in the North Carolina Striped Mullet Fishery Issue Paper (Appendix 2) for more information about stock projections and reductions necessary to end overfishing and achieve sustainable harvest for the North Carolina striped mullet stock.

**DESCRIPTION OF THE FISHERY**

Additional in-depth analyses and discussion of North Carolina’s historical commercial and recreational striped mullet fisheries can be found in earlier versions of the Striped Mullet FMP (NCDMF 2006, NCDMF 2015). Commercial and recreational landings can be found in the [License and Statistics Annual Report](#) (NCDMF 2022) on the DMF Fisheries Statistics website.

Discussion of socio-economic information describes the fishery as of 2021 and is not intended to be used to predict potential impacts from management changes. This and other information pertaining to the FMPs are included to help inform decision-making regarding the long-term viability of the state’s commercially and recreationally significant species and fisheries. For a

detailed explanation of the methodology used to estimate economic impacts, please refer to the DMF License and Statistics Section Annual Report (NCDMF 2022).

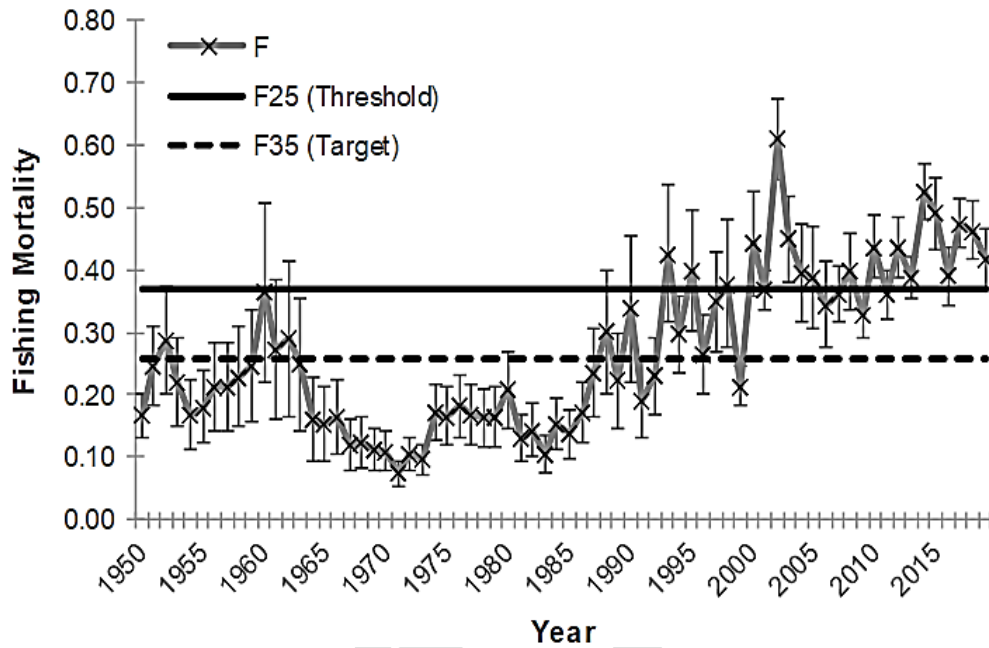


Figure 5. Comparison of annual estimates of fishing mortality (numbers weighted, ages 1-5) to the fishing mortality target (F35%) and threshold (F25%). Error bars represent plus or minus 2 standard deviations.

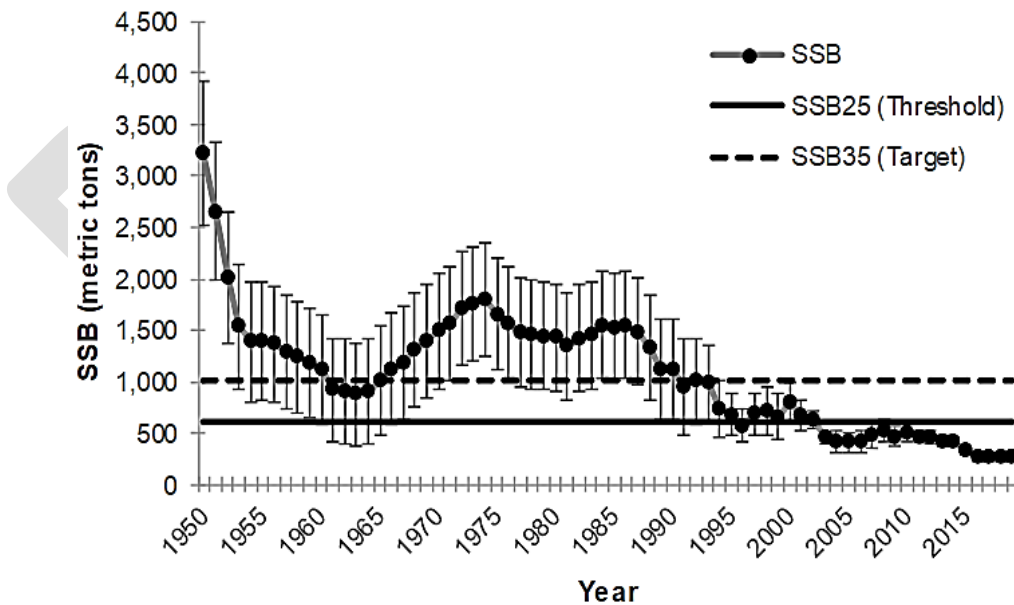


Figure 6. Comparison of annual estimates of female spawning stock biomass (SSB) to the SSB target (SSB35%) and threshold (SSB25%). Error bars represent plus or minus 2 standard deviations.

Commercial Fishery

*COLLECTION OF COMMERCIAL HARVEST DATA*

DMF instituted a mandatory, dealer-based, trip-level, reporting system known as the North Carolina Trip Ticket Program (NCTTP) for all commercial species in 1994. All seafood landed in North Carolina and sold by licensed commercial fishermen must be reported on a trip ticket by a licensed seafood dealer. For more information about licensing requirements for purchasing and selling seafood in North Carolina and how commercial fishing data were collected prior to 1994, please refer to the DMF License and Statistics Section Annual Report (NCDMF 2022). In 2021, 148 seafood dealers reported striped mullet on trip tickets, landed by 664 fishery participants during 11,432 fishing trips (Figure 7).

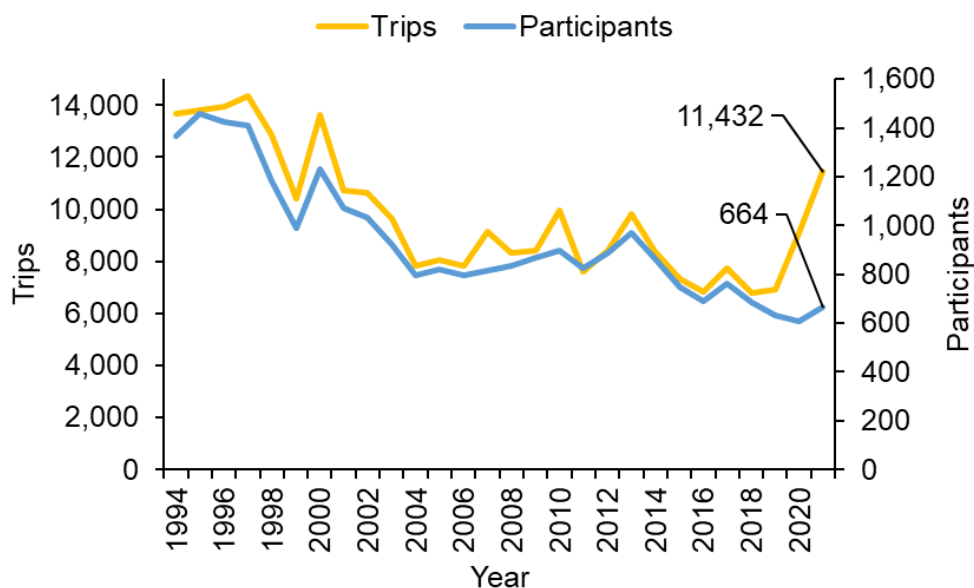


Figure 7. Annual number of trips and participants for the North Carolina striped mullet commercial fishery from 1994 to 2021.

*HISTORICAL LANDINGS AND VALUE*

The historic striped mullet fishery had a prominent role in the early development of the North Carolina commercial fishing industry and striped mullet were ranked as the most abundant and important saltwater fish of North Carolina in the early 1900s (Smith 1907). The fishery’s historical importance is illustrated by the colloquial name of the Atlantic and North Carolina Railway, known as the 'Old Mullet Line', which connected coastal and piedmont North Carolina from the 1850s to 1950s (Little 2012). The mullet fishery operated at over 3 million pounds annually during the late 1800s (Figure 8) (Chestnut and Davis 1975) and enormous catches of greater than 1 million pounds of striped mullet landed in a single day were not an uncommon event during fall spawning migrations (Smith 1907). The greatest recorded annual landings of over 6.7 million pounds and 5.1 million pounds were harvested in 1902 and 1908, respectively (Figure 8) (Chestnut and Davis 1975).

The fishery and market for striped mullet changed markedly in the late 1980s. Strong demand from Asia for striped mullet roe and competing roe-exporting companies combined to create a highly profitable roe fishery in NC in 1988; that year landings exceeded 3 million pounds for the first time in 28 years. Value of the fishery increased even more noticeably than landings during



the late 1980s. From 1987 to 1988, landings increased by 18%, yet value grew by 150% (Figure 9). A depressed Asian economy in the late 1990s may have led to a decline in roe demand.

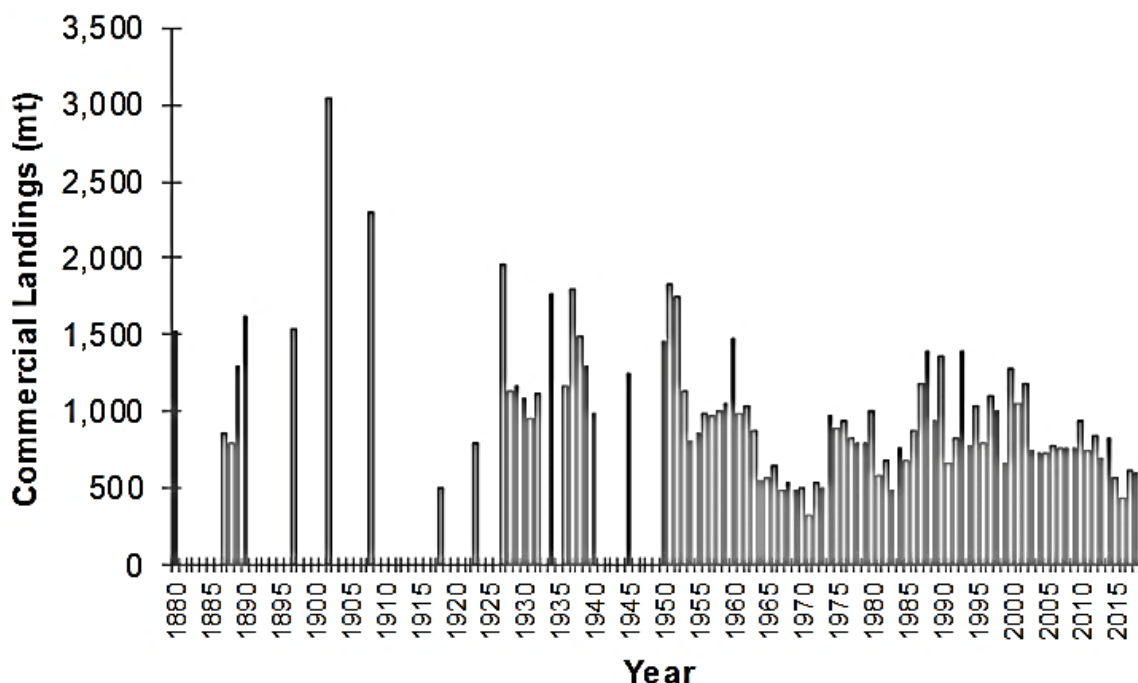


Figure 8. Historical striped mullet landings in the North Carolina commercial striped mullet fishery, for 1880 to 2021.

From 2000 to 2021, the price per pound for striped mullet has been variable, ranging from a low of \$0.40 per pound in 2008 to \$0.91 per pound in 2013. Since the early 2000s, landings in the striped mullet fishery have stabilized to around 1.5 to 2.0 million pounds annually, except for 2016, when total landings dipped to just under 1 million pounds (Figure 9). Because the commercial fishery primarily targets striped mullet roe, the greatest demand, intensity of harvest, and price per pound occurs in October and November (Figure 10), coinciding with the peak spawning period of striped mullet (Bichy and Taylor 2002, Jacot 1920).

*LANDINGS BY MARKET GRADE*

Striped mullet harvest is categorized by size and market grades when purchased by seafood dealers from fishermen. Striped mullet landings only began to be recorded by specific market grades on trip tickets in 1994, as extra-small, small, medium, large, jumbo, mixed, red roe, roe, and white roe market categories. For the market grade analyses in this FMP, landings reported as extra small, small, medium, large, jumbo, and mixed were combined into the “Mixed” market grade category and landings reported as roe or red roe were combined into the “Red Roe” market grade category. From 1994 to 2021, striped mullet landings were sorted into either mixed (54%), red roe (40%), or white roe (spawning male striped mullet; 6%) market grades (Figure 11). During the same time period 42% of the value came from mixed market grade striped mullet, 55% of the value came from red roe, and 3% of the value came from white roe.

Mixed market grade harvest occurs year-round but increases in late summer, early fall, and January, likely because of the increased availability of striped mullet to the commercial fishery during their spawning migration. From 1994 to 2021, 97% of the annual red roe harvest, 95% of the annual white roe harvest, and 23% of the annual mixed market grade harvest occurred in November and December. Most spawning striped mullet are graded as mixed after Thanksgiving,



even though ripe (ready to spawn) fish are occasionally harvested into February and March. The roe market typically shifts from North Carolina to Florida in December. From 1994 to 2021, landings of Red Roe and Mixed grade mullet have fluctuated, with mixed grade landings increasing substantially since 2016 (Figure 12).

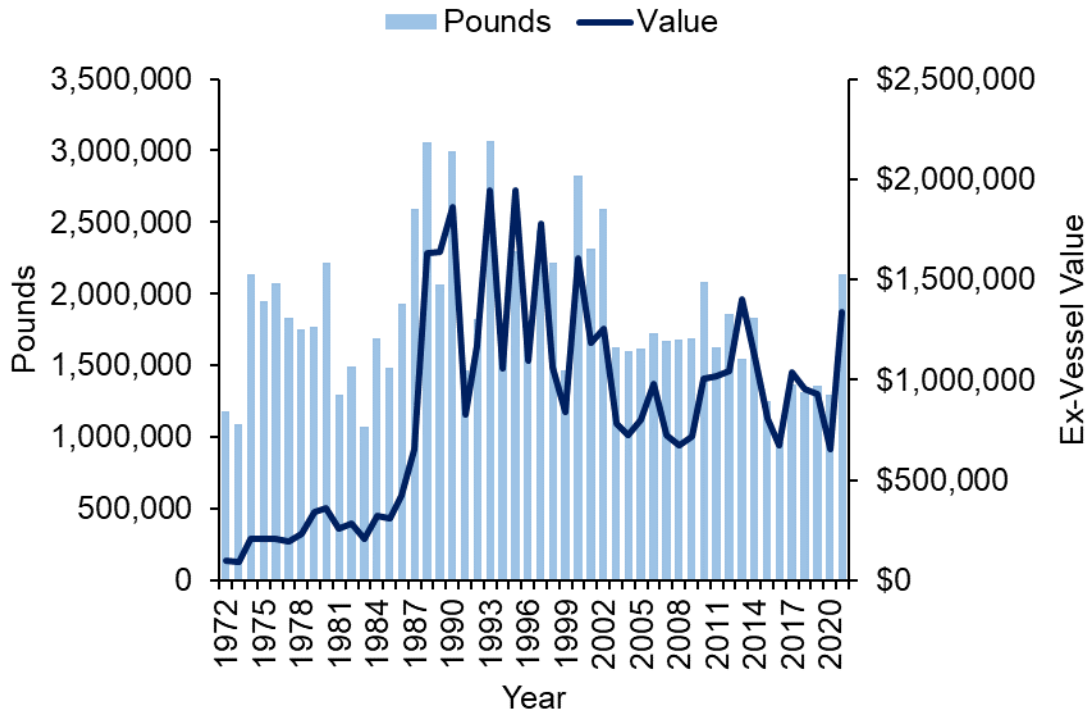
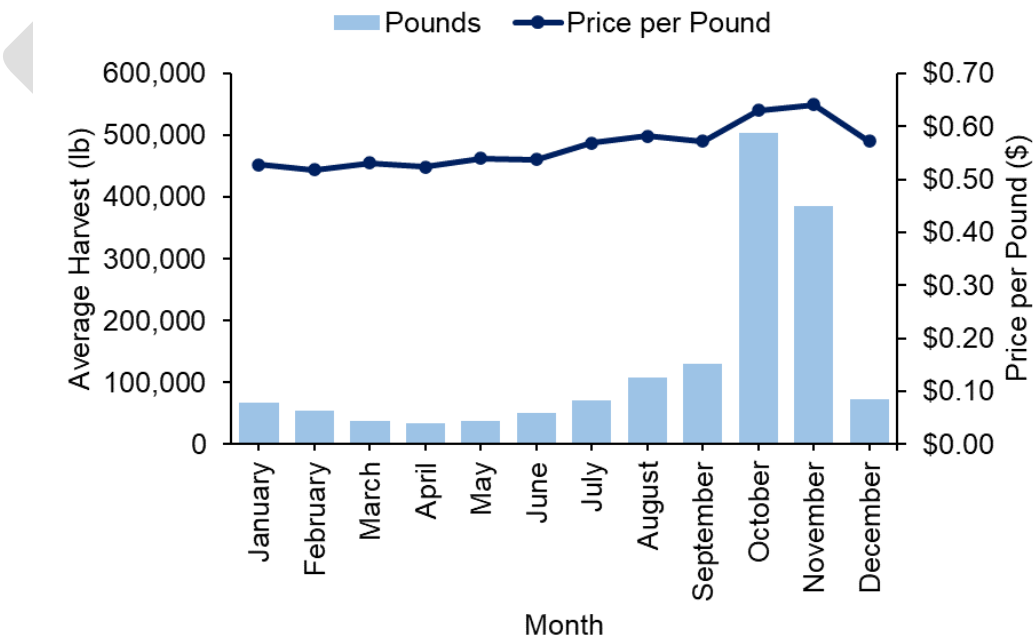


Figure 9. North Carolina annual striped mullet commercial landings and ex-vessel value for 1972 to 2021. Values include all market grades and are not adjusted for inflation.



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Figure 10. North Carolina striped mullet average monthly landings and average price per pound for 2010 to 2021. Averages include all market grades and are not adjusted for inflation.

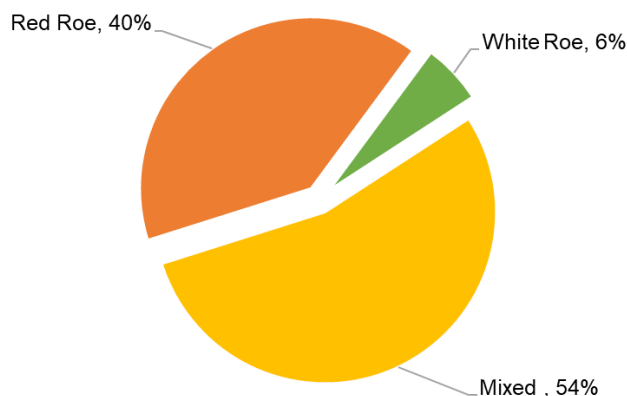


Figure 11. Percent of total landings by market grade in the North Carolina striped mullet commercial fishery, for 1994 to 2021. Landings reported as extra small, small, medium, large, jumbo, and mixed were combined into the “Mixed” market grade category. Landings reported as roe or red roe were combined into the “Red Roe” market grade category.

### *BAIT LANDINGS*

The option for seafood dealers in North Carolina to report the disposition of landings on their trip tickets became available in 2017. Disposition is now a required field on trip tickets for dealers reporting electronically but some seafood dealers reporting on paper trip tickets are still using older, unused trip tickets that are missing the disposition field. Some seafood dealers leave the disposition field blank, an option intended to indicate that the default disposition for mullets of “food” should be used; however, a blank field could also indicate an accidental omission while recording the ticket. Additionally, mullets reported in numbers of fish rather than in pounds are often but not always bait landings, and some dealers report bait mullets using generic bait codes rather than using the correct species codes for “Finger Mullet” or “Jumping Mullet” (white and striped combined). Seafood dealers do not report mullets to the species level on trip tickets, but instead can report landings of larger fish as “Jumping Mullet” (all market grades except for extra-small) or smaller fish as “Finger Mullet” (extra-small market grade).

Commercial landings disposition data for striped mullet are currently considered to be inadequate for use in developing management measures because of the limited time series of disposition data for striped mullet landings and inconsistency in seafood dealers using the correct species and disposition codes when recording trip tickets. Additionally, commercial landings data for extra-small market grade mullet, or “Finger Mullet”, used as bait are not recorded to the species level. A DMF study completed in the early 2000s indicated that most of these landings are white mullet, and that species composition can depend on the month and location of harvest (NCDMF 2006).

### *LANDINGS BY COUNTY AND WATERBODY*

For information about trends in striped mullet commercial landings by county and by waterbody, please refer to the Small Mesh Gill Net Fishery Characterization Information Paper (Appendix 1). Most commercial striped mullet landings in North Carolina come from gill net fisheries and are landed in Dare and Carteret counties.

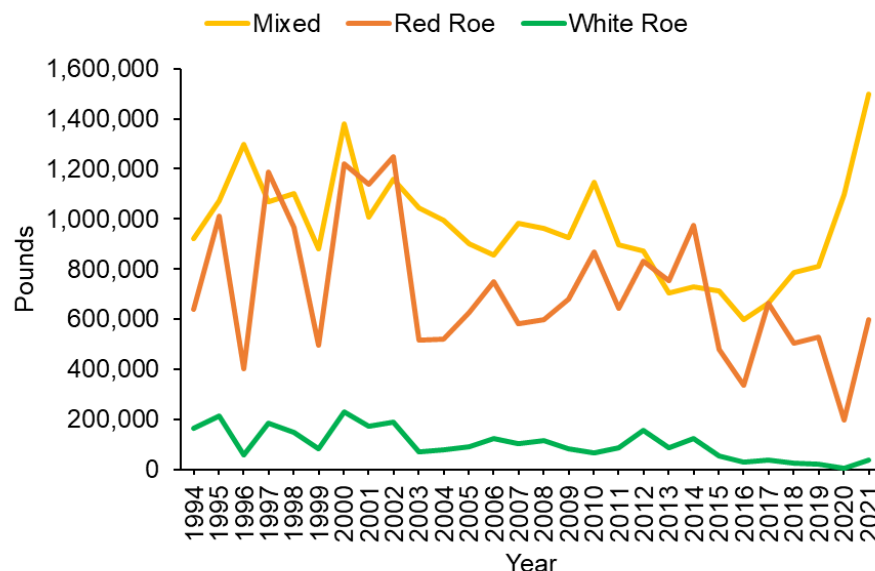


Figure 12. Annual landings by major market grade in the North Carolina striped mullet commercial fishery for 1994 to 2021. Landings reported as extra small, small, medium, large, jumbo, and mixed were combined into the “Mixed” market grade category. Landings reported as roe or red roe were combined into the “Red Roe” market grade category.

*LANDINGS BY 1313131414GEAR TYPE*

Beach Seines and gill nets have been the two primary gear types used in the striped mullet commercial fishery since the earliest landings were documented in 1887. The beach seine fishery accounted for most commercial harvest for nearly 100 years, from 1887 to 1978. Gill nets replaced beach seines as the dominant gear type in the fishery in 1979 and the yearly proportion of total commercial striped mullet landings harvested by gill nets steadily increased until 1995 (Figure 15). Since then, gill net landings have averaged around 91% of striped mullet landings through 2021. Please refer to the Small Mesh Gill Net Characterization Information Paper (Appendix 1) for more information about gear classifications and small mesh gill nets in the North Carolina striped mullet fishery.

*RUNAROUND GILL NETS*

The contribution of runaround gill nets to total commercial harvest of striped mullet each year has steadily increased since 1972, and experienced a large increase in the 1990s, possibly resulting from the gill net closure in Florida state waters at the time. Anecdotal reports from North Carolina fishermen indicate an influx of Florida striped mullet fishermen into North Carolina and subsequent improvements in harvesting methods. More jet drive boats, spotting towers, night fishing, and runaround gill netting were reported by the mid-1990s. Additionally, expanded fishing regulations requiring gill net attendance for anchored small mesh gill nets (less than 5 inch stretched mesh) in North Carolina began in 1998, which may have further prompted a shift from set nets to runaround gill net fishing for striped mullet. (Figure 16).

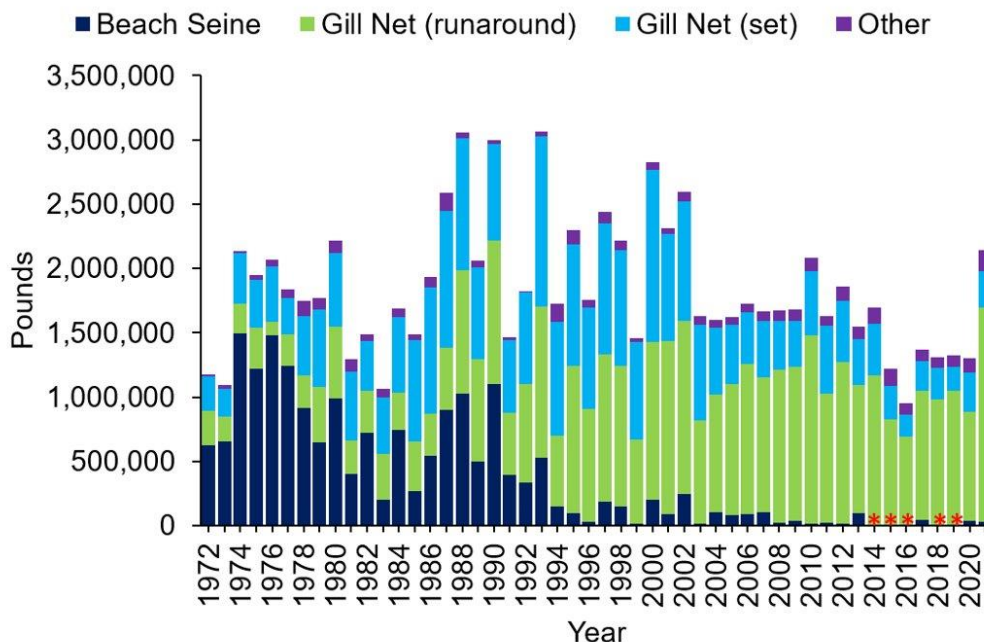


Figure 15. Total landings in pounds by dominant gear type in the North Carolina striped mullet commercial fishery for 1972 to 2021. Beach seine landings for 2014 through 2016 and 2018 through 2019 are confidential due to the number of vessels, dealers, or participants involved and therefore not presented, indicated by asterisks.

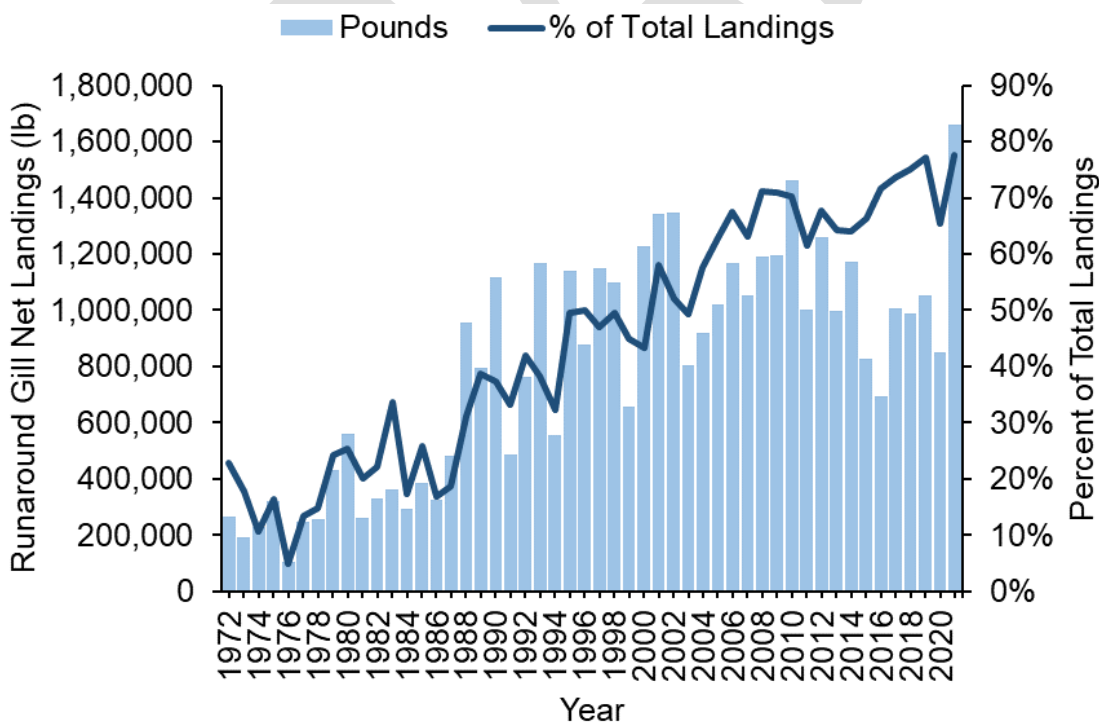


Figure 16. Pounds harvested by runaround gill nets by year and percent of total landings harvested by runaround gill nets by year in the North Carolina striped mullet commercial fishery for 1972 to 2021.

*SET GILL NETS*

Set gill nets have also become increasingly important in the striped mullet commercial fishery since 1972, although the proportion of total landings harvested by set gill nets has not increased since the mid-1980s (Figure 17). Set gill net trips in North Carolina do not usually target striped mullet, but they do harvest marketable striped mullet incidentally. Small mesh anchored gill nets have accounted for most of the striped mullet landings harvested using set gill nets. Since peaking in 1993 and 2000, annual striped mullet landings from set gill nets have generally declined with the increasing contribution of runaround gill nets to the fishery (Figure 17). Most striped mullet harvested using set gill nets are landed in October and November, coinciding with the roe fishery. Landings from set gill nets at other times of the year tend to be small, reflecting the incidental capture of striped mullet in other fisheries. For more information about the small mesh set gill net fishery for striped mullet in North Carolina, please refer to the Small Mesh Gill Net Fishery Characterization Information Paper (Appendix 1).

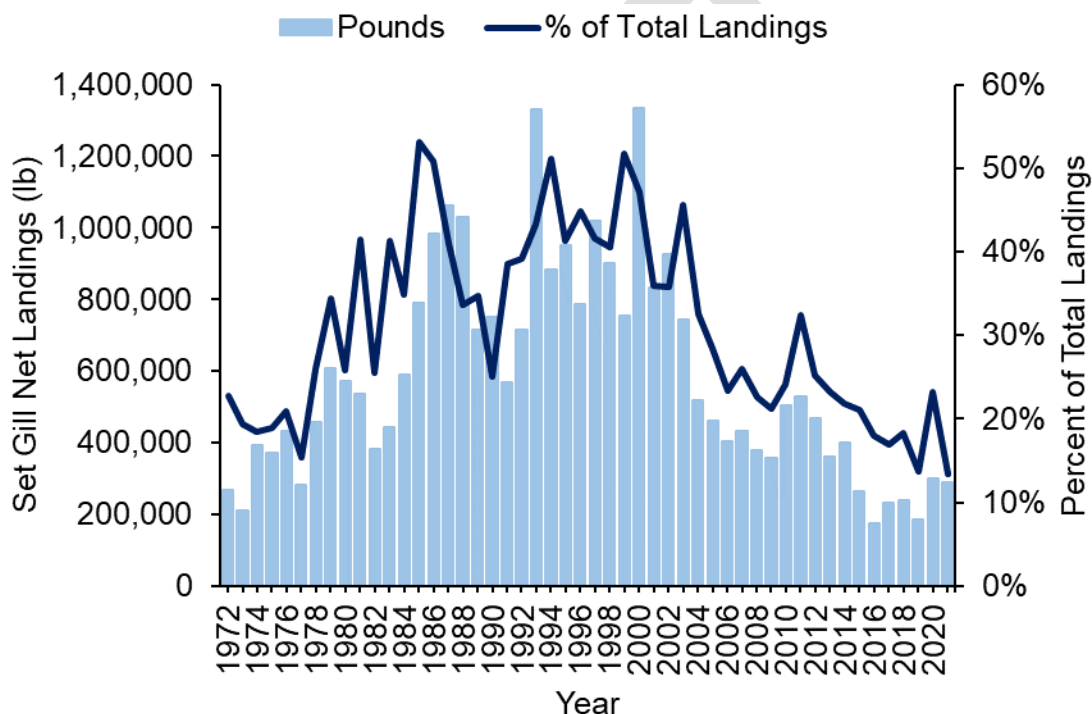


Figure 17. Pounds harvested using set gill nets and percent of total landings harvested using set gill nets by year in the North Carolina striped mullet commercial fishery for 1972 to 2021.

*BEACH SEINES*

The historic striped mullet beach seine fishery was predominantly composed of beach crews scattered among established territories along the central coastline of North Carolina, from Ocracoke Island and along Core, Shackleford, and Bogue banks (Simpson and Simpson 1994). Spotters along the beach would alert boat crews of southwestward, ocean migrating striped mullet schools. A long seine was deployed by small boat or skiff to intercept the oncoming school. Striped mullet were hauled in by manpower, horses, oxen, or tractors in later years. Stop nets (stationary nets not intended to gill fish but used to impede the movement of schooling fish so that they can be harvested with a seine) were employed in Bogue Banks.

The proportion of annual striped mullet harvest from the beach seine fishery has dwindled since 1972 and landings have fluctuated but declined greatly since 1994 (Figure 18). Beach seine

landings of striped mullet occur almost exclusively in October and November due to the restricted stop net fishery season. Extremely poor landings throughout the 1990s and 2000s may have resulted from fall hurricanes and strong weather conditions, which can have a particularly profound effect on stop net harvest because of its limited fishing season. The majority of striped mullet landings from beach seines are landed in the Ocean (93%) in the stop net fishery along Bogue Banks in Carteret County. The stop net fishery has operated under fixed seasons, and net and area restrictions since 1993. Stop nets are limited in number (four), length (400 yards), and mesh sizes (minimum eight inches – outside panels, six inches – middle section). Stop nets are only permitted along Bogue Banks (Carteret County) in the Atlantic Ocean from October 1 to November 30.

Landings from the other, smaller seine fisheries are harvested in ocean waters (0-3 miles), primarily in Carteret, Dare, and Hyde counties. Typically, monofilament gill nets (200-300 yards) are used to intercept ocean schooling striped mullet and hauled onto the beach as functional seines. Most striped mullet landings in this fishery occur in October and November during the fall spawning migration (J. B. Bichy 2000, M. R. Collins 1985a, Leard, et al. 1995). Outside of October and November, most of this fishery does not target striped mullet. Seines for spot, spotted seatrout, kingfish, and other species along the Outer Banks account for most trips from December to September of the next year.

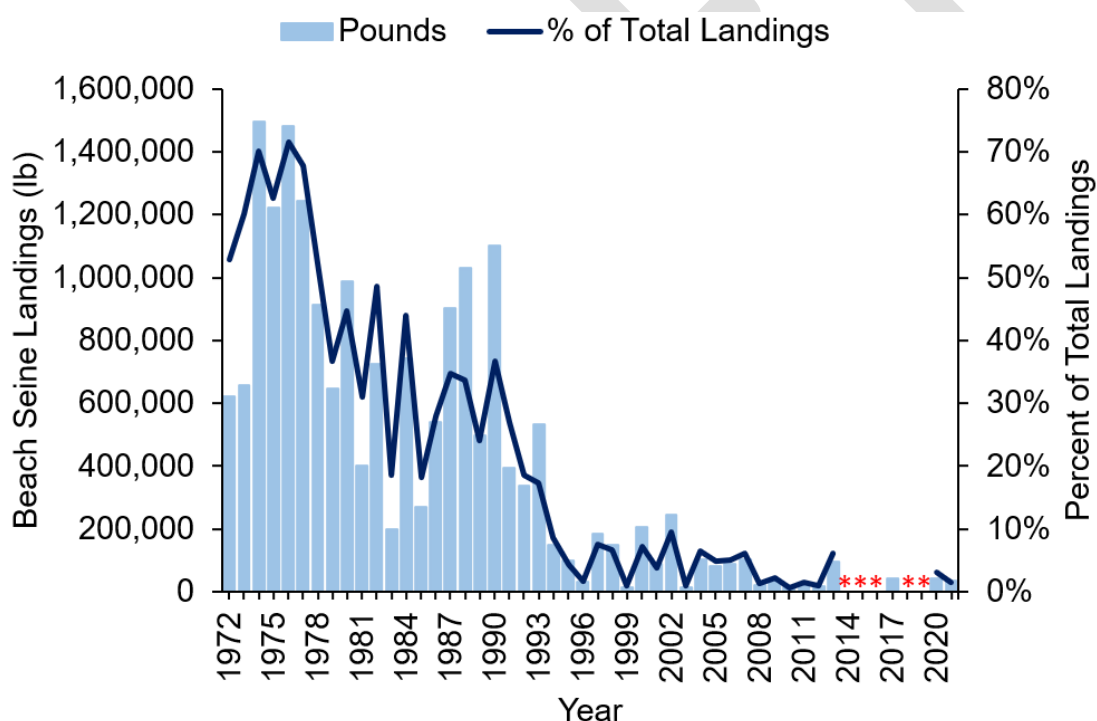


Figure 18. Pounds harvested using beach seines and percent of total landings harvested using beach seines by year in the North Carolina striped mullet commercial fishery for 1972 to 2021. Values for 2014 through 2016 and 2018 through 2019 are confidential and therefore not presented, indicated by asterisks.

#### CAST NETS

Cast net harvest of striped mullet is predominantly sold as bait. Cast net landings only represent 3% of the total striped mullet landings from 1994 to 2021 and increased from 1994 through 2015 before declining over recent years (Figure 19). In 2015, cast net landings contributed 8% of all



striped mullet landings that year, the highest proportion since 1994, when seafood dealers began reporting cast net landings on trip tickets (Figure 19).

Cast net landings of striped mullet are seasonal, with 76% of the annual harvest occurring in September and October. This seasonality of landings coincides with the spawning migration of white mullet. Most of the bait fish harvested commercially using cast nets that are reported by seafood dealers (striped and white combined) are likely white mullet (NCDMF 2006). A recreational cast net bait mullet fishery characterization study in the early 2000s showed that white mullet make up most commercial cast net landings in September and October, but striped mullet make up the majority of the landings in November in North Carolina (NCDMF 2006). The fall cast net fishery primarily targets mullets that will be used as bait, either as cut, whole (frozen), or live bait, in contrast to other mullet fisheries that almost exclusively target roe fish during this period. The greatest proportion of mullet landed by cast nets from 1994 to 2021 were harvested in the Ocean (0-3 miles; 58%) and the Pamlico Sound (30%).

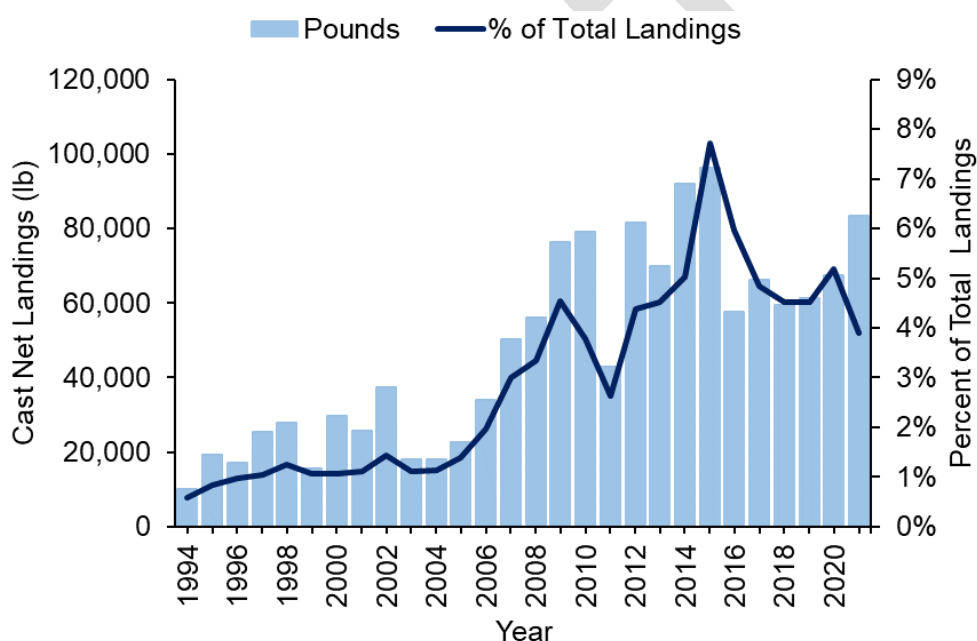


Figure 19. Pounds harvested using cast nets and percent of total landings harvested using cast nets by year in the North Carolina striped mullet commercial fishery for 1972 to 2021.

*EFFECTS OF WEATHER ON FISHERY*

Hurricanes occur frequently in eastern North Carolina, particularly in the fall during peak striped mullet fishing periods and may impact the striped mullet fishery, though impacts are inconsistent and largely influenced by timing of the hurricane. Hurricanes can damage fishing gear, prevent fishermen from fishing, and may cause striped mullet to leave the estuarine system earlier than normal (Burgess, et al. 2007). Increased migratory movement of striped mullet, sometimes referred to by fishermen as a “mullet blow”, has also been associated with north or northwest winds and cold fronts (Jacot 1920, Apekin and Vilenskaya 1979, Mahmoudi, et al. 2001). Hurricanes and unseasonably warm fall water temperatures may delay or disrupt the usual timing of spawning migrations (Thompson, et al. 1991). However, hurricanes and unusual weather conditions are not the only causes of lower striped mullet landings, and the potential reduction in fishing mortality during hurricane years could have a positive effect on spawning stock biomass of the striped mullet stock in subsequent years (Burgess et al. 2007).

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### Striped Mullet Bycatch

Bycatch is the portion of the catch made up of species not being targeted on the fishing trip, captured because the gear is not selective enough or because of species and size differences. Bycatch can be divided into two categories: incidental catch and discarded catch. Incidental catch is retained, marketable catch of non-target species, while discarded catch is returned to the sea for regulatory, economic, or personal reasons. Fisheries most likely to encounter striped mullet bycatch include the set gill net and crab pot fisheries. Most striped mullet bycatch can be regarded as incidental catch and is not usually discarded unless it is unmarketable. Historically, there have not been regulations that would require striped mullet to be discarded in commercial fisheries, and striped mullet harvested incidentally can be used for food or bait, even outside of the roe fishery season.

#### *SET GILL NET FISHERY*

From 2011 to 2021, there were 1,150 anchored small mesh gill net trips observed by DMF of which 389 trips caught striped mullet (35% of observed trips). From these trips, a total of 7,874 striped mullet were caught and 46 were discarded (0.6% of mullet). During the same period, there were 4,439 anchored large mesh gill net trips observed of which 120 trips caught striped mullet (3% of observed trips). From these trips, a total of 166 striped mullet were caught and 25 were discarded (15% of mullet). From 2011 to 2021, there were no commercial harvest restrictions for striped mullet, so most striped mullet caught incidentally in set gill nets were kept and sold. Discarded fish are usually unmarketable. Set gill nets do not appear to be a source of significant striped mullet discarded bycatch.

#### *CRAB POT FISHERY*

From 2011 to 2021, annual landings of finfish bycatch (excluding crabs, shrimp, shellfish, and squids) from hard crab pots have averaged at about 1,800 pounds per year. Striped mullet are the eighth most common species overall and third most common finfish (not mollusk or crustacean) landed in crab pots by total weight. Striped mullet make up 11% of total finfish bycatch from hard crab pots by weight yet make up less than 1% of total hard crab pot landings. Annual total landings of striped mullet from hard crab pots averaged 6,054 pounds per year from 2011 to 2021. Striped mullet landings in peeler pots averaged 533 pounds per year during the same period and are the seventh most common species overall by weight landed in peeler pots. Striped mullet are the fourth most common finfish bycatch species by weight in peeler pots and make up about 4% of total finfish bycatch in peeler pots. Striped mullet make up less than 1% of total peeler pot landings.

#### *BYCATCH IN TARGETED STRIPED MULLET FISHERIES*

The two most important commercial fisheries in North Carolina that target striped mullet are the runaround gill net fishery and the stop net component of the beach seine fishery that occurs in Carteret County. From 2011 to 2021, Striped mullet have made up most landings by weight in both the runaround gill net fishery (70%) and the in the stop net fishery (89%). Other species harvested incidentally in the runaround gill net fishery include spotted seatrout (10% of total landings by weight), spot (4%), bluefish (4%), menhaden (2%) and red drum (2%). The remaining 8% of total runaround gill net landings from 2011 to 2021 were made up of 83 other species. Other species harvested incidentally in the stop net fishery include spotted seatrout (4% of total landings by weight), bluefish (2%), spot, (2%), and kingfishes (1%). The remaining 2% of total stop net landings from 2011 to 2021 were made up of 16 other species. The stop net component of the beach seine fishery that targets striped mullet has declined in importance over the past 30 years and striped mullet are no longer the top species landed in beach seines. In both targeted



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striped mullet fisheries, the species commonly harvested as bycatch are marketable and not likely to be discarded unless regulations or the condition of the fish require them to be discarded.

### *RECREATIONAL CAST NET FISHERY*

The 2006 Striped Mullet FMP (NCDMF 2006) examined the issue of large amounts of bait mullet harvested recreationally by cast net being discarded at the end of fishing trips, and the additional issue of fishermen harvesting large amounts of bait mullet in North Carolina and selling them in other states. Effective July 1, 2006, Marine Fisheries Commission Rule 15A NCAC 03M .0502 was amended to include section (b), which implemented a 200 mullet (white mullet and striped mullet in aggregate) per person per day recreational bag limit for striped mullet. This rule limited the number of bait mullet that may eventually be discarded at the end of fishing trips by recreational fishermen and addressed the issue of large amounts of bait mullet being sold in other states.

### Recreational Fishery

Few anglers target striped mullet using hook and line gear; however, striped mullet and white mullet are popular bait fish for anglers targeting a variety of inshore and offshore species. Mulletts are used as live, cut, and trolling baits (Nickerson Jr. 1984) and are commonly used by anglers fishing in the surf recreationally. Anglers using cast nets often catch young of the year mulletts, commonly known as finger mullet. At the end of each fishing trip, anglers typically discard dead and unused bait mullet. Cast netting for mullet generally occurs during the summer and fall, with the majority caught in September and October, coinciding with the southward migration of young of the year striped and white mullet. For more information about the North Carolina recreational striped mullet fishery and how recreational data are collected, please see the Recreational Harvest Information Paper (Appendix 3).

## **SUMMARY OF ECONOMIC IMPACT**

Commercial landings and effort data collected through the DMF trip ticket program were used to estimate the economic impact of the commercial striped mullet fishery. For commercial fishing output, total impacts were estimated by incorporating modifiers from the NOAA Fisheries Economics of the United States report (NMFS 2021), which account for proportional expenditures and spillover impacts from related industries. By assuming the striped mullet fishery contribution to expenditure categories at a proportion equal to its contribution to total commercial ex-vessel values, estimates were generated of the total economic impact of the commercial striped mullet fishery statewide. Modeling software, IMPLAN, was used to estimate the economic impacts of the industry to the state at-large, accounting for revenues and participation. For a detailed explanation of the methodology used to estimate the economic impacts please refer to the latest [DMF License and Statistics Annual Report](#).

From 2011 to 2021 striped mullet economic ex-vessel value has been about \$1 million dollars, impacting about 9,000 jobs annually (Table 1). Annual sales impacts have varied over the described decade but averaged \$3.5 million from 2011 to 2021 (Table 1). It is estimated the striped mullet fishery contributes to about 1% of commercial fishing sales impact.

The striped mullet commercial fishery is driven by seasonal changes in availability of the stock to commercial fisheries, coinciding with the migration of spawning adult fish from inshore waters through the inlets and into the ocean. Estimated changes in job impacts and sales impacts reflect the accessibility of the population to fishing throughout the year. Most of the economic impacts

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are concentrated in October and November of each year when annual commercial harvest levels peak (Table 2).

Table 1 Annual estimates of commercial economic impact to the state of North Carolina from striped mullet harvest for 2011 to 2021.

Year	Pounds Landed	Ex-Vessel Value	Job Impacts	Income Impacts	Value-Added Impacts	Sales Impacts
2021	2,135,952	\$ 1,273,639	12,106	\$ 1,869,008	\$ 3,521,559	\$ 4,024,260
2020	1,299,464	\$ 651,104	9,100	\$ 1,357,820	\$ 2,320,755	\$ 2,968,469
2019	1,362,212	\$ 940,747	7,539	\$ 1,402,513	\$ 2,629,596	\$ 3,022,280
2018	1,312,121	\$ 982,925	7,421	\$ 1,539,201	\$ 2,842,970	\$ 3,324,933
2017	1,366,338	\$ 1,095,476	8,602	\$ 1,557,537	\$ 2,964,234	\$ 3,348,036
2016	965,337	\$ 722,324	7,471	\$ 1,038,377	\$ 1,969,253	\$ 2,233,376
2015	1,247,044	\$ 878,666	8,005	\$ 1,259,705	\$ 2,391,057	\$ 2,709,024
2014	1,828,351	\$ 1,216,200	9,375	\$ 1,748,458	\$ 3,315,835	\$ 3,760,652
2013	1,549,157	\$ 1,558,612	10,930	\$ 2,423,011	\$ 4,485,190	\$ 5,232,261
2012	1,859,587	\$ 1,174,215	9,483	\$ 1,902,954	\$ 3,479,302	\$ 4,117,409
2011	1,627,894	\$ 1,168,822	8,443	\$ 1,912,423	\$ 3,486,877	\$ 4,139,736
Average	1,504,860	\$ 1,060,248	8,952	\$ 1,637,364	\$ 3,036,966	\$ 3,534,585

Table 2. Monthly estimates of commercial economic impact to the state of North Carolina from striped mullet harvest for 2017 to 2021.

Month	Pounds Landed	Ex-Vessel Value	Job Impacts	Income Impacts	Value Added Impacts	Sales Impacts
January	93,518	\$ 36,787.74	483	\$ 55,122.56	\$ 103,188.91	\$ 118,813.91
February	68,261	\$ 34,269.91	560	\$ 51,349.20	\$ 96,125.69	\$ 110,681.67
March	45,331	\$ 20,651.10	428	\$ 30,942.78	\$ 57,925.11	\$ 66,696.75
April	42,875	\$ 29,097.26	561	\$ 43,599.54	\$ 81,617.66	\$ 93,976.05
May	45,283	\$ 24,951.98	417	\$ 37,387.80	\$ 69,989.69	\$ 80,587.72
June	57,684	\$ 31,887.30	474	\$ 47,779.04	\$ 89,442.44	\$ 102,986.47
July	79,218	\$ 38,471.98	505	\$ 57,645.44	\$ 107,912.28	\$ 124,253.08
August	120,815	\$ 65,723.94	698	\$ 98,480.57	\$ 184,354.57	\$ 212,269.67
September	135,479	\$ 73,183.96	810	\$ 109,657.51	\$ 205,278.52	\$ 236,362.79
October	623,868	\$ 338,771.88	1,805	\$ 507,611.74	\$ 950,246.01	\$ 1,094,135.29
November	392,134	\$ 214,307.87	1,511	\$ 321,117.07	\$ 601,128.63	\$ 692,152.90
December	77,310	\$ 53,998.88	785	\$ 80,911.09	\$ 151,465.19	\$ 174,400.68

It is difficult to determine the economic impact and importance of the North Carolina recreational striped mullet fishery because there is a lack of data, and the data are not precise; however, striped mullet are used as bait in several economically important recreational fisheries in North Carolina. Striped mullet are a common bait species for red drum and flounder and for fishing in the surf. Bait mullet are also commonly sold in tackle shops to recreational anglers and are likely an important product for local bait and tackle businesses.

## ECOSYSTEM PROTECTION AND IMPACT

### Coastal Habitat Protection Plan

The Fisheries Reform Act statutes require that a Coastal Habitat Protection Plan (CHPP) be drafted by the NCDEQ and reviewed every five years (G.S. 143B-279.8). The CHPP is a resource

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and guide compiled by NCDEQ staff to assist the Marine Fisheries, Environmental Management, and Coastal Resources commissions in developing goals and recommendations for the continued protection and enhancement of fishery habitats in North Carolina. These three commissions are required by state law (G.S. 143B-279.8) to adopt and implement management strategies specified in the CHPP as part of a coordinated management approach. Habitat recommendations related to fishery management can be addressed directly by the MFC. The MFC has passed rules that provide protection for striped mullet habitat including the prohibition of bottom-disturbing gear in specific areas, and designation of sensitive fish habitat such as nursery areas and SAV beds with applicable gear restrictions. Habitat recommendations not under MFC authority (e.g., water quality management, shoreline development) can be addressed by the other commissions through the CHPP process. The CHPP helps to ensure consistent actions among these commissions as well as their supporting NCDEQ divisions. The CHPP also summarizes the economic and ecological value of coastal habitats to North Carolina, their status, and potential threats to their sustainability (NCDEQ 2016).

Striped mullet use different habitats depending on life stage, season, and location (Able and Fahay 1998, Pattillo, et al. 1999, Cardona 2000) and are found in most habitats identified in the CHPP including: water column, wetlands, submerged aquatic vegetation (SAV), soft bottom, and shell bottom (NCDEQ 2016). Striped mullet are found in almost all shallow marine and estuarine habitats such as beaches, tidal flats, lagoons, bays, rivers, channels, marshes, and grass beds (Moore 1974, Pattillo, et al. 1999, Nordlie 2000). These habitats provide striped mullet with the conditions they need for thriving and maintaining a healthy population. Growth and survival of striped mullet within the habitats they use are maximized when water quality parameters such as temperature, salinity, and dissolved oxygen are within optimal ranges. For further information about habitat use by life stage and optimal water quality parameters, see the [DESCRIPTION OF THE STOCK](#) section of this FMP. Additional information on the habitats discussed below, threats to these habitats, water quality degradation, and how these topics relate to fisheries can be found in the CHPP (NCDEQ 2016).

### Threats and Alterations

Suitable habitat is a critical element in the ecology and productivity of estuarine systems. Degradation or improvement in one aspect of habitat may have a corresponding impact on water quality. All habitats used by striped mullet are threatened in some way.

Water column habitats in warm oceanic waters are used as spawning habitat for striped mullet. Coastal inlets act as critical water column habitat corridors for adult striped mullet to pass through during their annual spawning migrations out to the ocean, and for larvae to reach estuarine nursery areas. Terminal groins may threaten striped mullet stocks by obstructing inlet passage of striped mullet, impeding recruitment (Kapolnai, Werner and Blanton 1996, Churchill, et al. 1997, Blanton, et al. 1999). Inlets are also hydraulically dredged on a regular basis to ensure safe passage for vessels of all sizes, potentially entraining marine animals, particularly eggs and larval fishes that cannot avoid the suction field of the gear due to their reduced swimming abilities (Todd, et al. 2015). The DMF recommends an in-water-work moratorium from April 1 to July 30 to minimize impacts during peak biological activity; however, most projects are given moratorium relief in favor of public safety.

Soft bottom habitats act as important nursery, refuge and feeding areas for striped mullet. These habitats support zooplankton, detritus, algae, and benthic microorganisms that mullet eat during their early life stages. Dredging threatens soft bottom habitat by impairing water quality and temporarily removing benthic infauna from the areas, reducing food availability to bottom-feeding

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species such as striped mullet (NCDEQ 2016). Soft bottom habitats in the surf zone of shallow ocean waters are also used by juvenile striped mullet and may act as transient habitats, orienting fish larvae into estuaries (Kinoshita, et al. 1988, Fujita, et al. 2002, Ross and Lancaster 2002). Beach nourishment projects can temporarily impact benthic prey availability in surf zone habitats, and the increased turbidity generated from beach nourishment projects can impact the growth and survival of marine organisms (Reilly and Bellis 1983, Lindquist and Manning 2001).

Submerged aquatic vegetation habitats are used by striped mullet as nursery, forage, and refuge habitats, where striped mullet feed on epiphytic algae and invertebrates that live on seagrasses and other structures (Odum 1968, M. R. Collins 1985a). Seagrass beds are threatened by physical destruction from bottom disturbing fishing gear, dredging, damage from boat use, and water quality degradation. Shell bottom habitats such as oyster reefs are used as forage habitat for striped mullet (Bliss, et al. 2010) and can be damaged by bottom-disturbing fishing gears, disease, and overfishing. Freshwater and estuarine wetlands, especially surrounding estuarine rivers and marshes, are used transiently by juvenile striped mullet for foraging, refuge, and nursery habitat (Peterson and Turner 1994). Wetlands are threatened by many human activities, including dredging for marinas and channels, filling for development, and ditching and draining for agriculture, silviculture, channelization, and shoreline stabilization.

For more information about these habitats and how they are managed, please refer to the CHPP (NCDEQ 2016).

### *WATER QUALITY DEGRADATION*

Good water quality is essential, both for supporting the various life stages of striped mullet and for maintaining their habitats. Naturally occurring and anthropogenic activities can alter salinity and temperature conditions or elevate levels of toxins, nutrients, and turbidity, as well as lower dissolved oxygen levels, which can degrade water quality and impact striped mullet survival. Water quality degradation through stormwater runoff, discharges, toxic chemicals, sedimentation, and changes in turbidity can threaten striped mullet survival. There are increasing concerns about declining water quality and the influence it is having on habitats such as SAV, shell bottom, and wetlands. Studies have found that macroalgal biomass is directly related to increased nutrient levels and that SAV loss is greater with increased macroalgae (Valiela, et al. 1997). Once macroalgal blooms die, they decompose rapidly, increasing nutrient levels in the water column, stimulating phytoplankton production, further reducing light, and decreasing dissolved oxygen in the water and sediments. These have all been important factors in the decline of SAV up and down the Atlantic seaboard (Hauxwell, et al. 2000).

The 2021 CHPP Amendment includes priority issues with elements of improving water quality, including “Protection and Restoration of Submerged Aquatic Vegetation (SAV) through Water Quality Improvements” and “Protection and Restoration of Wetlands through Nature-based Solutions”. Both of these priorities may benefit the North Carolina striped mullet stock. Striped mullet use all three habitats targeted in the amendment throughout their life history, especially wetlands. The recommended actions are expected to not only improve these habitats but strengthen coastal community and ecosystem resilience, bolstering the ability of these habitats to provide ecosystem services and support stocks of economically important marine species such as striped mullet. In 2023, the North Carolina Environmental Management, Marine Fisheries, Coastal Resources, and Soil & Water Conservation commissions unanimously adopted the resolution crafted by the Stakeholder Engagement for Collaborative Coastal Habitats Initiative (SECCHI) workgroup advocating for increased funding for the voluntary cost-share programs that will help landowners protect their property and significantly reduce nutrient loading in North Carolina's coastal waters.

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More detailed information on water quality degradation, including the topics of hypoxia, toxins, and temperature in North Carolina and effects on fish stocks can be found in the NCDWQ guides on the NCDWQ website: [NCDWQ Water Quality Information](#) (NCDWQ 2000, NCDWQ 2008) and in the CHPP (NCDEQ 2016). More information about the water quality requirements for striped mullet can be found in the [DESCRIPTION OF THE STOCK](#) section of this FMP.

### Gear Impacts on Habitat

Bottom disturbing fishing gear can impact ecosystem function through habitat degradation. Static (non-mobile) gears tend to have a lesser impact on habitat compared to mobile gears, as the amount of area affected by static gears tends to be insignificant when compared to that of mobile gears (Rogers, Kaiser and Jennings 1998). Both bottom disturbing and static gears can result in bycatch while in operation and can have negative impacts if the gear is abandoned or lost.

The primary gears used in the striped mullet commercial fishery are gill nets (runaround, and set), beach seines, and cast nets. In the recreational fishery, cast nets are the primary gear. Other gears that may harvest striped mullet as incidental catch include pounds nets, crab pots, drift gill nets, and fyke nets. Many gears that interact with striped mullet are static (Barnette 2001, NCDEQ 2016) and generally have minimal impact on habitat.

Beach seines and runaround gill nets are both mobile and may disturb local habitats. Impacts from mobile bottom-disturbing fishing gears such as seines and runaround gill nets include changes in community composition from the removal of species and physical disruption of the habitat (Barnette 2001). Gears may damage or uproot SAV as they are dragged across the seafloor, potentially reducing productivity of these habitats and destroying the structures that provide feeding surfaces and shelter for striped mullet (NCDEQ 2016). Gears that drag across the seafloor may also suspend sediments, temporarily increasing turbidity (Corbett, et al. 2004) and reducing clarity, SAV growth, productivity, and survival (NCDEQ 2016). Sediment suspended by bottom disturbing fishing gears and boat propeller wash may also bury SAV (Thayer, Kenworthy and Fonseca 1984), degrading habitat quality and reducing productivity.

Despite the potential impacts, it has been determined that the bottom impact from actively fished gill nets represent a low disturbance and that impacts from boat propellers during side-setting are likely more significant (Kimel, Corbett and Thorpe 2010). Beach seines are used to encircle schools of fish and may scrape the seafloor with a lead line as they are fished along the beach. The impact of beach seines on habitat is unknown but is likely minor due to the high-energy nature and typical sediment disruption of the surf zone where beach seines are used. Bottom impacts from active gill net fishing and seining are likely to be greater in low energy environments such as bays and creeks than in open high energy areas such as rivers, large sounds, and the surf zone of the ocean. Cast nets do not usually disturb habitat as they are fished in the water column. Crab pots are weighted and rest on the bottom, so they can smother SAV and are capable of ghost fishing if lost or abandoned.

### *PROTECTED SPECIES INTERACTIONS*

Protected species include a variety of animals that are protected by federal or state statutes because their populations are at risk or vulnerable to risk of extinction. Several protected species occur in North Carolina, including diamondback terrapins (*Malaclemys terrapin*), migratory birds, five species of sea turtles, bottlenose dolphins (*Tursiops truncatus*), and two species of sturgeon. Entanglement gears such as the gill nets used in some commercial striped mullet fisheries are size-selective; however, gill nets are capable of unintentionally capturing larger, non-targeted species. For more information about protected species in North Carolina, their interactions with

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fishing gear, and how the DMF monitors interactions between protected species and commercial fisheries, please refer to the DMF [Observer Program website](#). Interactions between protected species and the stop net fishery in Bogue Banks that targets striped mullet are monitored by the National Oceanic and Atmospheric Administration (NOAA).

### Climate Change and Resiliency

Extreme weather events have always occurred, but scientists anticipate that changes this century to North Carolina's climate will be larger than anything historically experienced (Kunkel, et al. 2020). It is predicted that average annual temperatures will continue to increase, sea level will continue to rise, the intensity of hurricanes will increase, total annual precipitation from hurricanes and severe thunderstorms will increase resulting in increased flooding events, while severe droughts will also likely increase due to higher temperatures (Kunkel, et al. 2020). Flood events can flush contaminated nutrient-rich runoff into estuaries causing degraded water quality. Runoff from flood events can cause eutrophication resulting in fish kills due to hypoxia, algal blooms, and alteration of the salinity regime. Flood events can also cause erosion of shorelines resulting in loss of important coastal habitats, such as SAV, soft bottom, and wetlands, that are critical to striped mullet throughout their life history. Potential increases in extreme weather events could have an adverse effect on the recruitment and survival of striped mullet in the estuarine system.

Increasing temperatures could also impact the distribution of finfish and invertebrate populations and the coastal habitats they use. It has been predicted that hundreds of finfish and invertebrate species will be forced to move northward due to increasing temperatures caused by climate change (Morley, et al. 2018). North Carolina already exhibits one of the greatest northward shifts in commercial fishing effort, with average vessel landings occurring 24 km further north each year (Dubik, et al. 2019).

The repeated impacts and compounding losses from the effects of climate change can be catastrophic not only to coastal communities, but to coastal habitats and the fisheries they support. While the risks and hazards associated with climate change and extreme weather events cannot be completely eliminated, the effects can be decreased by improving coastal resilience, which can be broken down into two parts: 1) community resiliency – the ability of a community to withstand, respond to, and recover from a disruption, and 2) ecosystem resiliency – the ability of the natural environment to withstand, respond to, and recover from disruption, such as hurricanes, tropical storms, and flooding. A resilient ecosystem can bounce back from disturbances over time compared to resistant ecosystems, which may not be able to recover their full functionality in face of repeated disturbances. Building a more resilient coastal community and ecosystem will help ensure the persistence of coastal habitats critical to the life history of striped mullet and many other species (NCDEQ 2020).

## **FINAL STRIPED MULLET AMENDMENT TWO MANAGEMENT STRATEGY**

### **The NCMFC selected management measures:**

#### APPENDIX 2: ACHIEVING SUSTAINABLE HARVEST IN THE NORTH CAROLINA STRIPED MULLET FISHERY

1. Implement a Saturday through Sunday commercial harvest closure for January 1 through September 30 and a Saturday through Monday closure for October 1 through December 31 to achieve a 34.9% reduction in harvest relative to 2019 commercial landings.

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2. Status Quo – Manage stop net fishery with management measures applied to the rest of the commercial fishery.
3. Adopt an Adaptive Management Framework:  
Parts 1-3 of the adaptive management framework are explicitly tied to an updated stock assessment and implementation of management measures intended to reduce or allow for additional harvest to meet or maintain management targets (as defined in part 1.a).
  - 1) Update the stock assessment at least once in between full reviews of the FMP, timing at discretion of the division
    - a. If current management is not projected to meet management targets (management targets are minimum SSB between  $SSB_{Threshold}$  and  $SSB_{Target}$ , and maximum  $F$  between  $F_{Threshold}$  and  $F_{Target}$ ), then management measures shall be adjusted via an adaptive management update and implemented using the Fisheries Director's proclamation authority to reduce harvest to a level that is projected to meet the  $F_{Target}$  and  $SSB_{Target}$ .
    - b. If management targets (as defined in 1.a above) are being met, then new management measures would not be needed, or current management measures could possibly be relaxed provided projections still meet management targets. When management targets are met, a striped mullet industry workgroup will be convened to discuss the possibility of "guard rail management" to maintain a sustainable harvest for the striped mullet stock.
  - 2) Management measures that may be adjusted using adaptive management include:
    - a. Season closures
    - b. Day of week closures
    - c. Trip limits
    - d. Gill net yardage or mesh size restrictions in support of the measures listed in a-c
  - 3) Use of the Director's proclamation authority for adaptive management to meet management targets is contingent on:
    - a. Consultation with the MFC Northern, Southern, and Finfish advisory committees
    - b. Approval by the Marine Fisheries Commission

Part 4 of the adaptive management framework allows for adjustment of management measures outside of an updated stock assessment. Part 4 is intended to allow for adjustment of management measures to ensure compliance with and effectiveness of management strategies adopted in Amendment 2 and would be a tool to respond to concerns with stock conditions and fishery trends.

- 4) Upon evaluation by the division, if a management measure implemented to achieve sustainable harvest (either through Amendment 2 or a subsequent revision) is not achieving its intended purpose, it may be revised or removed and replaced using the Director's proclamation authority; provided it conforms to part 2 above and provides similar protections to the striped mullet stock. If a revised management measure is anticipated to reduce or increase harvest compared to measures implemented through Amendment 2, it must conform to parts 2 and 3 above.

## APPENDIX 3: CHARACTERIZATION AND MANAGEMENT OF THE NORTH CAROLINA RECREATIONAL STRIPED MULLET FISHERY

1. Recreational Individual Bag Limit of 100 Fish and Vessel Limit of 400 Fish.



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2. Exception for For Hire Vessel Operations to Possess a Bag Limit for the Number of Anglers Fishing Up to the 400-fish Maximum (Including in Advance of a Trip).

## RESEARCH NEEDS

The research recommendations listed below are offered by the division to improve future management strategies of the striped mullet fishery. They are considered high priority as they will help to better understand the striped mullet fishery and meet the goal and objectives of the FMP. A more comprehensive list of research recommendations is provided in the [Annual FMP Review](#) and DMF Research Priorities documents.

- Explore effects of offshore and nearshore environmental conditions and climate change on the North Carolina striped mullet stock, including potential changes in recruitment and sex ratios.
- Explore effects of modified shorelines (e.g., beach renourishment projects, hardened shorelines, and development) on striped mullet food sources and habitats.
- Conduct a striped mullet tagging study, including acoustic and satellite tags, to explore movement patterns and range of striped mullet found in North Carolina.
- Repeat and expand the cast net study conducted by the Division in the early 2000s, including use of various net and mesh sizes to characterize cast net effort and catch by net size, mesh size, and user group in the recreational fishery.
- Explore market price drivers for striped mullet in North Carolina, including exploration of the link between fishing target species, market prices, and fisher behavior.





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### Appendix 1: SMALL MESH GILL NET CHARACTERIZATION IN THE NORTH CAROLINA STRIPED MULLET FISHERY

#### **Issue**

The estuarine small mesh gill net fishery in North Carolina is managed and regulated by North FMPs and numerous MFC rules and North Carolina DMF proclamations. However, concerns about biological impacts from the use of small mesh gill nets remain. The primary issues to be addressed concern greater flexibility with constraining harvest in the striped mullet fishery, reducing bycatch, and to the greatest extent practical reducing conflict between gill net users and other stakeholders. Specific management options for gill net regulations can be found in [Appendix 2: Sustainable Harvest Issue Paper](#).

#### **Origination**

The North Carolina Marine Fisheries Commission.

#### **Background**

At their August 2021 business meeting, the MFC passed a motion to not initiate rulemaking on small mesh gill nets but refer the issue through the FMP process for each species, and any issues or rules coming out of the species-specific FMP to be addressed at that time. In North Carolina, small mesh gill nets are the predominant gear used to harvest striped mullet. Most striped mullet are harvested commercially using runaround or other actively fished gill nets. Per direction from the MFC, small mesh gill nets must be addressed during review of the striped mullet FMP.

North Carolina General Statutes authorize the MFC to adopt rules for the management, protection, preservation, and enhancement of the marine and estuarine resources within its jurisdiction (G.S. 113-134; G.S. 143B-289.52). The MFC has authority to adopt FMPs and the DMF is charged with preparing them (G.S. 113-182.1; G.S. 143B-289.52). Further, the MFC may delegate to the DMF director in its rules the authority to issue proclamations suspending or implementing MFC rules that may be affected by variable conditions (G.S. 113-221.1; G.S. 143B-289.52). Variable conditions include compliance with FMPs, biological impacts, bycatch issues, and user conflict, among others (15A NCAC 03H .0103). The estuarine gill net fishery in North Carolina is managed and regulated by FMPs and numerous MFC rules and DMF proclamations. Rules are periodically amended to implement changes in management goals and strategies for various fisheries and are the primary mechanism for implementing FMPs under the Fisheries Reform Act of 1997 (FRA).

In recent years, modifications to gill net management resulting from the adoption of FMPs or other circumstances have largely been implemented through the DMF director's proclamation authority, not through rulemaking. This is primarily due to the need to implement management changes in a timely fashion and to accommodate variable conditions. Over time, this has resulted in incongruent restrictions between rules and proclamations. Additionally, many of the rules related to small mesh gill nets were first developed prior to the FRA and have not been thoroughly evaluated since the addition of more recent rules developed through the FMP process.

The striped mullet small mesh gill net fishery operates year-round, but the type of gill net used varies by season and area (NCDMF 2018). Multiple species may be landed during a single trip; however, the target species usually dominates the catch (NCDMF 2008). In North Carolina, gill nets are restricted to a minimum mesh size of 2.5 inches stretched mesh (ISM) (15A NCAC 03J .0103 (a)). The DMF categorizes gill nets with ISM from 2.5 to less than 5 inches as small mesh (Daniel 2013). Although the rule uses "mesh length" and not "mesh size", their meanings are

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identical for the purpose of this document; this helps to demarcate the discussion of “mesh size” from “net length” throughout the document. Small mesh gill nets are generally classified into three categories based on how the net is deployed and fished: set gill nets, runaround gill nets, and drift gill nets (Figure 1.20; Table 1.1; (Steve, et al. 2001)). For this document, “set” gill nets, or “set nets”, includes anchored, fixed, and stationary nets.

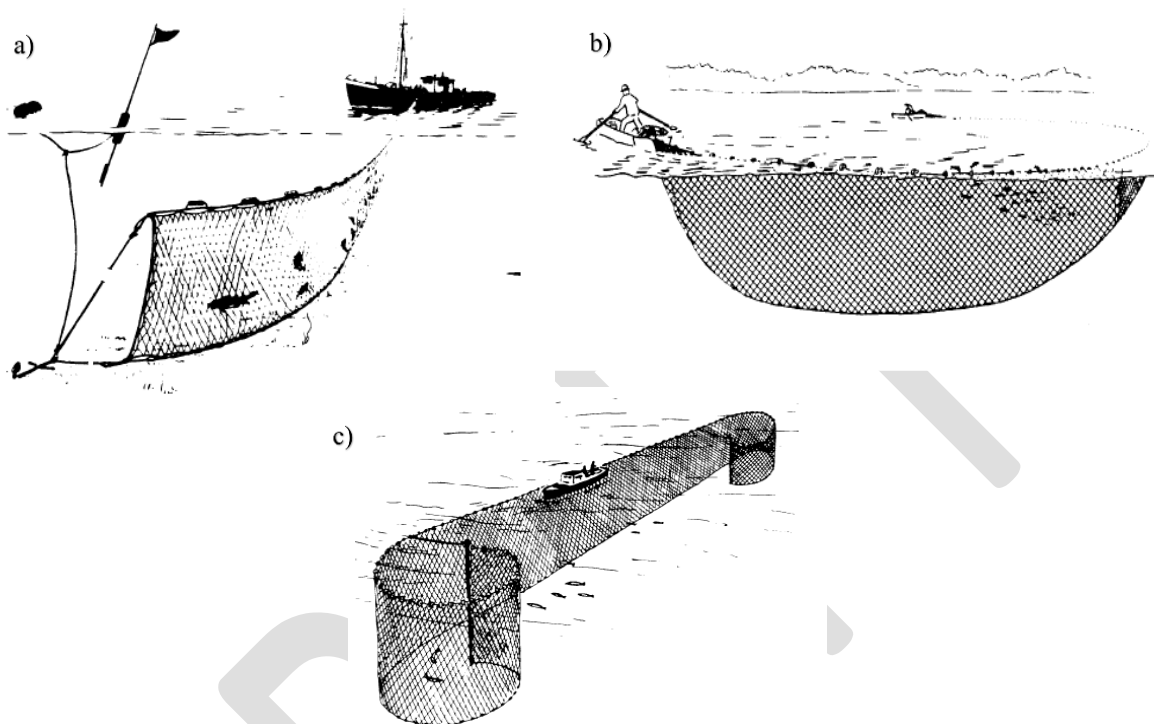


Figure 1.20. Illustrations of (a) set, (b) runaround, and (c) drift gill nets extracted from Steve et al. (2001).

Set nets (Figure 1.1a) are the second most common gill net method used for commercial striped mullet harvest in North Carolina. They are kept stationary with the use of anchors or stakes attached to the bottom or attached to some other structure attached to the bottom, at both ends of the net (15A NCAC 03I .0101). Set nets can be further classified as sink or float gill nets (Steve et al. 2001). A sink gill net fishes from the bottom up into the water column a fixed distance by having a lead line (bottom line) heavy enough to sink to the bottom. Depending on the height of the net and the depth of the water, the float line (top line) may or may not be submerged below the surface of the water. A float gill net may fish the entire water column by having the top line with buoys sufficient for floating on the surface of the water, or a portion of the water column depending on the depth of the net (number of meshes deep). Set nets are deployed by dropping one end of the net and running out the rest of the length of net usually in a line. Once deployed, soak times for fishing set nets vary depending on factors such as target species, water temperature, season, waterbody, and regulations (NCDMF 2018).

A runaround gill net is the most common gill net method used for commercial striped mullet harvest in North Carolina. It is an actively fished gear used to encircle schools of fish (Figure 1.1b). They are deployed with a weight and a buoy at one end that enables the rest of the net to be fed out, creating a closed circle around the school of fish due to the vessel's path. Runaround gill nets tend to be deep nets capable of fishing the entire water column. Mesh sizes and net lengths vary depending on the size of the targeted species (Steve et al. 2001). Another form of

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runaround gill net is the strike net or drop net. Rather than deploying the net in a circle, the net is set parallel to shore, often with one end anchored to the bank. Once the net is set, the boat is driven between the net and the shore to drive fish into the net (NCDMF 2018). Soak times for all types of runaround gill nets are almost always an hour or less.

Table 1.3. Small mesh gill net gear categories with descriptions and capture method descriptions.

Small Mesh Gill Net Gear Categories	Sub-Categories	Gear Description	Capture Method
Anchored/Fixed /Stationary/Set	Sink	Attached to bottom or some other structure by anchors or stakes at both ends. Sink nets are fished from the bottom up into the water column.	Passively Fished - For both sink and float set nets the gear is left in place for a period of time. Fish, if appropriately sized, swim into the net and are gilled.
	Float	Attached to bottom or some other structure by anchors or stakes at both ends. Float nets are fished from the top down into the water column. Depending on target species nets fish part of the water column or the entire water column.	
Runaround	Circle	Attached to the bottom at one end. Once the end is set, the rest of the net is then fed out of a boat creating a circle and meeting back at the original set point. Generally, these nets fish the entire water column.	Actively Fished - Used to encircle a school of fish. Primary target species for this gear is striped mullet.
	Strike/Drop	Attached to the bottom at one end. Deployed along shore with the terminal end finishing at another point along the shore. The boat is driven into the blocked section to “drive” the fish into the net and are then retrieved.	Actively Fished - Used to corral or intercept a school of fish and then immediately retrieve. Primary target species for this gear is striped mullet, and spotted seatrout to a lesser extent.
Drift		Attached to boat or free-floating with close attendance. Lighter leadlines and no anchors allow the net to drift. Depending on target species and water depth, nets fish part of the water column or the entire water column. Primarily used in Pamlico Sound to target Spanish mackerel and bluefish.	Actively Fished - Drift with the water current with continuous attendance.

Drift gill nets are unanchored, non-stationary nets that are actively attended (i.e., remain attached to the vessel or the fishing operation remains within 100 yards of the gear) (Figure 1.1c) and tend to have shorter soak times than set nets. They are constructed with lighter lead lines to allow for the net to drift with the current. The small mesh drift gill nets currently employed in North Carolina estuaries are primarily used to target Spanish mackerel and bluefish in Pamlico Sound. This gear can also be used to target spot (as a sink net) and striped mullet (typically fishing the entire water

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column) in areas primarily from Core Sound and south (Steve et al. 2001). Drift nets account for less than 0.5% of striped mullet landings.

## METHODS

Information specific to the North Carolina estuarine gill net fishery was gathered from two DMF sampling programs briefly described below:

### N.C. Trip Ticket Program

The N.C. Trip Ticket Program began in 1994. This program requires licensed commercial fishermen to sell their catch to licensed fish dealers, who are then required to complete a trip ticket for every transaction. Data collected on trip tickets include gear type, area fished, species harvested, and total weights of each species. Information recorded on trip tickets for gear type and characteristics is self-reported by the dealer. This information may be verified by DMF fish house staff after the fact, but the potential exists that some trips may be mischaracterized by dealers. In 2004, trip tickets included mesh size categories for gill nets: small mesh = <5 inch ISM, and large mesh = >5 inch ISM. However, the use of this new field was not prevalent until about 2008 because dealers were still using old trip tickets they had on hand.

### Commercial Fish House Sampling

Commercial fishing activity is monitored through fishery dependent (fish house) sampling. Sampling occurs dockside as fish are landed. Commercial fishermen and/or dealers are interviewed by DMF staff, and the catch is sampled. Samplers collect data on location fished, effort (soak time, net length, etc.), gear characteristics (net type, net depth, mesh size, etc.), and the size distribution of landed species.

### Commercial Observer Program

On board observations of commercial estuarine gill nets, primarily set nets, occur through Program 466. Observers collect data on effort (soak time, net length, etc.), location fished, gear characteristics, size, and the fate (harvest, discard, etc.) of captured species. The Observer Program was born out of the need to estimate incidental takes of protected species such as sea turtles and Atlantic sturgeon in estuarine set nets per the Endangered Species Act Section 10 Incidental Take Permits (NMFS 2013, 2014). As a result, observations of runaround or drift gill nets are rare.

The following analysis and information are presented to characterize the striped mullet small mesh gill net fishery in North Carolina relative to time, area, configuration, and species composition of the harvested and discarded catch:

Data from 1994 through 2021 or 2017 through 2021 for these three programs were used to characterize the North Carolina striped mullet small mesh gill net fisheries depending on the analysis conducted. Using trip ticket data, trips where striped mullet were the species of highest abundance in landings were considered targeted striped mullet trips. These trips were then defined as either small mesh or large mesh. Basing analysis on trips where striped mullet are the presumed target species allows for results that describe the gear parameters associated with the directed striped mullet fishery (see NCDMF 2008 for further description of methodology). Once targeted mullet trips were identified, the method of fishing (set net, runaround gill net, or drift gill net), mesh size, and net length were characterized based on available fish house sampling data from 1994 through 2021 or 2017 through 2021 for each of the target species depending on the analysis conducted.



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Regional analysis of the striped mullet small mesh gill net fishery was investigated by county of landing. The coastal counties were grouped into regions using distinct area boundaries or clear differences in fishing practices (Figure 1.2). All other counties within the state with landings were grouped into the “other” region.

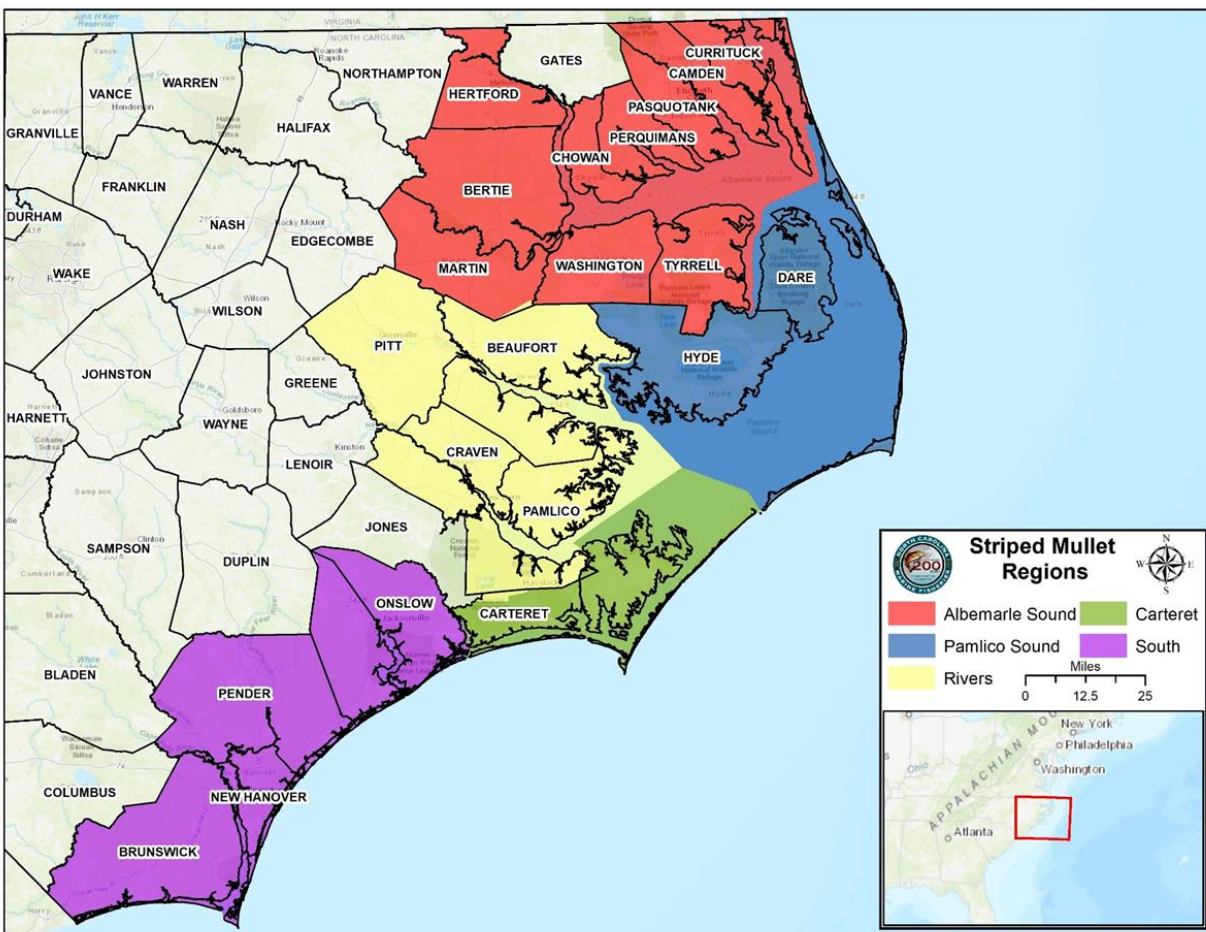


Figure 1.2. Map of defined regions used for regional characterization of the striped mullet small mesh gill net fishery.

## RESULTS

For information regarding characterization of small mesh gill nets across all fisheries in North Carolina please refer to the [Small Mesh Gill Net Rule Modifications Information Paper](#) presented to the MFC at its August 2021 business meeting.

### Striped Mullet Fishery General Characterization

Historically, beach seines and gill nets were the two primary gear types used in the striped mullet commercial fishery, with most commercial landings prior to 1978 coming from the beach seine fishery. Gill nets (runaround, set, and drift) replaced seines as the dominant commercial gear type in 1979 and since 2017 runaround gill nets have accounted for most (>70%) striped mullet commercial landings (Figure 1.3). Since the trip ticket program was initiated in 1994, the striped mullet fishery has shifted from a fairly even mix of set gill net and runaround gill net landings, to one strongly dominated by runaround gill net landings (Figure 1.4).

Because the commercial fishery primarily targets striped mullet for roe, the fishery is seasonal with the highest demand and landings occurring in October and November when large schools form during their spawning migration to the ocean and females are ripe with eggs (Figure 1.5). During this time, runaround gill nets are the primary gear used to harvest striped mullet. After the spawning migration striped mullet are no longer found in large aggregations, making runaround gill nets a less effective gear for harvest. Subsequently, from December through April set gill nets become a much more important gear used in the fishery (Figure 1.6). During this time, striped mullet may be harvested in set gill nets targeting the species, or as incidental catch in other targeted small mesh gill net fisheries such as white perch in the Albemarle Sound.

Mesh size is the most important gear parameter that affects the size of striped mullet caught in small mesh gill nets. As stretched mesh size increases, the average size of the striped mullet increases (Figure 1.7). Fishermen use stretched mesh sizes ranging from 2.75 ISM to 4.5 ISM to target striped mullet in North Carolina. This relationship between mesh size and size of striped mullet captured makes it feasible to use mesh size restrictions to protect or select for different sized striped mullet. Mesh size restrictions would be best used in conjunction with striped mullet size restrictions to ensure minimal discards. For more information on possible management applications of mesh size restrictions, see [Appendix 2. Sustainable Harvest Issue Paper](#).

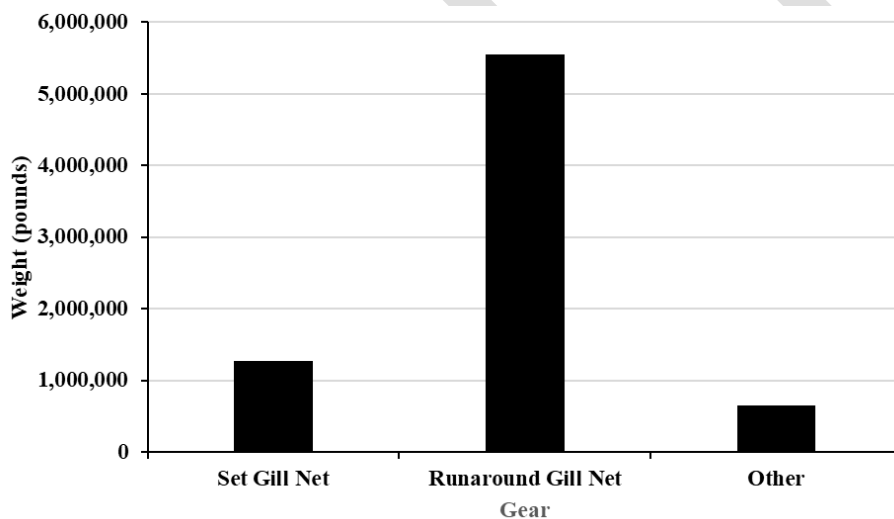


Figure 1.3. Percent of striped mullet commercial landings reported through the North Carolina Trip Ticket Program by gear, 2017–2021.

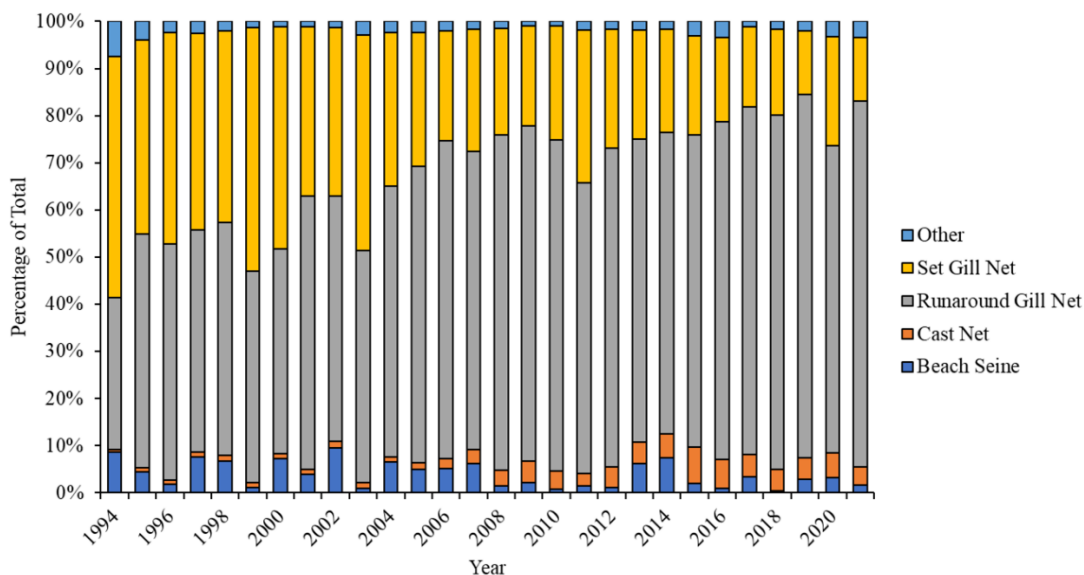


Figure 1.4. Percentage of striped mullet commercial landings by year and gear reported through the North Carolina Trip Ticket Program by gear, 1994–2021.

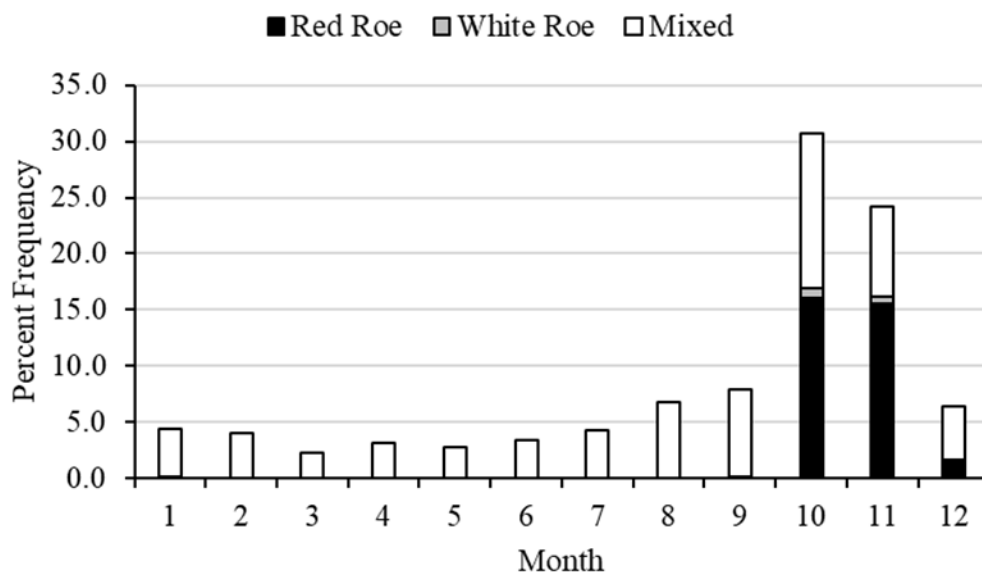


Figure 1.5. Percent frequency of striped mullet commercial landings by market grade and month, 2017-2021. Red Roe includes striped mullet graded as Red Roe and Roe. White Roe includes striped mullet graded as White Roe. Mixed includes striped mullet graded as Jumbo, Large, Medium, Mixed, Small, and X-Small.



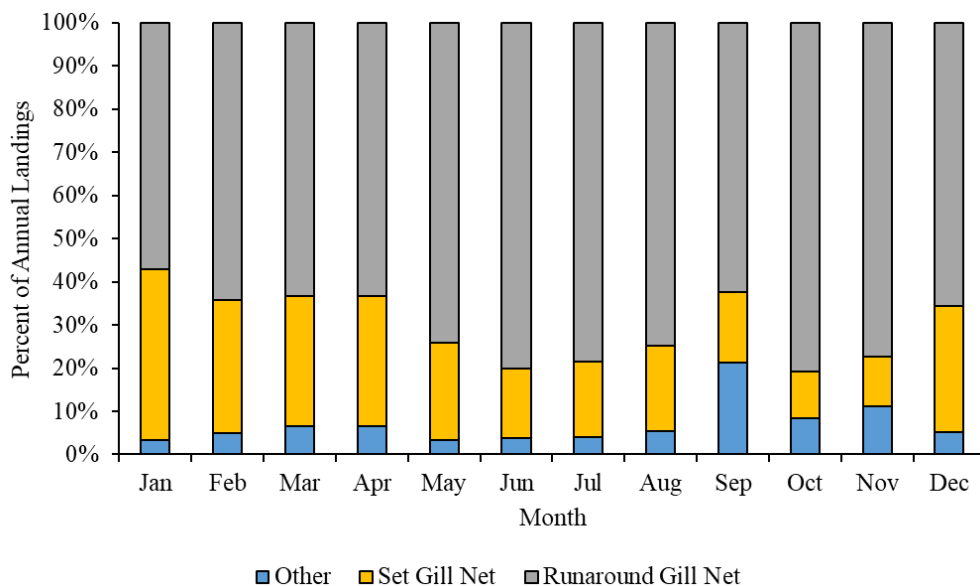


Figure 1.6. Percentage of striped mullet commercial landings by month and gear reported through the North Carolina Trip Ticket Program by gear, 2017–2021.

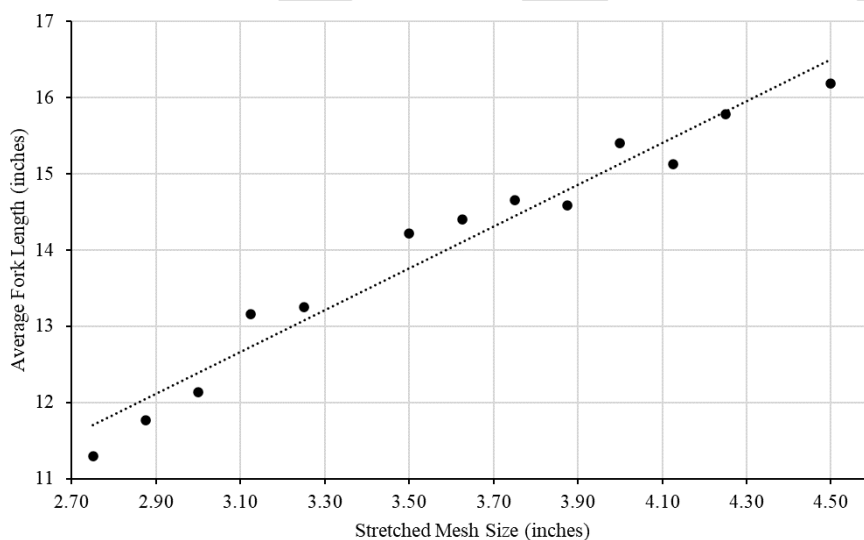


Figure 1.7. Relationship of stretched mesh size versus average fork length of striped mullet captured using data from the commercial fish house sampling program (1991-2021). A trendline and R squared value are provided for reference.

### Regional Characterization

In the mid-1990s, the striped mullet small mesh gill net fishery was split between the Pamlico Sound, Carteret, and South regions (Figure 1.8). Since then, the fishery has experienced an expansion and retraction in the Rivers region, a contraction in the South region, and a small expansion in the Albemarle Sound region. These shifts in regional contribution have led to a fishery that is currently dominated by the Pamlico Sound and Carteret regions. These two regions have made up over 70% of the total striped mullet small mesh gill net fishery since 2017. The expansion of the fishery in the Albemarle region has been largely driven by the development of a

small mesh set gill net fishery for white perch where striped mullet are primarily captured incidentally. Set gill nets make up over 80% of striped mullet landings in this region (Figure 9). Runaround gill nets strongly dominate the fishery in the rest of the state.

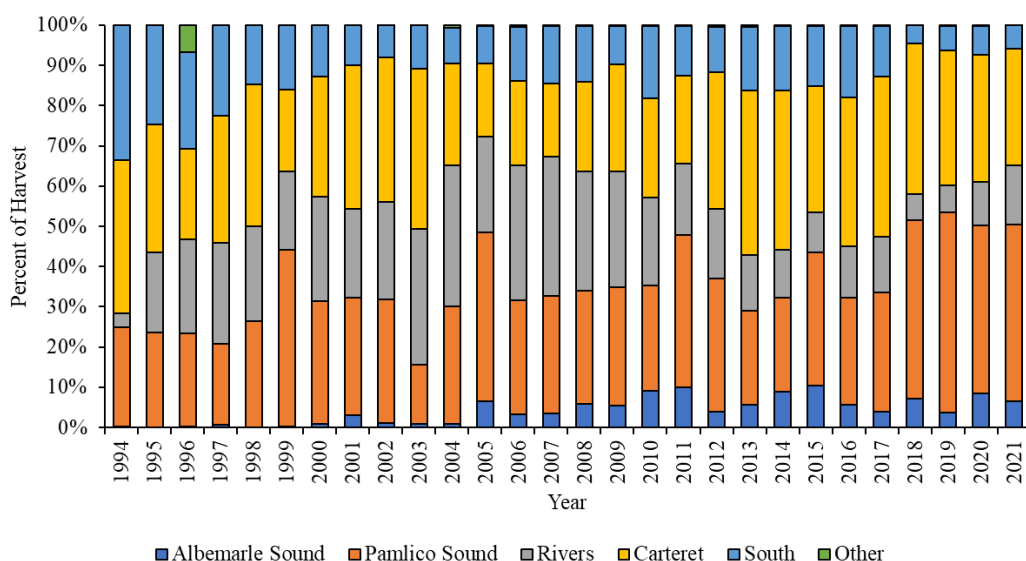


Figure 1.8. Percentage of striped mullet commercial landings by region and year reported through the North Carolina Trip Ticket Program, 1994–2021.

### Set gill nets

Striped mullet are the third most important species targeted in the North Carolina small mesh set gill net fishery behind bluefish and spotted seatrout (Figure 1.9). They make up the largest proportion of monthly set gill net trips in November and December.

Set small mesh gill nets are the second most common gear used to capture striped mullet (Figures 1.3 - 1.4) in North Carolina and are the dominant gear in the Albemarle Sound region (Figure 1.10). Striped mullet are primarily landed incidentally in the set gill net fishery. They are typically not targeted with set gill nets as they move around in schools that are more easily targeted with runaround gill nets. Since 1994 use of set gill nets to target striped mullet has declined as both trips made and participants in the fishery have waned (Figure 1.11). This decline in participants and trips matches well with the decreased landings and increase in runaround gill net dominance in the striped mullet fishery over the same time period.

Set gill nets tend to be a low volume fishery for striped mullet. The average trip lands just over 76 pounds of striped mullet (Figure 1.12). Nearly 60% of set gill net trips that target striped mullet land less than 100 pounds. However, the 42% of trips that land more than 100 pounds account for over 80% of the total set gill net landings (Figure 1.13). The modal mesh size used to catch striped mullet in the set gill net fishery was 3.5 ISM (Table 1.2). Average total net length was 567 yards, with a maximum of 3,000 yards. Over 45% of all set gill net trips fished more than 500 yards (Figure 1.14). For reference, small mesh gill nets are currently restricted to a maximum of 800 yards. Yardage restriction could be an effective way to reduce harvest in this fishery. Yardage restrictions would be best used in conjunction with trip limits to ensure minimal discards. For more information on possible management applications of set gill net yardage restrictions, see [Appendix 2](#).

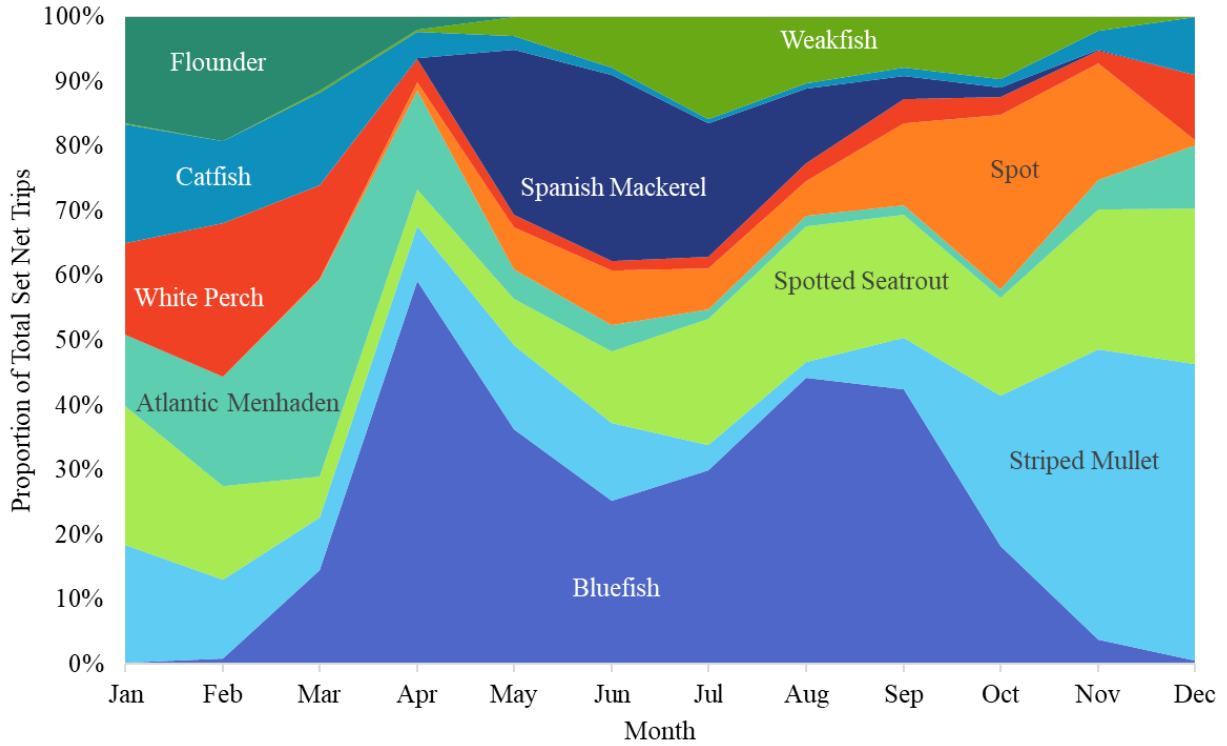


Figure 1.9. Percentage of total set gill net trips for each of the 10 primary target species across months in N.C. waters during 2017-2021.

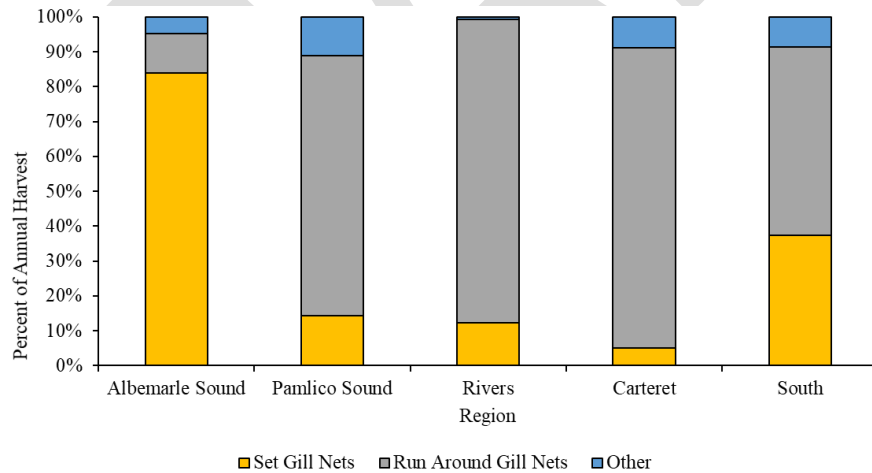


Figure 1.10. Percentage of annual striped mullet commercial landings by gear and area reported through the North Carolina Trip Ticket Program by gear, 2017-2021.

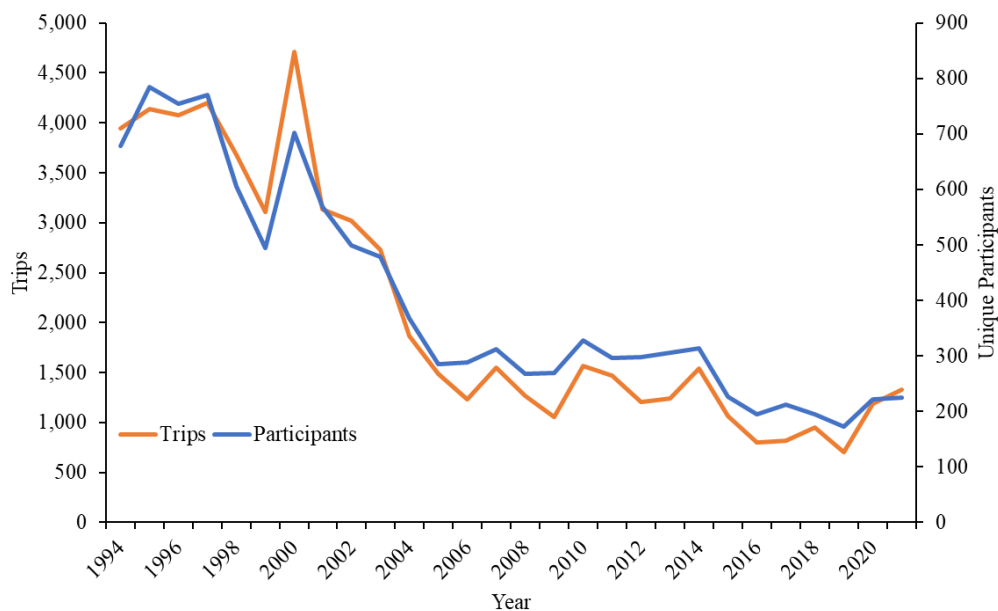


Figure 1.11. Targeted trips and participants in the set small mesh gill net striped mullet fishery by year reported through the North Carolina Trip Ticket Program by gear, 1994–2021.

Table 1.2. Small mesh (<5 inch ISM) set net trips in North Carolina using data from the N.C. Trip Ticket Program with associated gear characteristics from fish house, 2017-2021.

Species	Trips	Avg/Yr	Modal Mesh	Avg Yds	Max Yds
Striped mullet	14,282	2,856	3.5	567	3,000

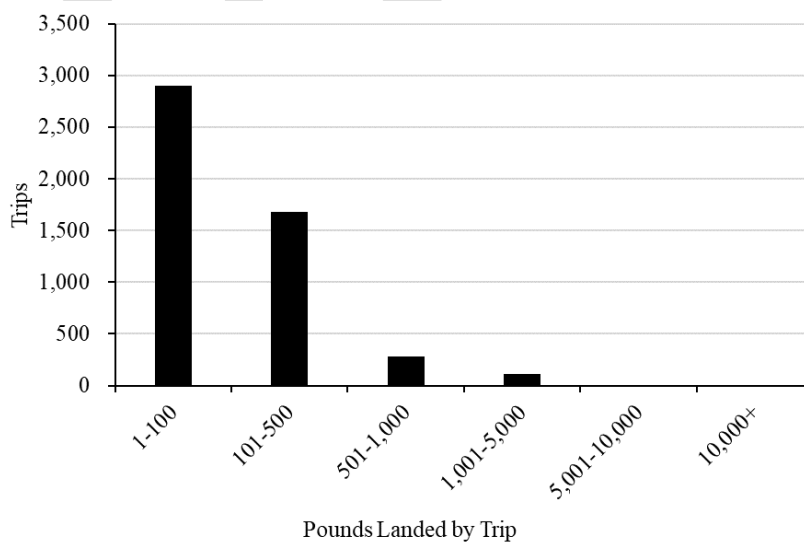


Figure 1.12. Number of targeted Trips grouped by pounds landed per trip in the set small mesh gill net striped mullet fishery reported through the North Carolina Trip Ticket Program by gear, 2017–2021.

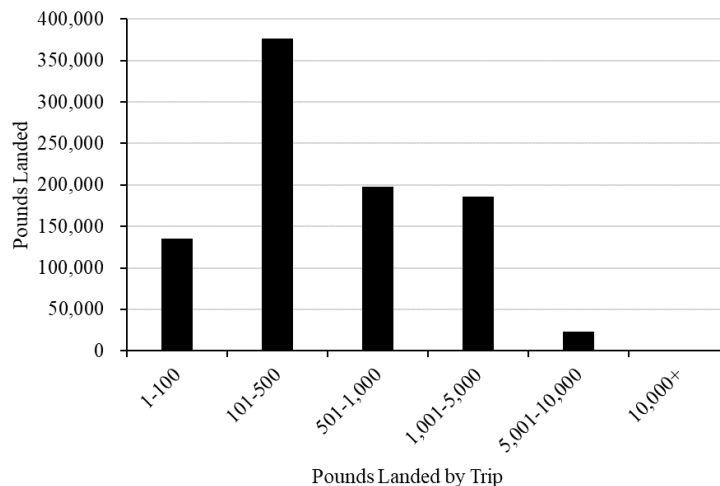


Figure 1.13. Total pounds landed grouped by pounds landed per targeted trip in the set small mesh gill net striped mullet fishery reported through the North Carolina Trip Ticket Program by gear, 2017–2021.

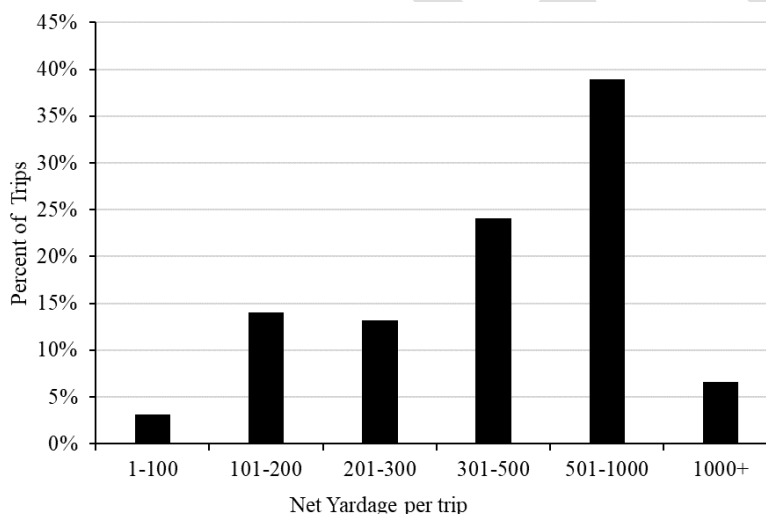


Figure 1.14. Percent of total trips grouped by yards fished per trip in the set small mesh gill net striped mullet fishery using data from the commercial fish house sampling program 2017–2021.

When targeting striped mullet with small mesh set gill nets, it is common to catch other species incidentally. The most common species landed incidentally when targeting striped mullet in set gill nets are spotted seatrout, red drum, catfish, bluefish, white perch, and gizzard shad (Figure 1.15). Conversely, striped mullet are most commonly caught incidentally when set gill net fishermen are targeting spotted seatrout, bluefish, and white perch (NC trip ticket data). This overlap between the striped mullet and spotted seatrout, bluefish, and white perch set gill net fisheries could have management implications for all these fisheries if gear restrictions are put in place to restrict striped mullet harvest.

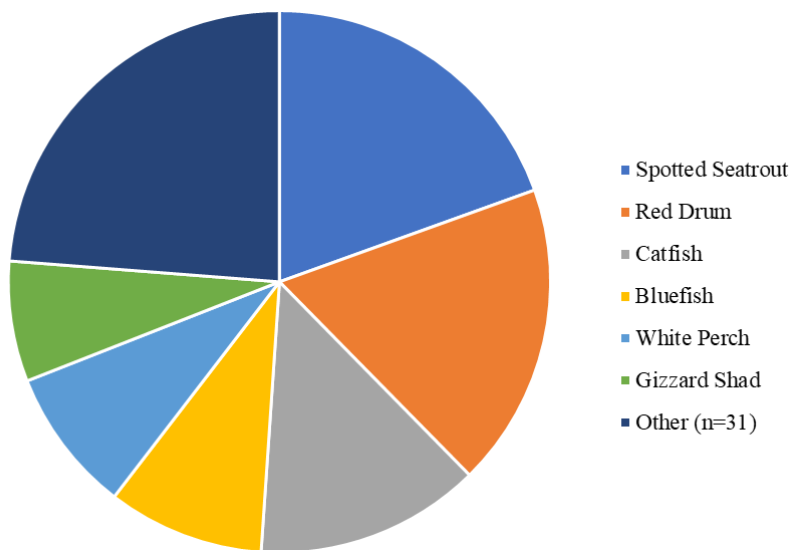


Figure 1.15. Proportion of incidental catch landed by species in the set small mesh gill net striped mullet fishery reported through the North Carolina Trip Ticket Program, 2017–2021.

Striped mullet discards in the set gill net fishery are difficult to characterize due to limited data but appear to be minimal based on observations from the commercial observer program. Of the over 9,500 striped mullet observed in set small mesh nets (2003-2021), only 49 fish were discarded. A discard rate of 0.5%. The low rate of striped mullet discards in the set small mesh fishery is likely due to there being no restrictions on their commercial harvest. Increased restrictions on striped mullet harvest could increase discards in this fishery. For more information on striped mullet bycatch in the set gill net fishery, please refer to the Striped Mullet Bycatch section of the Base Plan.

Discards of other species from striped mullet targeted small mesh set gill net trips could not be characterized due to limited data. Of the over 1,500 observed small mesh set net trips observed from the commercial observer program (2003-2021), only 35 striped mullet targeted trips have been observed. In those trips, eight managed species were discarded, including sheepshead, Atlantic menhaden, blue crab, horseshoe crab, croaker, bluefish, striped mullet, and red drum.

### Runaround Gill Nets

Striped mullet are the most important species targeted in the North Carolina runaround gill net fishery (Figure 1.16). Striped mullet make up the largest proportion of monthly runaround gill net trips from April to November and are second to spotted sea trout the rest of the year.

Runaround gill nets are the predominant gear used to catch striped mullet in North Carolina (Figures 1.3 - 1.4) and the dominant gear in every region except the Albemarle Sound (Figure 1.9). The runaround gill net fishery is much more targeted than the set net fishery and is the main gear used to catch striped mullet when they form their spawning aggregations in October and November. During this time, catches from runaround gill nets can be very high as fishermen target striped mullet for their valuable roe. Over 50% of the average yearly landings of striped mullet come from this two-month period. Since 1994 effort and participation in this fishery have remained relatively consistent until 2021 when a significant spike in both trips and participants was observed (Figure 1.17). This sudden increase could be due to fishermen shifting to the fishery from other more restricted fisheries.

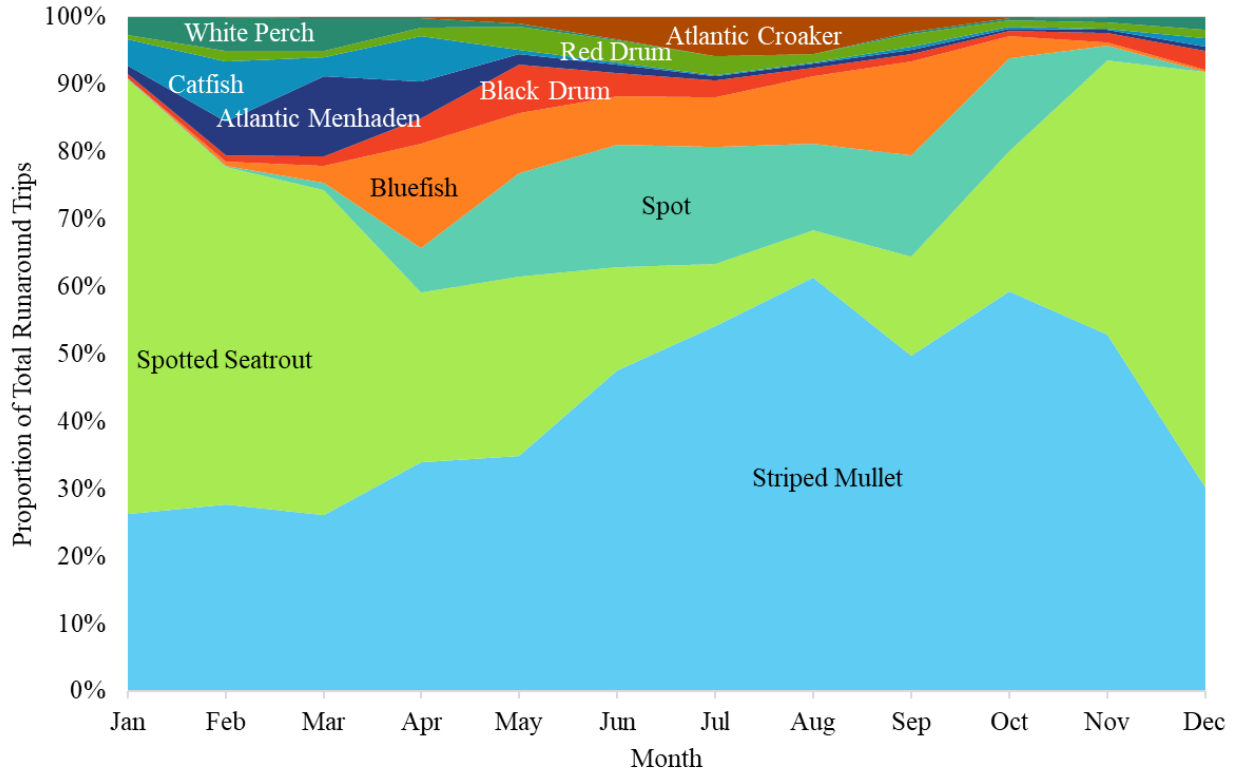


Figure 1.16. Percentage of total runaround gill net trips for each of the 10 primary target species across months in N.C. waters during 2017-2021.

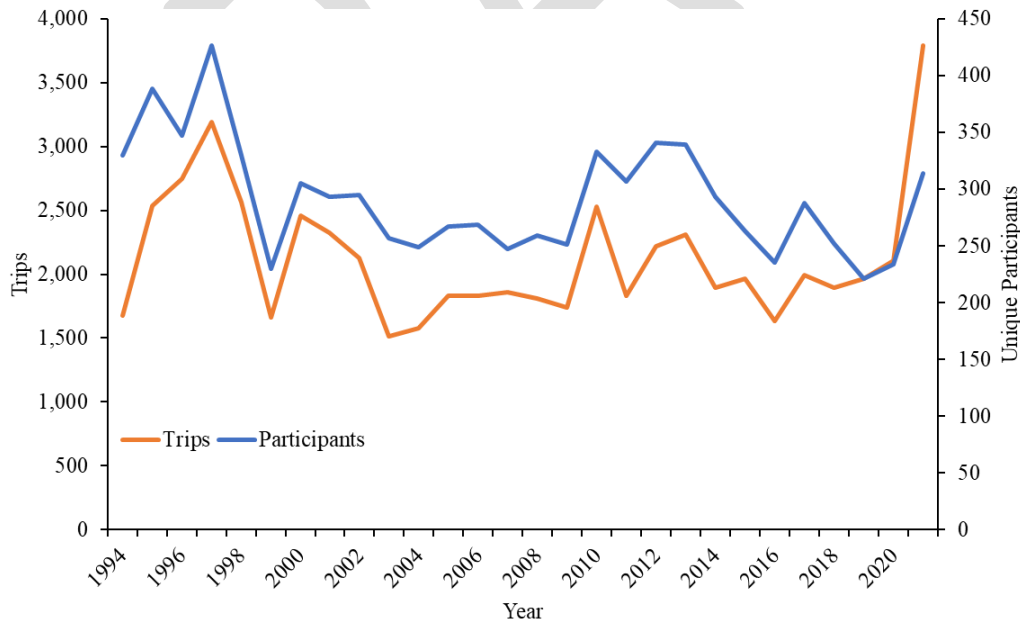


Figure 1.17. Targeted trips and participants in the runaround gill net striped mullet fishery by year reported through the North Carolina Trip Ticket Program by gear, 1994-2021.

Runaround gill nets are a higher volume fishery than set nets, with the average trip landing over 450 pounds (Figure 1.18). This is likely due to runaround gill nets being a more targeted gear for striped mullet. Most trips that target striped mullet land less than 500 pounds of mullet. However, the 12% of trips that catch over 1,000 pounds account for over 50% of total landings from runaround gill nets (Figure 1.19).

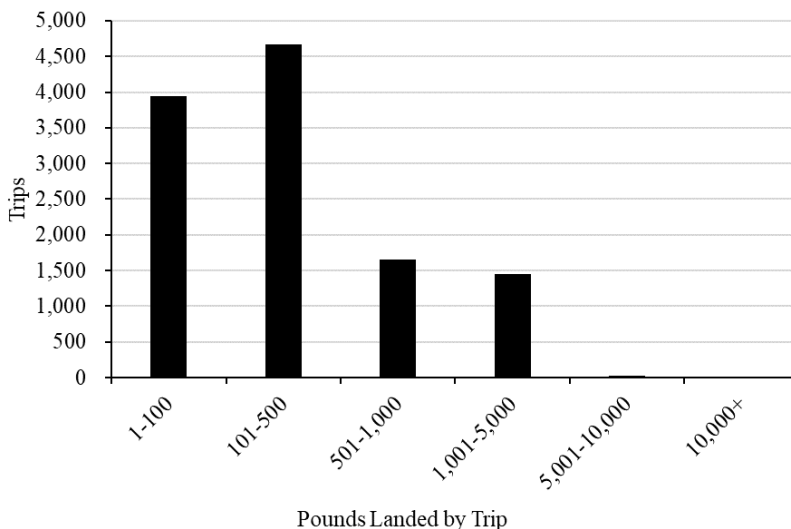


Figure 1.18. Number of targeted trips grouped by pounds landed per trip in the runaround gill net striped mullet fishery reported through the North Carolina Trip Ticket Program by gear, 2017–2021.

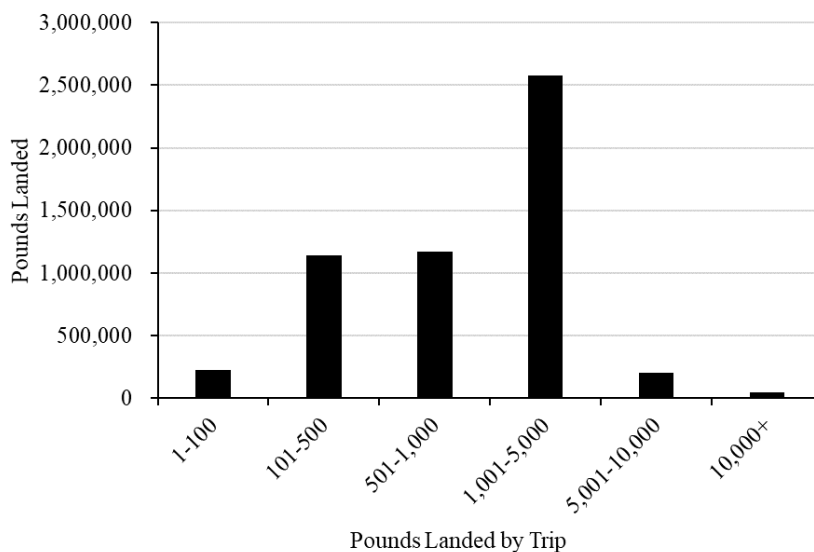


Figure 1.19. Total pounds landed grouped by pounds landed per targeted trip in the runaround gill net striped mullet fishery reported through the North Carolina Trip Ticket Program by gear, 2017–2021.

Runaround gill nets have a higher modal mesh size (3.75 ISM) than set small mesh gill nets (3.5 ISM; Table 1.3). This is likely due to most runaround gill net trips occurring in October and November during the roe season when fishermen are targeting larger females. The average net



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length is 366 yards with a maximum of 1,000 yards, with nearly half of all trips setting less than 300 yards of net (Figure 1.20). Runaround gill nets tend to be much shorter than set gill nets because runaround gill nets are actively fished to encircle schools of striped mullet. This allows for much less yardage needed to catch the fish than the passively fished set gill nets. Since the gill nets are already significantly shorter, and nets can be fished several times consecutively, maximum yardage restrictions may not be effective in managing harvest in this fishery. For more information on possible management applications of runaround gill net yardage restrictions, see [Appendix 2](#).

Table 1.3. Small mesh (<5 inch ISM) runaround gill net trips in North Carolina using data from the N.C. Trip Ticket Program with associated gear characteristics from fish house, 2017-2021.

Species	Trips	Avg/Yr	Modal Mesh	Avg Yds	Max Yds
Striped mullet	20,763	4,153	3.75	366	1,000

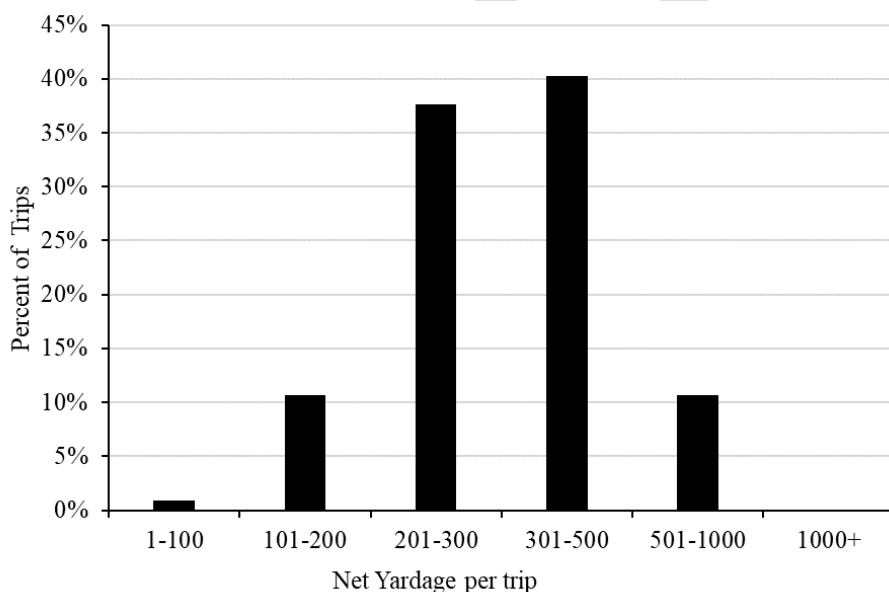


Figure 1.20. Percent of total trips grouped by yards fished per trip in the set small mesh gill net striped mullet fishery using data from the commercial fish house sampling program 2017–2021.

When targeting striped mullet with runaround gill nets, it is common to catch other species incidentally. The most common species landed incidentally when targeting striped mullet in set gill nets are spotted seatrout, red drum, bluefish, spot, black drum, and blue crab (Figure 1.21). Conversely, striped mullet are most commonly caught incidentally when runaround gill net fishermen are targeting spotted seatrout, bluefish, and spot (NC trip ticket data). This overlap between the striped mullet and spotted seatrout, bluefish, and spot runaround gill net fisheries could have management implications for all these fisheries if gear restrictions are put in place to restrict striped mullet harvest.

No data is available to characterize discards in this fishery because the commercial observer program does not observe runaround gill net trips.

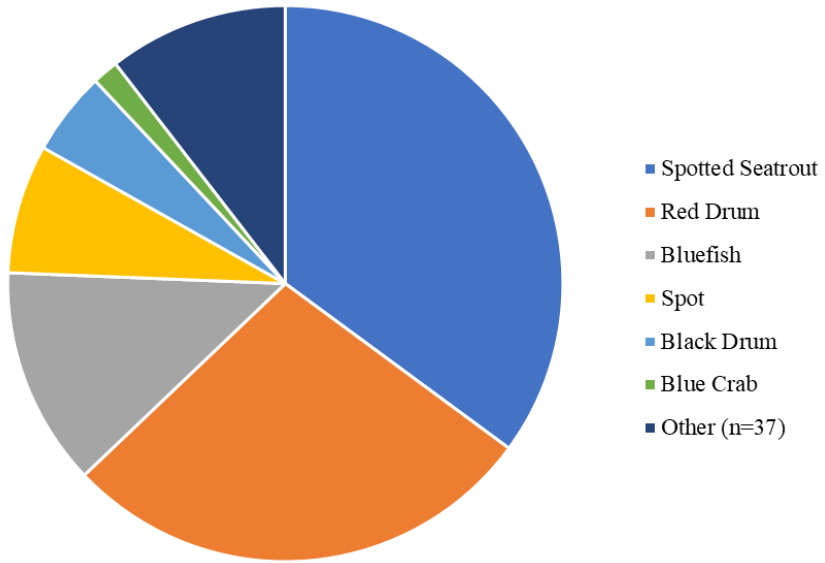


Figure 1.21. Proportion of incidental catch landed by species in the runaround net striped mullet fishery reported through the North Carolina Trip Ticket Program, 2017–2021.

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### Appendix 2: Achieving Sustainable Harvest in the North Carolina Striped Mullet Fishery

#### **Issue**

Implement management measures to achieve sustainable harvest in the North Carolina striped mullet fishery.

#### **Origination**

DMF

#### **Background**

The North Carolina striped mullet stock is overfished with overfishing occurring in 2019, the terminal year of the [stock assessment](#) (NCDMF 2022a). The observed data and model predictions suggest a decreased presence of larger, older striped mullet in the population. The model estimated declining trends in age-0 recruitment and female SSB over the last several decades. Model results also indicate consistent overestimation of biomass and the greatest risk for overfishing.

The stock assessment model estimated a value of 0.37 for the  $F_{25\%}$  threshold and a value of 0.26 for the  $F_{35\%}$  target. In 2019  $F$  was 0.42, greater than the  $F_{25\%}$  threshold, indicating overfishing is occurring (Figure 5). The model estimated a value of 1,364,895 pounds for the  $SSB_{25\%}$  threshold and a value of 2,238,075 pounds for the  $SSB_{35\%}$  target. Female SSB in 2019 was estimated at 579,915 pounds, lower than the  $SSB_{25\%}$  threshold, indicating the stock is overfished (Figure 6).

North Carolina General Statute 113-182.1 states that fishery management plans shall: 1) specify a time period not to exceed two years from the date of adoption of the plan to end overfishing, 2) specify a time period not to exceed 10 years from the date of adoption of the plan for achieving sustainable harvest, and 3) must also include a standard of at least 50% probability of achieving sustainable harvest for the fishery. Sustainable harvest is defined in North Carolina General Statute 113-129 as “the amount of fish that can be taken from a fishery on a continuing basis without reducing the stock biomass of the fishery or causing the fishery to become overfished”.

Stock recovery is highly dependent on age-0 recruitment. The 2022 stock assessment indicates recruitment has not only declined but has been below average since 2009 (Figure 2.1). Stock projections based on the stock assessment indicate a conservative, 21.3-35.4% reduction in commercial removals is needed to rebuild spawning stock biomass to a sustainable level. If low recruitment continues, female SSB is never projected to reach the SSB target at a 21.3-35.4% harvest reduction. A 21.3-35.4% reduction in commercial removals is projected to, at a minimum, rebuild SSB to the threshold even if low recruitment continues (Figures 2.2-2.3). Assuming average recruitment, a 21.3% reduction in commercial removals rebuilds SSB to the target in eight years with a 78% probability of success and a 35.4% reduction in commercial removals rebuilds SSB to the target in four years with a 100% probability of success (Table 2.1). Either reduction scenario meets the statutory requirement to achieve sustainable harvest with at least a 50% probability of success. A 9.9% reduction in total removals reduces  $F$  to the  $F$  threshold and a 33% reduction reaches the  $F$  target.

In response to stock assessment results the MFC adopted [Supplement A to Amendment 1 to the Striped Mullet FMP](#) in May 2023 to end overfishing (NCDMF 2023). Supplement A established season closures for the striped mullet commercial and recreational fisheries with the goal of achieving a 21.7% reduction in harvest relative to 2019 commercial landings, ending overfishing and beginning to rebuild the stock (see Season Closure section of this issue paper for additional

information). Supplement A management will remain in place until adoption of Amendment 2 to the Striped Mullet FMP.

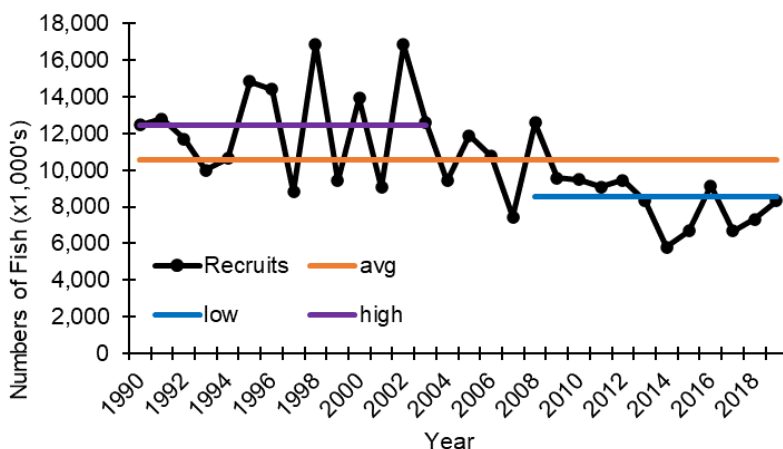


Figure 2.1. Estimates of striped mullet recruitment from the 2022 striped mullet stock assessment (NCDMF 2022). Average recruitment is the average number of recruits from 1990 to 2019, high recruitment is the average number of recruits from 1990 to 2003, and low recruitment is the average number of recruits from 2008 to 2019.

Table 2.1. Number of years to reach the  $SSB_{Target}$  and  $SSB_{Threshold}$  with probability of success in parentheses at 21.3% and 35.4% reduction in commercial removals assuming low and average recruitment. Removals assumed are in comparison to removals in 2019. Both reduction scenarios end overfishing.

Reduction	Recruitment Assumption	number Years from 2024		Removals Assumed (lb)
		Reach Target	Reach Threshold	
21.3%	Low	Never (0%)	7 (68%)	1,072,538
	Average	8 (78%)	2 (100%)	1,072,538
35.4%	Low	Never (0%)	3 (99%)	880,418
	Average	4 (100%)	2 (100%)	880,418

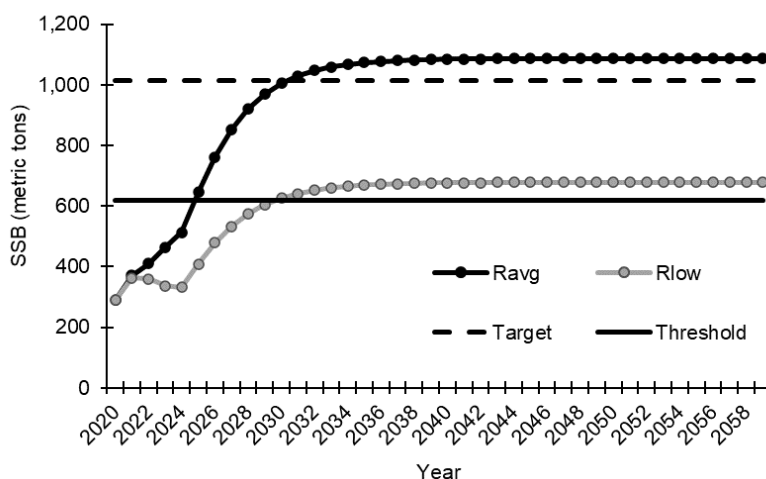


Figure 2.2. Projected striped mullet spawning stock biomass at various recruitment levels (average and low) compared to the  $SSB_{Target}$  (dashed line) and  $SSB_{Threshold}$  (solid line) assuming a 21.3% reduction in commercial removals.

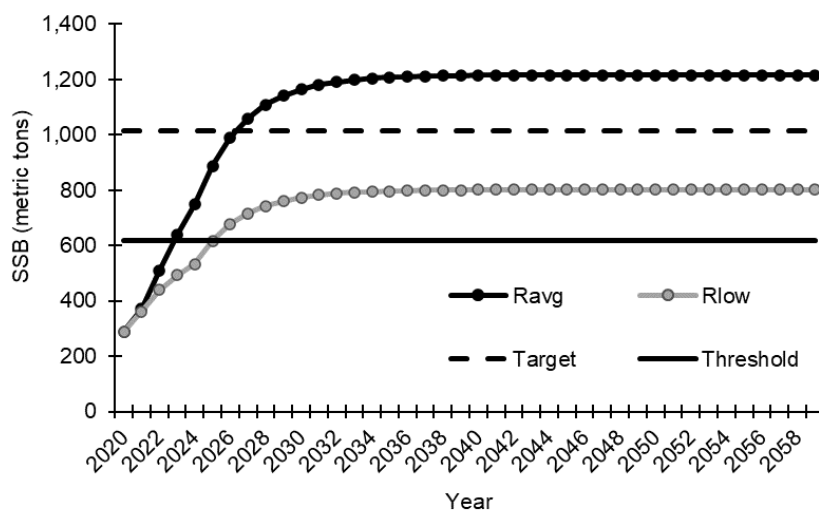


Figure 2.3. Projected striped mullet spawning stock biomass at various recruitment levels (average and low) compared to the  $SSB_{Target}$  (dashed line) and  $SSB_{Threshold}$  (solid line) assuming a 35.4% reduction in commercial removals.

Several management tools are available to achieve sustainable harvest in the striped mullet fishery. This discussion includes specific quantifiable management measures projected to meet the required harvest reductions to rebuild the striped mullet stock and fulfill the statutory requirements. Several management tools, including combinations of management measures, were explored including size limits, seasonal closures, day of week closures, trip/creel limits, gear restrictions, and seasonal catch limits. To establish context for small mesh gill net management options to support sustainable harvest options, [Appendix 1: Small Mesh Gill Net Characterization in the North Carolina Striped Mullet Fishery](#) provides a comprehensive review of the small mesh gill net fishery for striped mullet.

Discussion of sustainable harvest primarily focuses on reductions in the commercial fishery, where most striped mullet harvest occurs. Because of recreational harvest data limitations, harvest reductions from any specific management measure cannot be calculated. In 2019, recreational striped mullet harvest accounted for 1.7% of total harvest and accounted for 4.2% of total harvest from 1994-2019. While recreational harvest is not expected to have significant impacts on stock status (NCDMF 2022), management measures discussed in this issue paper could apply to the recreational sector. Additional information about the recreational fishery for striped mullet and potential recreational specific management measures can be found in the [2022 stock assessment](#) (NCDMF 2022) and [Appendix 3: Characterization and Management of the North Carolina Recreational Striped Mullet Fishery](#).

Because recreational harvest reductions cannot be quantified due to data limitations, sustainable harvest reduction calculations are based solely on commercial striped mullet landings (Table 2.2). All management options represent the percent reduction to commercial harvest relative to commercial landings in 2019 (terminal year of the stock assessment). While a 9.3% reduction does end overfishing, it does not rebuild SSB to the threshold and cannot be considered for long-term management of the stock.

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Table 2.2. Commercial harvest reduction necessary to end overfishing and rebuild the stock. Target landings are 2019 commercial landings reduced by the given percentage. \*Does not meet statutory requirement to rebuild stock.

Commercial Harvest Reduction (%)	Target Landings (pounds)
9.9*	1,227,358*
21.3	1,072,065
35.4	879,992

### Authority

N.C. General Statute  
G.S. 113-134 RULES  
G.S. 113-182 REGULATION OF FISHING AND FISHERIES  
G.S. 113-182.1 FISHERY MANAGEMENT PLANS  
G.S. 113-221.1. PROCLAMATIONS; EMERGENCY REVIEW  
G.S. 143B-289.52 MARINE FISHERIES COMMISSION-POWERS AND DUTIES

N.C. Rule  
15A NCAC 03M .0502 MULLET  
15A NCAC 03H .0103 PROCLAMATIONS, GENERAL

### Discussion

The discussion below includes specific management measures that were both quantifiable and projected to meet the striped mullet harvest reduction. Reductions are based on the terminal year of the stock assessment (2019) and achieve sustainable harvest within 10 years with at least a 50% probability of success. Several management tools explored include: size limits, season closures, trip limits, day of week closures, combinations of measures, stop net management, seasonal catch limits, area closures, limited entry, and adaptive management.

#### Size Limits

Throughout this section, unless otherwise stated, all lengths are fork length (FL), which is a measurement of the fish from tip of snout to the fork in the tail.

Size limits are a common management tool to focus harvest on specific size and age classes of a fish stock. Management objectives and species life histories help managers determine what size limits should be implemented. By setting a minimum size limit based on length at maturity, managers can ensure a portion of the females in the stock have a chance to spawn at least once before harvest. In North Carolina, the length at 50% maturity (L50) for female striped mullet is 319 mm (12.6 inches; NCDMF 2021), and the length where 100% of the females are mature is 367 mm (14.4 inches; Bichy 2004). Striped mullet at 367 mm are as young as age-1 but more commonly are age-2. Other states with striped mullet fisheries, including Florida and Texas, use some form of a size limit to restrict harvest. Florida has an 11-inch minimum size in their commercial fishery with an allowance for 10% of the total weight possessed to be undersized. Texas has a 12-inch maximum size limit in both their recreational and commercial striped mullet fisheries during October, November, December, and January. A maximum size limit during the fall and early winter prevents harvest of the largest spawning fish.

Increasingly, minimum size limits are being re-evaluated as a conservation measure for fish stocks (Ahrens et al. 2019; Coggins et al. 2007; Garcia et al. 2012; Gwinn et al. 2013). While

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minimum size limits are considered a good strategy for meeting some management objectives, sustainability may not be met through minimum size limits alone because minimum size limits often create additional discards and larger, older fish typically contribute disproportionately more to spawning success. For striped mullet, fish in the 300-350 mm size range (11.8-13.8 inches) are estimated to produce 551,105 to 984,000 eggs per individual whereas fish greater than 400 mm (15.7 inches) can produce upward of 2 million eggs (Table 2.3; Leard et al. 1995).

In North Carolina all sizes of striped mullet are targeted commercially and recreationally. Recreational and commercial fisheries use cast nets to target small striped mullet, or “finger mullet”, for use as live bait. “Finger mullet” typically range from 70-140 mm (2.8-5.5 inches; NCDMF 2006, 2022a). Commercial fisheries harvest larger striped mullet ranging from 229-508 mm FL (9-20 inches; Figure 2.4). These fish are typically harvested for use as food, cut bait, or for roe. All sizes of striped mullet are targeted by commercial fisheries throughout the year to meet market demand for food and bait, but the size of striped mullet harvested begins to increase in September, with the largest striped mullet consistently captured in October and November as larger fish become available to the fishery and demand for roe increases (Tables 2.4-2.5; Figure 2.5). During October and November, the largest striped mullet are targeted by the roe fishery because larger fish have a higher roe content than smaller fish and a narrower size range of fish are harvested.

Table 2.3. Striped mullet fecundity estimates by size from Leard et al. (1995).

Fork Length (mm)	Fork Length (inches)	Average Fecundity (number of eggs)	
		Mahmoudi (1990)	J. Render (personal communication)
300-350	11.8-13.8	984,000	551,104
350-400	13.8-15.7	1,493,000	913,456
400-450	15.7-17.7	2,152,000	1,077,163
450-500	17.7-19.7	2,979,000	2,960,897 <sup>1</sup>
500-550	19.7-21.7	3,992,000	2,269,251

<sup>1</sup>Figure may be overestimated because average was obtained from only two samples, 491 and 495 mm FL.

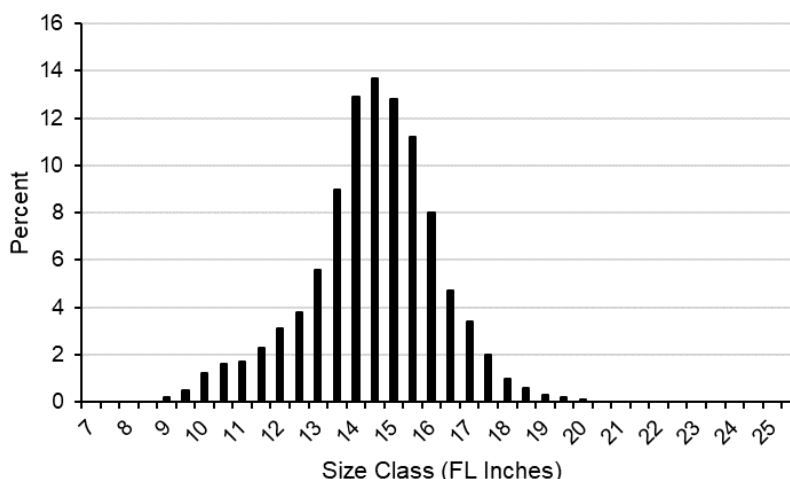


Figure 2.4. Length-frequency of striped mullet harvested in North Carolina commercial fisheries based on commercial fish house sampling, 2017-2021.

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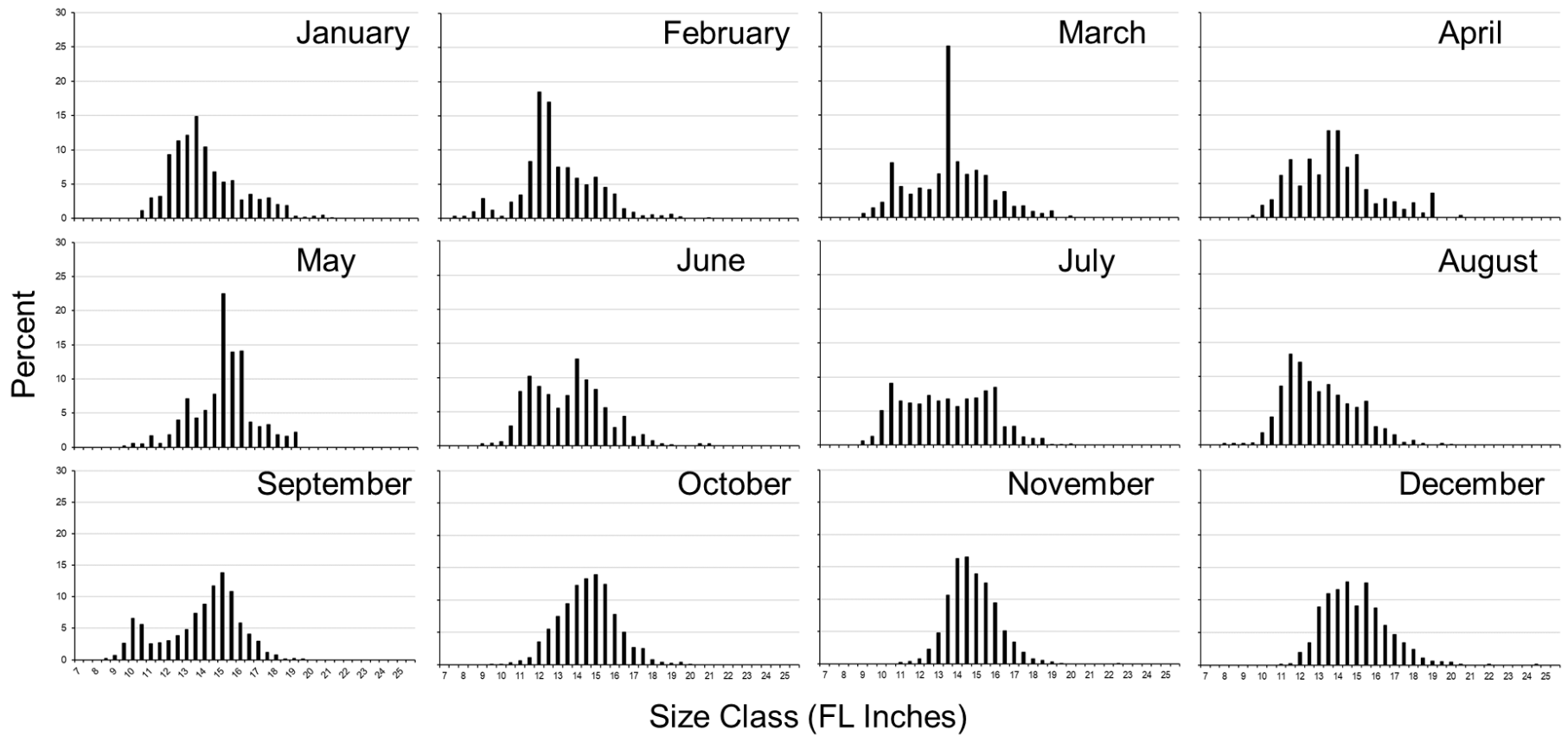


Figure 2.5. Length-frequency (inches) of striped mullet harvested in North Carolina commercial fisheries by month based on commercial fish house sampling, 2017-2021.



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Table 2.4. Length-frequency (inches) of striped mullet harvested in North Carolina commercial fisheries by month based on commercial fish house sampling, 2017-2021. Shaded area represents modal length.

Size Class (inches)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.5	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
8.5	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0
9.0	0.0	2.9	0.6	0.0	0.0	0.3	0.6	0.2	0.7	0.0	0.0	0.0
9.5	0.0	1.2	1.4	0.3	0.2	0.4	1.3	0.3	2.6	0.1	0.0	0.0
10.0	0.0	0.3	2.2	1.8	0.6	0.6	5.1	1.8	6.6	0.1	0.0	0.0
10.5	1.1	2.4	8.0	2.6	0.5	2.9	9.1	4.1	5.6	0.3	0.0	0.0
11.0	3.0	3.4	4.5	6.2	1.7	8.0	6.5	8.6	2.5	0.6	0.2	0.1
11.5	3.2	8.3	3.4	8.5	0.6	10.2	6.2	13.3	2.7	1.1	0.4	0.2
12.0	9.3	18.5	4.3	4.6	1.8	8.7	6.0	12.1	3.0	3.5	0.8	1.9
12.5	11.3	17.0	4.1	8.6	4.0	7.5	7.3	9.3	3.8	5.5	2.3	3.4
13.0	12.1	7.5	6.4	6.3	7.1	5.5	6.5	7.8	4.8	7.5	4.8	8.9
13.5	14.9	7.4	25.1	12.7	4.3	7.4	6.8	8.8	7.4	9.4	10.6	11.0
14.0	10.4	5.9	8.2	12.7	5.4	12.7	5.7	7.3	8.8	12.3	16.3	11.6
14.5	6.8	4.9	6.3	7.4	7.8	9.7	6.8	6.0	11.7	13.3	16.5	12.8
15.0	5.3	6.0	6.9	9.2	22.5	8.3	6.9	5.5	13.8	13.9	13.9	9.1
15.5	5.5	4.5	6.2	4.1	13.9	5.6	8.0	6.4	10.8	12.4	12.5	12.6
16.0	2.7	3.6	2.5	2.0	14.1	2.7	8.5	2.7	5.8	7.8	9.4	8.8
16.5	3.5	1.4	3.8	2.8	3.7	4.3	2.7	2.4	4.1	5.0	5.1	6.1
17.0	2.8	0.9	1.6	2.3	3.0	1.4	2.8	1.5	2.9	2.7	3.4	4.7
17.5	3.0	0.4	1.7	1.2	3.3	1.7	1.2	0.4	1.2	2.5	1.8	3.4
18.0	2.0	0.5	0.9	2.2	1.8	0.8	1.0	0.7	0.8	0.8	0.8	2.4
18.5	1.9	0.4	0.6	0.7	1.6	0.3	1.0	0.2	0.1	0.4	0.5	1.1
19.0	0.3	0.6	1.0	3.6	2.2	0.2	0.1	0.0	0.2	0.2	0.3	0.6
19.5	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.4	0.1	0.5
20.0	0.3	0.0	0.2	0.0	0.0	0.0	0.2	0.1	0.0	0.1	0.0	0.4
20.5	0.5	0.0	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1
21.0	0.1	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
21.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
22.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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Table 2.5. Length-frequency (inches FL) of striped mullet harvested in North Carolina commercial fisheries by month based on commercial fish house sampling, 2019. Shaded area represents modal length.

Size Class (inches)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.1	0.2	0.0
10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.2	0.3	0.0	0.0	0.0
10.5	0.0	0.0	0.0	0.0	0.0	0.0	3.9	4.0	0.1	0.0	0.0	0.0
11.0	0.0	0.0	0.0	0.1	0.0	0.0	3.0	12.7	0.5	0.1	0.0	0.0
11.5	0.0	0.0	0.0	0.5	0.0	0.0	6.9	22.3	0.1	0.1	0.1	0.0
12.0	0.0	0.0	0.0	1.0	0.0	0.5	3.5	21.5	1.9	0.2	0.1	0.6
12.5	0.0	0.0	0.0	2.7	0.0	4.2	9.2	14.0	6.6	1.0	1.4	0.7
13.0	2.3	0.0	0.0	6.1	0.0	0.9	6.8	6.6	7.6	4.0	3.7	8.7
13.5	19.7	4.1	100.0	15.2	0.0	9.1	11.9	2.1	10.5	8.4	7.8	9.4
14.0	30.2	16.9	0.0	11.4	0.0	11.0	8.8	2.7	10.7	15.4	15.4	12.0
14.5	12.9	8.7	0.0	9.3	0.0	19.8	5.6	1.0	14.0	14.9	15.1	12.3
15.0	9.1	33.1	0.0	18.0	50.0	9.7	5.7	2.4	22.0	13.1	15.4	16.6
15.5	6.1	20.7	0.0	7.6	25.0	10.3	11.6	2.4	14.3	15.7	15.9	12.9
16.0	2.7	8.3	0.0	3.1	25.0	4.0	9.4	2.2	4.2	8.6	11.1	10.6
16.5	1.5	8.3	0.0	7.9	0.0	20.3	3.7	2.0	5.0	8.2	6.0	4.5
17.0	1.5	0.0	0.0	4.7	0.0	3.1	2.1	2.0	0.9	3.7	2.8	1.6
17.5	2.7	0.0	0.0	4.4	0.0	3.9	3.6	1.1	0.0	3.4	2.5	3.1
18.0	2.7	0.0	0.0	4.0	0.0	3.1	0.0	0.4	0.7	1.4	0.7	1.4
18.5	3.1	0.0	0.0	3.1	0.0	0.0	0.0	0.2	0.0	0.6	0.8	2.4
19.0	1.1	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.5	0.4	0.8
19.5	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7	0.6	0.1	1.2
20.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
20.5	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
21.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
22.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
22.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

On its own, implementation of a minimum size limit set at the L50 for striped mullet would be unlikely to meet sustainability objectives and would eliminate the bait fishery for finger mullet. Striped mullet less than L50 size (12.6 inches) are captured in commercial fisheries during every month, and in some months make up significant portions of the commercial catch. Generally, striped mullet reach length at maturity in the estuary before migrating offshore to spawn. If a minimum size limit based on the L50 was implemented, striped mullet would reach harvestable size before spawning, resulting in little conservation benefit. As an example, implementing a minimum size limit of 12.5 inches would appear to reduce harvest by around 14.5% (Table 2.6). However, overall harvest would likely not be reduced by that amount because harvest would likely be delayed until those fish reach harvestable size, preventing achieved harvest reductions and

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minimizing conservation benefit. In addition, minimum size limits would likely increase discards if gear modifications and changes in fishery behavior did not also occur.

Implementing a maximum size limit or seasonal maximum size limit, like what is done in Texas, would reduce harvest and provide additional non-quantifiable benefits to the stock. Unlike minimum size limits, a maximum size limit would not cause delayed harvest or recoupment of catch, once a fish reached the maximum size limit it could not be harvested. While there is little information to inform an ideal maximum size limit (Texas has a 12-inch maximum size limit during October-January), as an example, a 15-inch maximum size limit could reduce harvest by 39.8% compared to commercial landings from 2017-2021 (Table 2.6) and would have reduced commercial landings by 49% in 2019.

A maximum size limit, focused on the spawning season (October-December), would have a more direct impact on the spawning stock. As an example, implementing a 15-inch maximum size limit during the spawning season could reduce overall commercial harvest by 27.0% compared to landings from 2017-2021, while continuing to allow significant harvest of smaller roe size striped mullet (Table 2.6). An October-November 15-inch maximum size limit would have reduced harvest up to 33% in 2019. This type of harvest control would likely result in quantifiable harvest reductions and have nonquantifiable benefits to the stock by allowing larger females, that produce more eggs, to spawn while allowing the roe fishery to occur. While discards would likely occur during the spawning season, discards would be lower outside of the spawning season. In addition, because of market demands the largest striped mullet are generally not targeted outside of the spawning season so it is unlikely effort would shift to larger fish earlier in the season. However, a seasonal maximum size limit during the fall would negatively affect the roe fishery, which targets large fish with a high roe content.

Slot limits should not be considered in the striped mullet fishery. Implementation of a harvest slot would exclude “finger mullet” and large roe mullet from harvest. This type of measure would not allow for the fish to be used in the same way they are used currently and may have little conservation benefit because peak harvest already occurs on a narrow range of sizes. A protected slot would direct more harvest to larger fish and would likely prevent significant amounts of harvest resulting in excessive discards.

Implementing a minimum or maximum size limit would need to be accompanied by corresponding changes to minimum or maximum mesh sizes used in gill nets to reduce dead discards. As illustrated in Appendix 1, the primary method for harvesting striped mullet is runaround gill nets with the most common mesh size of 3.75 inches stretched mesh (ISM; Table 1.3), but mesh sizes ranging from less than 3.0 ISM up to 4.5 ISM are used in the fishery. As an example, if a minimum size limit of 12.5 inches was implemented, a minimum mesh size of around 3.25 ISM would need to be adopted to minimize discards (Figure 1.7). If a maximum size limit of 15 inches was implemented, a maximum mesh size of around 4.0 ISM or 3.75 ISM would need to be adopted to minimize discards. If a maximum size limit is seasonal, the associated mesh size restrictions could also be seasonal and could apply to runaround gill nets only, all small mesh gill nets, or just gill net trips landing mullet. However, if additional mesh size restrictions are adopted there would likely be some impact to small mesh gill net fisheries targeting other species.

The striped mullet FMP Advisory Committee (AC) was not supportive of any type of size limit because striped mullet of all sizes are marketable. In addition, the AC cautioned that setting minimum or maximum mesh sizes in response to a size limit may increase overall harvest because of annual, seasonal, and regional variation in the size of striped mullet available to the fishery.

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Table 2.6. Example minimum, maximum and seasonal maximum size limit options (inches) and associated percent commercial harvest reduction based on fish house sampling, 2017-2021. Options that meet the needed 21.3-35.4% reduction in commercial harvest on their own are shaded in gray.

Size Limit Options (Inches FL)	
Minimum	Percent Reduction
12.5	14.5
13.0	20.4
13.5	27.2
14.0	37.2

Maximum	Percent Reduction
15.0	39.8
15.5	28.4
16.0	18.2
16.5	11.4
17.0	7.1
17.5	4.4
18.0	2.5
18.5	1.5
19.0	0.9
19.5	0.4

Oct-Dec Maximum	Percent Reduction
14.5	51.4
15.0	27.0
15.5	19.3
16.0	12.2
16.5	7.4
17.0	4.5
17.5	2.6
18.0	1.3
18.5	0.8
19.0	0.4
19.5	0.3

**Option 1: Size Limit Options**

- a. *Status Quo – Manage fishery without minimum or maximum size limits*
  - + Allows for continued use of all striped mullet size classes
  - + Does not increase discards
  - No preferential protection for largest fish
  
- b. *Minimum Size Limit and 3.25 ISM Minimum Gill Net Mesh Size*
  - + Could benefit the roe fishery later in the year
  - Prevents use of smaller mullet as bait
  - Unlikely to meet sustainability objectives
  - Allows for recoupage of catch
  - Directs harvest to biggest fish
  - Would need to implement corresponding minimum mesh size requirements
  - May increase harvest
  
- c. *Maximum Size Limit and 3.75 or 4.0 ISM Maximum Gill Net Mesh Size*
  - + Preferential protection for largest fish

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- + Would result in quantifiable harvest reductions
- + No recoupment of catch
- Prevents harvest of valuable larger fish
- Increased discards
- Would need to implement corresponding maximum mesh size requirements
- May increase harvest

### d. *Seasonal Maximum Size Limit and 3.75 or 4.0 ISM Maximum Gill Net Mesh Size*

- + Preferential protection for largest fish
- + Would result in quantifiable harvest reductions
- + No recoupment of catch
- + More directly protects the spawning stock
- + Increased discards would not occur prior to the spawning season
- Prevents harvest of valuable larger fish
- Increased discards
- Would need to implement corresponding seasonal maximum mesh size requirements
- May increase harvest

## Seasonal Closures

Season closures, specifically end of year season closures, are considered an effective and efficient management option to end overfishing of the striped mullet stock and rebuild SSB. In May 2023, the MFC adopted [Supplement A to Amendment 1 to the North Carolina Striped Mullet FMP](#). The intent of Supplement A is to end overfishing of the striped mullet stock. The Supplement implements regional season closures to reduce harvest by 21.7% in 2023 to end overfishing by reducing  $F$  to a level between the threshold and target. The anticipated harvest reduction from the season closures also begins to rebuild the stock to the target assuming average recruitment occurs. Additional information about season closures can be found in Supplement A. Options from the supplement are presented in this paper. Only options that meet the statutory requirement to end overfishing and rebuild the stock (21.3%-35.4%) are presented.

## Statewide Season Closures

Options 2.b and 2.c (Table 2.7) reduce commercial harvest enough to end overfishing and recover the stock. Any statewide season closure must occur no sooner than October 29 and continue through the end of the year to meet needed reductions.

## Region Specific Season Closures

To better account for the difference in management impact between the two regions, options for region specific season closures were developed. Options for region specific seasons are shown in Table 2.8. The split between the northern and southern regions was designated as the Highway 58 Bridge to Emerald Isle, including a line extending from the bridge to a point three miles offshore.

Table 2.7. End of year season closure options that reduce harvest to end overfishing and recover the stock. Supplement A included a third option which cannot be considered for Amendment 2 management since it does not recover the stock.

Option	Season Closure	Reduction	End Overfishing?	Recover Stock?
2.b*	October 29 - December 31	33.7	Yes, Target	Yes
2.c	November 7 - December 31	22.1	Yes, $F$ Below Threshold	Yes

\*Adding one more closure day exceeds 35.4% statutory reduction requirement

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Table 2.8. Management options to reduce commercial harvest to end overfishing and recover the stock by splitting the seasons between north and south. All reductions are calculated from 2019 commercial harvest levels (terminal year of stock assessment).

Option	Season Closure		Reduction	End Overfishing?	Recover Stock?
	North	South			
2.d	Oct. 28-Dec. 31	Oct. 30-Dec.31	35.6	Yes, Target	Yes
2.e	Nov. 7-Dec. 31	Nov. 10-Dec. 31	21.7	Yes, <i>F</i> Below Threshold	Yes

Options 2.d and 2.e (Table 2.8), which meet the reduction needed to end overfishing and recover the stock, provide up to three additional fishing days in the south without substantially reducing fishing days in the north. In 2019, there appeared to be minimal overlap in participation between the northern and southern regions. However, under a split season, where the north closes earlier than the south, effort could shift from north to south and expected harvest reductions may not be realized. The Striped Mullet FMP AC indicated the striped mullet fishery has highly mobile participants who move between regions following the fish and suggested it would be beneficial for management measures to be consistent statewide. In addition, AC members questioned the accuracy of waterbody locations recorded on trip tickets and expressed concern about using waterbody fished or county of landing to set regional specific seasons. While this concern is valid, the NC Trip Ticket Program continues to provide outreach and education to dealers about the importance of accurate trip tickets for fair and effective management. These season closure options assume an equal reduction for each region. However, additional options could be developed for scenarios where the amount of reduction is different between regions to allow the season to be extended in one region or the other.

Region specific closures were not considered using other regional splits because other splits are more likely to have overlap in participation and there is no clear delineation for different areas where the striped mullet commercial fishery operates in a different manner. The one exception may be the Albemarle Sound area, where low landings of striped mullet occur throughout the year but increase slightly in the winter. These landings occur incidentally to other small mesh gill net fisheries in the region, primarily the white perch fishery (see Appendix 1). However, most of these landings occur in January and February, months which are not being considered for striped mullet season closures. Because there is not a large directed striped mullet fishery in the Albemarle Sound region, creating a region-specific season closure in this area would likely be ineffective unless other fisheries were significantly impacted. No additional regional closure options were suggested or discussed by the AC.

The Striped Mullet FMP AC strongly disagreed with the use of statewide or regional season closures as a management measure to reduce harvest in the striped mullet fishery. AC members suggested putting a hard closure date on the fishery would result in effort shifts and participants trying to catch as much as they can before the closure. AC members also expressed concern that if the fishery were to close, roe buyers may not come to the state, eliminating the most profitable segment of the fishery. In addition, AC members felt having a complete closure would result in striped mullet discards occurring in other fisheries and suggested having a small bycatch allowance during the closed season may help prevent discards.

### Option 2. Season Closure Options

#### a. No Season Closure

- + Short season closures
- + Does not have significant impacts on roe fishery
- + Does not have significant impacts on bait fishery
- + Landings less likely to be impacted by extreme weather events

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- Other measures may be more complicated to monitor and enforce
  - Other measures may be less effective
- b. Statewide Season Closure – October 29 - December 31
- c. Statewide Season Closure – November 7 - December 31
- + No additional resources required to implement
  - + No additional reporting burden on fishermen or dealers
  - + Reduces effort from current level
  - + High likelihood of ending overfishing and recovering stock
  - Weather may prevent fishing during open periods
  - Effort may increase during the open period reducing the effectiveness of the closure
  - Reduction in fishing mortality may not be achieved
  - Overfishing may still occur if recruitment is low
  - May adversely impact some fisheries and more than others
  - Create discards in the closed period
- d. Regional, North/South, Season Closure – North Oct. 28-Dec. 31 South Oct. 30-Dec.31
- e. Regional, North/South, Season Closure – North Nov. 7-Dec. 31 South Nov. 10-Dec. 31
- + No additional resources required to implement
  - + No additional reporting burden on fishermen or dealers
  - + Reduces effort from current level
  - + High likelihood of ending overfishing and recovering stock
  - Weather may prevent fishing during open periods
  - Effort may increase during the open period or open regions reducing the effectiveness of the closure
  - Reduction in fishing mortality may not be achieved
  - Overfishing may still occur if recruitment is low

May adversely impact some fisheries more than others Create discards in the closed period

### Additional Options

Several management options could be used in place of season closures or in conjunction with season closures to extend the open season, prevent excessive harvest during the open season, or prevent excessive discards. Many options, like trip limits, would likely need to be implemented in conjunction with small mesh gill net restrictions. See [Appendix 1](#) for a comprehensive review of the small mesh gill net fishery for striped mullet and information about small mesh gill net restrictions that could be implemented to support sustainable harvest.

### Trip Limits

Applying a daily trip limit or seasonal daily trip limit to striped mullet commercial catches could be used to limit harvest during the open season. Early in the year, commercial catches are smaller, but during the peak season in October and November landings per trip increase substantially (Tables 2.9 and 2.10). Striped mullet are primarily targeted with actively fished gear, like runaround gill nets, with smaller landings amounts coming from anchored gill nets (see [Appendix 1](#)). In high volume fisheries, daily trip limits would typically be expected to result in higher levels of discards. However, in a fishery like striped mullet where landings volume is seasonal, and trips are highly targeted, daily trip limits could be used to limit landings by discouraging participants from targeting large numbers of fish. The Striped Mullet FMP AC expressed some concern with using daily trip limits as a management tool, particularly when catch volume is high, but did suggest participant behavior would likely change to reduce effort and waste if daily trips limits are implemented. A lower daily trip limit could be applied early in the year when the fishery lands less and a larger daily trip limit could be applied during the peak fall season to allow for the typical

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high-volume trips during the peak of landings. Restrictive daily trip limits may cause increased discards if participant behavior does not change, and trips continue to target the highest volume of striped mullet possible. It is also possible implementation of daily trip limits, particularly early season daily trip limits, may just delay harvest and necessary harvest reductions may not be realized. For this reason, combining daily trips limits with other management measures may be beneficial for reducing total harvest.

Table 2.9. Percentage of commercial trips landing striped mullet by landings bin (lb), 2017-2021.

Month	0-100	101-500	501-1,000	1,001-5,000	5,001-10,000	10,000+
Jan	75.3	18.2	4.4	2.1	<0.1	.
Feb	81.3	13.6	3.2	1.9	.	.
Mar	83.5	13.8	1.9	0.8	.	.
Apr	81.5	14.3	3.2	1.0	.	.
May	78.4	17.2	2.8	1.6	.	.
Jun	75.9	19.0	3.3	1.8	.	.
Jul	70.8	23.5	4.0	1.7	.	.
Aug	68.5	23.7	5.5	2.3	.	.
Sep	70.9	21.2	5.1	2.8	.	.
Oct	63.8	23.4	6.4	6.2	0.2	.
Nov	66.7	22.4	5.6	5.0	0.2	<0.1
Dec	76.5	17.4	4.4	1.7	.	<0.1
Total	71.7	20.2	4.8	3.3	0.1	<0.1

Table 2.10. Percent harvest reduction from 2019 commercial landings based on various daily trip limits and time periods.

Trip Limit (lb)	Reduction (%)		
	Jan-Sept, Dec	Oct-Nov	Total
50	33.1	50.4	83.4
75	30.3	47.8	78.1
100	27.9	45.5	73.5
150	24.3	41.7	66.0
200	21.3	38.5	59.8
300	16.8	33.3	50.2
400	13.6	29.4	42.9
500	11.0	26.1	37.2
600	9.0	23.4	32.4
1,000	3.8	15.5	19.3
1,100	3.0	14.1	17.1
1,250	2.1	12.3	14.4
1,500	1.2	10.0	11.2
1,750	0.7	8.2	9.0
2,000	0.4	6.8	7.2
2,500	0.1	4.8	4.9

Any daily trip limit option would need to be implemented in tandem with yardage limits on runaround gill nets. [Appendix 1](#) provides a review of gear characteristics in the small mesh gill net fishery. To effectively limit landings and prevent excessive discards, daily trip limit options should be implemented with restrictions limiting runaround gill nets to 300-500 yards. Members of the Striped Mullet FMP AC were not in favor of reducing the maximum yardage allowed for small mesh gill nets and thought the 800-yard maximum currently in place was restrictive enough.



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However, AC members also suggested commercial fishery participants would likely reduce the yardage they used to limit landings within a lower daily trip limit, essentially self-regulating. They did not suggest what a likely yardage reduction might be.

### Option 3: Trip limits

- + No additional resources required to implement
- + No additional reporting burden on fishermen or dealers
- + Reduces length of season closures
- + Limits impacts on roe fishery
- + Limits impacts on bait fishery
- Unlikely to meet sustainability objectives
- Increased discards

### Day of Week Closures

Day of week closures could be used to reduce effort and harvest. Generally, the highest landings occur early in the week (Monday and Tuesday) and drop as the week goes on (Table 2.11). However, late in the summer, a higher percentage of landings occur on Friday, likely to supply bait markets, and early in the roe season a higher percentage of landings occur on Saturday (Table 2.12). Typically, the lowest landings occur on Saturday and Sunday.

Table 2.11. Percent of harvest by day of week or combination of days, 2019 and 2017-2021.

Day(s) of Week	2019 Landings	Landings (%)	2017-2021 Landings	Landings (%)
Sunday	162,709	11.9	780,061	10.4
Monday	209,707	15.4	1,201,290	16.1
Tuesday	247,756	18.2	1,273,991	17.0
Wednesday	190,343	14.0	1,148,997	15.4
Thursday	191,313	14.0	1,038,243	13.9
Friday	173,090	12.7	1,048,743	14.0
Saturday	187,294	13.7	984,763	13.2
Saturday-Sunday	350,003	25.7	1,764,823	23.6
Friday-Sunday	523,093	38.4	2,813,566	37.6
Saturday-Monday	559,710	41.1	2,966,113	39.7
Friday-Monday	732,800	53.8	4,014,856	53.7

Table 2.12. Percent of commercial landings by day of week for each month, 2017-2021.

Month	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
January	8.5	18.2	18.7	16.4	15.2	13.5	9.5
February	8.6	14.7	20.6	13.8	15.2	14.1	13.1
March	9.7	20.2	15.8	15.8	17.1	14.2	7.1
April	11.0	13.7	15.1	17.6	16.2	12.0	14.4
May	11.7	10.4	17.4	19.0	14.0	13.1	14.3
June	10.9	16.3	15.4	14.4	12.8	17.0	13.2
July	10.1	16.0	15.5	15.9	16.8	15.3	10.4
August	9.1	19.6	14.4	13.4	15.4	17.4	10.7
September	14.3	14.3	14.2	15.1	13.2	12.5	16.4
October	10.8	16.7	19.1	15.0	11.4	11.4	15.5
November	9.7	14.7	17.9	16.0	15.1	15.3	11.4
December	10.2	18.1	10.0	14.8	15.2	19.3	12.5

Striped mullet are most available to the fishery during the fall as they aggregate in schools and migrate through the estuary to the ocean to spawn. Conventional thinking suggests striped mullet migration increases, and they become most susceptible to the fishery ahead of cold fronts. Day

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of week closures could be effective at reducing harvest by preventing fishing during periods of ideal fishing conditions, particularly given the runaround gill net fishery is largely dependent on good weather days. For example, prohibiting fishing for striped mullet on Saturday and Sunday would have reduced 2019 landings by 25.7% (Table 2.11). This percentage reduction is relatively consistent from 2017-2019. There is the possibility prohibiting fishing on one day shifts effort to other days or that potential catch from one day can be recouped another day. However, given most of the striped mullet commercial landings occur during a brief period from October 15-November 15 limiting the number of days participants can fish is likely to reduce landings. The Striped Mullet FMP AC shared concerns about recoupment of catch but generally supported day of week closures, particularly weekend closures, as a method to reduce harvest. AC members further suggested allowing some limited bycatch on closed days as a method to reduce discards. In addition, the AC members felt weekend closures may reduce user group conflict and preferentially benefit full-time fishery participants.

### Option 4: Day of week closures

- + No additional resources required to implement
- + No additional reporting burden on fishermen or dealers
- + Reduces length of season closures
- + Limits impacts on roe fishery
- + Limits impacts on bait fishery
- + Could meet sustainability objectives
- + May prevent user group conflicts
- +/- May preferentially benefit full time participants
- +/- Weather could prevent fishing on open days
- Possibility for recoupment of catch
- Landings reduction highly dependent on external factors

### Combination of Measures

Fisheries are commonly managed using a combination of management measures rather than relying on a single, all-encompassing measure. Using a combination of management measures allows for more comprehensive management to address multiple objectives in addition to sustainability. From 1990-1992, the state of Florida required gill nets to have a minimum mesh size of three inches and striped mullet fishery weekend closures of 36 hours and 54 hours from October-January (Leard et al. 1995). In 1993, in response to a stock assessment indicating overfishing was occurring on the Florida striped mullet stock, the state adopted additional management measures including an extension of the 54-hour weekend closure to 72 hours from July to January, a pre-roe season (July-September) trip limit of 500 pounds, and a reduction of the maximum gill net yardage allowed to 600 yards. These additional measures were intended to reduce catch, increase escapement of spawners during the roe season, increase SPR to the 35% target in 5-7 years, and increase SSB by 90%. However, before success of these measures could be evaluated the state implemented a ban on gill nets, the primary gear used to harvest striped mullet, significantly reducing harvest in an absolute manner that did not preserve traditional fisheries and precluded determination of the effectiveness of the combination of management measures initially implemented.

Management measures directly limiting commercial harvest of striped mullet have never been implemented in North Carolina. Stock assessment results suggest some stock-recruit relationship for striped mullet, and projections indicate if average or higher recruitment occurs the stock recovers quickly even at moderate harvest reduction levels. A combination of management measures including end of season closures, day of week closures, and daily trip limits may be suitable to reduce harvest while allowing traditional fisheries and uses to continue. Some form of

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all these measures, except for end of season closures, were supported by the Striped Mullet FMP AC. However, given the life history of striped mullet and nature of the fishery, management measures should focus on reducing harvest during the peak of the fishery in the fall. The fall fishery accounts for most striped mullet commercial landings and is primarily composed of females because the fishery specifically targets roe mullet during their spawning migration. As an example, implementing a December closure, a year-round weekend closure (Saturday-Sunday), and a 1,000 lb daily trip limit from January-September would result in a 31.8% reduction (Option 5.i; Table 2.13). In this example there would be minimal discarding of fish from the daily trip limit early in the season allowing for catch to supply bait markets, the roe fishery would remain relatively unaffected except for the weekend closure, and the December closure would prevent expansion of the roe fishery later in the year.

The Striped Mullet FMP AC supported the combination management measure strategy to reduce striped mullet harvest. Specifically, the AC supported using a combination of day of week closures and daily trip limits to reduce harvest and minimize discards while avoiding extended end of year closures. The FMP AC recommended options 5.a, c, and f which would reduce harvest by 24.0% to 27.7% using combinations of seasonal daily trip limits, day of week daily trip limits, and day of week closures (Table 2.13). All options supported by the FMP AC meet statutory requirements by, at a minimum, rebuilding SSB to the threshold with a 50% probability of success. The FMP AC also supported an option that would implement a 1,000 lb daily trip limit from January 1 to September 30 and a year-round Saturday and Sunday daily trip limit of 100 lb. (22.1% reduction) and an option that would implement a 1,000 lb daily trip limit from January 1 to October 15 and a year-round Saturday and Sunday daily trip limit of 100 lb. (22.9% reduction). However, when a 30,000 lb stop net catch cap is factored into these options; they do not meet statutory requirements for recovering the stock and were not considered further (see stop net section of this paper for additional details).

Following examples endorsed by the FMP AC, the DMF initially supported option 5.p which would implement seasonal and day of week daily trip limits to achieve a 35.5% commercial harvest reduction after accounting for a 30,000 lb stop net catch cap. This option is projected to rebuild SSB to the target with a 99% probability of success and prevents any complete closure which might result in excessive discards. The seasonal and day of week daily trip limits are low enough that targeting high volumes of striped mullet should be prevented during these times. Implementing a 500 lb daily trip limit from February 1 through October 15 prevents high volume harvest early in the roe season and implementing a November 16 through January 31 50 lb daily trip limit essentially “freezes the footprint” of the roe fishery not allowing for expansion of the roe mullet season which historically occurs from approximately October 15 through November 15. The year-round 50 lb weekend trip limit serves a similar purpose to day of the week closures while still allowing a small incidental catch allowance to minimize discards. While complete end of year season closures are considered an effective conservation measure, the DMF took into consideration the request of the FMP AC to minimize discards and avoid extended end of season closures when making a recommendation. Recommending a higher reduction level than the FMP AC recommendation creates a buffer to account for uncertainty in behavior changes by participants in the fishery and allows for a greater probability of the stock rebuilding to the target.

During MFC AC and public review of the FMP, a strong preference was expressed for a year-round weekend closure (Option 5.a), with no management specific to the stop-net fishery, to achieve a 25.7% reduction (Table 2.13). MFC advisors and commenters cited unusually high landings in the stop net fishery in 2023 and wanting to avoid creating high levels of dead discards in that fishery as reasons to not implement a stop net catch cap.

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Considering comments and preferences expressed by MFC ACs and public comment, the DMF recommendation is Option 5.n. This option is calculated to result in a 34.9% commercial harvest reduction relative to 2019 commercial landings. This option applies to harvest, not possession, allowing seafood dealers to sell mullet and commercial operations to use mullet as bait during days closed to harvest. This option extends the weekend closure by 24 hours for three months of the year, during roe season, when landings and effort peak. This addition is projected to reduce commercial harvest closer to a level projected to rebuild SSB to the target allowing for some buffer to account for variability in fishing effort and availability of fish. Additionally, this option preferentially protects spawning fish and potentially benefits full-time commercial participants while reducing user group conflict. For implementation and enforcement purposes, the closures will start at 6 pm Friday and end at 6 am the day the fishery reopens (Monday from January 1 to September 30; or Tuesday from October 1 to December 31). The DMF recommends not implementing a stop net fishery catch cap due to the fishery's highly variable landings, unusually high landings in 2023, and the potential for high volumes of dead discards. While options to limit nighttime fishing were discussed, because of the potential to increase user group conflict, and the disproportionate effect they may have on certain segments of the fishery, they are not recommended.

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Option 5: Combination of Measures  
See Table 2.13 for all options

Table 2.13. Management measure combinations to end overfishing and achieve sustainable harvest, compared to 2019 commercial landings. Unless otherwise specified all options for day of week closures or day of week reduced trip limits are applied year-round. All trip limit options are applied to a commercial fishing operation regardless of the number of persons, license holders, or vessels involved.

Option	Season Closure	Daily Trip Limit (lb.)	Day of Week Closure	% Reduction	% Reduction with 30k Stop Net Cap
5.a*	.	.	Sat-Sun	25.7	24.0
5.b	Dec 1-Dec 31	Jan-Sep 1,000; Sat-Sun 50 lb	.	28.1	26.4
5.c*	.	Jan-Sep 1,000	Sat-Sun	28.5	26.9
5.d	Dec 1-Dec 31	Jan-Oct 15 1,000; Sat-Sun 50 lb	.	28.9	27.3
5.e	Nov 12-Dec 31	1,000	.	29.1	27.5
5.f*	.	Jan-Oct 15 1,000 lb	Sat-Sun	29.3	27.7
5.g	.	.	Jan-Oct Sat-Sun; Nov-Dec Sat-Mon	30.0	28.5
5.h	.	Jan-Oct 15 and Dec 500; Sat-Sun 50 lb	.	31.3	29.8
5.i	Dec 1-Dec 31	Jan-Sep 1,000	Sat-Sun	31.8	30.2
5.j	.	Jan and Dec 100 lb; Feb-Sep 500 lb; Sat-Sun 50 lb	.	32.4	30.9
5.k	Dec 1-Dec 31	Jan-Oct 15 1,000	Sat-Sun	32.6	31.1
5.l	Nov 8-Dec 31	1,000	.	34.6	33.1
5.m	.	Jan and Dec 50 lb; Sat-Sun 50 lb; Feb-Oct 15 500 lb	.	34.6	33.2
5.n+	.	.	Jan-Sept Sat-Sun; Oct-Dec Sat-Mon	34.9	33.4
5.o	.	Jan-Oct 15 and Dec 500	Sat-Sun	35.4	33.9
5.p	.	Jan1-31 and Nov16-Dec31 50 lb., Sat-Sun 50 lb, Feb1-Oct15 500lb	.	36.9	35.5
5.q	.	Jan and Dec 100 lb; Feb-Sep 500 lb	Sat-Sun	36.5	36.0
5.r	Nov 12-Dec 31	1,000	Sat	38.6	37.2

\*Endorsed by Striped Mullet FMP AC

+DMF Recommendation

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### Stop Nets

The striped mullet beach seine fishery is a historically and culturally important fishery occurring primarily in conjunction with the Bogue Banks stop net fishery (See [Striped Mullet FMP](#) and [Amendment 1](#) for review of historical significance of stop net fishery). The stop net fishery has operated under fixed seasons and net and area restrictions since 1993. Currently, stop nets are limited to 4 nets, 400 yards in length, and minimum mesh size of eight inches outside panels and six inches middle section. Stop nets have typically been allowed along Bogue Banks (Carteret County) in the Atlantic Ocean from October 1 to November 30. However, the stop net season was extended to include December 3 to December 17 in 2015 due to minimal landings of striped mullet (Proclamation M-28-2015). In 2020, 2021, and 2022 the stop net fishery was open from October 15 through December 31 (Proclamations M-17-2020, M-21-2021, and M-23-2022). Due to the schooling nature of striped mullet, the beach seine fishery is a high-volume fishery with the ability to land thousands of pounds during a single trip.

From 2017 to 2021 the beach seine/stop net fishery accounted for 2.1% of the total commercial striped mullet harvest. In these years the fishery has primarily operated in November with a few trips occurring in October and December, and minimal landings after November 15.

Current management of the stop net fishery has focused on [limiting interactions with protected species, primarily bottlenose dolphins](#), and limiting [conflict with the ocean gill net fishery and recreational pier fisheries](#). There are no management measures in the stop net fishery to directly limit harvest of striped mullet. A detailed review of current stop net management measures can be found in the [Striped Mullet FMP](#) (NCDMF 2006). Additional management of the stop net fishery is addressed in the [Spotted Seatrout FMP](#) (NCDMF 2012). The spotted seatrout management strategy grants the DMF Director latitude to reconcile the potentially high-volume catch of spotted seatrout with the 75 fish commercial trip limit. An agreement was reached between the Director, the Fisheries Management Section Chief, and the stop net fishery participants to manage the fishery at a 4,595 lb season quota for spotted seatrout. The agreement required the stop net fishery participants to report spotted seatrout harvest daily and remove the stop nets from the water when the quota is met.

Because commercial harvest reductions are necessary to end overfishing and recover the striped mullet stock, it may be necessary to consider additional stop net management measures. Stop nets could be considered with all other commercial gears and have the same restrictions applied as any other sector of the fishery. However, given the limited extent and seasonality of the fishery some restrictions may disproportionately impact the stop net fishery. For example, extended season closures would likely eliminate all harvest from stop nets (Table 2.14). In addition, restrictive trip limits may create excessive discards in the fishery. Setting a specific season resulting in proportional harvest reductions may be a more equitable management option. Alternatively, the stop net fishery could operate on a sector specific striped mullet catch cap, as is done with spotted seatrout. Given minimal participation and effort in the stop net fishery, along with the already required daily reporting of spotted seatrout landings, requiring additional daily reporting of striped mullet landings could be accomplished.

The Striped Mullet FMP AC supported the strategy to manage the stop net fishery under a sector specific catch cap but did not suggest any specific harvest or reduction level to achieve. After reviewing recent striped mullet commercial landings from stop nets, DMF initially recommended an annual catch cap for the stop net fishery of 30,000 lb. This harvest level is in line with recent landings and prevents increasing harvest above those recent levels. However, following MFC AC and public review, where managing the stop net fishery with the same regulations as the rest of the striped mullet commercial fishery was strongly supported, the DMF revised its

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recommendation to not manage stop nets with a catch cap. DMF recommends Option 6.a, manage the stop net fishery with management measures applied to the rest of the commercial fishery. To maintain consistency, the stop net season will open annually no sooner than October 15 and close no later than December 31 and all other stop net and associated gill net regulations will be set by proclamation consistent with, but not limited to, previous management. See proclamations [M-17-2020](#), [M-21-2021](#), and [M-23-2022](#) for stop net season, setting and net restrictions and proclamations [M-18-2020](#), [M-20-2021](#) and, [M-22-2022](#) for associated gill net restrictions.

Table 2.14. Percent reduction of striped mullet landings in the stop net fishery at various season closure options, 2017-2021.

Season Closure	Percent Reduction				
	2017	2018	2019	2020	2021
October 28-December 31	100.0	100.0	100.0	100.0	69.1
October 29-December 31	100.0	100.0	100.0	100.0	69.1
November 6-December 31	88.3	100.0	100.0	98.4	35.9
November 7-December 31	88.3	100.0	100.0	98.4	35.9
November 13-December 31	81.6	99.2	45.1	98.4	1.5

### Option 6: Stop net fishery management

#### a. Status Quo – Manage stop net fishery with management measures applied to the rest of the commercial fishery

- + Prevents confusion
- + Minimizes user group conflict
- Some measures may completely eliminate stop net fishery
- May not meet sustainability objectives
- Could increase discards

#### b. Stop Net Specific Catch Cap

- + Allows continuation of fishery
- + Likely to meet sustainability objectives
- + Easy to monitor and enforce with minimal participation
- + Already being done in fishery for other species
- Could create user group conflict
- Daily reporting necessary

### Seasonal Catch Limits

Seasonal catch limits, otherwise known as a harvest quota or total allowable landings (TAL), is a management measure used to set harvest levels for a stock to end overfishing, recover the stock, or to maintain *F* and SSB at a specified management target. The intent of implementing a seasonal catch limit on any fishery is to prevent expansion and reduce or stabilize harvest. The benefit of managing harvest through a seasonal catch limit is the harvest level is directly set and controlled.

To calculate the seasonal catch limit, a reduction percentage must be established (21.3-35.4%). The selected reduction percentage is calculated based on 2019 commercial landings (1,362,212 pounds). The simplest method for seasonal catch limit implementation is a single statewide seasonal catch limit starting at the beginning of the year and running until the limit is met. The

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seasonal catch limit would be between 879,992 and 1,072,065 pounds depending on the reduction percentage. On average, from 2017 to 2021, the season would close between October 23 (35.4% reduction) and November 6 (21.3% reduction).

While implementing a seasonal catch limit with multiple allocations makes monitoring and enforcement more difficult, allocations could be divided by region, gear, or fishery segment. Most commercial landings come from the northern part of the state (north of the Highway 58 Bridge to Emerald Isle) with minimal contributions from the southern part of the state. More specifically, most commercial landings come from Dare and Carteret counties. From 1994 to 2021, 88.5% of commercial striped mullet landings have come from the northern region, and 11.5% of commercial landings have come from the southern region (Onslow, Pender, New Hanover, Brunswick). If this historical allocation is maintained, an example of a region-specific seasonal catch limit, at various reduction levels that end overfishing and recover the stock, is shown in Table 2.15. A region-specific seasonal catch limit could also be implemented using allocations from a more recent period to better reflect the current fishery, for example 2017-2021 (Table 2.16), or use allocations from 2019 which is the year reductions are calculated from (Table 2.17).

Table 2.15. Regional seasonal catch limit, split at the Highway 58 bridge to Emerald Isle, based on 1994 - 2021 allocation.

Region	1994-2021 Contribution	2019 Landings Contribution	Reduction and TAL	
			21.3	35.4
North	88.5	1,205,558	948,774	778,790
South	11.5	156,654	123,287	101,199
Total	100	1,362,212	1,072,061	879,989

Table 2.16. Regional seasonal catch limit, split at the Highway 58 bridge to Emerald Isle, based on 2017 - 2021 allocation.

Region	2017-2021 Contribution	2019 Landings Contribution	Reduction and TAL	
			21.3	35.4
North	92.8	1,264,133	994,872	816,630
South	7.2	98,079	77,188	63,359
Total	100	1,362,212	1,072,061	879,989

Table 2.17. Regional seasonal catch limit, split at the Highway 58 bridge to Emerald Isle, based on 2019 allocation.

Region	2019	2019 Landings	Reduction and TAL	
			21.3	35.4
North	94.1	1,281,870	1,008,832	828,088
South	5.9	80,342	63,229	51,901
Total	100	1,362,212	1,072,061	879,989

Most striped mullet commercial landings come from gill nets, specifically runaround gill nets. Minimal contributions come from other gears, but the stop net fishery has the potential to be a high-volume fishery. If a seasonal catch limit is implemented, it is possible the limit could be reached before the stop net fishery has a chance to operate. Accounting for stop net landings separately may be necessary to allow the fishery the chance to operate. See the stop net section of this issue paper for additional information and discussion.



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A seasonal catch limit could be implemented specifically for the striped mullet roe fishery. This fishery occurs predominantly in October and November and typically accounts for up to 50% of the striped mullet commercial landings each year. This fishery is the most valuable portion of the striped mullet fishery and specifically targets large female striped mullet during the spawning migration. A seasonal catch limit could be developed and applied to October-November commercial landings and other measures could be used to limit harvest early in the year (e.g., trip limits, day of week closures, etc., see additional discussion in this paper). Once the roe fishery seasonal catch limit was met, the fishery would be closed through the end of the year. This would allow the most valuable segment of the fishery to operate independent of other fishery segments and have direct conservation benefits to the stock. However, shortening the fishery in this manner would likely create a “derby” fishery, where intensive fishing effort is focused during a short period, which is unpopular with the fishing industry and may create conflict.

To successfully manage harvest using a seasonal catch limit, the ability to accurately monitor harvest in a timely manner and have the flexibility to quickly implement management changes or close fishing sectors when the seasonal catch limit is being approached is essential. Currently, striped mullet commercial landings are reported by the North Carolina Trip Ticket Program, a fishery-dependent program initiated by NCDMF in 1994. A trip ticket is the form used by fish dealers to report commercial landings information. Trip tickets collect information about the fisherman, the dealer purchasing the product, the transaction date, crew number, area fished, gear used, and the quantity of each species landed for each trip. Each month dealers are required to send these [forms](#) to the NCDMF for processing.

If a seasonal catch limit is used to manage striped mullet harvest, changes to reporting requirements would need to occur. Daily striped mullet harvest reporting by dealers would be necessary during at least part of the year. Because the striped mullet fishery is highly seasonal, requiring daily reporting during the peak season in October-November until the seasonal catch limit is reached would be necessary. Prior to daily reporting, regular monthly, or weekly, reporting could be sufficient, but an accurate accounting of commercial landings would need to be finalized prior to a period of daily reporting. Implementation of daily or weekly reporting would require development of a permit with conditions requiring time of reporting.

If a seasonal catch limit is implemented, the use of other management measures to limit harvest would likely still be necessary to either extend the fishing season or ensure the catch limit is not exceeded. Specifically, trip limits and gill net yardage limits have been used to constrain harvest for fisheries managed using seasonal catch limits, but day of week closures may also have the same effect. See discussion about trip limits and day of week closures (this paper) for additional information.

If a seasonal catch limit were implemented for striped mullet, restrictions on the use of small mesh gill nets may be needed to prevent excessive discards. The use of anchored small mesh gill nets has been extensively reviewed as part of North Carolina FMPs for red drum ([NCDMF 2001](#); [2008](#)) and striped bass ([NCDMF 2004](#); [2013a](#)). Further restrictions would add additional management complexity to a gear that is already heavily regulated. Appendix 1 summarizes the small mesh gill net fishery in North Carolina including seasonality, gear characteristics and species targeted. If the use of small mesh gill nets is restricted to prevent excessive discards of striped mullet, other fisheries like spotted seatrout (*Cynoscion nebulosus*), bluefish (*Pomatomus saltatrix*), kingfish/sea mullet (*Menticirrhus* spp.), white perch (*Morone americana*), and spot (*Leiostomus xanthurus*) would likely be impacted.

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It should be noted previous management has not directly limited the commercial harvest of striped mullet in North Carolina. In many cases, implementation of a seasonal catch limit has been a “last resort” measure when other methods of controlling harvest have been ineffective. At this point, there are no clear models for how participant behavior may change under various management scenarios. Implementation of seasonal catch limits in other fisheries has resulted in “derby fisheries” which are unpopular with participants. Implementation of a seasonal catch limit is the most definitive and blunt method for directly limiting harvest because if the limit is effectively monitored and enforced landings cannot exceed a set level even if variable fishery or stock conditions occur. However, seasonal catch limits are also the most resource intensive to monitor and enforce because of the necessity of daily reporting. Stock projections indicate if average or above average recruitment occurs the striped mullet stock recovers quickly even at moderate harvest reduction levels. If a seasonal catch limit is implemented, updates to the limit could only occur following stock assessment updates, which may constrain harvest excessively even when it is no longer necessary.

While the Striped Mullet FMP AC felt a seasonal catch limit would effectively limit harvest, members were concerned about how low the limit would be set initially, lack of flexibility in adjusting the limit, the potential of a “derby” fishery, the potential for a short season, and the need for a complete closure once the limit is reached. AC members did suggest using a seasonal catch limit but allowing some bycatch limit after the limit was reached. While this could be done, it would require lowering the catch limit to account for limited bycatch, further reducing the limit. While implementing a seasonal catch limit for striped mullet would be effective, given the characteristics of the striped mullet fishery, management objectives could be met using other management strategies that are much less resource intensive for monitoring and that would be less restrictive or constraining to this multi-faceted fishery.

### Option 7: Seasonal Catch Limit

#### a. Status Quo – Manage fishery without Seasonal Catch Limit

- + Other measures may be effective in reducing harvest
- + Less impact to other fisheries
- + No derby fishery
- No hard cap on commercial landings

#### b. Implement Statewide Seasonal Catch Limit

- + Hard cap on landings
- + Should meet sustainability objectives
- As stock grows, TAL cannot be adjusted without stock assessment update
- Will likely impact other fisheries
- Increased discards
- Unpopular with fishery participants
- Resource intensive to monitor and enforce
- Would need to establish new reporting requirements
- Could disadvantage certain areas of the state

#### c. Implement Regional (North/South) Seasonal Catch Limit

- + Hard cap on landings
- + Should meet sustainability objectives
- + Equitable between areas of the state
- As stock grows, TAL cannot be adjusted without stock assessment update
- Will likely impact other fisheries
- Increased discards
- Unpopular with fishery participants

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- Resource intensive to monitor and enforce
- Would need to establish new reporting requirements

### Area Closures

Area closures are a management measure that could be used to achieve nonquantifiable harvest reductions in the striped mullet fishery in support of sustainability objectives. From 1997 to 2001, DMF conducted a striped mullet tagging study to examine movements and migration of striped mullet in North Carolina (Wong 2001). Of approximately 15,000 tagged fish, 384 were recaptured, indicating limited movement prior to the spawning season in October and November (Bacheler et al. 2005). Other than a generally southward movement, tag returns provide little information to inform potential area closures (Figure 2.6). Striped mullet are catadromous, migrating from freshwater to offshore marine waters in the fall to spawn. Because of this life history, striped mullet can be found in nearly all common habitat types including the water column, wetlands, submerged aquatic vegetation, soft bottom, and shell bottom with variation in preference due to location, season, and life stage (see base plan Biological Profile and Ecosystem Protection and Impact sections for further description and NCDMF 2022a). In addition, striped mullet nursery areas and spawning locations, habitats that would benefit most directly from area closures, are considered at a broad level (e.g., estuarine areas serve as nursery areas, spawning occurs in the ocean), therefore, identifying discrete areas for potential closures is difficult.

One recent example of an area closure impacting the striped mullet commercial fishery is the prohibition of all gill nets above the ferry lines in the Pamlico and Neuse rivers (Proclamation [M-6-2019](#); Figure 2.7). During an emergency meeting on March 13, 2019, the N.C. Marine Fisheries Commission directed the DMF Director to issue proclamation M-6-2019 pursuant to N.C. General Statute 113-221.1 (d). The Director has no legal authority to modify or change a proclamation when the proclamation is specifically directed by the Commission under this statute. The intent of the proclamation was to reduce dead discards of striped bass (*Morone saxatilis*) in support of a striped bass harvest moratorium in these rivers. The gill net closure was implemented with little supporting data and potential benefits to striped bass stocks will be evaluated in the future (NCDMF 2022b). However, recreational fishing groups have touted the gill net closure as a conservation success, particularly for striped mullet. Striped mullet are common above the ferry lines in each river and commercial fishery participants have expressed frustration that the closure prevents harvest of striped mullet, particularly early in the year and during the summer. However, because striped mullet migrate from estuarine waters to the ocean to spawn in the fall, the gill net closures in these rivers are not considered an effective conservation measure for striped mullet. Essentially, the gill net closure acts as a harvest delay measure, where striped mullet become available to the fishery when they cross the ferry line while moving down river to spawn.

While there may be fishery benefits to this harvest delay because harvest is delayed until the fall when demand and prices are higher, the closure prevents other components of the fishery (i.e., bait and food) from occurring in the area. Given seasonal migration patterns of striped mullet and characteristics of the fishery, area closures to effectively address sustainability objectives would likely need to be so large the fishery would have limited ability to operate. In this sense, season closures accomplish the same result as area closures with more clearly defined and obtainable objectives.

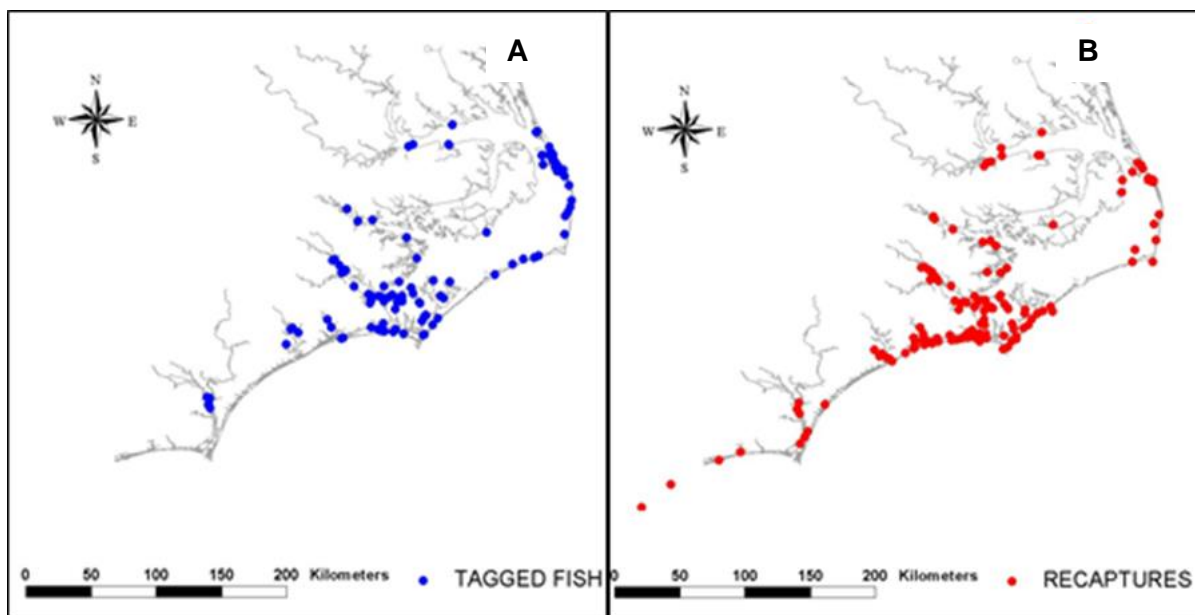


Figure 2.6. Tagging location of recaptured striped mullet (A) and recapture location for all striped mullet tag returns (B). A single dot may indicate multiple fish. From Wong (2001).

#### Option 8: Area Closures

- + No additional resources required to implement
- + No additional reporting burden on fishermen or dealers
- + Limits impacts on roe fishery
- + Limits impacts on bait fishery
- Unlikely to meet sustainability objectives
- Increased discards

#### Limited Entry

North Carolina General Statute 113-182.1 states the MFC can only recommend the General Assembly limit participation in a fishery if the commission determines sustainable harvest in the fishery cannot otherwise be achieved. The North Carolina striped mullet stock is overfished and overfishing is occurring so sustainability is a concern. However, there have never been any regulations directly limiting harvest of striped mullet in North Carolina, therefore it would be difficult to conclude limiting participation is the only way to achieve sustainable harvest. Supplement A to Amendment 1 implemented the first management measures directly limiting harvest of striped mullet in North Carolina and Amendment 2 will introduce more comprehensive measures. Success of Amendment 2 management measures can be used to gauge the need for limited entry in the future.

#### Option 9: Limited Entry

- + Likely to meet sustainability objectives
- + Limits impacts on roe fishery
- + Limits impacts on bait fishery
- Statutory requirements not met
- Additional resources required to implement
- Additional reporting burden on fishermen or dealers
- Increased discards

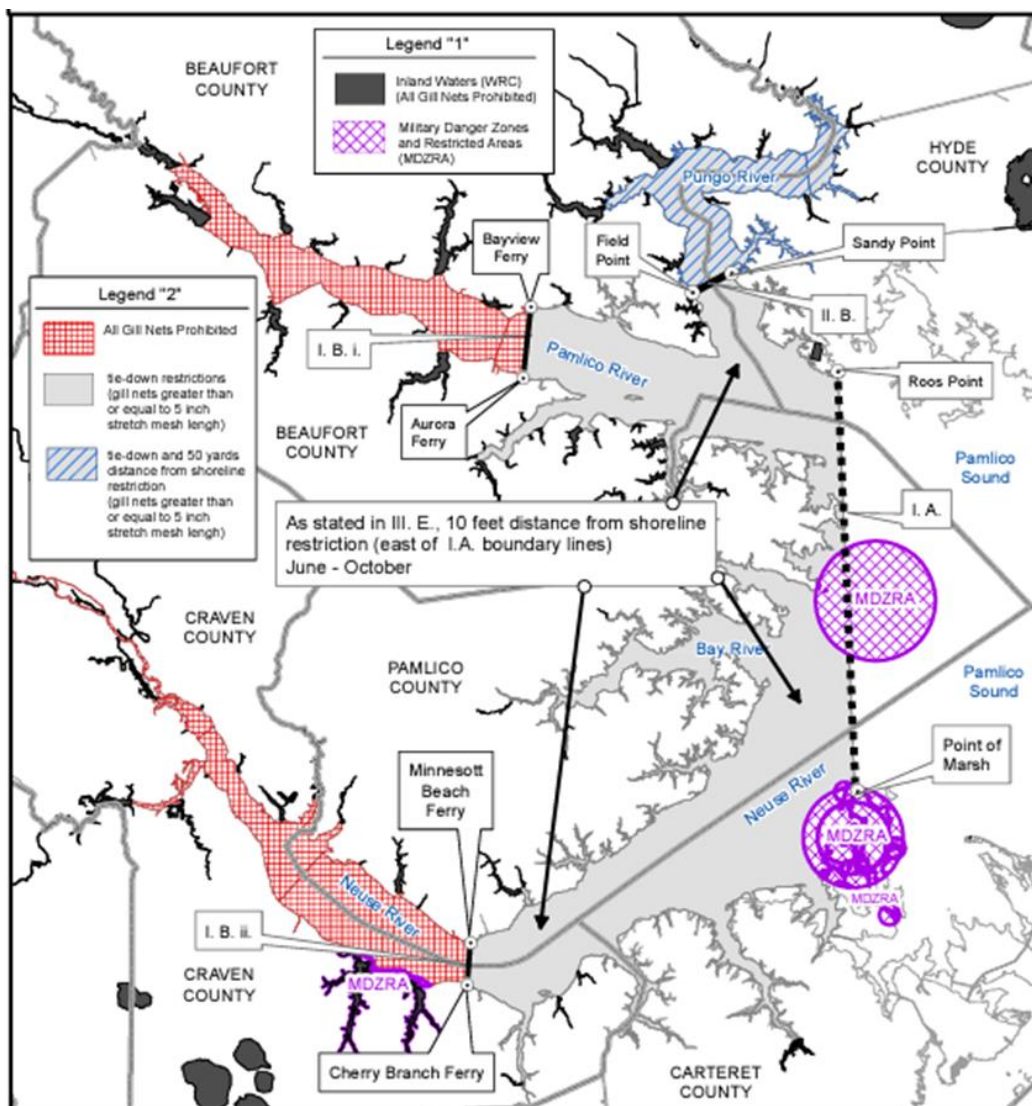


Figure 2.7. Map of the Pamlico and Neuse rivers showing existing gill net restrictions and the prohibition on the use of gill nets above the ferry line in each river.

### Adaptive Management

The current striped mullet adaptive management framework and trigger needs to be updated. Adaptive management is a structured decision-making process when uncertainty exists, with the objective to reduce uncertainty through time with monitoring. Adaptive management provides flexibility to incorporate new information and accommodate alternative and/or additional actions. The original FMP established minimum and maximum commercial landings triggers of 1.3 and 3.1 million pounds (NCDMF 2006). Amendment 1 updated the commercial landings triggers to 1.13 and 2.76 million pounds (NCDMF 2015). The triggers were set two standard deviations above or below the average commercial landings from 1994 to 2002 in the original FMP and the average commercial landings from 1994 to 2011 in Amendment 1. If annual landings fall below the minimum trigger, the DMF would investigate whether the decrease in landings is attributed to stock decline, decreased fishing effort, or both. If annual landings exceed the maximum trigger, the DMF would determine whether harvest is sustainable and what factors are driving the increase in harvest.

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The commercial landings trigger has only tripped once since its adoption in 2006, when commercial landings fell below the minimum landings trigger in 2016 (Figure 2.8). Commercial landings are a poor indicator of stock abundance because they can be impacted by many factors including fishing effort and market demand. In addition, fishery efficiency could maintain higher, or consistent, commercial landings even as the stock declines. The adaptive management language in Amendment 1 was also vague, providing no specifics for determining stock status or the degree to which management measures should impact the fishery or reduce harvest. Updating the adaptive management framework for striped mullet is necessary to eliminate ambiguity and provide guidance for decision making processes.

Success or failure of any given management strategy to rebuild and sustain the stock is assessed relative to the established biological reference points and can only be determined through a stock assessment. Failure to achieve projected harvest reductions does not necessarily indicate failure of a management measure. It could indicate improving stock conditions but can only be measured with an updated stock assessment. Peer reviewed stock assessments and stock assessment updates should continue to be used to guide management decisions for the North Carolina striped mullet stock. The 2022 peer reviewed stock assessment (NCDMF 2022) should be updated, at least once between full reviews of the plan to gauge success in stock rebuilding and to monitor changes in *F*. The 2022 stock assessment had a terminal year of 2019; Supplement A management measures will be implemented in 2023, and Amendment 2 management measures will be implemented, at the earliest, in 2024. Given this timeline, the earliest a stock assessment update should be completed is during 2025 with the inclusion of data from 2024, though timing of a stock assessment update is at the discretion of the division. An update will determine if management targets are being met and allow for any adjustments to management measures via adaptive management if needed.

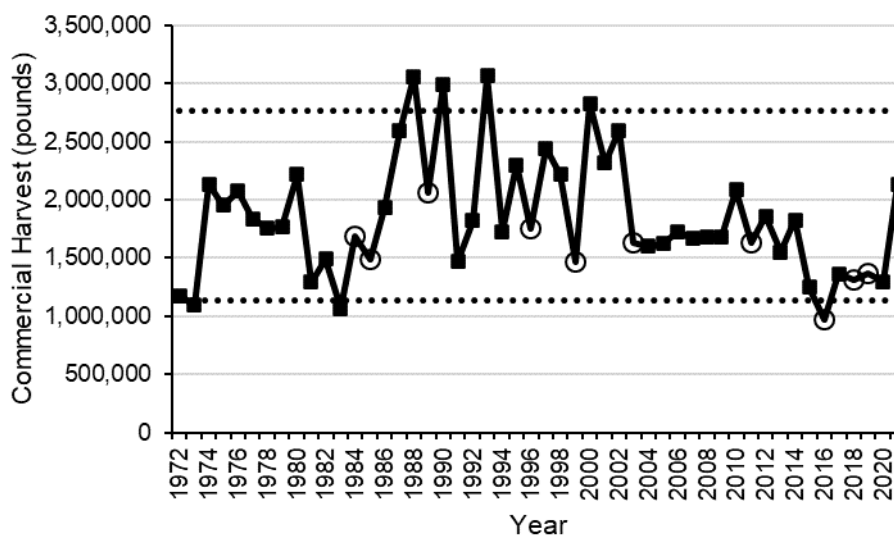


Figure 8. Striped mullet commercial landings (pounds) reported through the North Carolina Trip Ticket Program, 1972–2021. Lower dashed line (1.13 million lb.) and upper dashed line (2.76 million lb.) represent landings limits that trigger closer examination of data. Open circles represent years with significant hurricanes or storms.

The existing mullet rule, 15A NCAC 03M .0502, provides the Fisheries Director proclamation authority pursuant to 15A NCAC 03H .0103 to impose any of the following restrictions on the taking of mullet:

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- 1) Specify time;
- 2) Specify area;
- 3) Specify means and methods
- 4) Specify seasons
- 5) Specify size; and
- 6) Specify quantity, except as provided in Paragraph (a) of the rule.

Upon adoption of Amendment 2, the adaptive management framework will consist of the following:

### Option 10: Adaptive Management Framework

Parts 1-3 of the adaptive management framework are explicitly tied to an updated stock assessment and implementation of management measures intended to reduce or allow for additional harvest to meet or maintain management targets (as defined in part 1.a).

- 5) Update the stock assessment at least once in between full reviews of the FMP, timing at discretion of the division
  - a. If current management is not projected to meet management targets (management targets are minimum SSB between  $SSB_{Threshold}$  and  $SSB_{Target}$ , and maximum  $F$  between  $F_{Threshold}$  and  $F_{Target}$ ), then management measures shall be adjusted via an adaptive management update and implemented using the Fisheries Director's proclamation authority to reduce harvest to a level that is projected to meet the  $F_{Target}$  and  $SSB_{Target}$ .
  - b. If management targets (as defined in 1.a above) are being met, then new management measures would not be needed, or current management measures could possibly be relaxed provided projections still meet management targets. When management targets are met, a striped mullet industry workgroup will be convened to discuss the possibility of "guard rail management" to maintain a sustainable harvest for the striped mullet stock.
- 6) Management measures that may be adjusted using adaptive management include:
  - a. Season closures
  - b. Day of week closures
  - c. Trip limits
  - d. Gill net yardage or mesh size restrictions in support of the measures listed in a-c
- 7) Use of the Director's proclamation authority for adaptive management to meet management targets is contingent on:
  - c. Consultation with the MFC Northern, Southern, and Finfish advisory committees
  - d. Approval by the Marine Fisheries Commission

Part 4 of the adaptive management framework allows for adjustment of management measures outside of an updated stock assessment. Part 4 is intended to allow for adjustment of management measures to ensure compliance with and effectiveness of management strategies adopted in Amendment 2 and would be a tool to respond to concerns with stock conditions and fishery trends.

- 8) Upon evaluation by the division, if a management measure implemented to achieve sustainable harvest (either through Amendment 2 or a subsequent revision) is not achieving its intended purpose, it may be revised or removed and replaced using the Director's proclamation authority; provided it conforms to part 2 above and provides similar protections to the striped mullet stock. If a revised management measure is anticipated to reduce or increase harvest compared to measures implemented through Amendment 2, it must conform to parts 2 and 3 above.



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Table 2.18. Management measures to achieve sustainable harvest in the striped mullet fishery

Topic	Option	Description
Size Limit	1.a	Status quo – no size limit
	1.b	Minimum size limit and 3.25 ISM minimum gill net mesh size
	1.c	Minimum size limit and 3.75 or 4.0 ISM maximum gill net mesh size
	1.d	Seasonal maximum size limit and 3.75 or 4.0 ISM maximum gill net mesh size
Season Closure	2.a	No season closure
	2.b	Statewide season closure October 29–December 31
	2.c	Statewide season closure November 7–December 31
	2.d	Regional, North/South, season closure North Oct. 28–Dec. 31 South Oct. 30–Dec. 31
	2.e	Regional, North/South, season closure North Nov. 7–Dec. 31 South Nov. 10–Dec. 31
Trip Limit	3	
Day of Week Closure	4	
Combinations	5.a–r	See <a href="#">Table 2.13</a>
Stop Net Fishery Management	6.a	Manage stop net fishery with same management measures applied as the rest of the fishery
	6.b	Stop Net specific catch cap
Seasonal Catch Limit	7.a	Status quo – no seasonal catch limit
	7.b	Statewide seasonal catch limit
	7.c	Regional, North/South, seasonal catch limit
Area Closures	8	
Limited Entry	9	
Adaptive Management	10	

## RECOMMENDATION

### DMF Recommendation:

The DMF recommends the following options that are projected to rebuild the striped mullet spawning stock biomass (SSB) to a level between the threshold and target:

#### Option 5.n Combination of Measures

- Saturday-Sunday closure (Jan. 1-Sept. 30) (Table 2.18)
- Saturday-Monday closure (Oct. 1-Dec. 31) (Table 2.18)

Option 6.a Manage stop net fishery with same management measures applied as the rest of the fishery

Option 10: Adaptive Management Framework

Advisory Committees Recommendations and Public Comment: see [Appendix 4](#)

NCMFC Selected Management Options:



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### Option 5.n Combination of Measures

- Saturday-Sunday closure (Jan. 1-Sept. 30) (Table 2.18)
- Saturday-Monday closure (Oct. 1-Dec. 31) (Table 2.18)

Option 6.a Manage stop net fishery with same management measures applied as the rest of the fishery

Option 10: Adaptive Management Framework

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### APPENDIX 3. CHARACTERIZATION AND MANAGEMENT OF THE NORTH CAROLINA RECREATIONAL STRIPED MULLET FISHERY

#### ISSUE

Review available data and characterize the North Carolina recreational striped mullet fishery. Recommend potential non-quantifiable management measures in support of sustainable harvest objectives.

#### ORIGINATION

DMF

#### BACKGROUND

Striped mullet are not typically targeted by recreational anglers using hook and line though, striped mullet (*Mugil cephalus*) and white mullet (*M. curema*) are commonly used as bait fish by recreational anglers targeting a wide variety of inshore and offshore species (Nickerson 1984; NCDMF 2020). Juvenile mullet, referred to as finger mullet, caught by cast net are commonly used for bait by recreational anglers and are generally available in the summer and fall with the majority caught in July, August, September, and October (NCDMF 2020). Larger mullet are used as cut bait by anglers fishing from boats, piers, and the beach and are a popular bait used for targeting red drum (*Sciaenops ocellatus*).

The [2006 Striped Mullet FMP](#) (NCDMF 2006) characterized the cast net fishery for bait mullet and examined management measures to reduce discarding of bait mullet and prevent recreational cast netters from harvesting large amounts of bait mullet in North Carolina to sell in other states. The FMP established a possession limit of 200 mullets (white and striped in aggregate) per person per day for recreational purposes. A possession limit in the recreational fishery allows Marine Patrol to distinguish between commercial and recreational fishing operations and enforce accordingly. Marine Fisheries Commission Rule 15A NCAC 03M .0502 was amended to include section (a) “it is unlawful to possess more than 200 mullet per person per day for recreational purposes” and went into effect July 1, 2006. There are no other measures directly limiting the recreational harvest of striped mullet.

The [2022 stock assessment](#) concluded the striped mullet stock was overfished and overfishing is occurring. Development of recreational harvest estimates are described in the stock assessment report (NCDMF 2022). Briefly, annual estimates of recreational harvest (A, B1, A + B1) and associated percent standard error (PSE) values for striped mullet, white mullet, and mullet genus (striped or white mullet not identified to species) were obtained from the Marine Recreational Information Program (MRIP). Annual estimates of the average individual weight of harvested striped mullet were also obtained from MRIP. Estimates of live releases were not considered for inclusion in the stock assessment because mullet are primarily captured by recreational anglers for use as live bait and releases are assumed to have no associated post-release mortality and the assessment model only considers dead fish.

This paper further characterizes the recreational striped mullet fishery, available data, and data needs. Because estimates of recreational harvest are highly uncertain, management measures resulting in quantifiable harvest reductions cannot be recommended. Non-quantifiable management measures to support sustainable harvest and allow for recreational access to meet fishery needs are discussed.

## DRAFT

### AUTHORITY

N.C. General Statute  
G.S. 113-134 RULES  
G.S. 113-182 REGULATION OF FISHING AND FISHERIES  
G.S. 113-182.1 FISHERY MANAGEMENT PLANS  
G.S. 113-221.1. PROCLAMATIONS; EMERGENCY REVIEW  
G.S. 143B-289.52 MARINE FISHERIES COMMISSION-POWERS AND DUTIES

N.C. Rule  
15A NCAC 03M .0502 MULLET  
15A NCAC 03M .0101 MUTILATED FINFISH  
15A NCAC 03H .0103 PROCLAMATIONS, GENERAL

### DISCUSSION

#### Collection of Recreational Data

North Carolina conducts three fishery-dependent surveys to collect recreational harvest data. MRIP is the primary survey used to collect data on angler harvest from the ocean 0-3 miles from the coast and inside waters from the Virginia border south to the South Carolina border, excluding the Albemarle Sound. The Recreational Commercial Gear License (RCGL) Survey was conducted from 2002-2008 by the DMF to collect data from recreational fishermen who are licensed to harvest recreational limits of finfish using commercial gears. The third survey, which began in November 2010, is a monthly mail survey conducted to determine participation and effort of Coastal Recreational Fishing License (CRFL) holders who fish using cast nets and seines.

#### Marine Recreational Information Program

The MRIP is a national program administered through NOAA Fisheries that uses several surveys to estimate catch and effort data at a regional level. The Access Point Angler Intercept Survey (APAIS) provides the catch rates and species composition from anglers fishing in estuarine or marine waters (not freshwater). Anglers who have completed a fishing trip are intercepted and interviewed to gather catch and demographic data, including fishing mode (charter boat, private/rental boat, beach/bank, and man-made structures), area fished, and wave (each two-month sampling period). The MRIP implemented the Fishing Effort Survey (FES) in 2018, an improved methodology of the prior effort survey (Coastal Household Telephone Survey). The data from the APAIS and FES are combined to provide estimates of the total number of fish caught, released, and harvested. Additionally, information is collected on the weight of the harvest, total number of trips, and the number of people participating in marine recreational fishing. Additional information on MRIP is available through the [NOAA MRIP Website](#).

Striped mullet landings reported through MRIP are available at the species level through direct observation; however, releases are not observed and therefore are only available at the genus level, which includes both striped mullet and white mullet. Juvenile striped mullet and white mullet are not easily distinguished by recreational anglers, and harvest levels reported through MRIP at the species level are imprecise for both striped mullet and white mullet. To estimate species-level recreational harvest of striped mullet more accurately, the sum of recreational harvest reported for striped mullet and a proportion (29%) of the recreational harvest reported at the mullet genus level are used. This proportion was derived from a study by the DMF, indicating that about 29% of mullet harvested using cast nets are striped mullet (NCDMF 2006). The option to record harvest at the genus level for unobserved harvest of mullet only became available in 2002, therefore, MRIP estimates for recreational striped mullet harvest prior to 2002 are unreliable. Additionally,

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recreational harvest is estimated by the number of fish harvested rather than in pounds because most mullet reported by anglers are not observed or weighed.

Estimates for recreational harvest of striped mullet peaked in 2002 and 2003 at about six million and four million fish harvested, respectively (Table 3.1). This increase coincides with an increase in commercial harvest (see Commercial Fishery section) and appears to be the result of increased striped mullet abundance. From 2004 to 2017, recreational harvest fluctuated between roughly 1 million and 1.8 million fish, then dropped to around 500 thousand fish harvested per year until 2021 when harvest increased to about 1.5 million fish (Table 3.1). The decline in harvest from 2018-2020 was likely the result of decreased striped mullet abundance and management measures that significantly shorten the recreational fishing season for southern flounder (*Paralichthys lethostigma*), a fishery where live finger mullet are a popular bait.

Table 3.1. Recreational harvest (number of fish landed) of striped mullet and mullet genus estimated from MRIP sampling for 2002 to 2021. Type A harvest is observed while Type B1 harvest is reported by the angler and never observed. Proportional standard error (PSE) values greater than 50 indicate an imprecise estimate (highlighted gray).

Year	Striped Mullet		Mullet Genus		Striped Mullet from Mullet Genus (29%)	Striped Mullet + Mullet Genus
	Harvest (A+B1)	PSE	Harvest (B1)	PSE	Harvest (B1)	Striped Mullet Total Harvest
2002	4,668,427	18.0	4,480,197	36.3	1,299,257	5,967,684
2003	3,368,881	29.6	2,487,885	20.4	721,487	4,090,368
2004	5,496	101.7	4,790,382	16.1	1,389,211	1,394,707
2005	10,795	61.5	4,487,719	21.4	1,301,439	1,312,234
2006	15,706	63.5	3,599,098	21.4	1,043,738	1,059,444
2007	301,004	81.3	5,052,995	22.3	1,465,369	1,766,373
2008	3,458	65.0	4,097,156	14.4	1,188,175	1,191,633
2009	83,480	90.6	3,736,571	14.3	1,083,606	1,167,086
2010	126,250	44.7	4,113,171	14.3	1,192,820	1,319,070
2011	80,267	28.6	3,653,514	14.3	1,059,519	1,139,786
2012	351,960	79.5	3,510,395	16.3	1,018,015	1,369,975
2013	150,020	53.9	4,493,166	20.5	1,303,018	1,453,038
2014	50,381	67.0	4,490,722	26.2	1,302,309	1,352,690
2015	142,696	64.5	4,405,800	21.5	1,277,682	1,420,378
2016	29,965	50.6	5,039,891	55.6	1,461,568	1,491,533
2017	37,791	43.9	5,170,318	55.2	1,499,392	1,537,183
2018	35,565	59.3	1,564,676	31.7	453,756	489,321
2019	324,986	52.0	817,596	25.3	237,103	562,089
2020	323,102	43.2	719,908	23.2	208,773	531,875
2021	1,194,213	73.6	1,002,195	31.6	290,637	1,484,850

Recreational striped mullet harvest increases beginning in May and June, coinciding with increasing recreational fishing effort, and peaks in September and October (Table 3.2, Figure 3.1). A cast net study conducted by the DMF in 2002 and 2003 found the composition of cast net catches was primarily white mullet but in November, striped mullet were 74% of the catch (NCDMF 2006). White mullet were a higher proportion of the catch at ocean or inlet stations compared to estuarine stations which had a higher percentage of striped mullet.

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Table 3.2. Recreational harvest (number of fish landed) of striped mullet and mullet genus by wave estimated from MRIP sampling, 2002-2021. Striped mullet assumed as 29% of mullet genus.

Year	Wave	Striped Mullet	Mullet Genus	Striped Mullet from Mullet Genus (29%)	Striped Mullet + Mullet Genus
		Harvest (A+B1)	Harvest (B1)	Harvest (B1)	Striped Mullet Total Harvest
2017	Jan/Feb	.	.	.	.
2017	Mar/Apr	.	82,931	24,050	24,050
2017	May/June	27,708	284,430	82,485	110,193
2017	Jul/Aug	8,505	354,629	102,842	111,347
2017	Sep/Oct	1,579	4,432,737	1,285,494	1,287,073
2017	Nov/Dec	.	15,590	4,521	4,521
2018	Jan/Feb	.	.	.	.
2018	Mar/Apr	.	.	.	.
2018	May/June	2,239	136,595	39,613	41,852
2018	Jul/Aug	18,993	750,891	217,758	236,751
2018	Sep/Oct	13,505	457,709	132,736	146,241
2018	Nov/Dec	828	219,480	63,649	64,477
2019	Jan/Feb	.	.	.	.
2019	Mar/Apr	.	32,700	9,483	9,483
2019	May/June	11,773	86,637	25,125	36,898
2019	Jul/Aug	82,801	280,921	81,467	164,268
2019	Sep/Oct	217,317	367,020	106,436	323,753
2019	Nov/Dec	13,096	50,318	14,592	27,688
2020	Jan/Feb	1,648	1,540	447	2,095
2020	Mar/Apr	.	21,050	6,105	6,105
2020	May/June	6,308	78,303	22,708	29,016
2020	Jul/Aug	40,470	239,694	69,511	109,981
2020	Sep/Oct	274,675	370,617	107,479	382,154
2020	Nov/Dec	.	8,704	2,524	2,524
2021	Jan/Feb	.	6,340	1,839	1,839
2021	Mar/Apr	7,087	.	.	7,087
2021	May/June	1,336	144,319	41,853	43,189
2021	Jul/Aug	21,670	292,846	84,925	106,595
2021	Sep/Oct	1,164,119	558,690	162,020	1,326,139
2021	Nov/Dec	.	.	.	.

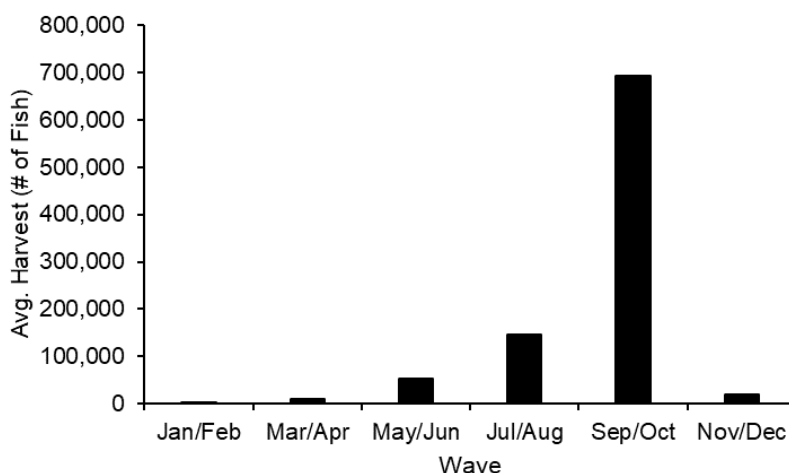


Figure 3.1. Average number of striped mullet harvested by the recreational fishery by wave based on MRIP estimates for 2017 to 2021.

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The average length of striped mullet encountered in the North Carolina MRIP survey has ranged from a minimum of 7.2 inches (182 mm) in 2009 to a maximum of 13.6 inches (345 mm) in 2005 (Table 3.3). Because of small sample sizes, average lengths in almost all years of the time series are associated with high degrees of imprecision and are not considered reliable for characterizing recreational mullet harvest. Typically, only the largest mullet harvested by anglers are available to be sampled by MRIP staff. Most mullet harvested for use as bait are released prior to returning to the dock. The cast net survey conducted by DMF found striped mullet in cast net samples ranging from 1.9-15.3 inches FL (50-390 mm) with 76% of the fish from 2.8-5.5 inches FL (70-140 mm; NCDMF 2006; Figure 3.2). White mullet from cast net samples ranged from 1.6-7.4 inches FL (40-190 mm) with 98% of the fish between 2.4-5.9 inches FL (60-50 mm). Sub-adult and adult striped mullet were occasionally caught in the independent samples, but no sub-adult or adult white mullet were captured.

Table 3.3. Average length and weight of individual striped mullet intercepted by APAIS interviewers in North Carolina, 2002–2021. Proportional standard error (PSE) values greater than 50 indicate an imprecise estimate (highlighted gray).

Year	Avg Length (in)	PSE	Avg Weight (lb)	PSE
2002	8.2	26.0	0.4	30.2
2003	9.2	44.9	0.4	48.8
2004	10.0	143.8	0.4	143.8
2005	13.6	87.2	1.3	88.1
2006	11.9	86.4	0.9	83.1
2007	10.6	113.5	0.7	110.4
2008	10.8	90.9	0.7	90.6
2009	7.2	122.9	0.2	110.1
2010	10.4	63.7	0.9	73.2
2011	10.7	41.4	0.7	48.0
2012	10.5	112.5	0.7	112.8
2013	10.8	74.9	0.9	76.8
2014	12.9	96.4	1.1	97.0
2015	12.4	91.7	1.3	94.9
2016	11.9	71.7	0.9	72.3
2017	10.8	62.3	0.7	61.8
2018	10.9	83.3	0.7	82.0
2019	12.5	73.9	1.1	77.0
2020	13.4	63.1	1.5	67.8
2021	7.8	100.6	0.2	92.1

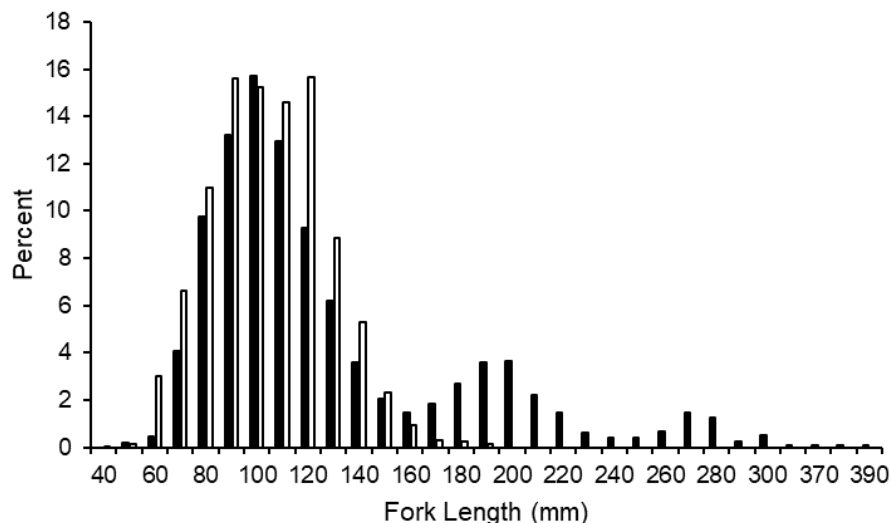


Figure 3.2. Length-frequency distributions of striped mullet (black bars) and white mullet (white bars) collected in the DMF fisheries-independent cast net study, 2002-2003.

### Recreational Commercial Gear Landings

Harvest data from the Recreational Commercial Gear License (RCGL) survey were collected from 2002 to 2008. The program was discontinued in 2009 due to a lack of funding and the minimal contributions from RCGL to overall harvest. From 2002 to 2008, it is estimated that RCGL holders harvested an average of 41,512 pounds per year (Table 3.4). Estimated landings of striped mullet by RCGL holders peaked in 2002 and 2008, the first and final years of the survey. See [Amendment 1 to the Striped Mullet Fishery Management Plan](#) for a detailed summary of RCGL landings and effort (NCDMF 2015). Since the discontinuation of the RCGL survey in 2008, the number of RCGL issued each year has declined. In 2008, 5,503 RCGL were issued and in 2021, 2,143 RCGL were issued (NCDMF 2022a). It is unlikely harvest from this license type has increased substantially, particularly as additional restrictions have been placed on the use of gill nets.

Table 3.4. North Carolina RCGL number of striped mullet harvested, pounds harvested, number released, and total number caught. Estimates are from a RCGL survey conducted from 2002-2008.

Year	Number Harvested	Pounds Harvested	Number Released	Total Number
2002	66,305	64,213	6,549	72,854
2003	28,757	24,774	3,514	32,270
2004	34,736	35,947	2,875	37,611
2005	35,888	36,314	3,492	39,380
2006	38,175	37,385	5,352	43,527
2007	35,472	40,168	7,449	42,921
2008	51,465	51,785	9,207	60,672

### Coastal Recreational Fishing License Survey

In October 2011, the DMF began a [mail survey](#) to develop catch and effort estimates for recreational cast net and seine use. The mail survey was established as a direct response to a lack of precision in MRIP estimates for difficult to sample or overlooked recreational fisheries and activities. The survey does not distinguish between striped and white mullet and all data should

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be interpreted with caution because the ratio of striped mullet to white mullet in the recreational catch differs between seasons and areas of the state. Estimates from the DMF CRFL mail survey vary by month but generally peak between July and October, consistent with MRIP harvest estimates. The mail survey is a good source of recreational mullet effort, catch, and harvest information because of the relatively high precision of estimates.

Between 2012 and 2021, estimated annual harvest by cast nets of striped and white mullet from the mail survey ranged from 347,187 fish in 2018 to 942,521 fish in 2015 and the estimated number of trips that harvested mullet ranged from 88,939 trips in 2018 to 206,876 trips in 2015 (Table 3.5).

Additional sampling effort should focus on better characterizing the recreational fishery for striped mullet by contextualizing data collected by the CRFL Mail Survey through fishery-independent sampling. Characterization of cast net fishery catch composition was completed by the DMF in 2002-2003. While these data have been important for understanding the recreational fishery, particularly the proportion of striped mullet in the cast net harvest, updating the study in the context of the current recreational fishery, should be completed. Further sampling should be stratified based on effort, timing and locations reported in the CRFL Mail Survey and, in addition to collecting species composition information, should focus on collecting length and age data.

Table 3.5. Total mullet (striped and white) harvest (numbers of fish), releases, catch and effort from the Coastal Recreational Fishing License Survey by wave, 2012-2021. Proportional standard error (PSE) values greater than 50 indicate an imprecise estimate (highlighted gray).

Year	Wave	Total Effort	PSE	Total Mullet Harvest	PSE	Total Mullet Release	PSE	Total Mullet Catch	PSE
2021	Jan/Feb	10,518	27.9	15,365	61.1	4,615	56.7	19,980	57.7
	Mar/Apr	50,726	29.9	52,766	42.7	14,592	46.4	67,358	42.0
	May/June	45,681	11.8	133,646	26.9	34,978	50.6	168,624	26.9
	Jul/Aug	41,346	15.3	254,681	22.8	69,914	24.5	324,594	20.7
	Sep/Oct	65,736	11.4	582,176	24.5	169,786	25.5	751,961	21.1
	Nov/Dec	36,335	14.6	183,488	27.2	57,966	29.4	241,453	26.9
	Total	250,379	9.3	1,222,120	14.2	351,850	15.9	1,573,970	12.8
2020	Jan/Feb	11,690	23.9	8,878	37.9	1,077	53.3	9,955	36.8
	Mar/Apr	11,799	17.5	25,426	29.9	4,549	47.5	29,975	29.7
	May/June	24,586	16.9	51,327	21.1	19,058	31.5	70,385	20.6
	Jul/Aug	64,789	14.8	152,144	21.3	78,864	25.8	231,008	19.8
	Sep/Oct	34,501	13.0	254,362	18.0	56,512	18.5	310,874	16.8
	Nov/Dec	26,203	14.9	136,348	19.6	46,406	22.1	182,754	18.7
	Total	173,568	7.6	628,485	10.5	206,466	13.0	834,951	9.9
2019	Jan/Feb	12,139	18.4	27,088	35.1	7,351	33.7	34,439	32.7
	Mar/Apr	9,674	21.4	11,023	37.4	3,517	47.8	14,540	34.7
	May/June	44,262	14.5	143,824	21.9	35,856	25.0	179,680	20.9
	Jul/Aug	39,904	14.5	210,967	20.3	122,890	33.6	333,857	20.8
	Sep/Oct	40,143	13.3	219,358	14.8	124,146	22.7	343,504	15.3
	Nov/Dec	16,819	20.1	76,555	30.7	27,125	33.3	103,680	30.0
	Total	162,941	7.1	688,815	10.0	320,885	16.5	1,009,700	10.2
2018	Jan/Feb	4,121	30.4	3,935	65.2	450	70.5	4,385	62.1
	Mar/Apr	8,950	20.8	16,051	41.4	4,560	43.2	20,611	39.5
	May/June	32,021	14.3	58,694	25.2	12,577	29.5	71,271	24.8
	Jul/Aug	11,125	20.3	43,317	24.2	13,418	33.4	56,735	24.5
	Sep/Oct	11,832	71.1	139,578	72.5	56,912	85.8	196,490	76.1
	Nov/Dec	20,890	16.3	85,612	18.4	20,987	23.6	106,599	18.4
	Total	88,939	12.1	347,187	30.1	108,904	45.4	456,091	33.5
2017	Jan/Feb	6,178	25.3	7,047	55.9	994	70.9	8,042	56.7
	Mar/Apr	16,513	15.9	36,630	25.7	13,572	30.5	50,202	26.3



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Year	Wave	Total Effort	PSE	Total Mullet Harvest	PSE	Total Mullet Release	PSE	Total Mullet Catch	PSE
	May/June	37,371	13.2	175,562	20.3	56,093	21.8	231,656	19.4
	July/Aug	54,353	13.8	218,395	15.6	89,636	19.3	308,031	15.0
	Sep/Oct	41,186	13.8	195,901	15.9	54,855	24.7	250,756	16.1
	Nov/Dec	27,259	14.4	89,393	18.6	24,847	28.1	114,240	18.9
	Total	182,861	6.7	722,929	8.8	239,998	11.3	962,927	8.7
2016	Jan/Feb	11,910	27.1	6,927	51.1	3,283	73.2	10,210	55.4
	Mar/Apr	13,803	20.5	17,333	44.5	1,238	63.5	18,571	42.0
	May/June	39,127	13.7	141,203	25.2	47,699	29.9	188,903	23.6
	July/Aug	51,085	11.8	306,614	18.3	109,938	22.3	416,552	17.7
	Sep/Oct	41,325	12.1	173,517	18.6	26,096	21.3	199,613	17.2
	Nov/Dec	34,673	16.3	102,800	26.5	31,637	33.1	134,437	27.0
	Total	191,922	6.4	748,394	10.9	219,892	14.3	968,286	10.7
2015	Jan/Feb	6,730	25.4	19,540	38.2	3,060	52.0	22,600	37.0
	Mar/Apr	13,981	18.5	25,446	28.2	5,880	33.6	31,326	27.9
	May/June	50,315	12.1	147,726	17.8	50,052	25.7	197,778	16.9
	July/Aug	71,656	10.7	400,123	13.9	156,696	19.1	556,819	14.1
	Sep/Oct	40,078	10.6	232,037	15.4	43,801	19.1	275,837	15.1
	Nov/Dec	24,116	17.8	117,650	21.6	36,550	26.2	154,200	21.9
	Total	206,876	6.0	942,521	8.4	296,039	12.2	1,238,561	8.5
2014	Jan/Feb	5,206	25.0	12,023	46.3	1,076	57.9	13,099	44.3
	Mar/Apr	16,131	19.0	13,949	45.0	1,859	60.3	15,807	43.0
	May/June	35,945	13.5	110,839	20.8	28,262	22.4	139,101	19.5
	July/Aug	52,883	13.7	208,730	18.1	63,626	19.8	272,356	16.8
	Sep/Oct	63,224	12.7	362,912	14.6	136,337	16.4	499,250	13.5
	Nov/Dec	23,867	14.5	74,605	19.7	20,344	26.7	94,949	19.2
	Total	197,257	6.8	783,058	9.4	251,504	11.1	1,034,561	8.9
2013	Jan/Feb	13,053	18.3	57,047	30.0	7,862	36.4	64,909	29.7
	Mar/Apr	9,079	23.4	20,839	41.4	4,021	49.4	24,860	41.4
	May/June	24,541	11.8	65,072	24.4	21,957	30.5	87,030	24.8
	July/Aug	41,197	11.3	324,616	16.2	121,012	21.7	445,628	15.9
	Sep/Oct	25,872	16.3	159,790	20.9	39,065	26.1	198,855	19.8
	Nov/Dec	25,544	15.3	83,943	21.1	35,592	31.0	119,534	21.5
	Total	139,286	6.3	711,307	10.1	229,509	13.9	940,816	9.9
2012	Jan/Feb	10,484	22.1	23,346	32.8	9,050	42.3	32,395	32.4
	Mar/Apr	9,734	19.8	17,055	32.0	3,931	57.2	20,986	31.8
	May/June	20,903	12.5	84,180	25.7	26,845	32.9	111,025	23.9
	July/Aug	32,810	13.3	181,667	19.6	76,701	26.0	258,368	18.3
	Sep/Oct	30,377	11.2	292,859	13.0	72,004	16.1	364,862	12.6
	Nov/Dec	21,315	15.8	94,155	21.1	31,676	26.7	125,831	20.7
	Total	125,623	6.2	693,262	8.9	220,205	12.2	913,467	8.6

**Non-Quantifiable Management Options**

Because of uncertainty in recreational harvest estimates, it is not possible to calculate harvest reductions from any specific management measure. Assumptions about species composition and imprecision of harvest estimates at the wave (two month) level prevent quantifying harvest reductions from season closures and bag limits. A lack of length composition information prevents calculation of harvest reductions from size limits. However, stock assessment sensitivity runs using alternative proportions of striped mullet in recreational landings had very little effect on model outputs and stock status (NCDMF 2022b). Regardless of recreational fishery magnitude or importance, implementing management on the commercial fishery without limiting recreational harvest could shift effort and have the potential to complicate enforcement. For example, the commercial striped mullet fishery supplies significant amounts of live and dead mullet to bait shops, which are purchased by recreational anglers for use as bait. If limits are put on commercial

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harvest, recreational anglers could increase directed effort for mullet to continue meeting the need for bait.

Whether recreational harvest reductions are quantifiable or not, sustainability objectives should be consistent between commercial and recreational fisheries management. Management options can be developed for the recreational fishery allowing for traditional resource use while supporting sustainability objectives.

If management measures like size limits, season closures, or day of week closures are adopted for the commercial fishery the same measures could be applied equally to the recreational fishery. However, given differing resource uses and fishery characteristics between the commercial and recreational fisheries, it is likely unnecessary to manage the sectors jointly. Using available data for guidance, specific management measures for the recreational fishery should be considered allowing for traditional use while supporting sustainability objectives.

### Bag and Size Limits

The 200 fish bag limit established in the [Striped Mullet FMP](#) does little to limit recreational harvest (Table 3.6). Most recreational trips that harvest mullet harvest fewer than 25 fish (Table 3.6). Reducing the bag limit further could prevent excessive recreational harvest of finger mullet while continuing to meet fishery demands. In addition, a vessel limit could be implemented in addition to an individual bag limit to prevent excessive harvest and waste. Cast net sampling indicates most finger mullet captured in cast nets are white mullet, and sub-adult and adult white mullet are rarely encountered in North Carolina waters (NCDMF 2006). A recreational bag limit of 50 fish and vessel limit of 100 fish would be sufficient to meet the needs of 97% of anglers who harvest mullet recreationally (Table 3.6) and most of the harvest would likely be white mullet. Members of the Striped Mullet FMP AC were in favor of managing the recreational striped mullet fishery separate from the commercial fishery and suggested reducing the bag limit as a good approach. Specifically, members of the AC supported reducing the bag limit somewhere in the range of 50-100 fish per person per day and expressed support for measures similar to those used to manage the Florida recreational mullet fishery including a 50 fish bag limit and vessel limit of 100 fish per vessel from February 1 through August 31 and 50 fish per vessel from September 1 through January 31.

Implementing a reduced bag limit for mullet over a certain size would specifically prevent excessive harvest of striped mullet and could be implemented specifically during the spawning season to reduce harvest on the spawning stock while allowing continued harvest of finger mullet. For example, implementing a bag limit on mullet greater than 8-inches (Figure 3.2), would still allow harvest of finger mullet, which are primarily white mullet and prevent excessive recreational harvest of larger mullet. A bag limit, somewhere in the range of 10-25 mullet greater than 8-inches would allow continued use of striped mullet as cut bait. There was not strong support for size specific bag limits from members of the FMP AC. Because of difficulty catching larger mullet in cast nets, AC members felt minimal harvest of these larger fish occurred but wanted to be able to catch these fish in large quantities when they were available for use as cut bait.

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Table 3.6. Frequency and percentage of recreational trips harvesting mullet by harvest bin, 2002-2021.

Number Harvested	Frequency	Percent
1-25	2,644	85
26-50	386	12
51-75	34	1
56-100	19	1
101-150	8	<0.1
151-200	5	<0.1
200+	7	<0.1
Total	3,103	100

### Option 1. Recreational Vessel and Bag Limit

#### a. Status Quo

- + No new regulations
- + Allows continuation of fishery that mostly harvests white mullet
- Does not reduce harvest of striped mullet
- No preferential protection for largest fish

#### b. Reduce Recreational Bag Limit (100 fish)

- + Limits striped mullet harvest
- + Allows continuation of fishery that mostly harvests white mullet
- No preferential protection for largest fish
- Discarding could occur

#### c. Reduce Recreational Bag Limit (100 fish) and Implement Vessel Limit (400 fish)

- + Limits striped mullet harvest
- + Allows continuation of fishery that mostly harvests white mullet
- No preferential protection for largest fish
- Discarding could occur

#### d. Bag Limit (10, 15, 20, 25, etc.) for Fish Over 8-Inches

- + Provides some reduction in striped mullet harvest
- + Allows continuation of fishery that mostly harvests white mullet
- + Directs harvest to finger mullet which may experience high natural mortality
- + Provides preferential protection for largest fish
- + Allow larger mullet to be harvested for personal consumption or cut bait
- Limits use of larger mullet for personal consumption and cut bait
- Discarding could occur

#### e. Seasonal (October-December) Bag Limit (10, 15, 20, 25, etc.) for Fish Over 8-Inches

- + Provides some reduction in striped mullet harvest
- + Allows continuation of fishery that mostly harvests white mullet
- + Directs harvest to finger mullet which may experience high natural mortality
- + Provides preferential protection for largest fish
- + Allow larger mullet to be harvested for personal consumption or cut bait
- + Limits harvest during spawning season
- Limits use of larger mullet for personal consumption and cut bait
- Discarding could occur

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For Hire Vessel operations often harvest mullet ahead of time for their customers to use as bait during charter and head boat trips. Because For Hire licenses allow vessels in North Carolina to carry six or more passengers, For Hire Vessel operations may use more mullet as bait during fishing trips than typical recreational fishing vessels. If a vessel limit for mullet is implemented, it could be applied equally to both private vessel trips and For Hire Vessel trips; however, this would not allow for traditional use of mullet in the For Hire fishery. Implementing a vessel limit specific to For Hire Vessels (as defined in G.S. § 113-174) while engaged in For-Hire Vessel operations, would limit excessive recreational harvest of striped mullet while continuing to meet fishery demands. A similar strategy is currently used to manage the For Hire cobia fishery in North Carolina.

Alternatively, the individual bag limit could be applied to all passengers on board and the vessel limit could be suspended during For Hire Vessel operations, allowing for traditional use of the fishery while limiting harvest. In this scenario, the maximum number of mullet allowed to be held onboard for use as bait prior to the beginning of a trip, during a trip, or after a trip is completed would be the individual bag limit multiplied by the number of customers allowed on the vessel. During a trip, the number of mullet in possession to be harvested could not exceed the individual bag limit multiplied by the number of anglers onboard the vessel during the trip. The For Hire Vessel trip would be defined as a period of time in which fishing is conducted, beginning when the vessel leaves port and ending when the vessel returns to port. A similar strategy has been implemented by the Atlantic States Marine Fisheries Commission's Addendum III to Amendment 1 to the Interstate Fishery Management Plan for Atlantic Croaker to allow For Hire Vessel operations to use live Atlantic croaker as bait.

The DMF initially recommended a 50 fish individual recreational bag limit with an exception for For Hire Vessel Operations to possess a bag limit for the number of anglers they are licensed to carry, including in advance of a trip. Input from the ACs suggested there was not strong support for reducing the 200 fish bag limit; however, a reduced bag limit would limit effort shifting from the commercial bait fishery to the recreational fishery because of management measures that may reduce commercial bait harvest. Reducing the recreational bag limit also creates consistency in meeting sustainability objectives across sectors. In consideration of input from the regional ACs, the Division changed its recommendation to options 1.c and 2.c, which would implement a 100 fish individual bag limit and a 400 fish vessel limit with an exception for For Hire Vessel Operations to possess a bag limit for the number of anglers fishing up to the 400-fish maximum, including in advance of a trip (Table 3.7). This option limits effort from expanding into the recreational fishery while continuing to allow traditional use of the resource.

### Option 2. For Hire Vessel and Bag limit

#### a. For Hire Vessel Limit (500 fish, etc.)

- + Provides some reduction in striped mullet harvest
- + Allows continuation of fishery that mostly harvests white mullet
- + Allows for traditional use of fishery while engaged in For Hire Vessel operation
- No preferential protection for largest fish
- Discarding could occur

#### b. Exception for For Hire Vessel Operations to Possess a Bag Limit for the Number of Anglers They are Licensed to Carry (Including in Advance of a Trip).

- + Provides some reduction in striped mullet harvest
- + Allows continuation of fishery that mostly harvests white mullet
- + Allows for traditional use of fishery while engaged in For-Hire Vessel operation
- No preferential protection for largest fish

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- Discarding could occur

c. Exception for For Hire Vessel Operations to Possess a Bag Limit for the Number of Anglers Fishing Up to the 400-fish Maximum (Including in Advance of a Trip).

- + Provides some reduction in striped mullet harvest
- + Allows continuation of fishery that mostly harvests white mullet
- + Allows for traditional use of fishery while engaged in For-Hire Vessel operation
- No preferential protection for largest fish
- Discarding could occur

d. Mirror Option 1 management decision

### Adaptive Management

[See Appendix 2](#). If adaptive management is adopted as part of Amendment 2, the specifications would apply to the commercial and recreational fisheries for mullet.

Table 3.7. Management options for recreational harvest of striped mullet.

Topic	Option	Description
<u>Vessel and Bag Limit Options</u>	1.a	Status Quo
	1.b	Reduce Recreational Bag Limit (100 fish)
	1.c*	Reduce Recreational Bag Limit (100 fish) and Implement Vessel Limit (400 fish)
	1.d	Bag limit (10, 15, 20, 25, etc.) for Fish Over 8-inches
	1.e	Seasonal (October-December) Bag Limit (10, 15, 20, 25, etc.) for Fish Over 8-inches
<u>For Hire Vessel Operations Options</u>	2.a	For Hire Vessel Limit (500 fish, etc.)
	2.b	Exception for For Hire Vessel Operations to Possess a Bag Limit for the Number of Anglers They are Licensed to Carry (Including in Advance of a Trip)
	2.c*	Exception for For Hire Vessel Operations to Possess a Bag Limit for the Number of Anglers Fishing Up to the 400-fish maximum (Including in Advance of a Trip)
	2.d	Mirror Option 1 Management Decision

\*DMF recommendation

### PROPOSED RULE(S)

No rule changes are necessary. Existing MFC rule 15A NCAC 03M .0502(b) delegates authority to the Fisheries Director to issue a proclamation to implement any of the management options proposed in Amendment 2.

#### "Mullet" Rule (15A NCAC 03M .0502)

Existing MFC rule 15A NCAC 03M .0502(b), "Mullet", delegates authority to the Fisheries Director to issue a proclamation to implement any of the management options proposed in Amendment 2. The Fisheries Director, consistent with the variable conditions provided in 15A NCAC 03H .0103 including compliance with FMPs, may impose any of the following restrictions on the taking of mullet:

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- (1) specify time;
- (2) specify area;
- (3) specify means and methods;
- (4) specify season;
- (5) specify size; and
- (6) specify quantity, except as provided in Paragraph (a) of this Rule.

Paragraph (a) of the rule sets a fixed maximum possession limit of 200 mullet per person per day for recreational purposes. However, given the current stock status this rule will likely be amended in the second round of the periodic review of rules (G.S. § 150B-21.3A) in the late 2020s, to remove the recreational bag limit of 200 mullet. If changes to the bag limit are needed before that time, the Fisheries Director has authority to suspend this portion of the rule (15A NCAC 03I .0102). Potentially amending the rule to remove the bag limit during the next periodic review of the rule would simplify the process for implementing management measures for the Striped Mullet FMP.

### *"Mutilated Finfish" Rule (15A NCAC 03M .0101)*

The MFC originally adopted the "Mutilated Finfish" rule (15A NCAC 03M .0101) in 1991 with the intent of providing added resource protection for finfish species subject to a size or bag limit. In response to the 200 fish bag limit for mullet, in July 2006, the rule was amended to add mullet as an exception, otherwise the use of mullet as cut bait would not have been allowed to continue. At that time, overfishing of the striped mullet stock was not occurring and the 200 fish bag limit was high enough there was little concern about enforceability.

However, the rule did not provide flexibility to manage variable conditions for species commonly used as cut bait, particularly when new regulations implemented to meet sustainability objectives (i.e., size or bag limits) make species subject to this rule. The MFC proposed amendments to the April 1, 2019 version of the rule in August 2022 to read:

#### 15A NCAC 03M .0101                      MUTILATED FINFISH

*It shall be unlawful to possess aboard a vessel or while engaged in fishing any species of finfish that is subject to a ~~size or harvest restriction possession limit, including size limit, recreational bag limit, commercial trip limit, or season, without having head and tail attached, unless otherwise specified in a rule of the Marine Fisheries Commission or a proclamation issued pursuant to a rule of the Marine Fisheries Commission.~~ except:*

- ~~(1) mullet when used for bait;~~*
- ~~(2) hickory shad when used for bait, provided that not more than two hickory shad per vessel or fishing operation may be cut for bait at any one time; and~~*
- ~~(3) tuna possessed in a commercial fishing operation as provided in rule .0520 of this Subchapter.~~*

The use of mullet as cut bait is an enforcement issue, not a conservation issue but given the updated stock status for striped mullet and the need to implement conservation measures to rebuild the striped mullet stock, removing the mullet exception from the "Mutilated Finfish" rule is justified to support enforcement of sustainability measures like bag or size limits within the context of the "Mullet" rule and any proclamation issued under its authority. The use of mullet as cut bait should continue, to allow for traditional use and to meet stakeholder preferences.

In June 2023, the N.C. Rules Review Commission (RRC) objected to the amendments proposed to the "Mutilated Finfish" rule for unclear or ambiguous language (G.S. § 150B-21.9(a)(2)). In

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October 2023, the RRC returned the "Mutilated Finfish" rule to the MFC in accordance with the requirements of Section 21.2.(m) of Session Law 2023-134. The law change resulted in a situation where the MFC was unable to address the RRC's earlier objection within the prescribed time limit. Nothing from that action would prevent a new proposed amendment to be pursued.

The amended "Mutilated Finfish" rule would have allowed the Fisheries Director to use proclamation authority that is set forth in other MFC rules (like the "Mullet" rule) to allow the use of any species as cut bait, subject to the Fisheries Director's discretion consistent with the variable conditions provided in 15A NCAC 03H .0103, including compliance with FMPs. This option would simplify the rule by including all requirements for a specific species within the same rule or proclamation.

## **RECOMMENDATION**

### DMF Recommendation:

Option 1.c: Recreational Individual Bag Limit of 100 Fish and Vessel Limit of 400 Fish

Option 2.c: Exception for For Hire Vessel Operations to Possess a Bag Limit for the Number of Anglers Fishing Up to the 400-fish Maximum (Including in Advance of a Trip)

Advisory Committees Recommendations and Public Comment: see [Appendix 4](#)

### NCMFC Selected Management Options:

Option 1.c: Recreational Individual Bag Limit of 100 Fish and Vessel Limit of 400 Fish

Option 2.c: Exception for For Hire Vessel Operations to Possess a Bag Limit for the Number of Anglers Fishing Up to the 400-fish Maximum (Including in Advance of a Trip)

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Appendix 4: Summary of management recommendations and comment

Issue Paper	DMF	Northern Regional Advisory Committee	Southern Regional Advisory Committee	Finfish Standing Advisory Committee	Public
Appendix 2: Sustainable Harvest	Option 5.n	Option 5.a	Approve DMF recommendation 5.n, 6.b and 10 for the commercial fishery. With the staff looking to adjust the roe season north and south for equitable reduction	Option 5.a with no catch cap for stop net (Option 6.a)	Concerns about overfishing. General support for gill net restrictions, seasonal closures, and trip limits to provide protection to the spawning stock. Some support for region specific regulations. Suggestions to account for economic impacts of regulation.
	Option 6.a	Option 6.a			
	Option 10	Abstain from making any motion regarding adaptive management			
Appendix 3: Recreational Fishery	Option 1.c	Abstain from making any motion regarding recreational fishery management	Approve options 1.b and 2.b for the recreational fishery	Option 1.a	Support for managing recreational and commercial fisheries separately. General questions related to the need to manage the recreational fishery at all.
	Option 2.c				



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ROY COOPER  
*Governor*

ELIZABETH S. BISER  
*Secretary*

KATHY B. RAWLS  
*Director*

April 26, 2024

## MEMORANDUM

**TO:** N.C. Marine Fisheries Commission

**FROM:** Charlton Godwin, N.C. Estuarine Striped Bass FMP Co-Lead

**SUBJECT:** 2024 Revision to the N.C. Estuarine Striped Bass FMP Amendment 2

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### Issue

Update the N.C. Marine Fisheries Commission (MFC) on the 2024 Revision to the N.C. Estuarine Striped Bass FMP Amendment 2. This Revision applies only to management of the Albemarle-Roanoke (A-R) striped bass stock in the Albemarle Sound and Roanoke River Management Areas.

### Action Needed

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

### Overview

This memo provides an **update on the status of the 2024 Revision to the N.C. Estuarine Striped Bass FMP Amendment 2, A-R striped bass stocking, and ongoing A-R striped bass research.**

### 2024 Revision to the N.C. Estuarine Striped Bass FMP Amendment 2

The 2024 Revision to Amendment 2 documents the authority and rationale for implementing a harvest moratorium in the Albemarle Sound and Roanoke River Striped Bass Management Areas, effective January 1, 2024. The 2022 update to the A-R striped bass benchmark stock assessment requires a 75% reduction in total removals relative to total removals allowed in 2021 (the last year of data in the stock assessment update) to reduce  $F$  to the  $F_{\text{Target}}$ . After accounting for recreational and commercial dead discards (estimate was 9,833 pounds of dead discards for 2021) the new Total Allowable Landings (TAL) is 8,349 pounds. A TAL of 8,349 pounds divided among three harvest sectors is too low to effectively manage and emphasizes the need to prioritize stock recovery over a very limited recreational fishery and commercial bycatch fishery. At such a low TAL, either sector would have the potential to harvest their entire TAL in less than one day.

While a moratorium is in place, all DMF and WRC juvenile and adult fishery-independent surveys continue to be monitored for the A-R striped bass stock and results will continue to be updated annually. This annual monitoring is provided to the public and MFC through the Division's annual Fishery Management Plan Review. These annual reports are provided to the MFC at the August

business meeting each year and are also available on the Division's website. Monitoring surveys include the WRC's electrofishing spawning stock survey and the DMF's fall/winter overwintering gill net survey, spring spawning stock gill net survey, and the juvenile abundance survey. Through these surveys, the relative abundance of year classes and the age and length structure of the stock will be evaluated annually to determine if improvements in the stock condition are occurring.

### **Albemarle-Roanoke Striped Bass Stocking Strategy**

To address the concern with consecutive years of recruitment failure since 2017 and to bolster stock rebuilding, stocking will be used to supplement natural production. The A-R striped bass broodstock progeny will be raised at hatcheries and stocked into the western Albemarle Sound nursery area during at least 2023–2025. Success of stocked fish will be evaluated using genetic markers unique to the broodstock of the stocked individuals. Results of the A-R stocking strategy will be evaluated annually through a cooperative effort of the DMF, WRC and the Edenton National Fish Hatchery, U.S. Fish and Wildlife Service. Genetic samples used to determine the contribution of hatchery fish to natural production from the wild stock will be collected through at least 2030. The nonprofit North Carolina Marine & Estuary Foundation is also providing funding to support these restoration efforts.

### **Additional Ongoing Albemarle-Roanoke Striped Bass Research**

Division of Marine Fisheries staff, in conjunction with university researchers, are conducting sampling in the lower Roanoke River and western Albemarle Sound for larval striped bass and the zooplankton prey they eat. Results from sampling in 2023 and 2024 will be compared to previous studies to determine trends in larval striped bass abundance and if there is adequate zooplankton prey available for proper larval striped bass development and growth. If the desired food source is not readily available, larval striped bass will starve, leading to a potential recruitment failure.

Wildlife Resources Commission staff, in conjunction with university researchers, are conducting research to determine if organic chemicals possessing fluorinated-carbon molecules (e.g. PFAS) are present in striped bass ovaries, and if so, are those chemicals being transferred from the mother to her offspring, and are these chemicals having adverse effects on larval fish survival.



**2024 Revision**

to the

**North Carolina Estuarine Striped Bass  
Fishery Management Plan  
Amendment 2**

Prepared By The

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## **2024 Revision**

**to the**

### **North Carolina Estuarine Striped Bass Fishery Management Plan Amendment 2**

#### **I. ISSUE**

The striped bass total allowable landings (TAL) in the Albemarle Sound Management Area (ASMA) and Roanoke River Management Area (RRMA) must be reduced to meet compliance with the North Carolina Estuarine Striped Bass Fishery Management Plan (FMP) Amendment 2 and the Atlantic States Marine Fisheries Commission (ASMFC) Amendment 7 to the Interstate FMP for Atlantic Striped Bass. The required TAL reduction is based on results of the 2022 update to the Albemarle-Roanoke (A-R) striped bass benchmark stock assessment that indicates overfishing is still occurring in the terminal year (2021) of the assessment and the stock continues to be overfished. (Lee et al. 2022). An additional concern is the seven consecutive years (2017–2023) of very poor A-R stock spawning success. The North Carolina Division of Marine Fisheries (DMF) and an external peer review panel of experts concluded the stock assessment update is suitable for management use and represents the current stock status. The peer review panel recognized factors in addition to fishing mortality are likely contributing to the chronic poor recruitment observed since the early 2000s and the current low abundance of the stock. Contributing factors may include river flow, water quality, water temperatures, habitat conditions, predation (i.e. blue catfish), and competition for food. This Revision applies only to management of the A-R striped bass stock in the Albemarle Sound and Roanoke River Management Areas.

#### **II. ORIGINATION**

North Carolina Division of Marine Fisheries, Wildlife Resources Commission (WRC), Inland Fisheries Division, and results of the 2022 update to the 2020 A-R striped bass benchmark stock assessment.

#### **III. BACKGROUND**

Atlantic striped bass from Maine through North Carolina are managed under the jurisdiction of the ASMFC since Congress passed the Atlantic Striped Bass Conservation Act in 1984. The A-R striped bass stock is migratory at older ages but contributes minimally to the overall Atlantic striped bass migratory stock complex compared to the Chesapeake Bay, Delaware River, and Hudson River stocks (ASMFC 2022; Berggren and Lieberman 1978; Callihan et al. 2014). Due to the non-migratory behavior of striped bass stocks south of the ASMA, the striped bass stocks within the Central Southern Management Area (CSMA) are not included in the management program for ASMFC's Interstate FMP for Atlantic Striped Bass.

The ASMFC Atlantic Striped Bass Management Board approved Amendment 7 to the Interstate FMP for Atlantic Striped Bass in May 2022. Amendment 7 maintains the provision to use DMF A-R stock assessments to determine fishing mortality ( $F$ ) and spawning stock biomass (SSB) biological reference points (BRPs) specifically for the A-R stock. The ASMFC Striped Bass

Technical Committee (TC) continues to monitor the contribution of the A-R stock to the coastal migratory population and make recommendations to the Board regarding future management.

In the fall of 2022, the 2020 A-R striped bass benchmark stock assessment (last year of data was 2017) was updated with data through 2021. This update to the 2020 stock assessment was completed to determine if management action taken through the November 2020 Revision to the North Carolina Striped Bass FMP Amendment 1 had the intended effect of ending overfishing and achieving  $F$  equal to or below the  $F_{Target}$  (NCDMF 2020). Results of the stock assessment update indicate that the  $F_{Target}$  was not achieved; the stock remained in an overfished condition and overfishing was still occurring (Table 1).

Table 1. Biological reference points for the Albemarle Sound-Roanoke River striped bass stock and the point estimate from the terminal year (2021) of the assessment. Source: Lee et al. 2022.

Metric	Target	Threshold	2021 Value	Status
Fishing Mortality	0.14	0.20	0.77	Overfishing
Female Spawning Stock Biomass	163.62 metric tons (mt) (360,720 lb)	124.87 mt (275,286 lb)	16.13 mt (35,566 lb)	Overfished

Under Amendment 2, adaptive management requires a reduction in the TAL to a level that is projected to lower  $F$  to the  $F_{Target}$  (NCDMF 2022). A reduction in total removals of 75% relative to total removals in 2021 is needed to reduce  $F$  to the  $F_{Target}$ . The new TAL of 8,349 pounds (Table 2) was calculated after accounting for anticipated recreational and commercial dead discards (estimate was 9,833 pounds of dead discards for 2021). This action of reducing the TAL maintains compliance with Amendment 2 to the North Carolina Estuarine Striped Bass FMP and ASMFC's Amendment 7 to the Interstate FMP for Atlantic Striped Bass.

Table 2. Total allowable landings (lb) for the Albemarle Sound-Roanoke River striped bass stock, 1991–2024.

Years	Total Allowable Landings	ASMA Commercial	ASMA Recreational	RRMA Recreational
1991–1997	156,800	98,000	29,400	29,400
1998	250,800	125,400	62,700	62,700
1999	275,880	137,940	68,970	68,970
2000–2002	450,000	225,000	112,500	112,500
2003–2014	550,000	275,000	137,500	137,500
2015–2020	275,000	137,500	68,750	68,750
2021–2023	51,216	25,608	12,804	12,804
2024–	8,349	4,175	2,087	2,087

**Strategies for the Albemarle Sound-Roanoke River stock currently in place under Amendment 2 to the North Carolina Estuarine Striped Bass FMP:**

**Sustainable harvest: Albemarle Sound-Roanoke River Stock**

1. Manage for sustainable harvest through harvest restrictions
  - A. Continue to use stock assessments and stock assessment projections to determine the TAL that achieves a sustainable harvest for the A-R stock.

2. Management of striped bass harvest in the commercial fishery as a bycatch fishery
  - A. Status quo: continue managing the ASMA striped bass fishery as a bycatch fishery.
3. Accountability Measures to Address TAL Overages
  - D. If the landings in any one of the management areas' three fisheries (RRMA recreational, ASMA recreational, and ASMA commercial) exceeds their allocated TAL in a calendar year, any landings in excess of their allocated TAL will be deducted from that fisheries' allocated TAL the next calendar year.  
If paybacks to a fishery exceed the next year's allocated TAL for that fishery, paybacks will be required in subsequent years to meet the full reduction amount; in situations where a fisheries allocated TAL has been reduced from a previous year's overage, if the reduced TAL is exceeded, any required paybacks the subsequent year are reduced from the fisheries' original allocated TAL, not from the reduced TAL.
4. Size limits to expand the age structure of the stock
  - C. In the ASMA, implement a harvest slot of a minimum size of 18-inches TL to not greater than 25-inches TL in the commercial and recreational sectors.
  - E. In the RRMA, maintain current harvest slot limit of a minimum size of 18-inches TL to not greater than 22-inches TL with no harvest allowed on fish greater than 22 inches TL.
5. Gear modifications and area closures to reduce striped bass discard mortality.
  - A. Status quo-continue to allow commercial harvest of striped bass with gill nets in joint and coastal waters of the ASMA and continue recreational harvest and catch-and-release fishing in the ASMA and RRMA, including striped bass spawning grounds in the Roanoke River. The requirement that from April 1 through June 30, only a single barbless hook or lure with single barbless hook (or hook with barb bent down) may be used in the inland waters of the Roanoke River upstream of U.S. Highway 258 Bridge will remain in effect.
  - E. Implement a requirement to use non-offset barbless circle hooks when fishing with live or natural bait in the inland waters of the Roanoke River (upstream of Hwy 258 bridge) from May 1\* through June 30.
6. Adaptive management
  - Use peer reviewed stock assessments and updates to recalculate the BRPs and/or TAL. The current TAL of 51,216 lb remains in place until a new TAL is determined. Stock assessments will be updated at least once between benchmarks. Increases or decreases in the TAL will be implemented through Adaptive Management. A harvest moratorium could be necessary if stock assessment results calculate a TAL that is too low to effectively manage, and/or the stock continues to experience spawning failures.
  - Use estimates of  $F$  from stock assessments to compare to the  $F$  BRP and if  $F$  exceeds the  $F_{Target}$  reduce the TAL to achieve the  $F_{Target}$  through Adaptive Management.

***\* The management strategy contained in Amendment 2 and approved by the MFC in November of 2022 stated May 1 through June 30 (5. E.). However, the WRC approved a more restrictive time frame to coincide with the existing barbless hook requirement in 5. A., which is April 1 through June 30.***

#### **IV. AUTHORITY**

The existing North Carolina fisheries management system grants rule-making authority over estuarine striped bass to the North Carolina Marine Fisheries Commission (MFC) and the North Carolina Wildlife Resources Commission within their respective jurisdictions. Further, the MFC, in rule, has delegated specified proclamation authority to the DMF Director. The WRC has

authority to issue limited proclamations for striped bass harvest seasons and has delegated this authority to the WRC Executive Director.

N.C. General Statutes

G.S. 113-134.	RULES
G.S. 113-182.	REGULATION OF FISHING AND FISHERIES
G.S. 113-182.1.	FISHERY MANAGEMENT PLANS
G.S. 113-221.1.	PROCLAMATIONS; EMERGENCY REVIEW
G.S. 113-292.	AUTHORITY OF THE WILDLIFE RESOURCES COMMISSION IN REGULATION OF INLAND FISHING AND THE INTRODUCTION OF EXOTIC SPECIES.
G.S. 143B-289.52.	MARINE FISHERIES COMMISSION—POWERS AND DUTIES

N.C. Marine Fisheries Commission Rules and N.C. Wildlife Resources Commission Rules (15A NCAC)

15A NCAC 03M .0201	STRIPED BASS REQUIREMENTS: GENERAL
15A NCAC 03M .0202	STRIPED BASS SEASON, SIZE AND HARVEST LIMIT: INTERNAL WATERS
15A NCAC 03M .0512	COMPLIANCE WITH FISHERY MANAGEMENT PLANS
15A NCAC 03Q .0107	SPECIAL REGULATIONS: JOINT FISHING WATERS
15A NCAC 03Q .0108	MANAGEMENT RESPONSIBILITY FOR ESTUARINE STRIPED BASS IN JOINT FISHING WATERS
15A NCAC 03Q .0109	IMPLEMENTATION OF ESTUARINE STRIPED BASS MANAGEMENT PLANS: RECREATIONAL FISHING
15A NCAC 03R .0201	STRIPED BASS MANAGEMENT AREAS
15A NCAC 10C .0110	MANAGEMENT RESPONSIBILITY FOR ESTUARINE STRIPED BASS IN JOINT FISHING WATERS
15A NCAC 10C .0111	IMPLEMENTATION OF ESTUARINE STRIPED BASS MANAGEMENT PLANS: RECREATIONAL FISHING
15A NCAC 10C .0301	INLAND GAME FISHES DESIGNATED
15A NCAC 10C .0314	STRIPED BASS

**V. DISCUSSION**

Results from the 2022 update to the A-R striped bass stock assessment indicate the stock continues to be overfished with overfishing occurring (Lee et. al 2022). The estimate of  $F$  in the terminal year of the assessment (2021) was 0.77, above the  $F_{Threshold}$  of 0.20 and the  $F_{Target}$  of 0.14 (Table 1; Figure 1). The estimate of SSB was 35,553 lb, below the  $SSB_{Threshold}$  of 275,286 lb (Table 1; Figure 2). Female SSB has declined steadily from a high of 762,977 lb in 2000 to a low of 35,566 lb in 2021. Results of the assessment also show a period of strong recruitment (the number of age-0 fish coming into the stock each year) from 1993 to 2000, then a period of much lower recruitment from 2002 to present (Figure 2). This lower recruitment has contributed to the decline in SSB since 2004. Average recruitment during 1993–2000 was 1,085,707 age-0 fish per year while average recruitment for 2001–2021 was 333,735 age-0 fish per year. Average recruitment during the last 10 years of the stock assessment update (2012–2021) was 214,728 age-0 fish per year.

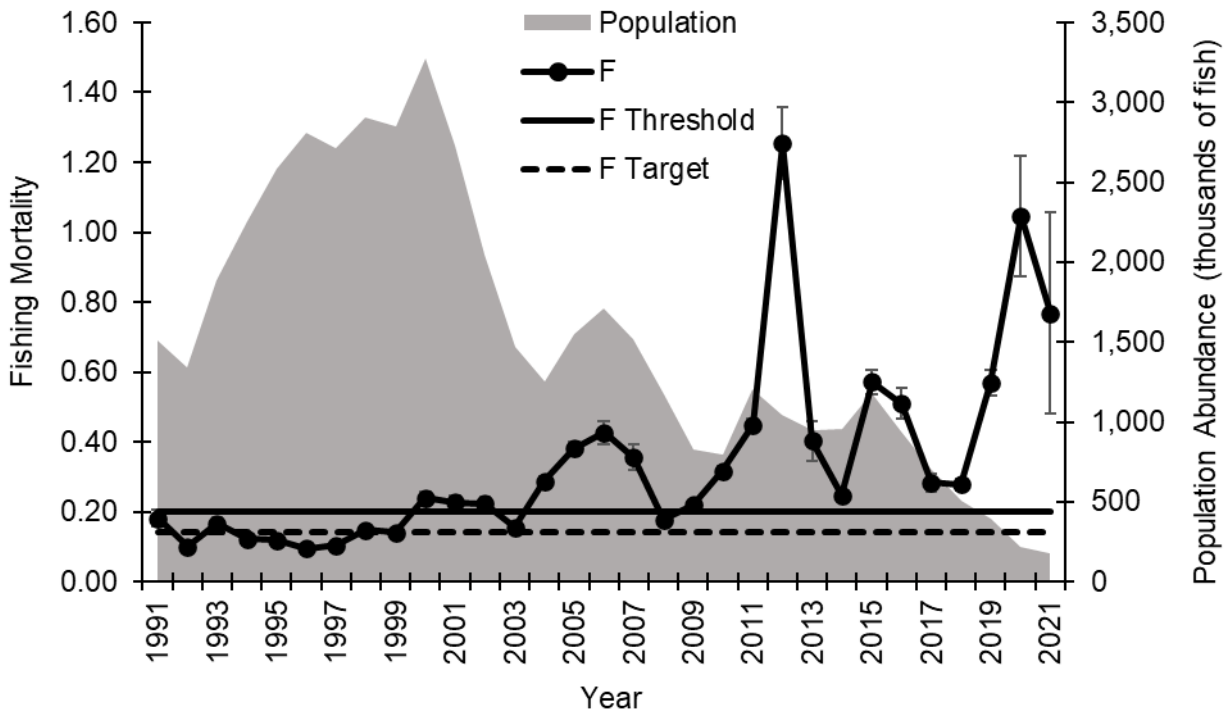


Figure 1. Estimates of fishing mortality ( $F$ ) and total population abundance for the Albemarle Sound-Roanoke River striped bass stock, 1991–2021. Source: Lee et al. 2022

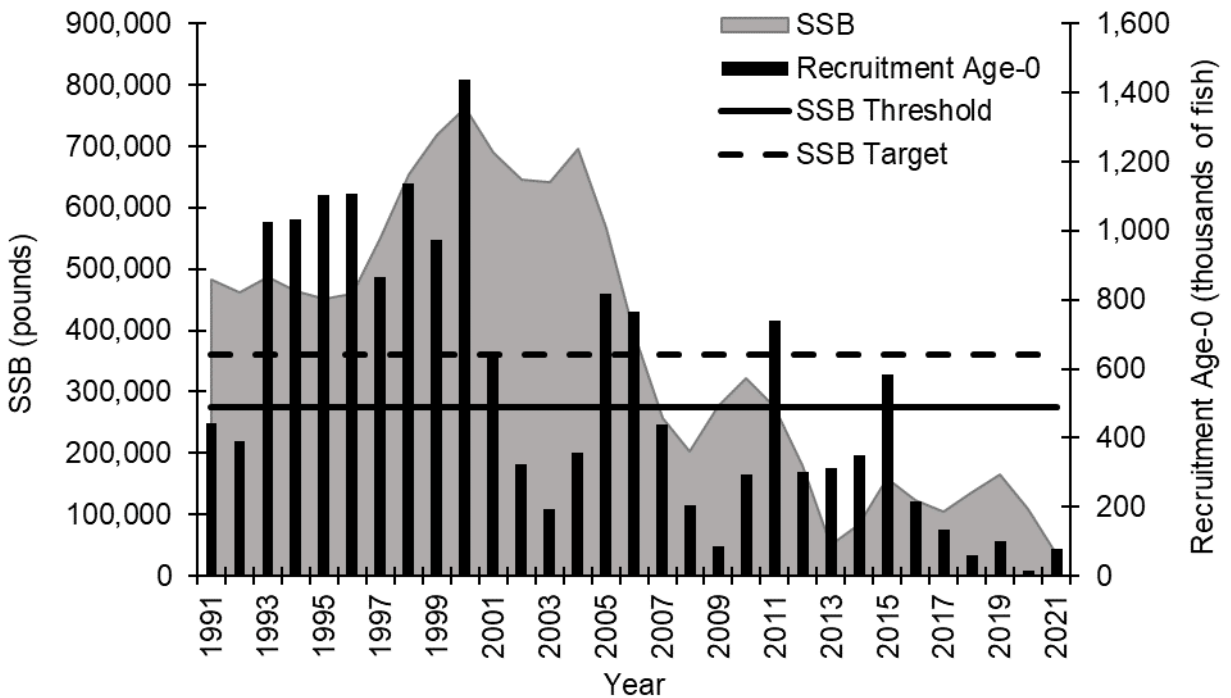


Figure 2. Estimates of spawning stock biomass (SSB) and recruitment of age-0 fish coming into the population each year for the Albemarle Sound-Roanoke River striped bass stock, 1991–2021. Source: Lee et al. 2022.

While fishing mortality is a primary contributing factor in both the decline in SSB and recruitment, environmental factors contribute to poor spawning success and can further exacerbate SSB decline. The environmental impact on spawning success is most evident when poor recruitment occurs during periods of high biomass. For example, appropriate river flow during the spawning period has long been recognized as an important factor in A-R striped bass spawning success (Hassler et. al 1981; Rulifson and Manooch 1990). Low to moderate flows (within a range of 6,000-8,000 cubic feet per second) have been identified as favorable for strong year-class production, while high flows (~12,000 cubic feet per second or greater) are unfavorable to the formation of strong year classes. It should be noted that while optimal flow increases the likelihood of a successful spawn, it does not always guarantee one will occur. The peer reviewers of the 2022 assessment update recognized poor recruitment with the stock cannot be fully explained by overfishing alone. They prioritized further exploration of environmental factors and their impact on spawning success. They noted potential factors limiting recruitment such as river flow, water quality, water temperatures and habitat conditions (Lee et. al 2022).

In addition to the quantitative stock assessment, similar negative trends in abundance are also evident in the available DMF and WRC juvenile and adult fishery-independent surveys used to monitor the A-R striped bass stock. Of particular concern is the trend in the juvenile abundance index (JAI) from the striped bass juvenile survey in the western Albemarle Sound. The survey measures the relative abundance of young-of-year (age-0) fish spawned each spring and is a good predictor of year class strength (Figure 3). The ASMFC Striped Bass Technical Committee has also established a spawning failure threshold (1.33 average fish per tow) for this survey. The JAI value has been below the spawning failure threshold for each year since 2018, and the 2017 value was only slightly above the threshold. The only other time the stock has experienced this many years of consecutive spawning failures was in the late 1970s through the 1980s when the stock was at very low levels of abundance and the abundance of older fish in the population was also at very low levels (Figure 3).

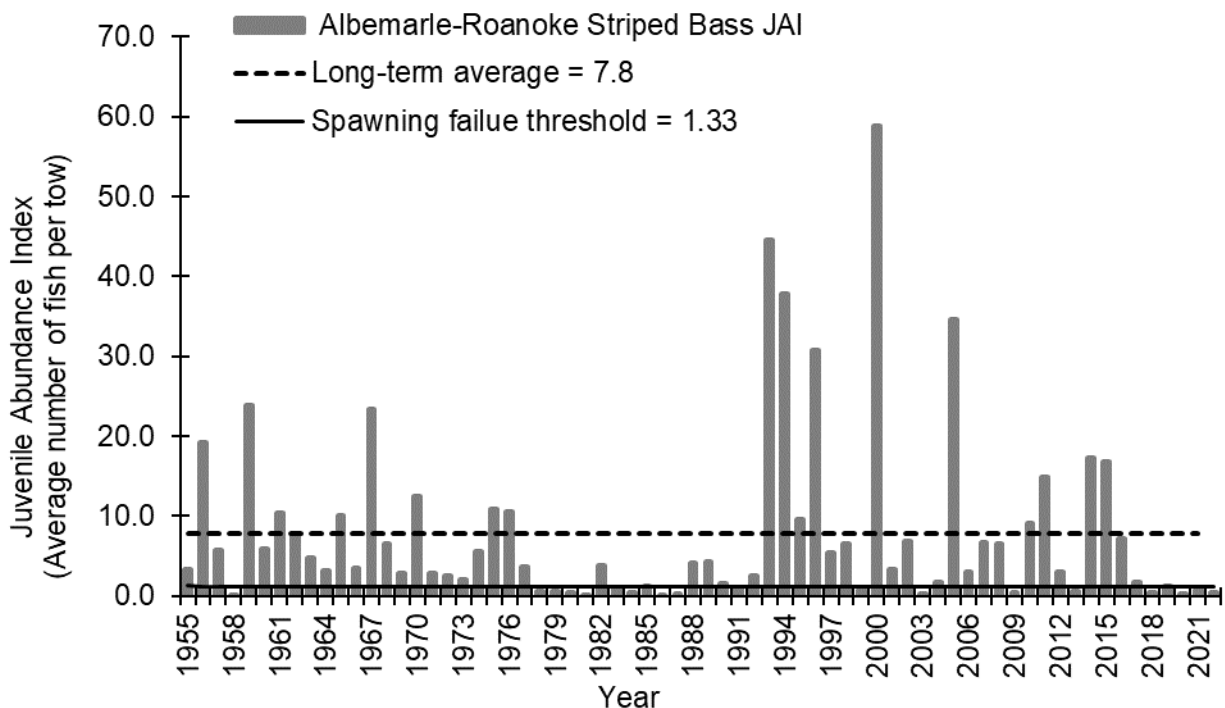


Figure 3. Juvenile abundance index (JAI) of Albemarle Sound-Roanoke River striped bass from the NCDMF juvenile trawl survey, western Albemarle Sound, NC, 1955–2022.

In addition to recruitment concerns, both DMF gill-net surveys (Figure 4) and the WRC electrofishing survey (Figure 5) show declining trends, especially in older fish. In recent years relative abundance in these surveys is similar or below levels observed when the stock was severely depressed in the early 1990s (Figures 4 and 5).

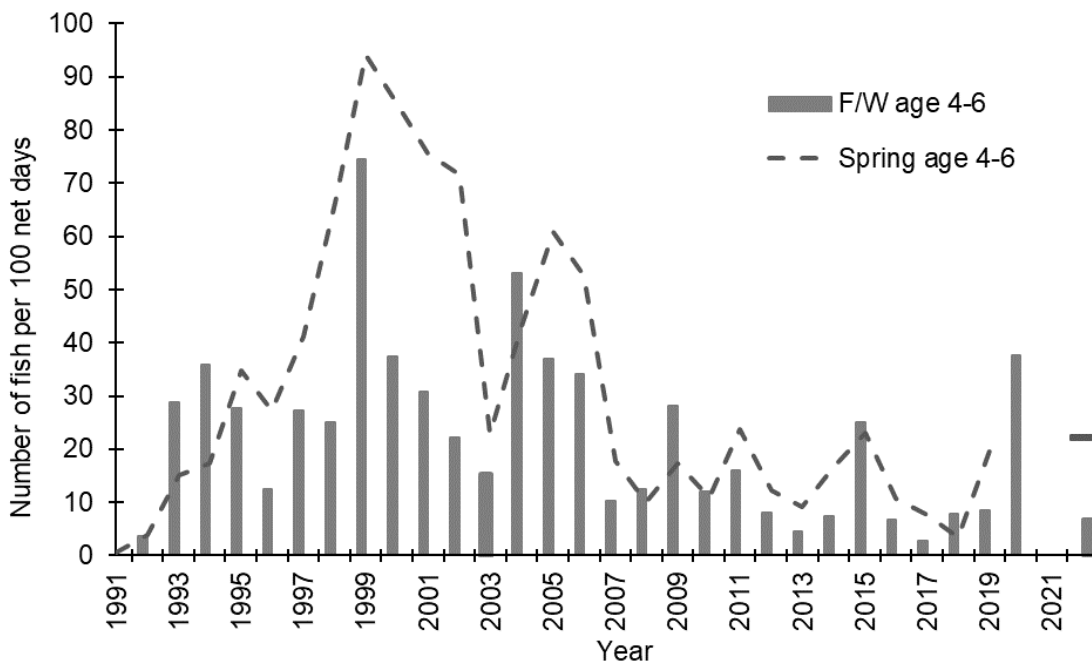


Figure 4. Relative abundance of age 4–6 Albemarle Sound-Roanoke River striped bass from the DMF fall/winter and spring independent gill net surveys, Albemarle Sound area, NC, 1991–2022.

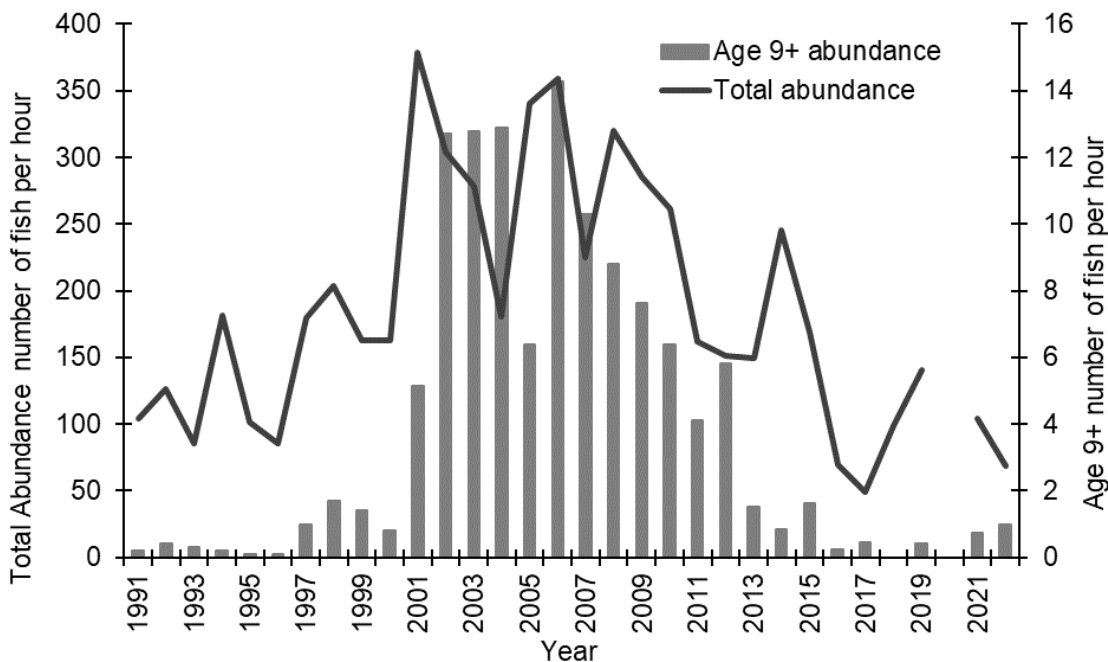


Figure 5. Total relative abundance and age 9+ relative abundance of Albemarle Sound-Roanoke River striped bass from the WRC spawning grounds electrofishing survey, Roanoke River near Weldon, NC, 1991–2022.



Declines in landings also support the precipitous decline in stock abundance and poor recruitment indicated by the assessment and fishery independent indices. Since the early 2000s, landings in both the recreational and commercial sectors have rarely achieved the available TAL, indicating a decline in availability of fish to the fishery. From 2004 through 2014 the TAL of 550,000 pounds was never caught. Total combined landings from both the ASMA and RRMA did not exceed 460,853 lb, averaging 235,278 lb per year with a low of 108,432 lb in 2013 (Figure 6). For the years 2005–2013, the commercial sector did not reach their TAL once. Even since the 2014 reduction in the TAL to 275,000 lb the commercial and recreational sectors in the ASMA did not reach the TAL during 2014–2017. Harvest in all sectors increased in 2017, with the commercial sector reaching the TAL in 2019 causing the DMF to close the fall commercial harvest season before Dec. 31 for the first time since 2010. This increase in harvest was likely due to the above-average year classes produced in 2014 and 2015 (Figure 6).

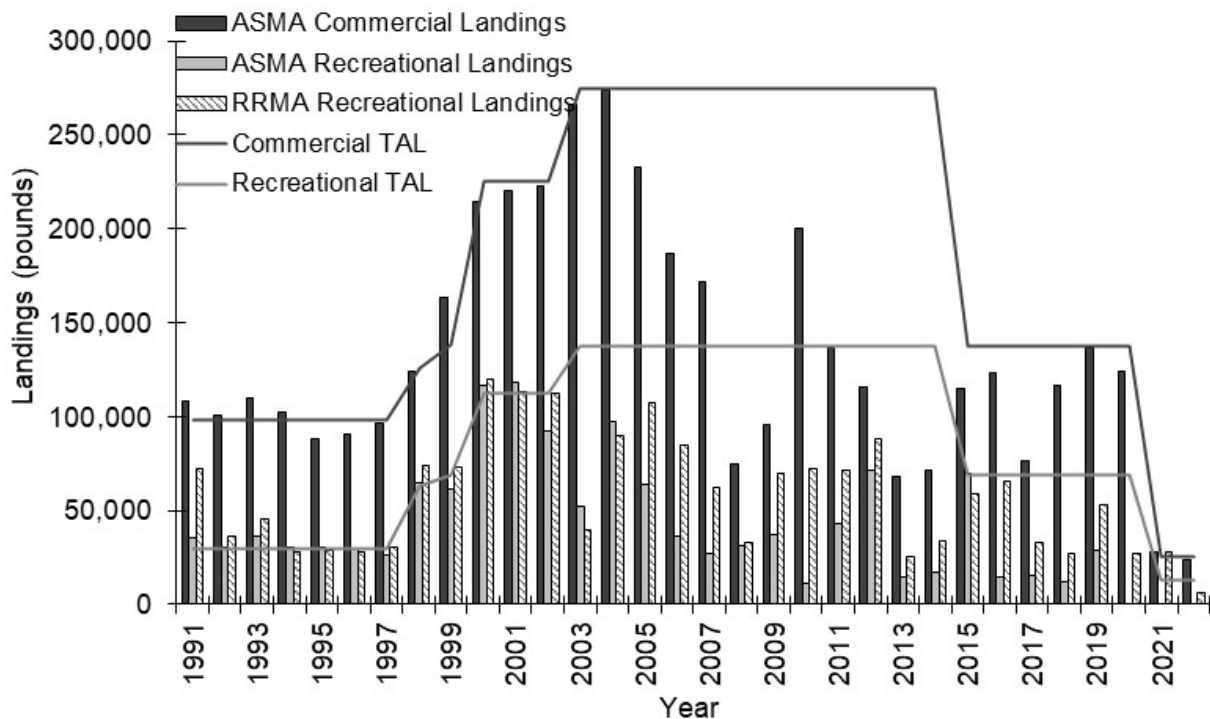


Figure 6. Striped bass landings from the Albemarle Sound Management Area commercial and recreational sectors and Roanoke River Management Area recreational sector and the total allowable landings, 1991–2022.

### Reductions in the TAL to lower $F$ to the $F_{\text{Target}}$ reference point value

The 2022 update to the A-R striped bass benchmark stock assessment requires a 75% reduction in total removals relative to total removals in 2021 (the last year of data in the stock assessment update) to reduce  $F$  to the  $F_{\text{Target}}$ . After accounting for recreational and commercial dead discards (estimate was 9,833 pounds of dead discards for 2021) the new TAL is 8,349 pounds. The individual TAL for each sector is: ASMA commercial TAL = 4,175 pounds; ASMA recreational TAL = 2,089 pounds; RRMA recreational TAL = 2,089 pounds.

## VI. AMENDMENT 2 ADAPTIVE MANAGEMENT REVISION TO THE TOTAL ALLOWABLE LANDINGS

Amendment 2 to the North Carolina Estuarine Striped Bass FMP, in conjunction with the North Carolina FMP for Interjurisdictional Fisheries, sets the framework for management changes in

response to the current stock status (Figure 7). This document will be incorporated into Amendment 2 as the November 2023 Revision to the North Carolina Estuarine Striped Bass FMP.

A TAL of 8,349 pounds divided among three harvest sectors is too low to effectively manage and emphasizes the need to prioritize stock recovery over a very limited recreational fishery and commercial bycatch fishery. At such a low allowable TAL, either sector could harvest their entire TAL in one day. In addition, any harvest season for striped bass will result in additional dead discards from both the commercial and recreational sectors. With the stock abundance at the lowest level in the stock assessment time series, compounded by the recent consecutive years of recruitment failure, it is necessary to reduce fishing mortality on the stock to provide the greatest potential for stock recovery and allow as many females to return to the spawning grounds each year.

Therefore, effective January 1, 2024, a harvest moratorium is required until the population improves to a level capable of supporting sustainable harvest. This revision and all other management strategies contained in Amendment 2 will remain in effect until further changes are implemented through the adaptive management framework of the North Carolina Estuarine Striped Bass FMP Amendment 2 and its Revisions. Adaptive management in Amendment 2 provides the management framework and is illustrated below in Figure 7.

## **VII. A-R STOCK EVALUATION AND STOCKING STRATEGY**

The 2022 stock assessment update (data through 2021) satisfies the Adaptive Management strategy adopted through Amendment 2 that states “*stock assessments will be updated at least once between benchmarks*”. All DMF and WRC juvenile and adult fishery-independent surveys used to monitor the A-R striped bass stock are updated annually through the Division of Marine Fisheries, Fishery Management Plan Review, and are available on the Division’s website each August. These include the WRC’s electrofishing spawning stock survey and the DMF’s fall/winter overwintering gill net survey, spring spawning stock gill net survey, and the juvenile abundance survey. Through these surveys the relative abundance of year classes and the age and length structure of the stock will be evaluated annually to determine if improvements in the stock condition are occurring.

To address the concern with consecutive years of recruitment failure since 2017, stocking will be used to supplement natural production. The A-R striped bass broodstock progeny will be raised at hatcheries and stocked into the western Albemarle Sound nursery area during at least 2023–2025. Success of stocked fish will be evaluated using genetic markers unique to the broodstock of the stocked individuals. Annual determination for the number of fish stocked into which coastal system will occur through the North Carolina Interjurisdictional Fisheries Cooperative Work Plan. The annual work plan is a cooperative agreement between the U.S. Fish and Wildlife Service, Edenton National Fish Hatchery; the WRC, Inland Fisheries Division; and the North Carolina Department of Environmental Quality, DMF. The purpose of the annual work plan is to coordinate management of various anadromous fish species (including striped bass, American shad, and river herring) between the three agencies, including annual stocking of striped bass in coastal rivers. Results of the A-R stocking strategy will be evaluated annually. Genetic samples will be collected through at least 2030.

**AMENDMENT 2: APPROVED NOVEMBER 2022**

**Adaptive Management**

- Use peer reviewed stock assessments and updates to recalculate the BRPs and/or TAL. The current TAL of 51,216 lb remains in place until a new TAL is determined. Stock assessments will be updated at least once between benchmarks. Increases or decreases in the TAL will be implemented through Adaptive Management. A harvest moratorium could be necessary if stock assessment results calculate a TAL that is too low to effectively manage, and/or the stock continues to experience spawning failures.
- Use estimates of  $F$  from stock assessments to compare to the  $F$  BRP and if  $F$  exceeds the  $F_{Target}$  reduce the TAL to achieve the  $F_{Target}$  through Adaptive Management.

**2022 Stock Assessment Results** (data through terminal year 2021):

- $F$  exceeding  $F_{Target}$
- New TAL = 8,349 pounds
- 2022: another year of spawning failure (2018–2022)
- 2023: preliminary data indicate another year of spawning failure

**2023 Revision to Amendment 2 to document adaptive management changes**

- New TAL of 8,349 pounds is too low to effectively manage.
- Implement harvest moratorium due to low TAL, low SSB estimates, and six consecutive years of spawning failures.

Annual updates to all survey data through DMF Fishery Management Plan Review. Review trends in data and conduct stock assessment when necessary.

**INTERJURISDICTIONAL FISHERIES COOPERATIVE WORK PLAN (USFWS, NCWRC, NCDMF)**

- 2023–2025: Stock hatchery raised striped bass in western Albemarle Sound to bolster wild population
- 2023–2030: Use genetic markers to determine percent contribution of hatchery fish to wild population
- 2025: Evaluate; continue stocking if deemed necessary

Figure 7. Schematic of Adaptive Management framework under Amendment 2.

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**Stock Assessment of the North Carolina Blue Crab (*Callinectes sapidus*),  
1995–2022**

*Prepared by*

North Carolina Division of Marine Fisheries  
Blue Crab Plan Development Team

October 2023

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## EXECUTIVE SUMMARY

The North Carolina Fisheries Reform Act requires that fishery management plans be developed for the state's commercially and recreationally important species to achieve sustainable levels of harvest. Stock assessments are the primary tools used by managers to assist in determining the status of stocks and developing appropriate management measures to ensure the long-term viability of stocks.

This stock assessment represents an update of the benchmark stock assessment that was completed in 2018 and endorsed for management by an independent panel of experts. The update presented in this report represents the Blue Crab stock in North Carolina coastal fishing waters from 1995 to 2022. The stock assessment includes data from several fishery-independent surveys and commercial fishery monitoring programs. The sex-specific two-stage model was developed based on the catch-survey analysis designed for species lacking information on the age structure of the population. The model synthesized information from multiple sources, tracked population dynamics of male and female recruits and fully recruited animals, estimated critical demographic and fishery parameters such as natural and fishing mortality, and thus, provided a comprehensive assessment of blue crab stock status in North Carolina. The hierarchical Bayesian approach was used to estimate model parameters, which can incorporate uncertainty associated with the data and model assumptions.

The model estimated an overall declining trend in catch, relative abundance indices, population size of both male and female recruits and fully recruited crabs. The stock status of North Carolina blue crab in the current assessment update (2022) was determined based maximum sustainable yield (MSY). Based on results of this assessment, the North Carolina blue crab resource in 2022 is overfished with a probability of 100%, given the average spawner abundance in 2022 is estimated at 14.8 million crabs (below the threshold estimate of 120 million). Also, overfishing is occurring in 2022 with a probability of 100%, given the average fishing mortality in 2022 is estimated at 1.8 (above the fishing mortality threshold estimate of 0.61).

An external desk review was completed in December 2023 to review concerns with model specifications and results. The panel identified concerns with the strong residual patterns in the model fit to survey indices, especially Program 100, as well as with the extremely/unrealistically high estimated fishing mortality. Another concern was the classification of overfishing and overfished over the entire time series. The reviewers provided many recommendations to examine within the model for potential improvement that can only be accomplished through a benchmark stock assessment (Appendix A). Additionally, all available data, including fishery-independent indices and fishery performance, provide the same trend as the stock assessment model. Thus, we have confidence the stock continues to be overfished with overfishing occurring.



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## **1 INTRODUCTION**

### **1.1 The Resource**

The blue crab, *Callinectes sapidus*, inhabits estuarine and nearshore coastal habitats throughout the western Atlantic and Caribbean from Maine to northern Argentina (Hay 1905; Williams 1984; Steele and Bert 1994; Guillory et al. 2001), as well as the Gulf of Mexico (Darden 2004; McMillen-Jackson et al. 1994). The blue crab is common to all North Carolina coastal waters, but the largest aggregations tend to live in the Albemarle and Pamlico sounds and the tributaries associated with these regions.

Blue crabs support commercial and recreational fisheries along the U.S. Atlantic and Gulf coasts. In North Carolina, the blue crab resource supports the state's most valuable commercial fishery. Blue crabs are also commonly harvested by recreational fishermen in North Carolina. The blue crab fisheries in the state of North Carolina are managed under the North Carolina Blue Crab Fishery Management Plan Amendment 3 (NCDMF 2020a) and the May 2020 Revision to Amendment 3 (NCDMF 2020b). The goal of Amendment 3 is to manage the blue crab fishery to achieve a self-sustaining population that provides sustainable harvest using science-based decision making. The harvest reductions needed to achieve sustainable harvest were based on the last benchmark stock assessment (NCDMF 2018). Amendment 3 also contained adaptive management requiring the stock assessment to be updated at least once between full reviews of the plan.

Details regarding the life history, habitat, fisheries, and fisheries management of North Carolina blue crab can be found in the last benchmark stock assessment (NCDMF 2018).

### **1.2 Previous Stock Assessment**

The previous North Carolina Division of Marine Fisheries (NCDMF) stock assessment of the North Carolina blue crab stock was a benchmark stock assessment (i.e., peer-reviewed by an independent panel of experts) and was completed in 2018 (NCDMF 2018). The benchmark stock assessment was based on a sex-specific two-stage model. The model was applied to data collected from 1995 through 2016 and incorporated one fishing fleet and 16 indices representing multiple life stages from four fisheries-independent surveys.

The independent peer reviewers worked with the blue crab working group to develop a model that the peer review panel and the NCDMF endorsed for management use for at least the next five years and agreed the determination of stock status (overfished and overfishing) for the North Carolina blue crab stock in the terminal year (2016) concurred with professional opinion and observations.

The current stock assessment follows the methodology of the 2018 benchmark stock assessment. Any deviations from that methodology are noted in this report.

## **2 DATA**

A complete description of the data sources that were used in the recent benchmark stock assessment and updated for use in this stock assessment can be found in the report for the benchmark stock assessment (NCDMF 2018). Estimates of input values were developed following the same methodology unless otherwise noted in this report.

The occurrence of COVID-19 caused disruptions in 2020 and 2021 to some of the fisheries-dependent monitoring and fisheries-independent survey programs. Any such disruptions are noted in the text below.

## **2.1 Fisheries-Dependent**

### **2.1.1 Commercial Fishery Monitoring**

#### **2.1.1.1 Data Sources**

No interruption to reporting of commercial landings occurred in 2020 or 2021. There were some interruptions to fisheries-dependent biological monitoring in early 2020. All NCDMF field operations were suspended in mid-March 2020 and did not resume until June 2020. Therefore, no biological data were collected from blue crabs landed at commercial fish houses during this time.

#### **2.1.1.2 Development of Estimates**

All trips landing hard blue crabs from 1994 to 2022 were subset from the trip ticket database.

#### **2.1.1.3 Estimates of Commercial Fishery Statistics**

Annual commercial landings of blue crabs are summarized by sex and stage in Table 2.1 and Figure 2.1. Total commercial landings have declined over the time series.

### **2.1.2 Recreational Fishery Monitoring**

Recreational catch was not included in this assessment because the recreational catch of blue crab in North Carolina accounts for less than 0.4% of total (commercial plus recreational) blue crab removals in the state and no detailed information regarding recreational catch is currently available throughout the assessment time period.

## **2.2 Fisheries-Independent**

### **2.2.1 Estuarine Trawl Survey (Program 120)**

Due to suspension of NCDMF field operations from mid-March through May 2020, all Program 120 (P120) sampling occurred in June. Instead of sampling the 104 stations in May and June, the 104 stations were sampled prior to June 15 and again after June 15. Therefore, the number of samples collected in 2020 was not affected but the timing of sampling differs from historical sampling.

#### **2.2.1.1 Development of Estimates**

A generalized linear model (GLM) framework was used to model the relative abundance of female and male recruits captured in the P120 Survey. Details on the approach can be found in the benchmark stock assessment (NCDMF 2018).

#### **2.2.1.2 Estimates of Estuarine Trawl Survey Statistics**

Covariates available to the GLM for standardizing the female and male recruit indices included year, region, depth, bottom temperature, bottom salinity, bottom DO, sediment size, and bottom composition. Year, region, sediment size, and bottom composition were treated as categorical covariates in the models. The final, best-fitting model for female recruits in the P120 Survey was a negative binomial model and included year, region, depth, sediment size, and bottom composition as significant covariates (Table 2.2). The female recruit index developed from the P120 Survey shows a general decline over the time series (Figure 2.2). For the male recruits, the

best-fitting model was a negative binomial model and included year, region, depth, bottom salinity, bottom DO, sediment size, and bottom composition as significant covariates (Table 2.2). Like the female recruit index, the male recruit index derived from the P120 Survey exhibits a declining trend through the time series (Figure 2.2).

### **2.2.2 Juvenile Anadromous Trawl Survey (Program 100)**

Because of the timing of sampling, there were no interruptions to Program 100 (P100) sampling in 2020 or 2021.

#### **2.2.2.1 Development of Estimates**

Four indices of relative abundance were developed using the P100 Survey data. Two indices were developed for the summer (July to August) component—fully recruited females and fully-recruited males. Indices of fully recruited females and males were also developed based on the fall (September to October) component. Attempts were made to standardize these indices using a GLM approach; however, none of the GLM models successfully converged. For this reason, nominal indices were computed for this survey.

#### **2.2.2.2 Estimates of Juvenile Anadromous Trawl Survey Statistics**

Indices for fully recruited females and fully recruited males occurring in the summer component of the P100 Survey were variable and without trend throughout the time series (Figure 2.3). For both indices, values tend to be lower overall prior to 2008 as compared to more recent years.

Indices developed for fully recruited females and fully recruited males from the fall component of the P100 survey were also variable without trend (Figure 2.4). Both fall indices show peaks in 2008.

### **2.2.3 Pamlico Sound Survey (Program 195)**

Because of travel restrictions in 2020 related to COVID-19, sampling was limited to 28 stations sampled in June and 35 stations sampled in September. In June 2021, a total of 35 stations were sampled and in September 2021, a total of 32 stations were sampled (normal sample is 54 stations). Stations sampled were mostly limited to stations easily accessed during day trips in the rivers and on the western side of the sound.

#### **2.2.3.1 Development of Estimates**

The time series of data for this survey was limited to 1997 to 2022 because recording of surface and bottom dissolved oxygen did not start until 1997. The GLM approach was applied to Program 195 (P195) Survey data to develop indices for the June and September components of the survey. For both June and September, indices were developed for female recruits, female fully recruited, male recruits, and male fully recruited. An additional index of mature females was also developed from the September component of the survey.

#### **2.2.3.2 Estimates of Pamlico Sound Survey Statistics**

Covariates available from the P195 Survey included year, month, stratum, depth, bottom temperature, bottom salinity, and bottom dissolved oxygen. Month was added as a covariate to account for sampling extending beyond June or September due to mechanical issues or poor weather. See Table 2.2 for a summary of the covariates found to be significant in the GLMs used to develop each of the indices. Note that a GLM did not converge on the survey data representing female fully recruited blue crabs observed in September.



The June indices for female recruits (Figure 2.5 top), male recruits (Figure 2.5 bottom), and female fully recruited (Figure 2.6 top) are variable without trend. The index of male fully recruited occurring in June shows a general decline over the time series (Figure 2.6 bottom).

The September indices for female and male recruits and female fully recruited have been variable and declining over the available years (Figure 2.7–2.8).

The index of female spawners derived from the September component of the P195 Survey is highest in the earliest years and declines through the terminal year (Figure 2.9 top).

## **2.2.4 SEAMAP (Southeast Area Monitoring and Assessment Program) Trawl Survey**

SEAMAP did not sample in 2020 and conducted limited sampling in 2021. In 2021, SEAMAP completed 38 summer stations and 74 fall stations. Because no sampling occurred in 2020 and limited sampling occurred in 2021, data from this survey in those years are not included.

### **2.2.4.1 Development of Estimates**

An index of mature females was developed using the GLM approach based on data collected during the summer (mid-July to early August) using data only from stations located off the North Carolina coast.

### **2.2.4.2 Estimates of SEAMAP Trawl Survey Statistics**

Available covariates for the GLM standardization included year, region, bottom temperature, and bottom salinity. Year and region were treated as categorical covariates in the models. The best-fitting model assumed a negative binomial distribution and included year, region, bottom temperature, and bottom salinity as significant covariates (Table 2.2). This index shows a peak in 1996, from which the index declines through 2016 (Figure 2.9 bottom). There is a small increase in relative abundance from 2016 to 2019, but the index in the final year (2022) is one of the lowest observed.

## **3 ASSESSMENT**

### **3.1 Method**

#### **3.1.1 Scope**

The unit stock is defined as all hard blue crabs occurring within North Carolina coastal fishing waters (Figure 3.1).

#### **3.1.2 Description**

This assessment is based on a sex-specific two-stage model that is adapted from catch-survey analysis (Collie and Sissenwine 1983). In this model, a sex-specific recruit fishery selectivity and a sex- and stage-specific natural mortality are assumed as free parameters to estimate based on the data. GLM-standardized abundance indices were used to remove influences of environmental factors on the annual trend (Maunder and Punt 2004), including spatial locations and geographic features such as sediment size and bottom habitat structure. Recruitment values were modeled as free parameters to estimate instead of assuming any spawner-recruitment relationship. Both process error and observation error were included to account for natural variation in the population that was in addition to the variation in response to harvesting. A Bayesian approach was applied to sufficiently incorporate data uncertainty and expert opinion in parameter estimation.

### 3.1.3 Dimensions

The assessment model was applied to data collected from within the range of the assumed biological stock unit (North Carolina coastal fishing waters).

The time period modeled was 1995 through 2022 using an annual time step based on the calendar year. The year 1995 was selected as the start year because that is the first year for which commercial fish house sampling data were available. The terminal year, 2022, was selected because it was the most recent year for which data were available at the start of the assessment update process.

### 3.1.4 Structure & Assumptions

In the two-stage model (also known as catch-survey analysis; Figure 3.2), the blue crab population consists of two stages, the recruits and the fully recruited crabs (Collie and Sissenwine 1983). The recruit stage contains blue crabs smaller than 127 mm CW, which is the legal harvestable size for male and immature female blue crabs in North Carolina, and the fully recruited stage includes blue crabs larger than or equal to 127 mm CW. In the model, all fully recruited blue crabs are subject to fishing mortality, and the recruits are subject to a partial fishing mortality because mature females at this stage are harvestable, and those male and immature female blue crabs at this stage may also be retained so long as they do not account for more than 10% of the catch. The population was modeled using an annual time step. All recruits become fully recruited at the beginning of the next year. The population dynamics of blue crab in the sex-specific two-stage model is described in terms of the number of male and female blue crabs at each stage over time (Miller et al. 2011):

Population size of recruits

$$R_y = \bar{R} \exp(\varepsilon_{R,y}),$$

$$R_{y,s} = R_y v_s,$$

Population size of fully recruited animals

$$N_{y+1,s} = \left( N_{y,s} \exp(-M_{N,s} - F_{N,y,s}) + R_{y,s} \exp(-M_{R,s} - F_{R,y,s}) \right) \exp(\varepsilon_{N,y+1,s}),$$

Catch of recruits

$$C_{R,y,s} = \left( \frac{F_{R,y,s}}{F_{R,y,s} + M_{R,s}} \left( 1 - \exp(-M_{R,s} - F_{R,y,s}) \right) R_{y,s} \right) \exp(\varepsilon_{CR,y,s}),$$

Catch of fully recruited animals

$$C_{N,y,s} = \left( \frac{F_{N,y,s}}{F_{N,y,s} + M_{N,s}} \left( 1 - \exp(-M_{N,s} - F_{N,y,s}) \right) N_{y,s} \right) \exp(\varepsilon_{CN,y,s}),$$

Fishing mortality of recruits

$$F_{R,y,s} = F_y g_{R,s},$$

Fishing mortality of fully recruited animals

$$F_{N,y,s} = F_y g_{N,s},$$

Population size of female spawners

$$N_{sp, y} = N_{y, s=female} w_N + R_{y, s=female} w_R,$$

Abundance indices of female spawners

$$I_{sp, y, j} = (q_{sp, j} N_{sp, y}) \exp(\varepsilon_{sp, y, j}),$$

Abundance indices of recruits

$$I_{R, y, s, j} = (q_{R, s, j} R_{y, s}) \exp(\varepsilon_{IR, y, s, j}),$$

Abundance indices of fully recruited animals

$$I_{N, y, s, j} = (q_{N, s, j} N_{y, s}) \exp(\varepsilon_{IN, y, s, j}),$$

where  $R$  and  $N$  are the population size of recruits and fully recruited animals at the beginning of the year respectively,  $M$  and  $F$  are natural mortality and fishing mortality,  $\nu$  is the proportion of male or female recruits,  $C$  is catch in number,  $g$  is selectivity,  $w$  is proportion of mature female recruits or mature female fully recruited animals,  $I$  is fisheries-independent abundance index,  $q$  is the catchability;  $\varepsilon_{N, y+1, s} \sim \text{Normal}(0, \sigma_N^2)$  and  $\varepsilon_{R, y} \sim \text{Normal}(0, \sigma_R^2)$  are process errors, and  $\varepsilon_{CN, y, s} \sim \text{Normal}(0, \sigma_{CN, s}^2)$ ,  $\varepsilon_{CR, y, s} \sim \text{Normal}(0, \sigma_{CR, s}^2)$ ,  $\varepsilon_{sp, y, j} \sim \text{Normal}(0, \sigma_{sp, j}^2)$ ,  $\varepsilon_{IN, y, s, j} \sim \text{Normal}(0, \sigma_{IN, s, j}^2)$ , and  $\varepsilon_{IR, y, s, j} \sim \text{Normal}(0, \sigma_{IR, s, j}^2)$  are observation errors, which follow a normal distribution with a mean of zero and a standard deviation of  $\sigma$ ; the subscript  $y$  indexes the  $y$ th year,  $s$  represents either male or female,  $j$  indexes the  $j$ th fisheries-independent abundance index,  $R$  and  $N$  in subscripts denote the recruits and the fully recruited respectively, and  $sp$  in subscripts denotes spawner.

In the model, a 1:1 sex ratio and sex-specific natural mortalities ( $M_{N, s}$  and  $M_{R, s}$ ) were assumed. Natural mortality was assumed constant over time. The mature female proportion for female recruits ( $w_R$ ) and female fully recruited animals ( $w_N$ ) was set to be 0.044 and 0.9 (Eggleston et al. 2004). The selectivity for fully recruited animals ( $g_{N, s}$ ) was set to be one (Rudershausen and Hightower 2016), and selectivity for recruits ( $g_{R, s}$ ) was assumed sex-specific and free parameters to estimate in the model. The annual recruitment  $R_y$  was directly estimated to avoid assuming a fixed spawner-recruitment relationship because the spawner size can often only explain a small amount of the high variation in recruitment (Jiao et al. 2012). The annual recruitment  $R_y$  was assumed to follow a lognormal distribution that centers around an average of  $\bar{R}$ . In North Carolina, fall is the primary spawning season for blue crab, and most harvest occurs during May through October. Thus, in the model, indices sampled since September in the current year (i.e., the P100 fall and P195 September indices) were related to the abundance in the following year, except for the spawner indices (i.e., P195 spawner and SEAMAP spawner indices).

The model code was developed and run in R (version 4.3.1; R Core Team 2023).

### 3.1.5 Calibration

In this assessment, the Bayesian approach was applied to estimate parameters. The posterior distribution was obtained through the Metropolis-Hasting algorithm using Markov Chain Monte Carlo (MCMC) simulation (Hilborn et al. 1994; Hoff 2009). Three concurrent chains were run

with a total of 500,000 iterations for each chain. The first 470,000 iterations were discarded as burn-in and every 10th iteration from the remaining sample from each chain was used for analysis. The working group used JAGS (version 4.3.1) through implementation of the R package R2jags to run the Bayesian analysis (Su and Yajima 2021).

Noninformative priors were used, i.e., uniform priors, for initial population size ( $N_{y=1995, s}$ ), average annual recruitment ( $\bar{R}$ ), fishing mortality ( $F_y$ ), recruits selectivity ( $g_{R, s}$ ), catchability ( $q_{sp, j}$ ,  $q_{N, s, j}$  and  $q_{R, s, j}$ ), and standard deviation ( $\sigma_N$ ,  $\sigma_R$ ,  $\sigma_{CN}$ ,  $\sigma_{CR}$ ,  $\sigma_{sp, j}$ ,  $\sigma_{IN, s, j}$ , and  $\sigma_{IR, s, j}$ ) of process and observation errors. The working group constructed a hierarchical prior for natural mortality parameters where  $M_{N, s}$  and  $M_{R, s}$  follow an unknown lognormal distribution centering around  $\bar{M}$  that is further governed by a uniform distribution bounded by  $m_1$  and  $m_2$ :

$$M_{N, s} \text{ or } M_{R, s} = \bar{M} \exp(\varepsilon_M),$$

$$\bar{M} \sim \text{Uniform}(m_1, m_2),$$

where  $\varepsilon_M \sim \text{Normal}(\mathbf{0}, \sigma_M)$  is a random error.

Priors and parameters are listed in Tables 3.1 and 3.2.

### 3.1.6 Results

The model provided reasonable fits to the annual commercial landings, especially for the female and male fully recruited blue crabs (Figure 3.3). Fits to the female recruit commercial landings tended to be poor in the early part of the time series. The model fits to the fisheries-independent survey indices and associated residuals are shown in Figures 3.4–3.19. The survey indices were not fit as well as the commercial landings, but the predicted values captured the general observed trend. The model did show difficulty in predicting extreme peaks in abundance for all the survey indices (e.g., poor fit to 1996 and 1997 observations of female blue crab recruits observed in the September component of the Program 195 Survey, Figure 3.14). The survey indices derived from the Program 100 Survey were fit least well of the survey indices (Figures 3.6–3.9). For the Program 100 Survey indices, the observed values exhibit lower values in the early part of the time series (prior to 2008) and generally higher values in the later part of the series. While the model did capture the decline observed in the final few years, it did not predict the period of increased relative abundance prior to that and beginning in 2008.

Estimates of population size predicted by the stock assessment model are variable but declining over the modeled time series (Figure 3.20). Overall recruitment and female spawner abundance levels are highest in the earliest years of the time series and, while variable, trend downward through the terminal year (Figure 3.21). Estimates of fishing mortality are also higher in the early part of the time series and variable throughout the entire time period. Fishing mortality shows a small decline from 2021 to 2022 (Figure 3.21).

Estimates of natural mortality are higher for females than males (Figure 3.22). Natural mortality estimates for fully recruited females are associated with higher uncertainty than other stages.

## 3.2 Discussion of Results

Given results of this stock assessment update, much of the discussion detailed in the benchmark stock assessment report is applicable to this update (NCDMF 2018).

Estimates and trends of sex- and stage-specific abundance (Figure 3.23), total recruit abundance (Figure 3.24), female spawner abundance (Figure 3.25), and fishing mortality (Figure 3.26) are similar to those from the benchmark stock assessment (NCDMF 2018). Additionally, the natural mortality estimates for each sex and stage are similar to the estimates from the benchmark stock assessment (NCDMF 2018); however, estimated reference points for both female spawner abundance and fishing mortality (see next section) show a noticeable change. Note that the current assessment as well as the benchmark cover a relatively limited time period of declining recruitment and spawning abundance. This type of “one-way trip” is indicative of uninformative data and suggests that results should be interpreted with caution (Hilborn and Walters 1992).

#### 4 STATUS DETERMINATION CRITERIA

The General Statutes of North Carolina define overfished as “the condition of a fishery that occurs when the spawning stock biomass of the fishery is below the level that is adequate for the recruitment class of a fishery to replace the spawning class of the fishery” (NCGS § 113-129). The General Statutes define overfishing as “fishing that causes a level of mortality that prevents a fishery from producing a sustainable harvest.”

The peer review panel for the 2018 benchmark stock assessment recommended the use of MSY-based reference points for the North Carolina blue crab stock (NCDMF 2018). These reference points include a fishing mortality threshold equal to the fishing mortality that maximizes the total yield ( $F_{MSY}$ ) and a fishing mortality target equal to  $0.75F_{MSY}$ . The stock is considered to be experiencing overfishing if the average  $F$  in the terminal year (2022) is larger than  $F_{MSY}$ . Stock size reference points are defined in terms of female spawner abundance. The female spawner abundances at  $F_{MSY}$  ( $SP_{MSY}$ ) and  $0.75F_{MSY}$  ( $0.75SP_{MSY}$ ) were set to the spawner abundance threshold and target, respectively. The population is determined to be overfished if the average female spawner abundance in the terminal year (2022) is less than  $SP_{MSY}$ .

The fishing mortality threshold,  $F_{MSY}$ , was estimated to be 0.61. The fishing mortality target,  $0.75F_{MSY}$ , was estimated to be 0.45. The stock assessment model estimated that fishing mortality in 2022 was 1.8, which is greater than the  $F$  threshold and indicates that the stock is currently experiencing overfishing (Figure 4.1). The probability that the stock is experiencing overfishing is 100%.

The stock assessment model estimated the female spawner abundance threshold,  $SP_{MSY}$ , to be 120 million crabs and the female spawner abundance target was estimated at 145 million crabs. The estimated female spawner abundance in 2022 was 14.8 million crabs, which is less than the threshold and so indicates the stock is currently overfished (Figure 4.1). The probability that the stock is overfished is 100%.

The estimated fishing mortality threshold (0.61) and target (0.45) are less than the threshold and target values estimated in the benchmark (benchmark  $F$  threshold = 1.5, benchmark  $F$  target = 1.2). The female spawner abundance threshold (120 million crabs) and target (145 million crabs) estimated in this update have higher values than those estimated in the benchmark (benchmark spawner abundance threshold = 64 million crabs, benchmark spawner abundance target = 73 million crabs). This is not unexpected since reference points are estimated from models based on data that change or are updated from one stock assessment to the next (Silvar-Viladomiu et al. 2021). The maximum sustainable yield (MSY)-based reference points used in this stock assessment assume equilibrium conditions; that is, the rate of removal is equal to the rate at which the population regenerates itself. Given that blue crabs have been harvested from North Carolina

waters for over a century (U.S. Fish Commission 1892), it is likely that we have a poor understanding of the optimal levels for spawner abundance and fishing mortality.

Preliminary projections of the stock suggest it is not possible to reach the estimated female spawner abundance target or threshold, even with no fishing mortality. A species' life history and fishing history impacts how the stock will respond to different management strategies and the stock's ability to sustain itself (Berger 2019). The results of the current stock assessment point to record low recruitment and spawner abundance in recent years. Unless there is a change in stock productivity, the stock may not be capable of reaching a sustainable state.

## **5 RESEARCH RECOMMENDATIONS**

The research recommendations listed below were offered by the working group to improve future stock assessments of the blue crab stock in North Carolina. Those research recommendations denoted with an asterisk (\*) were suggested (and ranked) by the external peer reviewers during the benchmark stock assessment (NCDMF 2018).

### High

- Develop statewide fishery-independent survey(s) to monitor the abundance of all blue crab life stages
- Expand time and area coverage of existing fishery-independent surveys
- Better characterize the magnitude of recreational harvest \*
- Develop better estimates of life-history parameters, especially growth and natural mortality \*
- Explore alternative biological reference points \*

### Medium

- Identify key environmental factors that significantly impact North Carolina's blue crab stock and investigate assessment methods that can account for these environmental factors
- Implement monitoring of hazardous events (e.g., hurricane, extreme heat or cold weather) affecting blue crab population dynamics and harvest
- Explore alternative model types \*

### Low

- Investigate and support research on promising methods to age blue crabs
- Evaluate the genetic stock structure of blue crabs within North Carolina and the magnitude of mixing between populations
- Identify programs outside the NCDMF that collect data of potential use to the stock assessment of North Carolina's blue crabs

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## 7 TABLES

**Table 2.1.** Annual commercial landings of hard blue crabs (millions of crabs) in North Carolina by sex and stage, 1995–2022.

Year	Recruits		Fully Recruited	
	Males	Females	Males	Females
1995	11.72	5.998	58.22	57.90
1996	12.97	9.307	89.99	83.44
1997	11.15	11.18	65.97	74.83
1998	6.707	5.918	67.89	82.57
1999	5.346	23.17	57.43	85.27
2000	7.622	5.276	48.58	55.60
2001	3.786	4.983	35.35	42.02
2002	6.336	5.915	46.41	43.42
2003	3.361	8.036	57.74	51.44
2004	5.991	3.488	40.31	48.29
2005	4.614	6.129	31.66	30.90
2006	5.526	1.563	31.82	32.18
2007	2.537	1.222	32.26	22.46
2008	2.824	1.491	40.89	42.69
2009	1.631	0.5519	40.29	33.08
2010	4.150	0.8040	48.92	32.33
2011	3.715	1.306	42.40	34.79
2012	3.791	0.9756	36.72	30.22
2013	1.331	1.045	31.67	24.61
2014	1.939	0.6878	43.00	22.79
2015	3.196	0.4255	49.80	31.37
2016	2.453	0.7274	36.16	30.16
2017	1.912	0.8314	28.48	20.21
2018	1.645	0.3380	28.73	15.45
2019	2.438	1.187	27.85	34.93
2020	2.597	1.209	20.68	15.29
2021	1.555	0.4295	21.98	13.87
2022	1.190	0.1452	14.15	9.625

**Table 2.2.** Summary of available covariates considered in the standardization of fisheries-independent indices. Covariates formatted in bold were found to be significant in the GLM process.

Survey	Sex	Stage	Covariates
P120	female	recruits	<b>year, region, depth</b> , btemp, bsal, bdo, <b>sedsize, btmcomp</b>
P120	male	recruits	<b>year, region, depth</b> , btemp, <b>bsal, bdo, sedsize, btmcomp</b>
P100 summer	female	fully recruited	<i>n/a</i> (nominal index)
P100 summer	male	fully recruited	<i>n/a</i> (nominal index)
P100 fall	female	fully recruited	<i>n/a</i> (nominal index)
P100 fall	male	fully recruited	<i>n/a</i> (nominal index)
P195 June	female	recruits	<b>year, stratum, depth</b> , btemp, <b>bsal, bdo</b>
P195 June	male	recruits	<b>year, stratum, depth, btemp, bsal, bdo</b>
P195 June	female	fully recruited	<b>year, stratum, depth</b> , btemp, bsal, <b>bdo</b>
P195 June	male	fully recruited	<b>year, stratum, depth</b> , btemp, <b>bsal, bdo</b>
P195 September	female	recruits	<b>year, month, stratum, depth, btemp, bsal, bdo</b>
P195 September	male	recruits	<b>year, month, stratum, depth, btemp, bsal, bdo</b>
P195 September	female	fully recruited	<i>n/a</i> (nominal index)
P195 September	male	fully recruited	<b>year, month, stratum, depth, btemp, bsal, bdo</b>
P195 September	female	mature	<b>year, month, stratum, depth, btemp, bsal, bdo</b>
SEAMAP summer	female	mature	<b>year, region, btemp, bsal</b>

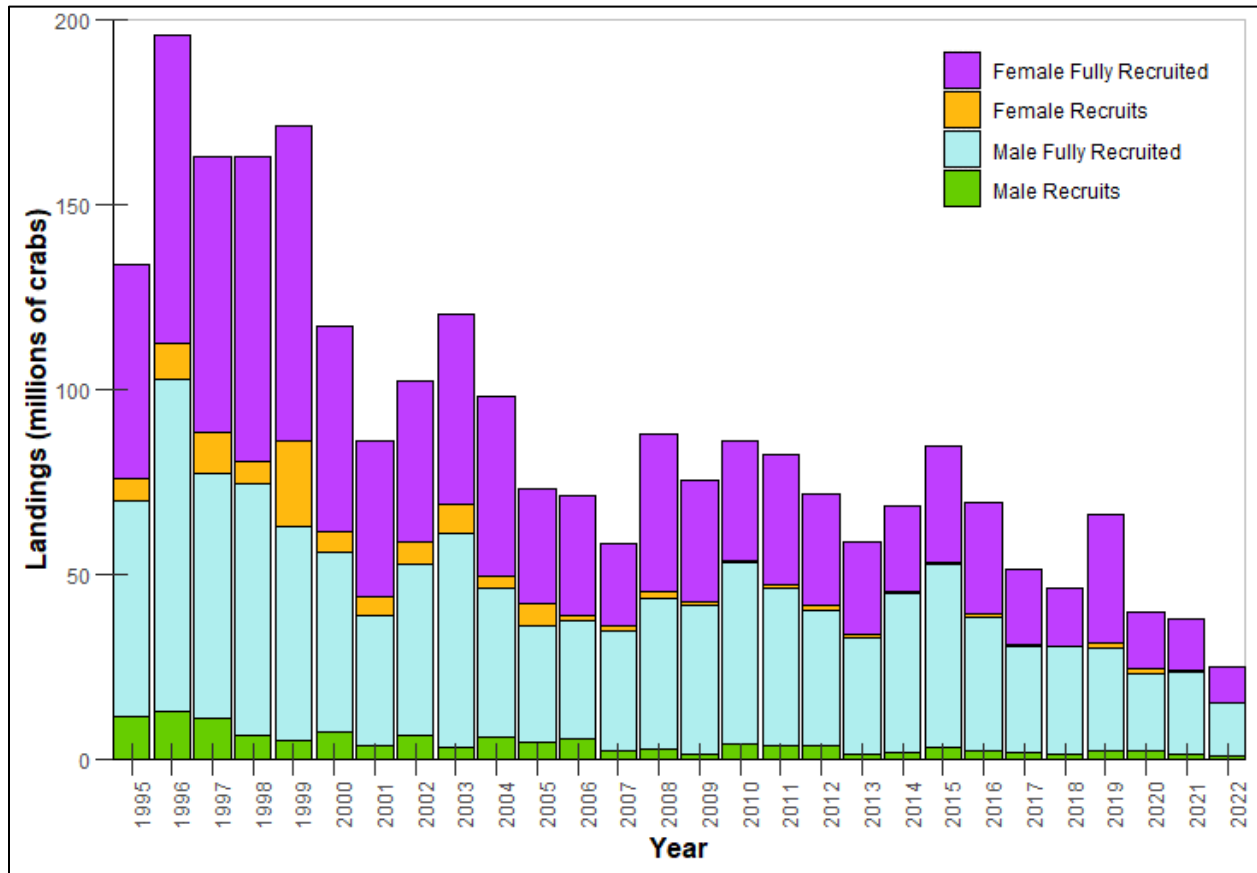
**Table 3.1.** Parameters and priors. U denotes uniform distribution.

	<b>Parameter</b>	<b>Value</b>	<b>Reference</b>
<b>Input Parameters</b>	Sex ratio	1:1	
	Selectivity for fully recruited	$g_{N,s}=1$	Rudershausen and Hightower 2016
	Proportion of mature females	$w_N=0.9; w_R=0.044$	Eggleston et al. 2004
	Natural mortality (Model 3)	$M=0.55$	Eggleston et al. 2004
<b>Priors</b>	Initial population size ( $10^6$ )	$N_{y=1995, s=male} \sim U(58, 5800)$ $N_{y=1995, s=female} \sim U(58, 5800)$	Derived from catch data in initial year (1995)
	Average recruitment ( $10^6$ )	$\bar{R} \sim U(10, 1000)$	Derived from catch data
	Initial recruitment ( $10^6$ ; Model 4)	$R_{y=1995} \sim U(10, 1000)$	
	Natural mortality ( $\text{yr}^{-1}$ )	$\bar{M} \sim U(0.5, 2)$	Murphy et al. 2007; Miller et al. 2011
	Fishing mortality ( $\text{yr}^{-1}$ )	$F_y \sim U(0.001, 3)$	Eggleston et al. 2004
	Selectivity for recruits	$g_{R,s} \sim U(0, 0.6)$	Rudershausen and Hightower 2016
	Ricker productivity parameter (# offspring per spawner; Model 4)	$\alpha \sim U(1, 15)$	Eggleston et al. 2004; VanderKooy 2013
	Ricker density-dependence parameter (Model 4)	$\beta = 0.005$	Eggleston et al. 2004; VanderKooy 2013
	Standard deviation of process errors	$\sigma_N, \sigma_R \sim U(0.001, 10)$	
	Standard deviation of observation errors	$\sigma_{CN,s}, \sigma_{CR,s} \sim U(0.001, 10)$ $\sigma_{sp,j}, \sigma_{IN,s,j}, \sigma_{IR,s,j} \sim U(0.001, 10)$	
	Standard deviation of natural mortality error	$\sigma_{MM}, \sigma_M \sim U(0.001, 1)$	

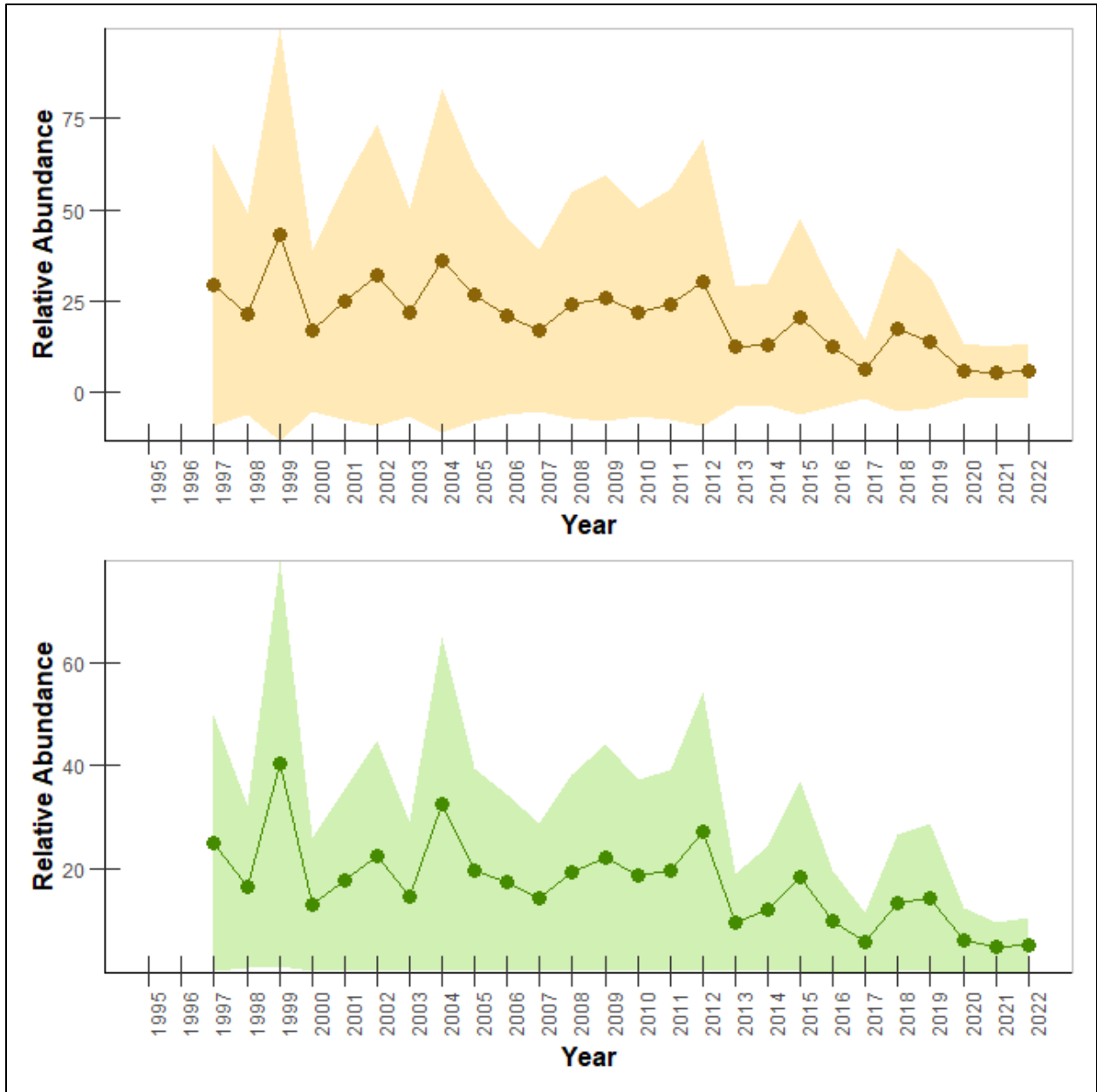
**Table 3.2.** Priors for catchability ( $q$ ;  $10^{-6}$ ). U denotes uniform distribution. Derived from catch and abundance index data by assuming catch is the lower bound for population size and  $100 \times$  catch is the upper bound. Set 0.0001 as lower bound and maximum index / minimum catch as upper bound.

<b>Abundance Index</b>	<b>Prior</b>
P120 male recruits	U(0.0001, 34)
P195 male recruits June	U(0.0001, 222)
P195 male recruits September	U(0.0001, 16)
P120 female recruits	U(0.0001, 297)
P195 female recruits June	U(0.0001, 1551)
P195 female recruits September	U(0.0001, 99)
P100 male fully recruited summer	U(0.0001, 0.4)
P100 male fully recruited fall	U(0.0001, 1)
P195 male fully recruited June	U(0.0001, 5)
P195 male fully recruited September	U(0.0001, 1)
P100 female fully recruited summer	U(0.0001, 0.3)
P100 female fully recruited fall	U(0.0001, 1)
P195 female fully recruited June	U(0.0001, 5)
P195 female fully recruited September	U(0.0001, 2)
P195 spawner	U(0.0001, 2)
SEAMAP spawner	U(0.0001, 6)

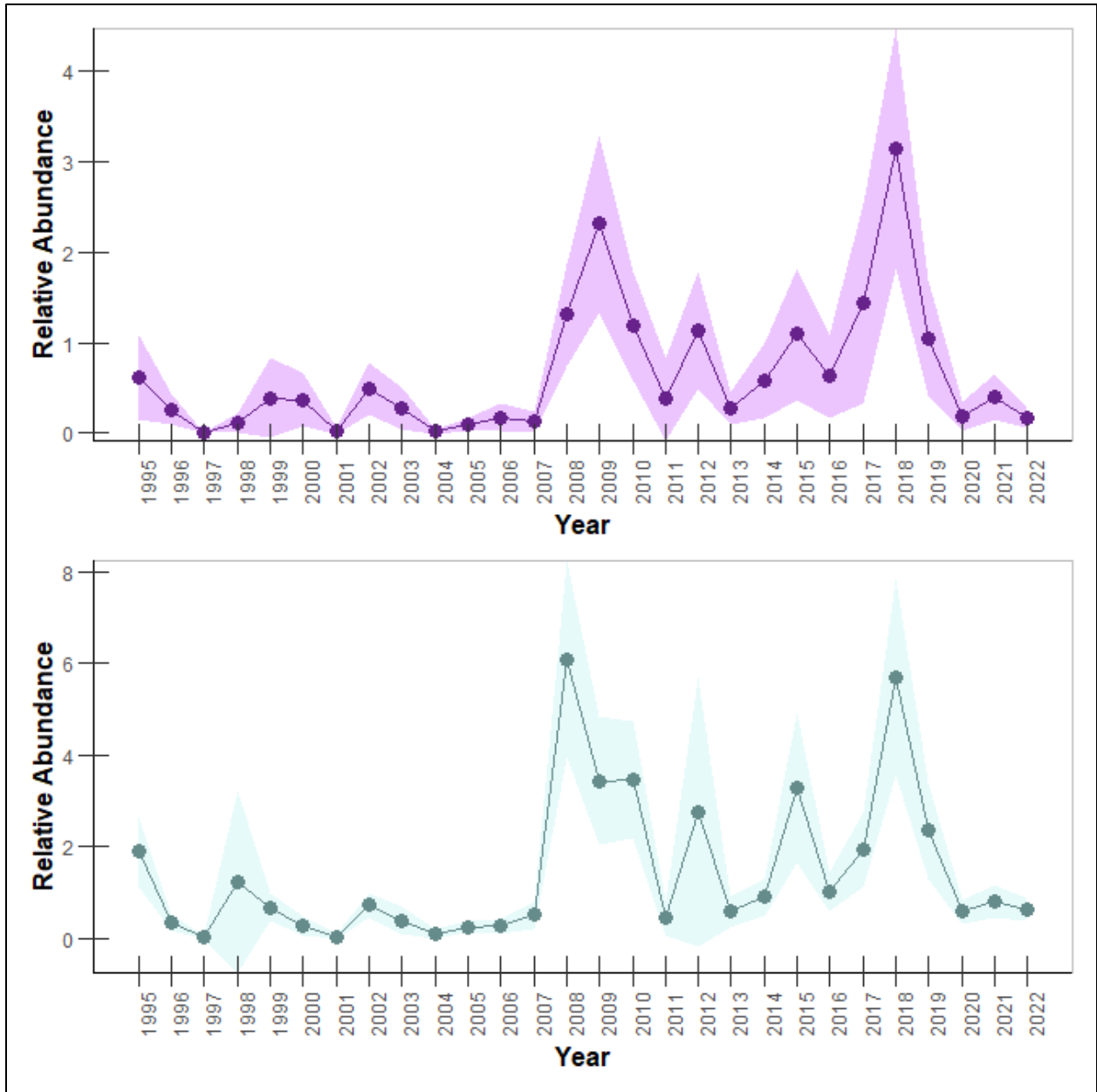
## 8 FIGURES



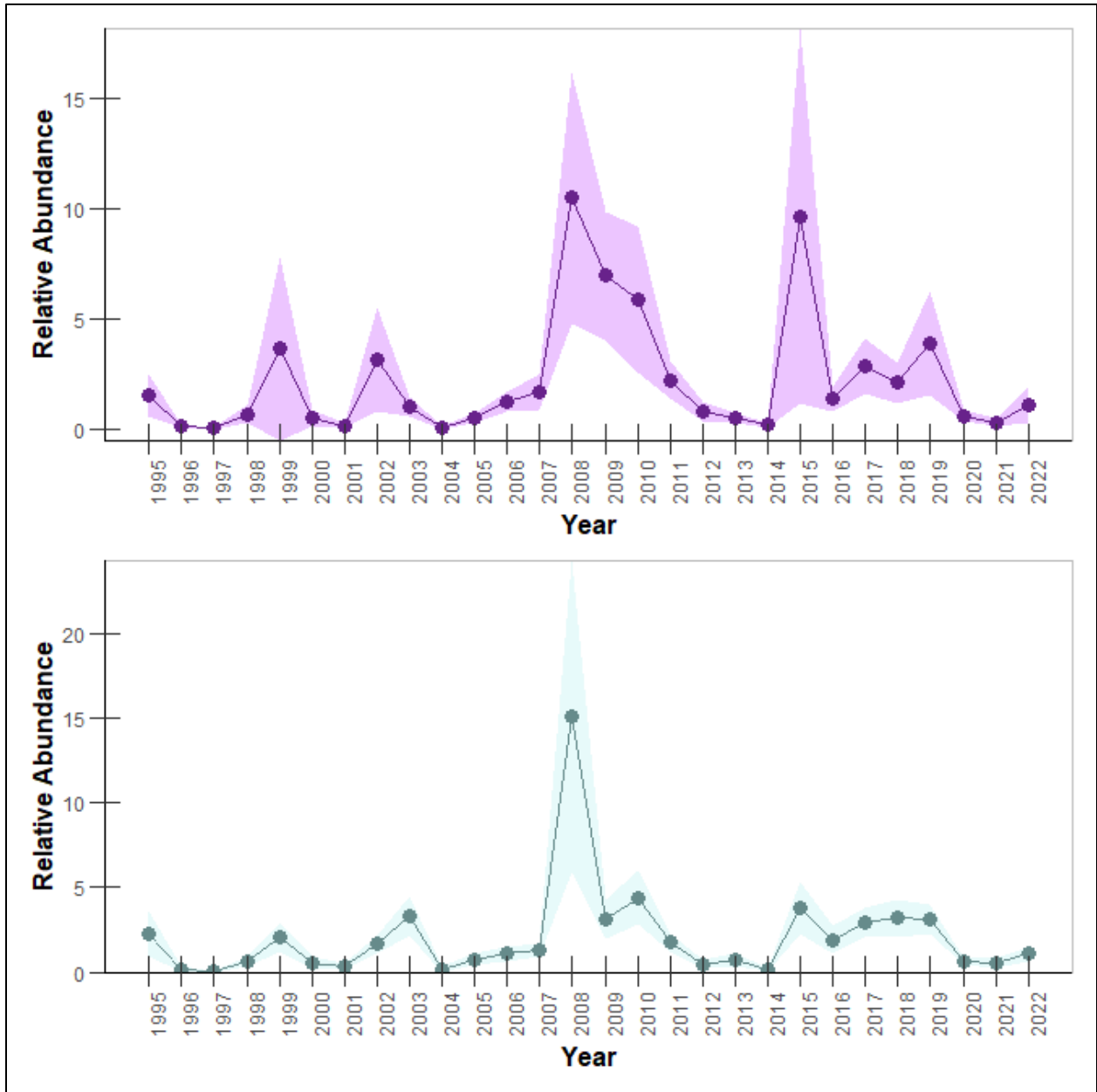
**Figure 2.1.** Annual commercial landings of hard blue crabs in North Carolina by sex and stage, 1995–2022.



**Figure 2.2.** GLM-standardized indices of relative abundance for female (top) and male (bottom) blue crab recruits observed in the Program 120 Survey, 1997–2022.

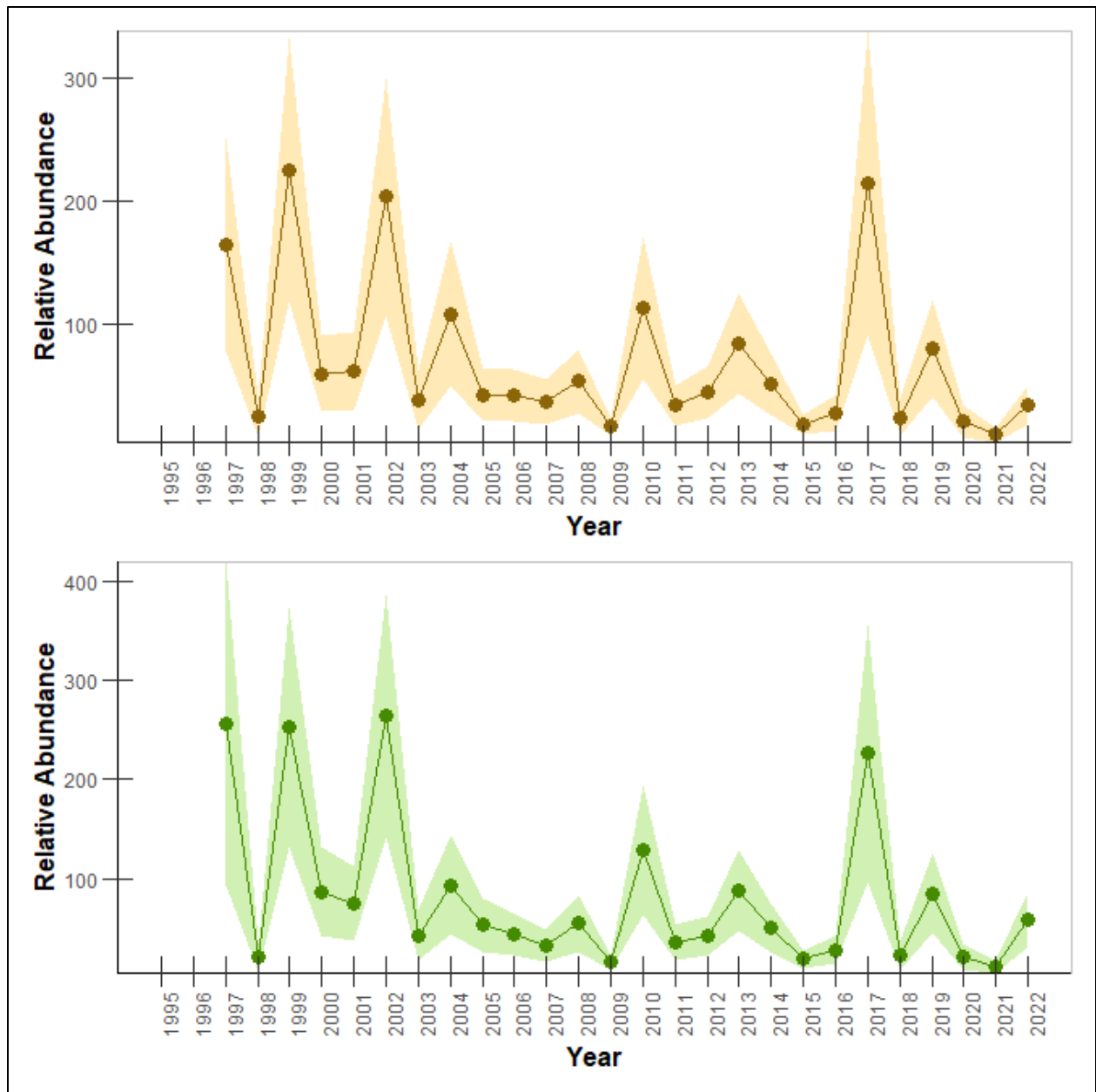


**Figure 2.3.** Nominal indices of relative abundance for female (top) and male (bottom) fully recruited blue crabs observed in the summer component of the Program 100 Survey, 1995–2022.

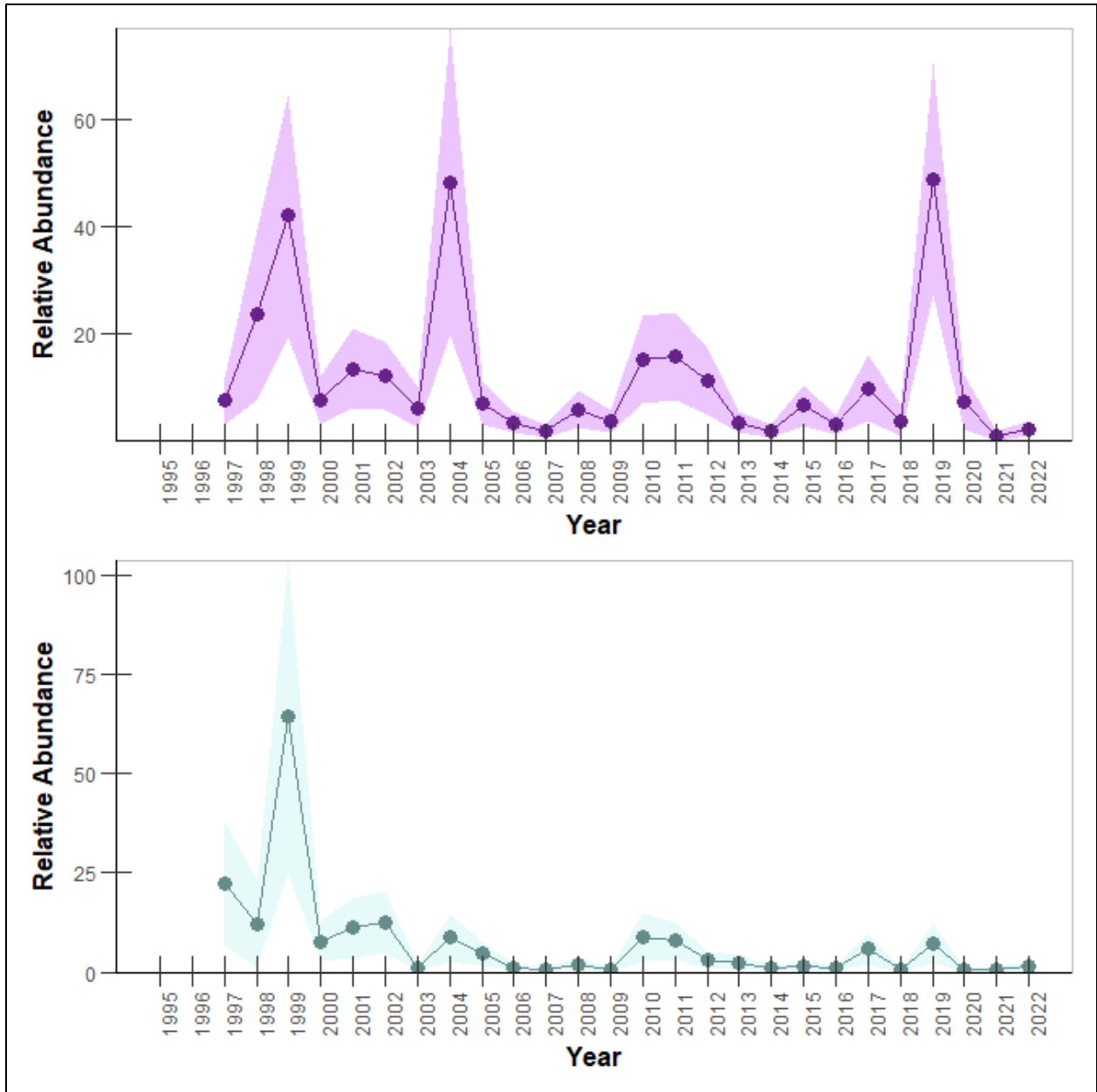


**Figure 2.4.** Nominal indices of relative abundance for female (top) and male (bottom) fully recruited blue crabs observed in the fall component of the Program 100 Survey, 1995–2022.

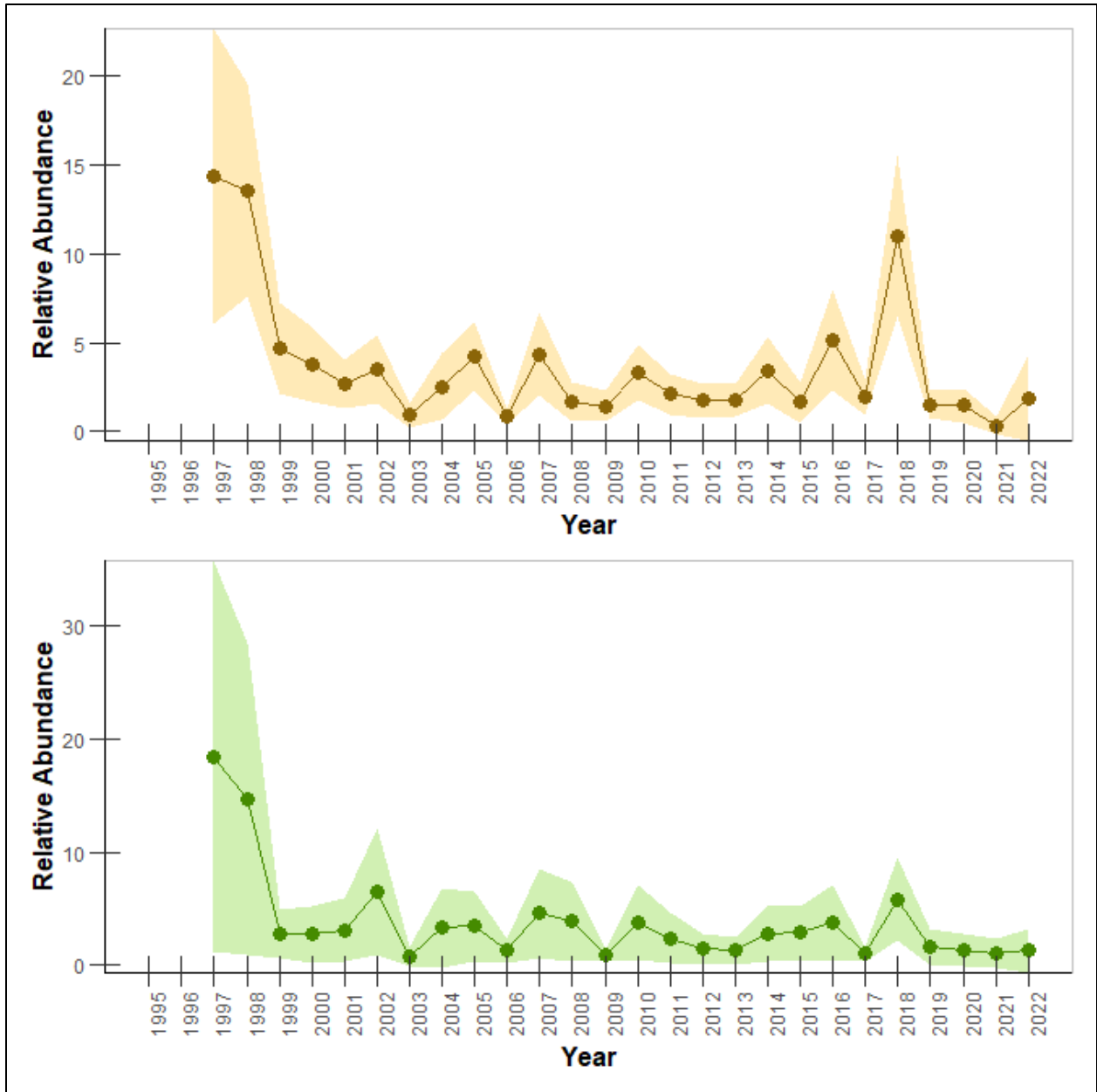




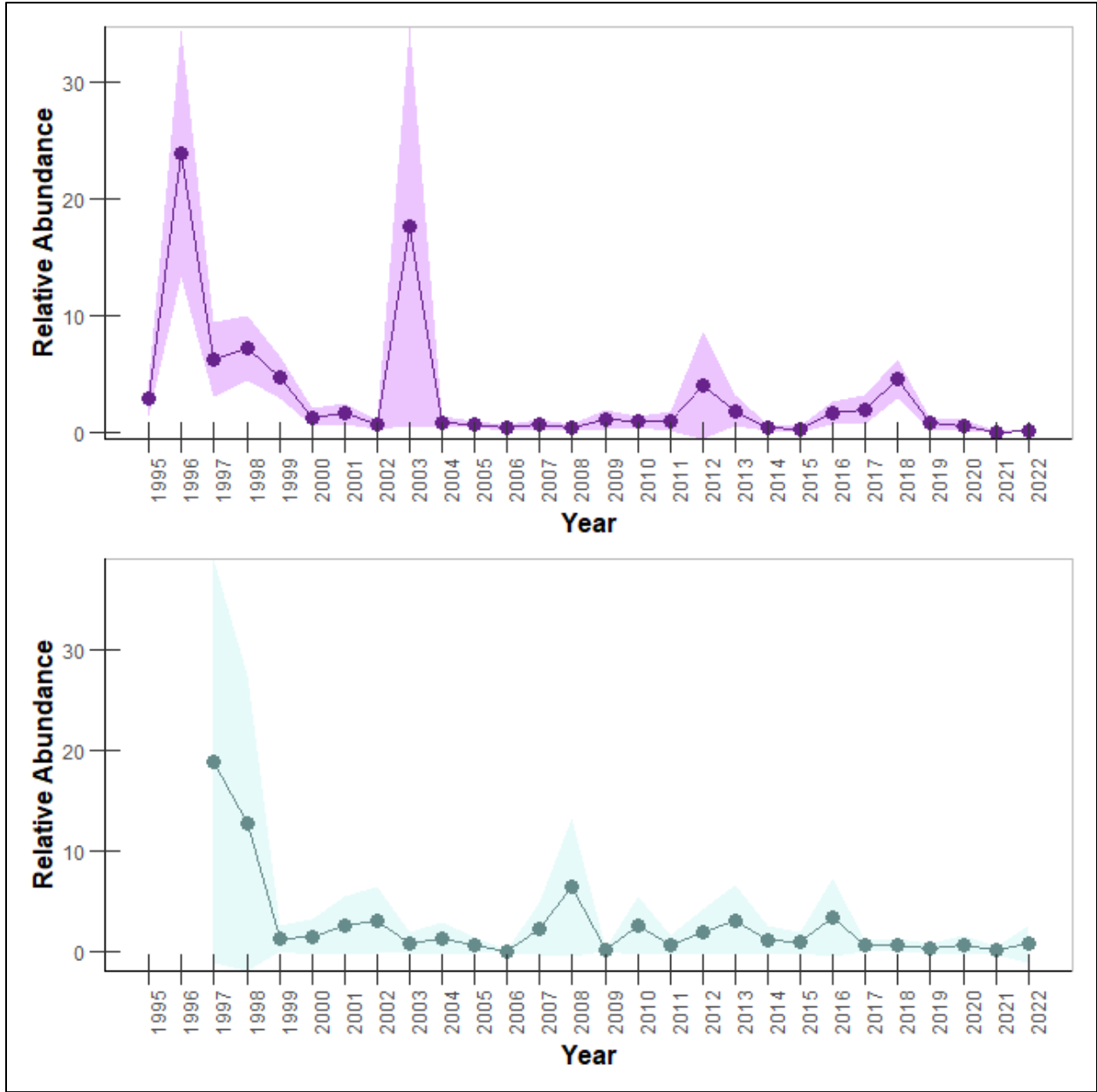
**Figure 2.5.** GLM-standardized indices of relative abundance for female (top) and male (bottom) blue crab recruits observed in the June component of the Program 195 Survey, 1997–2022.



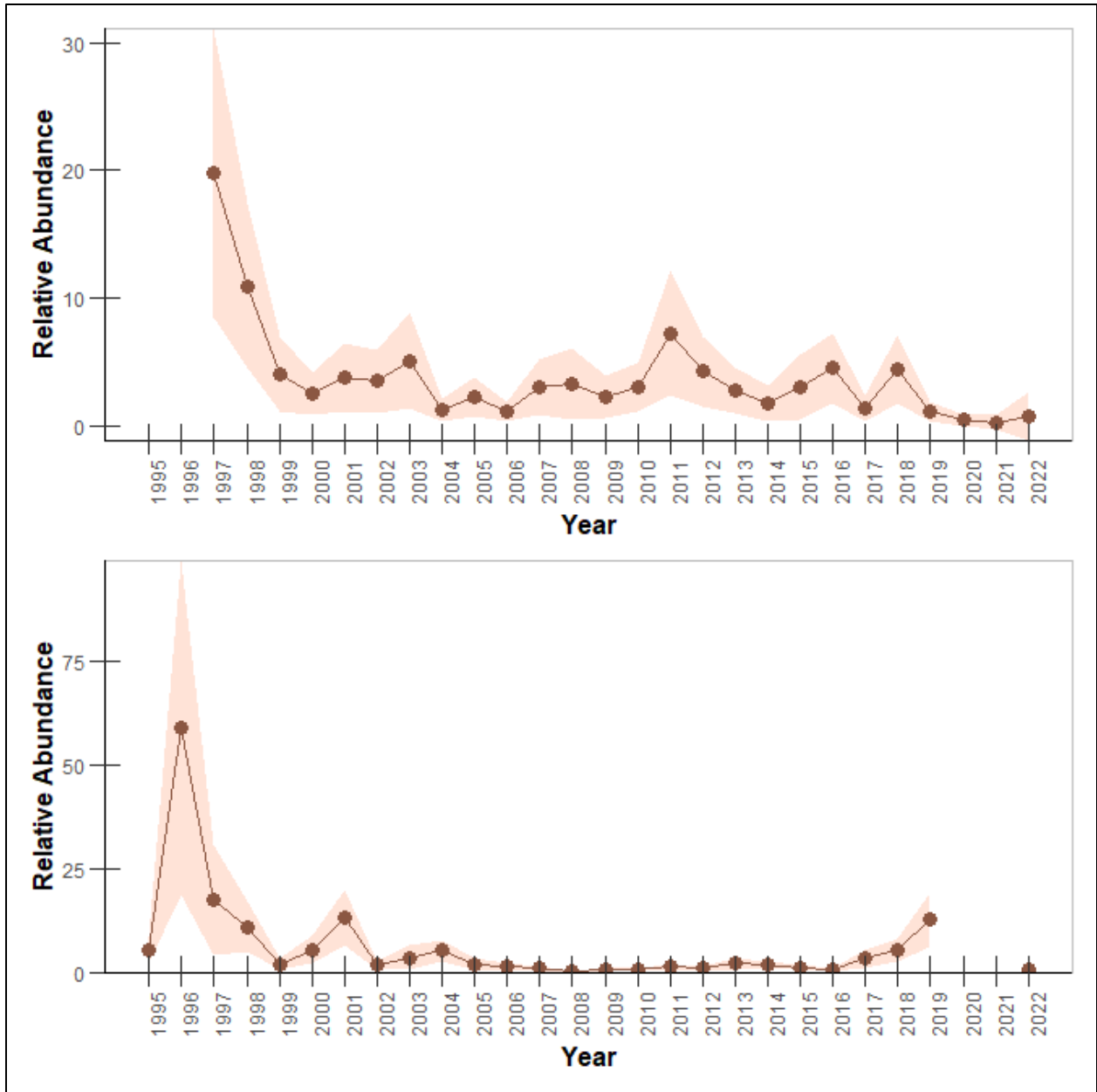
**Figure 2.6.** GLM-standardized indices of relative abundance for female (top) and male (bottom) fully recruited blue crabs observed in the June component of the Program 195 Survey, 1997–2022.



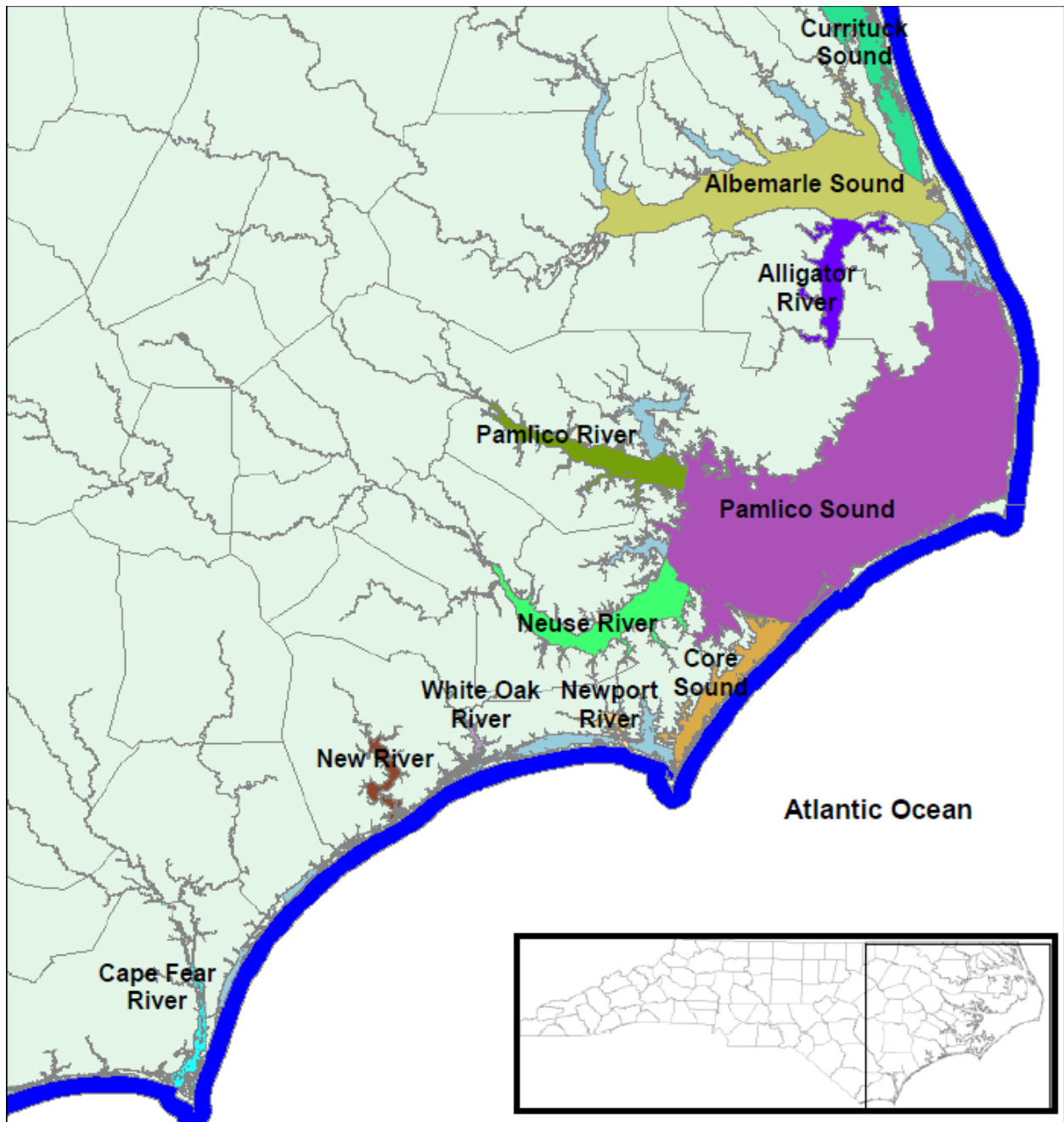
**Figure 2.7.** GLM-standardized indices of relative abundance for female (top) and male (bottom) blue crab recruits observed in the September component of the Program 195 Survey, 1997–2022.



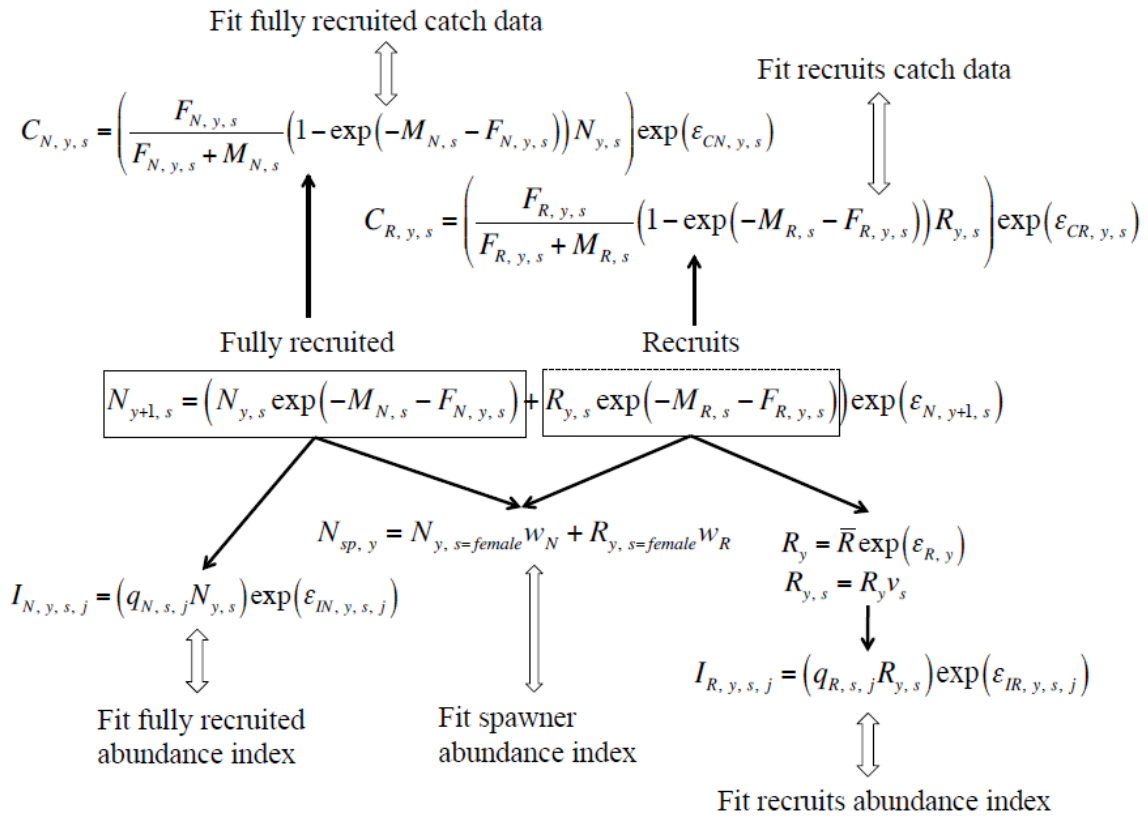
**Figure 2.8.** Nominal index for female fully recruited blue crabs (top) and GLM-standardized index for male fully recruited blue crabs (bottom) observed in the September component of the Program 195 Survey, 1995–2022.



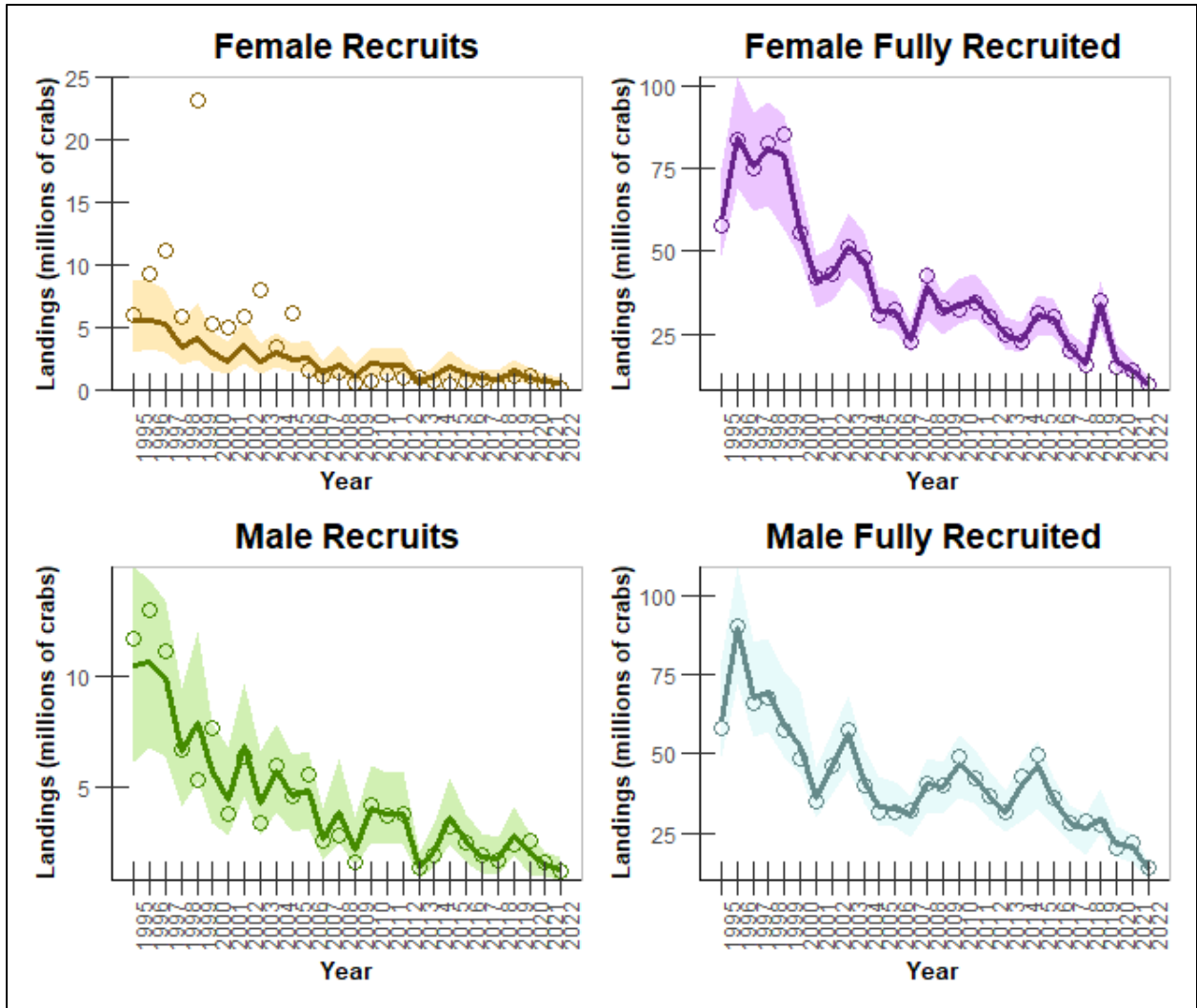
**Figure 2.9.** GLM-standardized indices of relative abundance for mature female blue crabs observed in the September component of the Program 195 Survey (top) and the summer component of the SEAMAP Survey (bottom), 1995–2022.



**Figure 3.1.** Major water bodies within and around North Carolina. The darker blue area represents the range of the state's coastal fishing waters, which extend to three miles offshore.

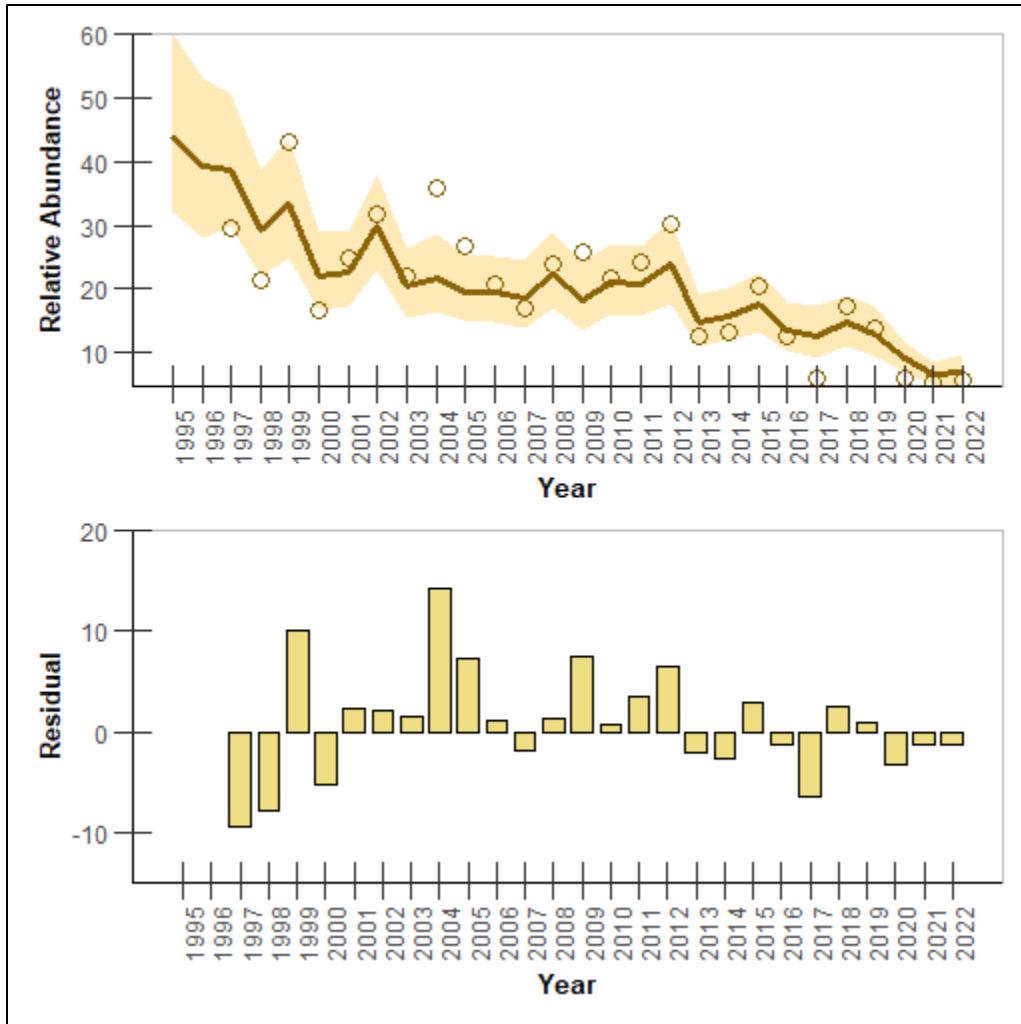


**Figure 3.2.** Schematic diagram of the two-stage model for the North Carolina blue crab stock assessment. Refer to text for symbol explanation.

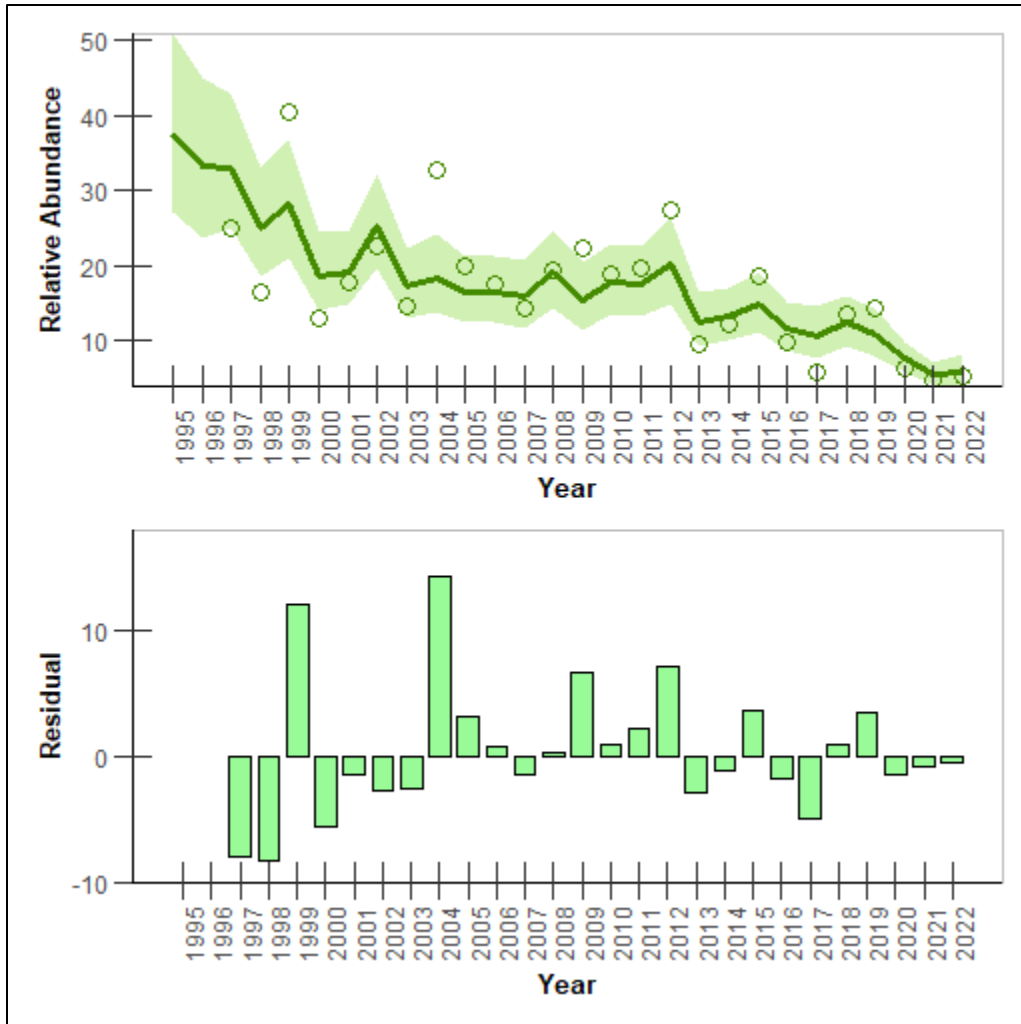


**Figure 3.3.** Observed (open circles) and predicted (solid lines) commercial landings of hard blue crabs by sex and stage, 1995–2022. Lines represent posterior mean and shaded area represents 95% credible interval.

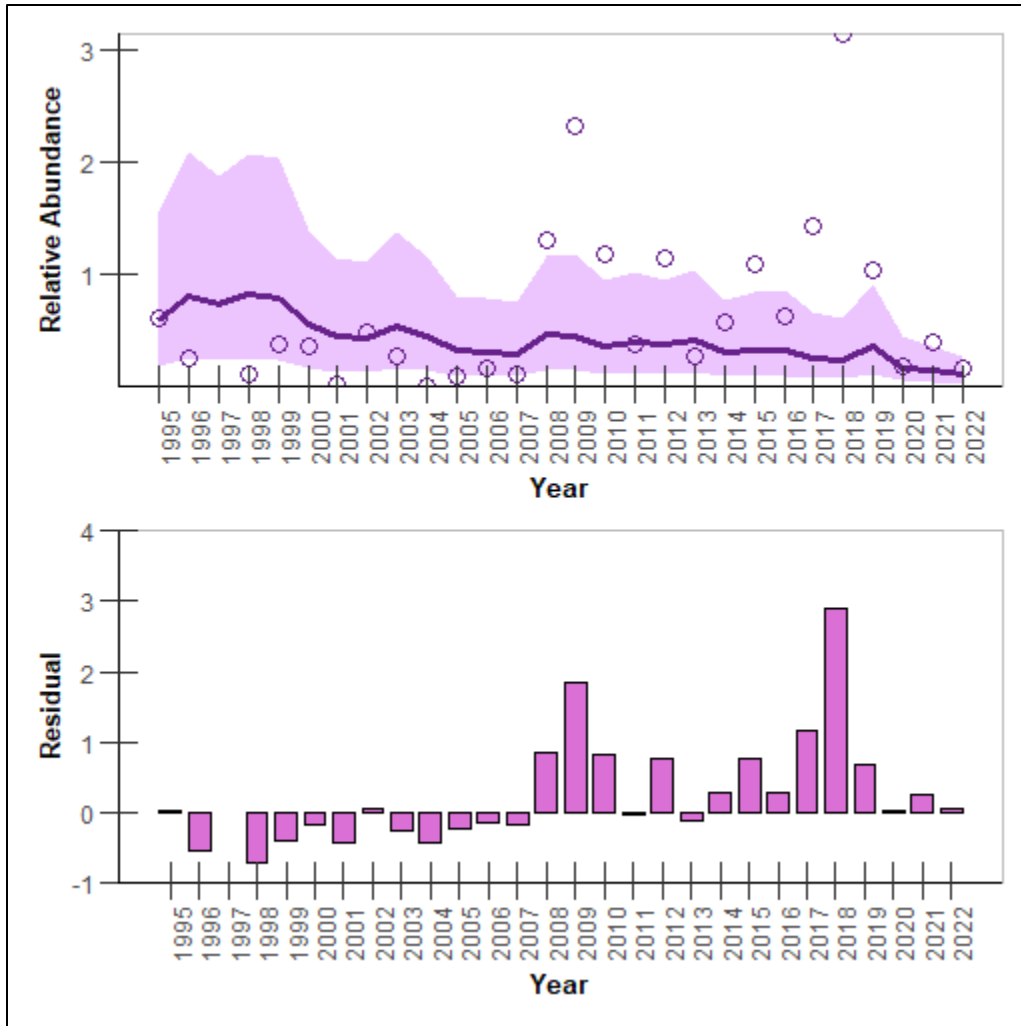




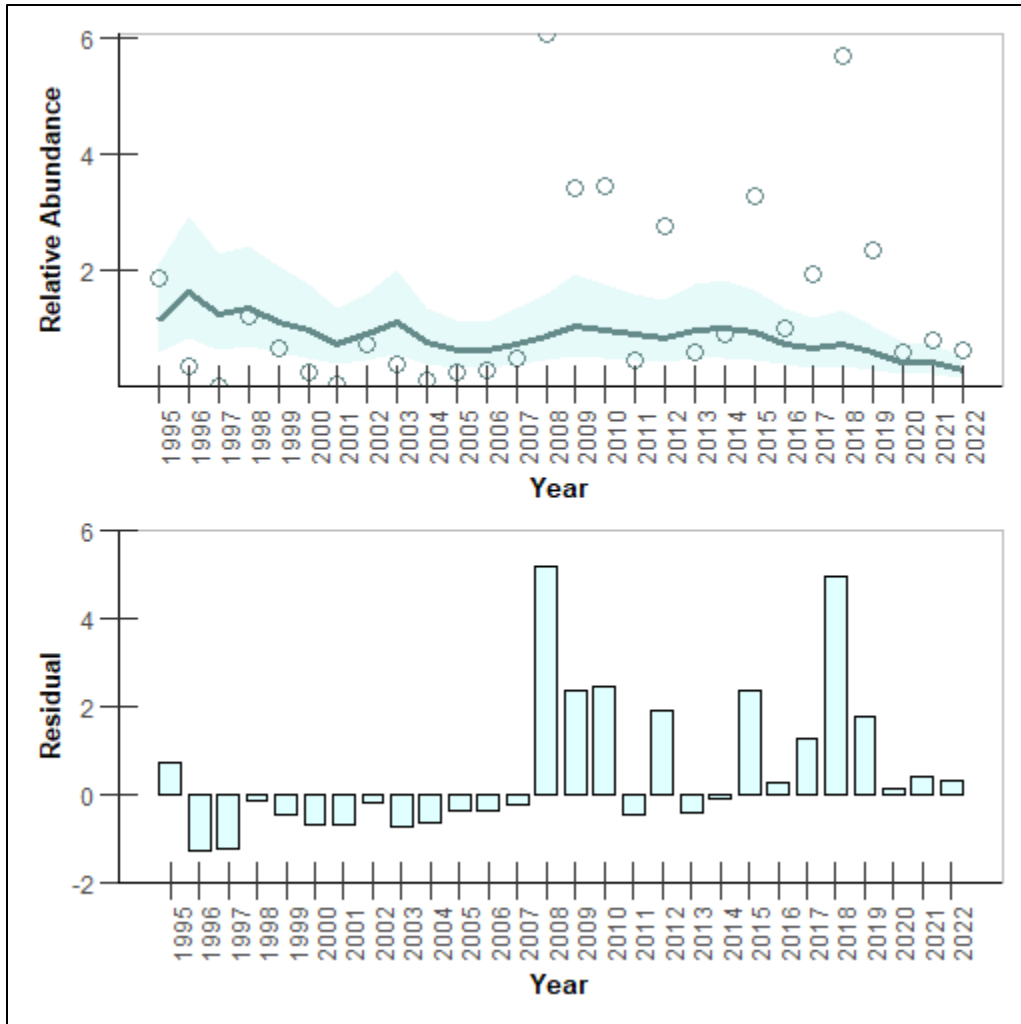
**Figure 3.4.** Observed (open circles) and predicted (solid line) relative abundance of female blue crab recruits observed in the Program 120 Survey (top) and associated residuals (bottom), 1997–2022.



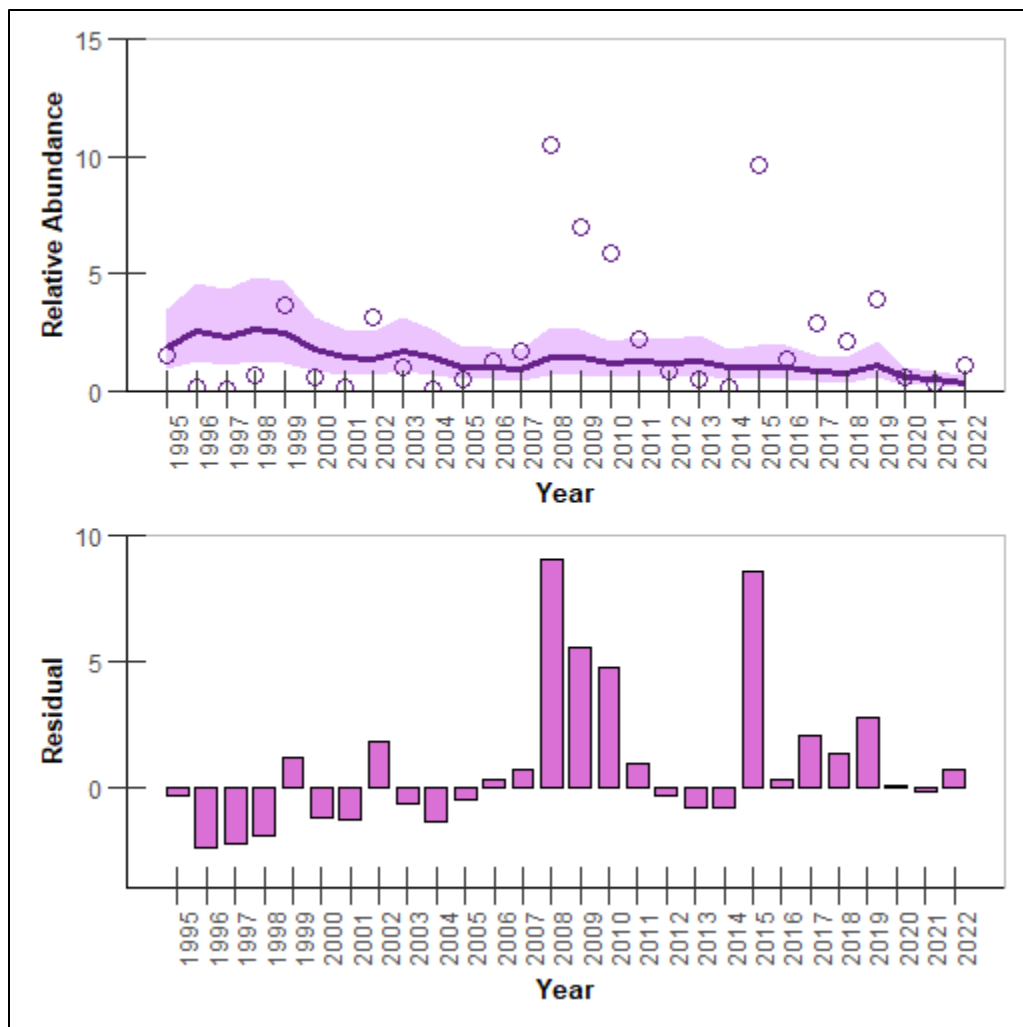
**Figure 3.5.** Observed (open circles) and predicted (solid line) relative abundance of male blue crab recruits observed in the Program 120 Survey (top) and associated residuals (bottom), 1997–2022.



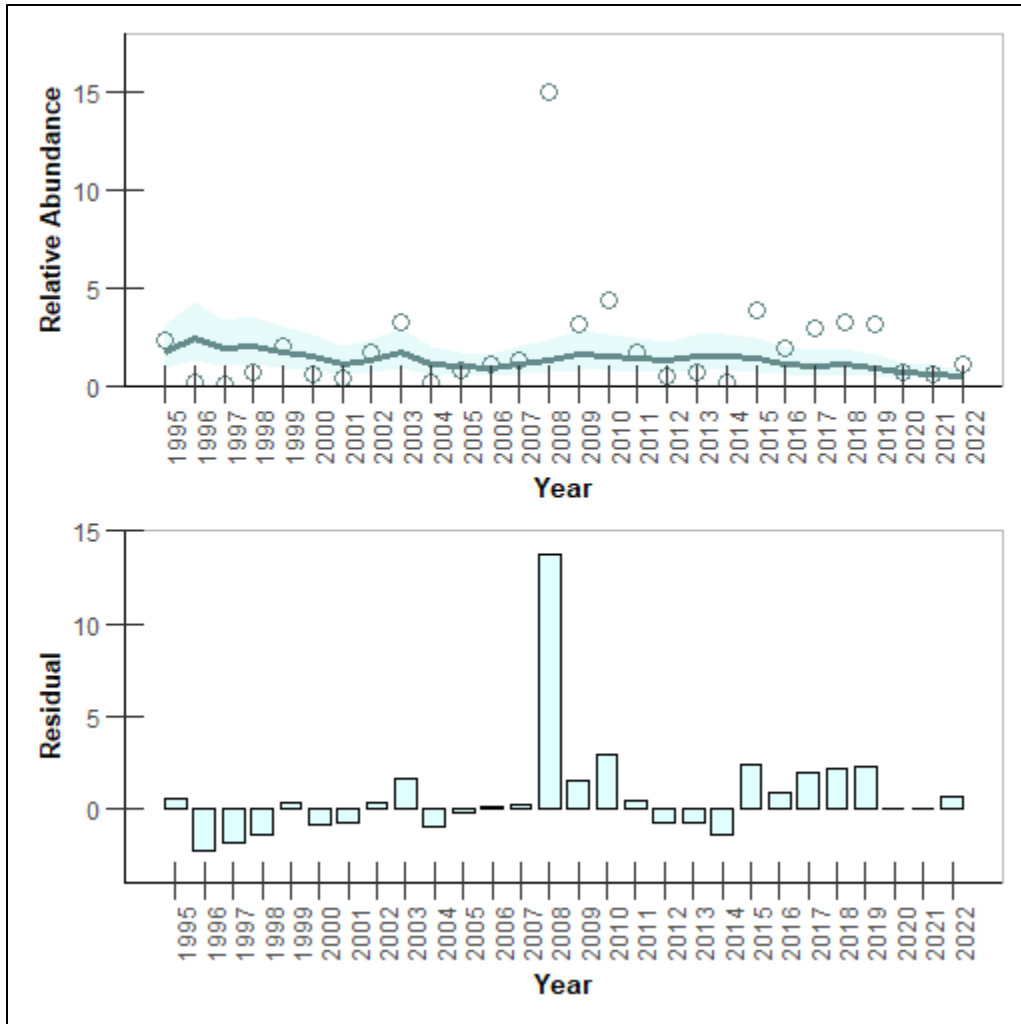
**Figure 3.6.** Observed (open circles) and predicted (solid line) relative abundance of female fully recruited blue crabs observed in the summer component of the Program 100 Survey (top) and associated residuals (bottom), 1995–2022.



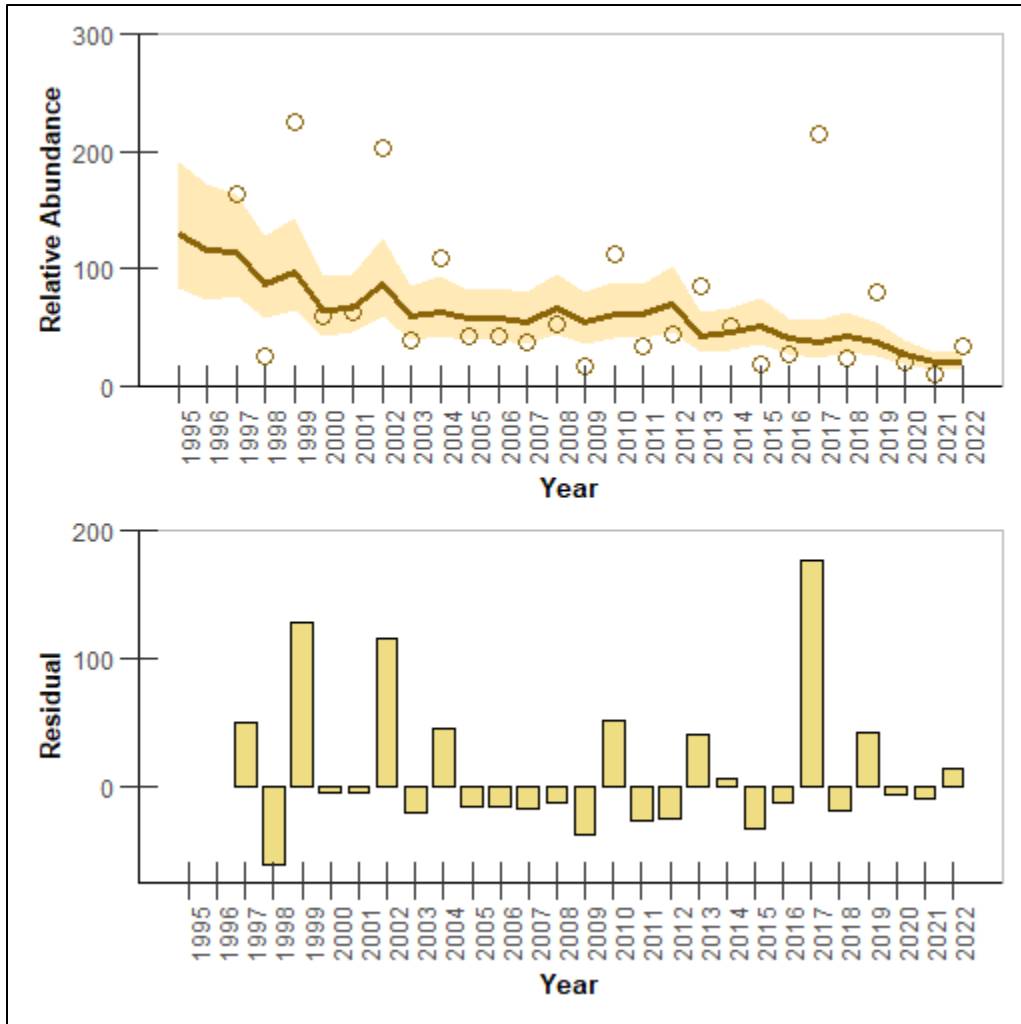
**Figure 3.7.** Observed (open circles) and predicted (solid line) relative abundance of male fully recruited blue crabs observed in the summer component of the Program 100 Survey (top) and associated residuals (bottom), 1995–2022.



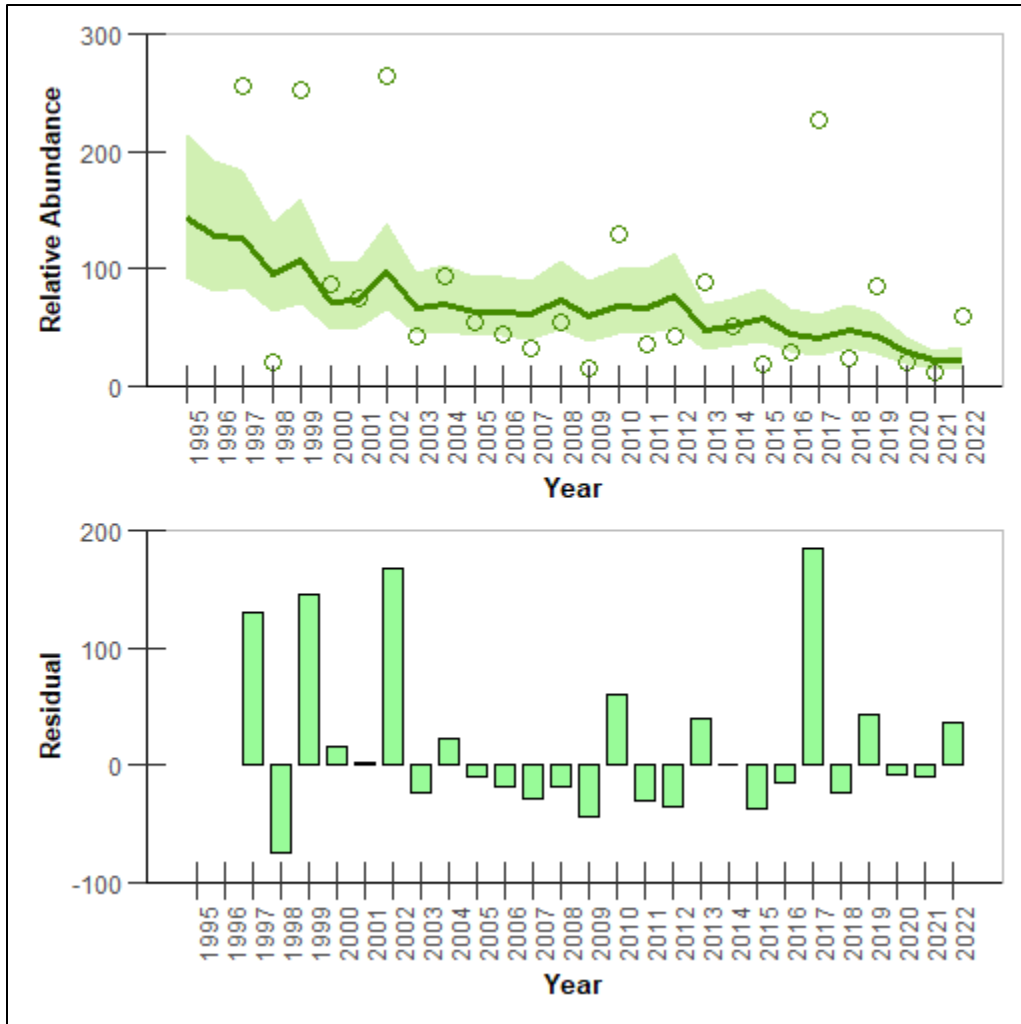
**Figure 3.8.** Observed (open circles) and predicted (solid line) relative abundance of female fully recruited blue crabs observed in the fall component of the Program 100 Survey (top) and associated residuals (bottom), 1995–2022.



**Figure 3.9.** Observed (open circles) and predicted (solid line) relative abundance of male fully recruited blue crabs observed in the fall component of the Program 100 Survey (top) and associated residuals (bottom), 1995–2022.

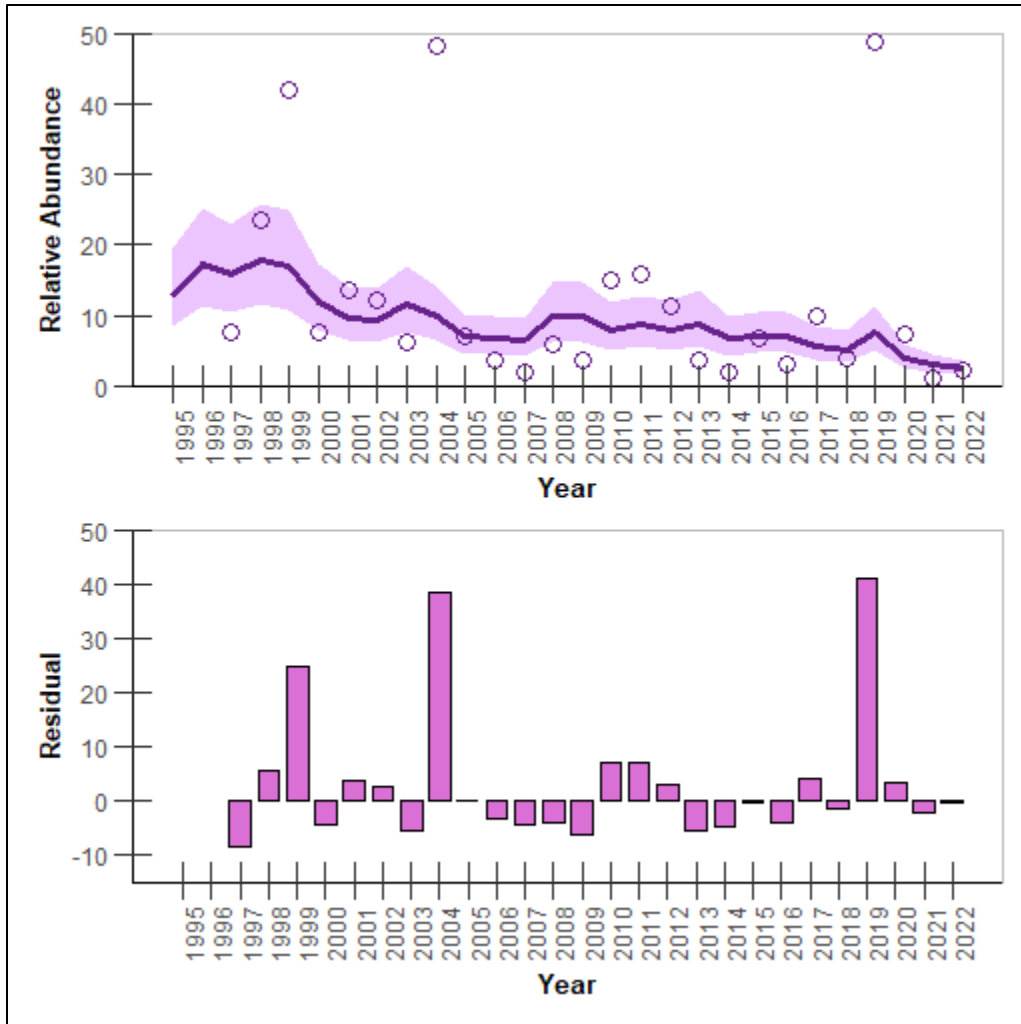


**Figure 3.10.** Observed (open circles) and predicted (solid line) relative abundance of female blue crab recruits observed in the June component of the Program 195 Survey (top) and associated residuals (bottom), 1997–2022.

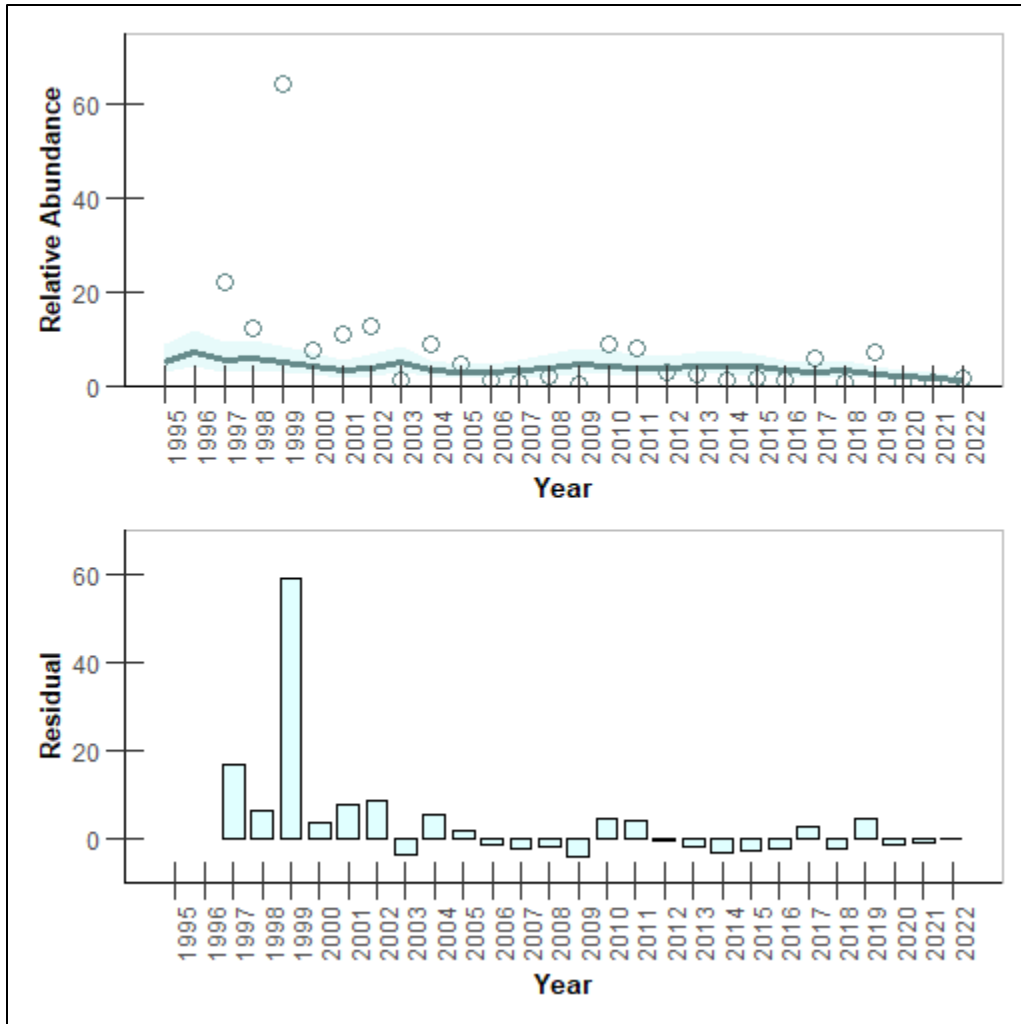


**Figure 3.11.** Observed (open circles) and predicted (solid line) relative abundance of male blue crab recruits observed in the June component of the Program 195 Survey (top) and associated residuals (bottom), 1997–2022.

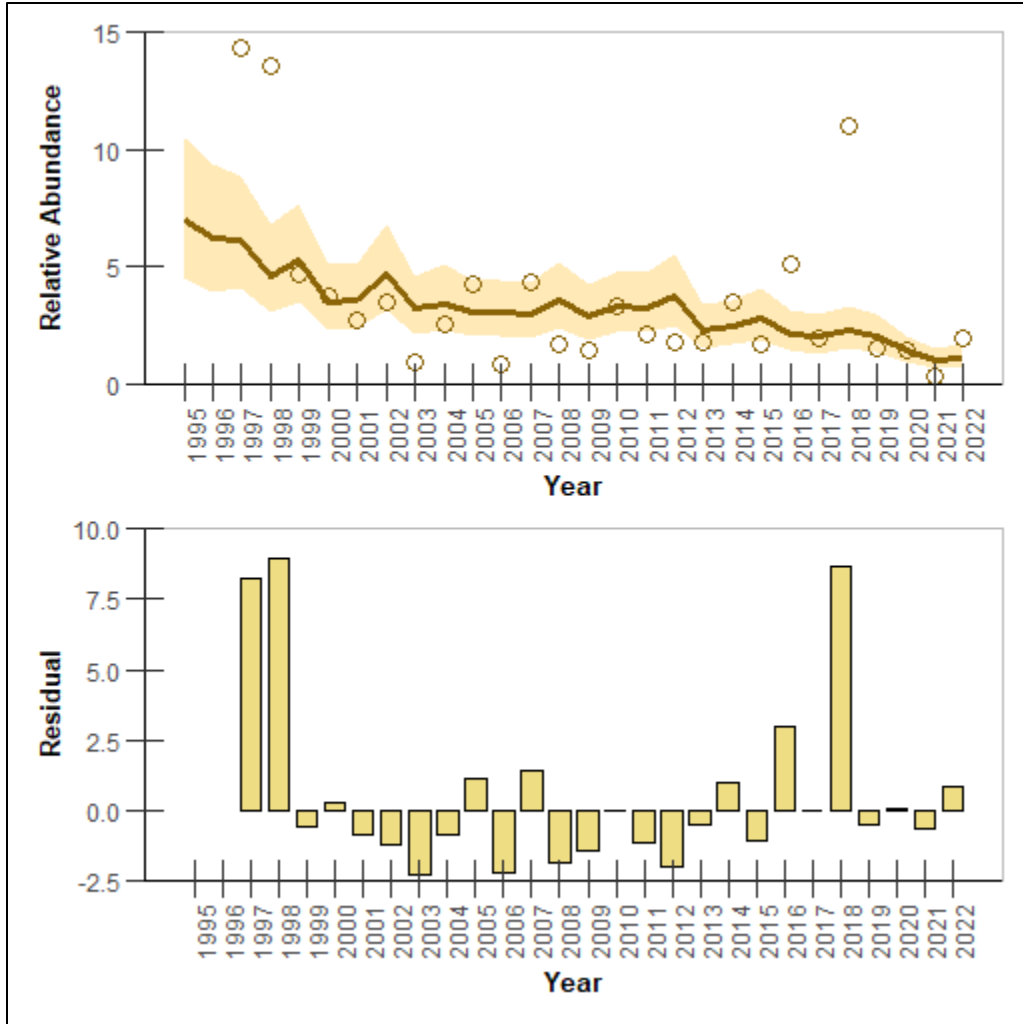




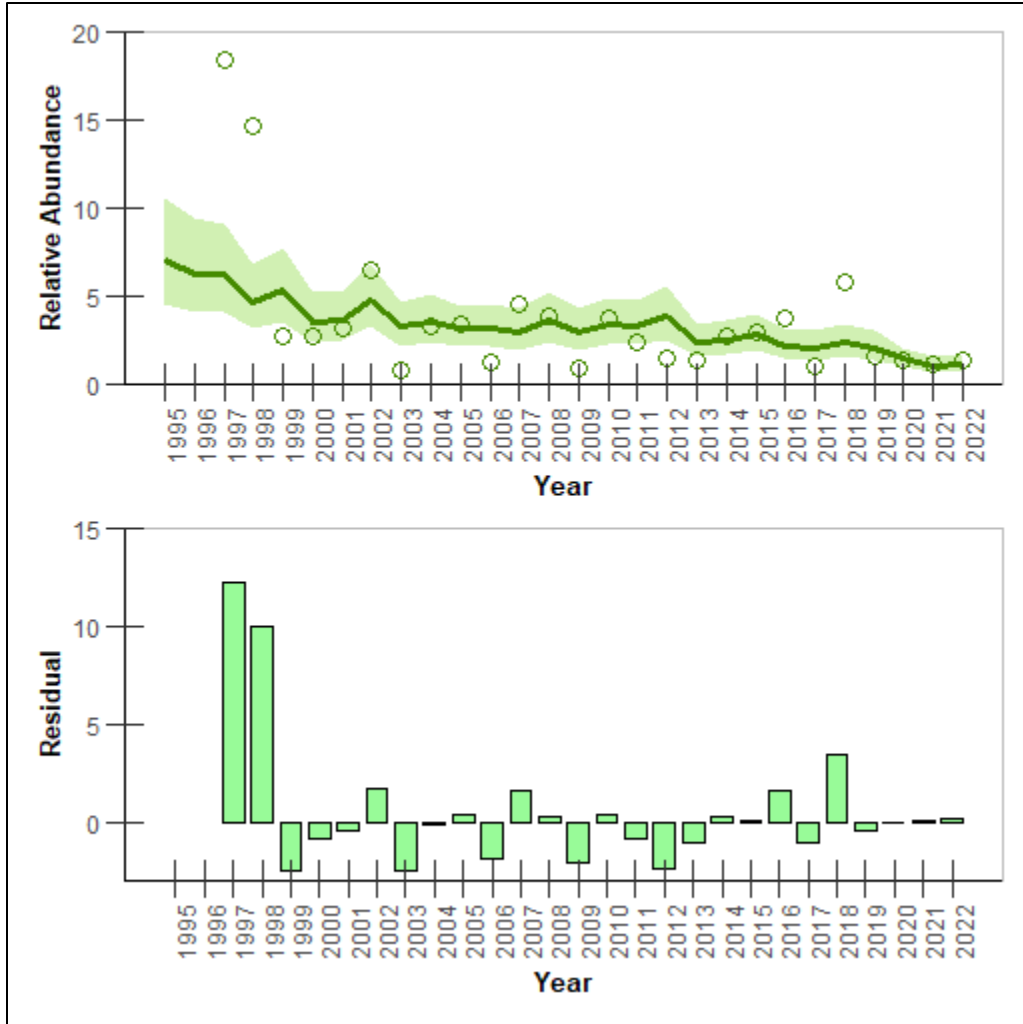
**Figure 3.12.** Observed (open circles) and predicted (solid line) relative abundance of female fully recruited blue crabs observed in the June component of the Program 195 Survey (top) and associated residuals (bottom), 1997–2022.



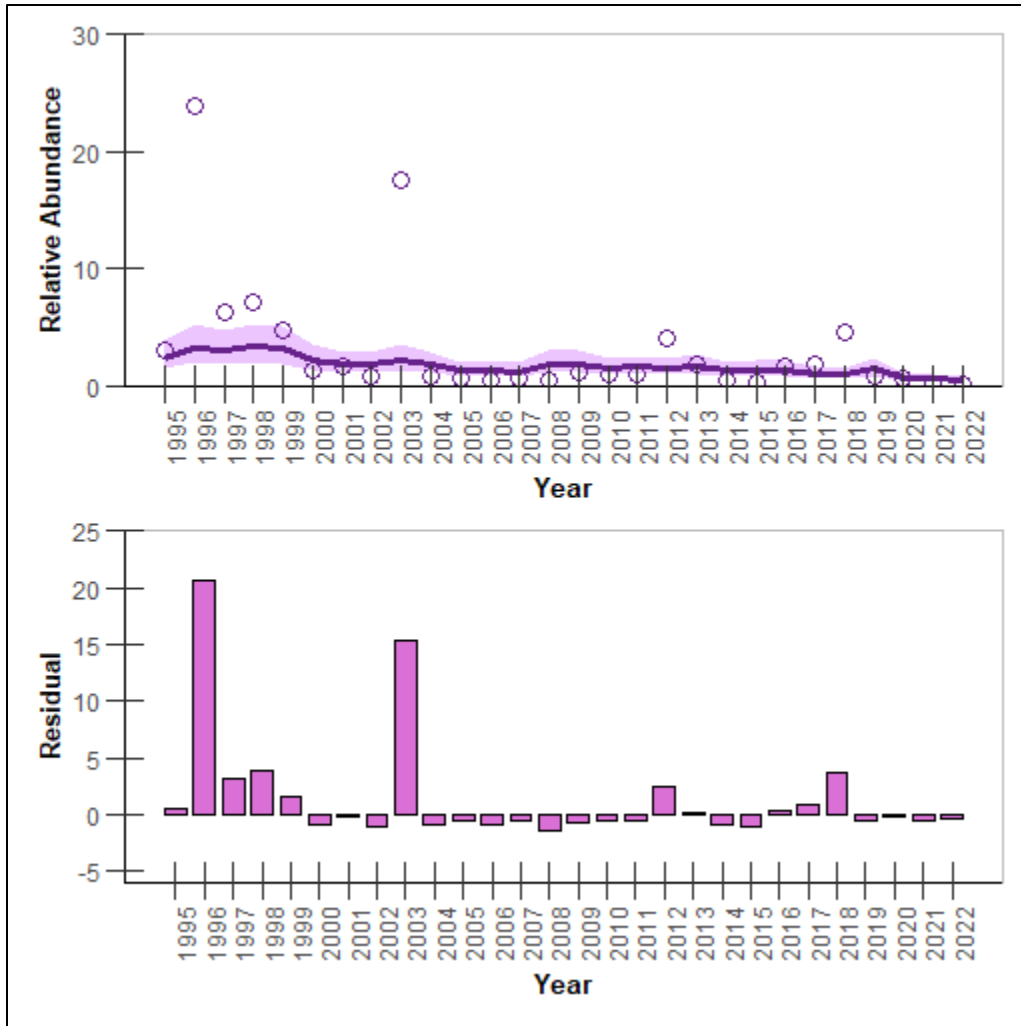
**Figure 3.13.** Observed (open circles) and predicted (solid line) relative abundance of male fully recruited blue crabs observed in the June component of the Program 195 Survey (top) and associated residuals (bottom), 1997–2022.



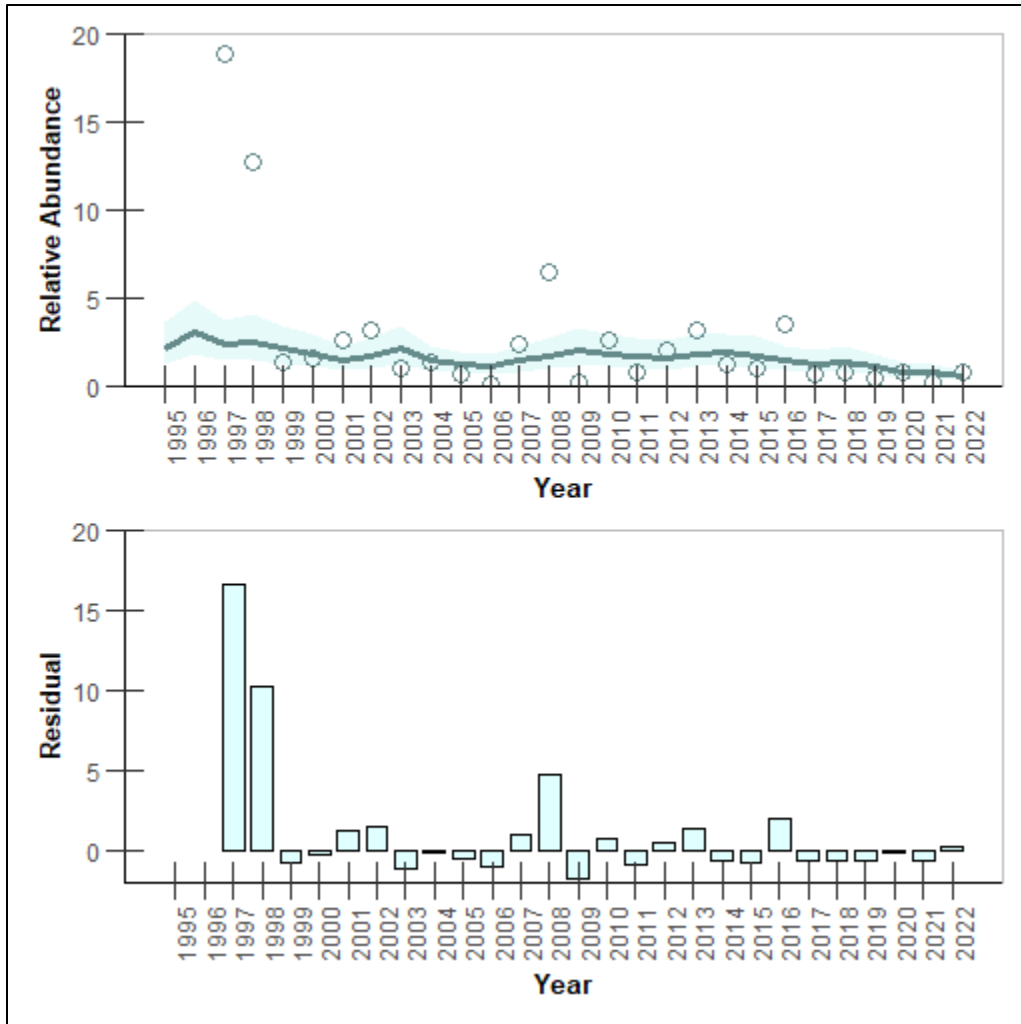
**Figure 3.14.** Observed (open circles) and predicted (solid line) relative abundance of female blue crab recruits observed in the September component of the Program 195 Survey (top) and associated residuals (bottom), 1997–2022.



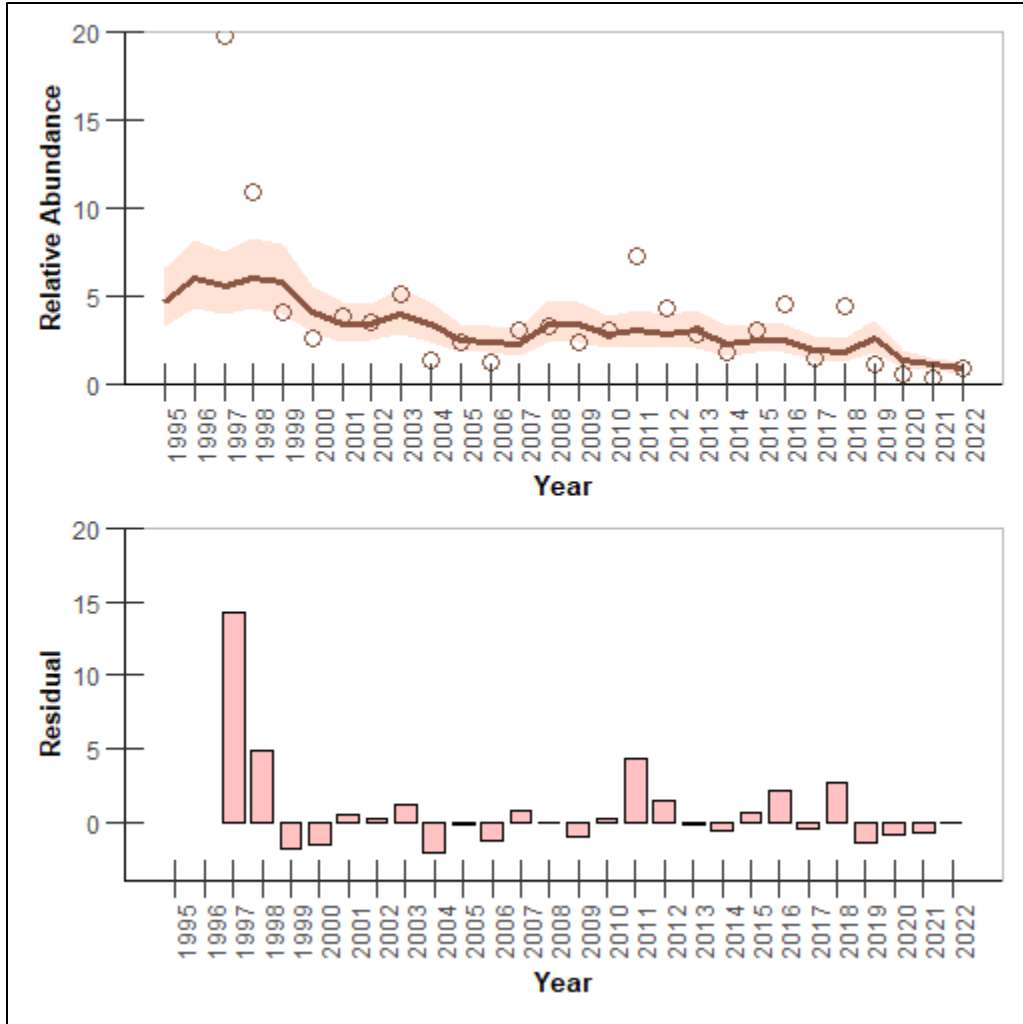
**Figure 3.15.** Observed (open circles) and predicted (solid line) relative abundance of male blue crab recruits observed in the September component of the Program 195 Survey (top) and associated residuals (bottom), 1997–2022.



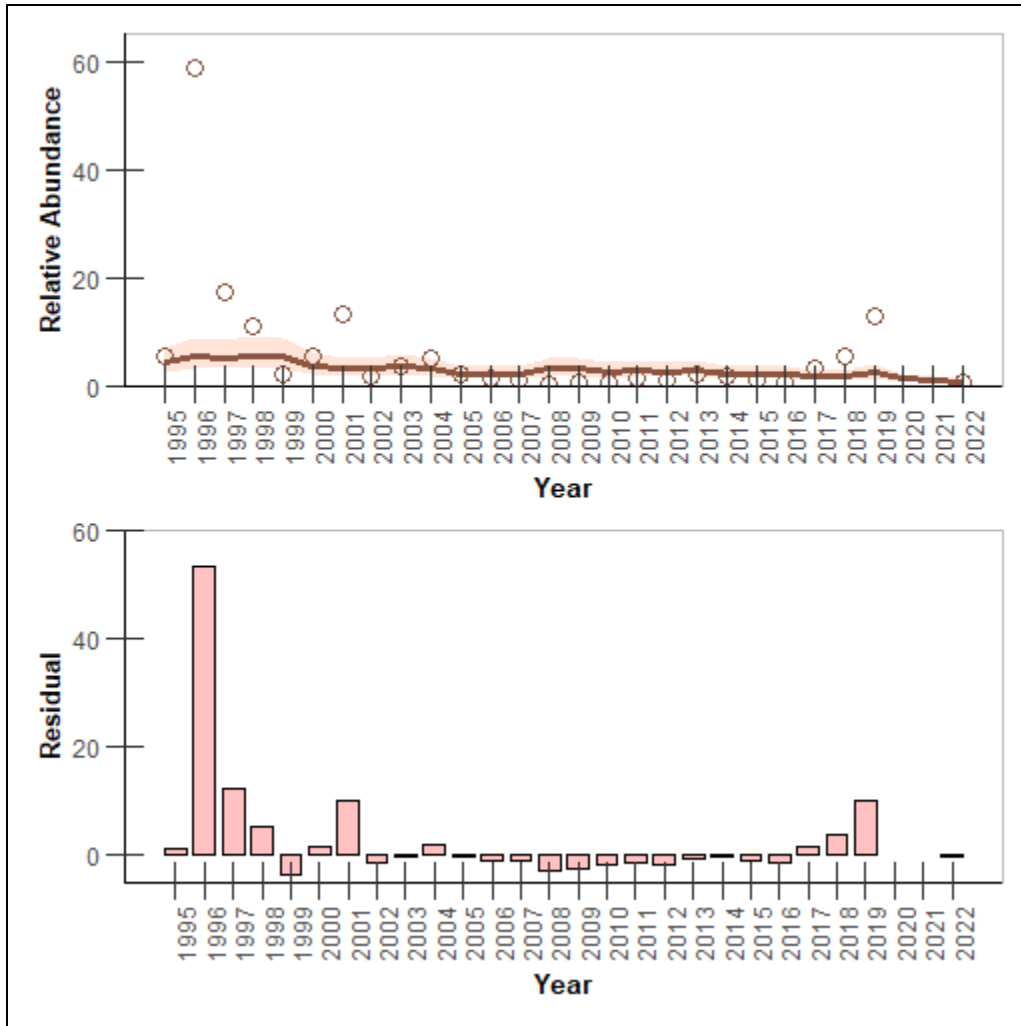
**Figure 3.16.** Observed (open circles) and predicted (solid line) relative abundance of female fully recruited blue crabs observed in the September component of the Program 195 Survey (top) and associated residuals (bottom), 1995–2022.



**Figure 3.17.** Observed (open circles) and predicted (solid line) relative abundance of male fully recruited blue crabs observed in the September component of the Program 195 Survey (top) and associated residuals (bottom), 1997–2022.



**Figure 3.18.** Observed (open circles) and predicted (solid line) relative abundance of mature female blue crabs observed in the September component of the Program 195 Survey (top) and associated residuals (bottom), 1997–2022.

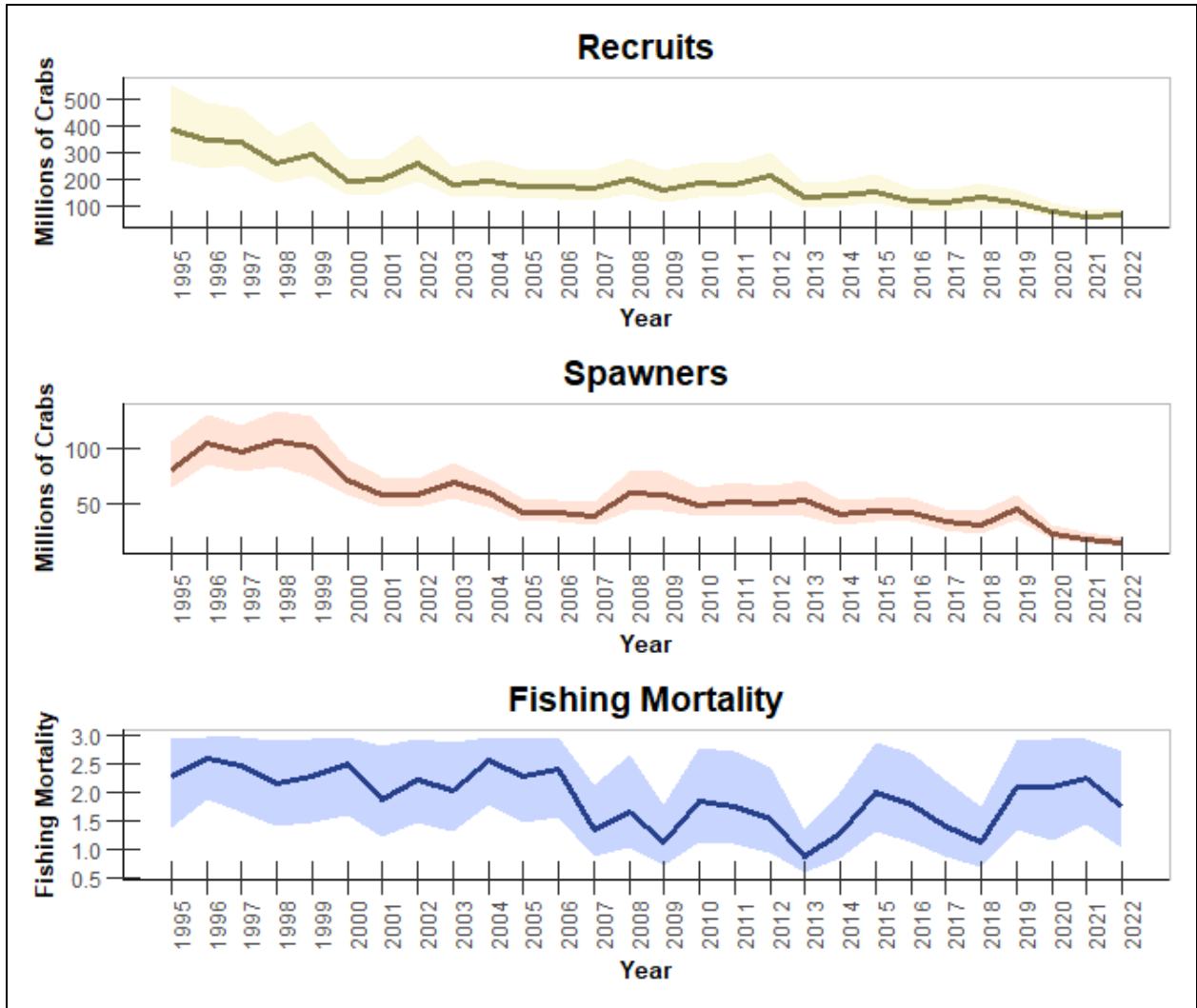


**Figure 3.19.** Observed (open circles) and predicted (solid line) relative abundance of mature female blue crabs observed in the summer component of the SEAMAP Survey (top) and associated residuals (bottom), 1995–2022.

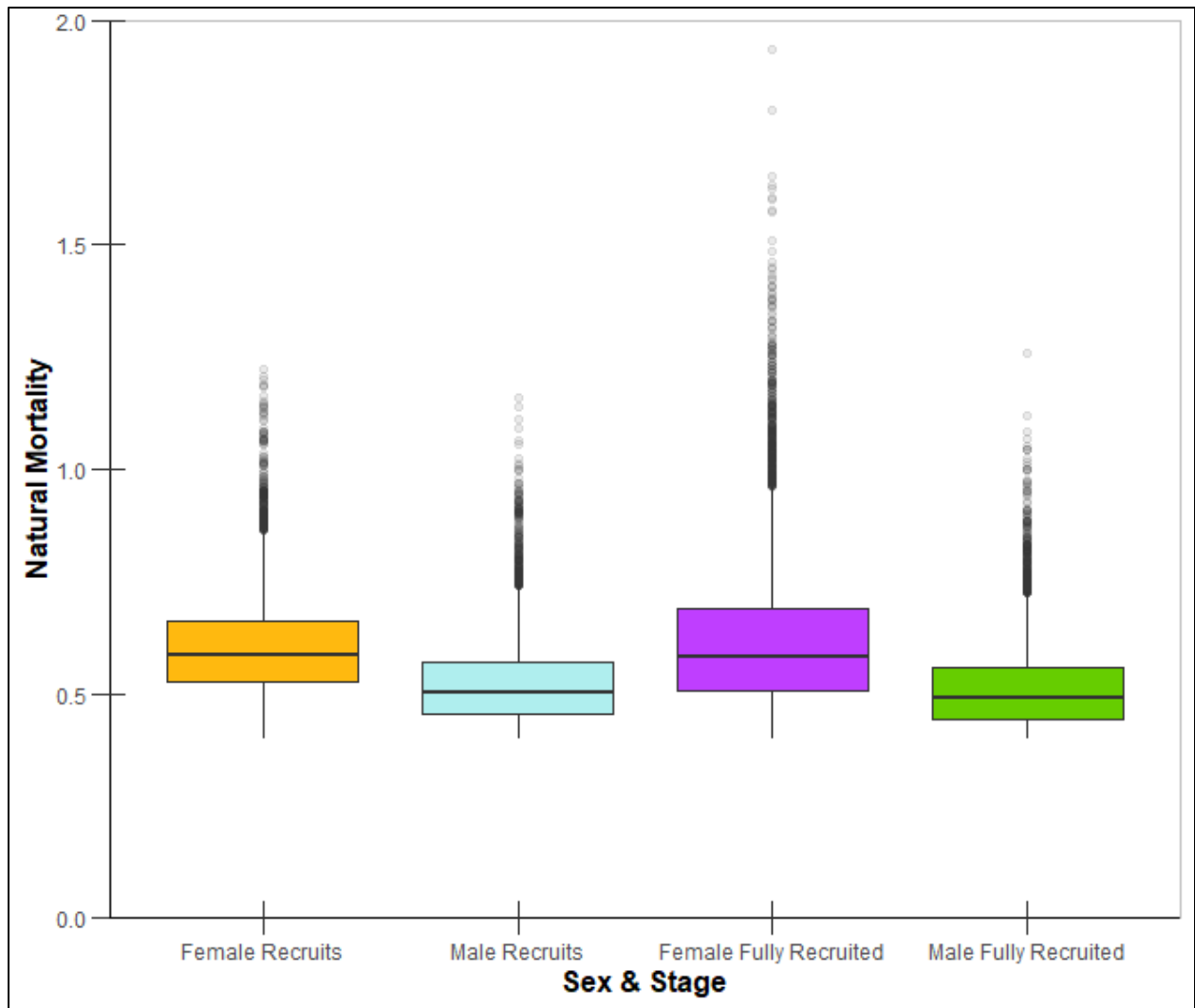




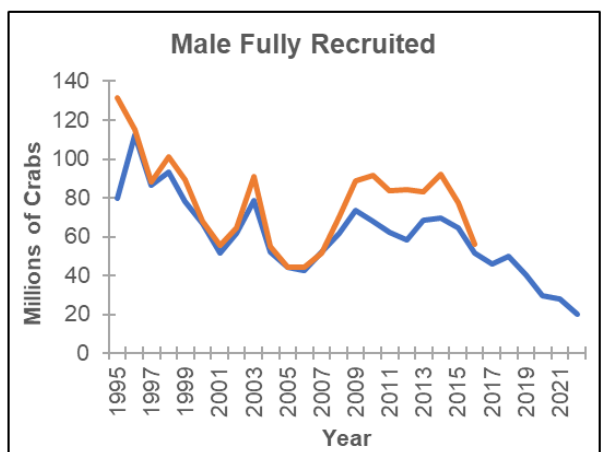
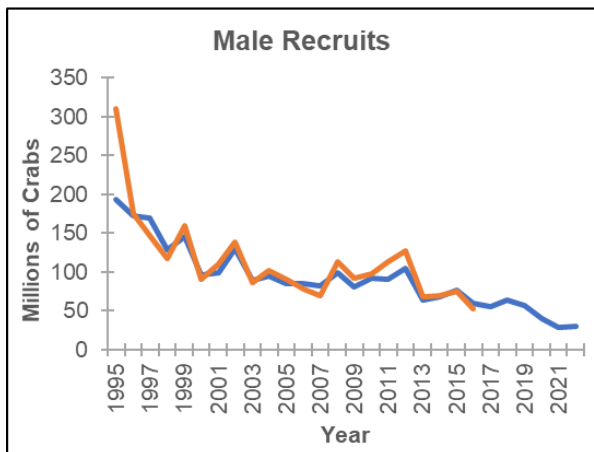
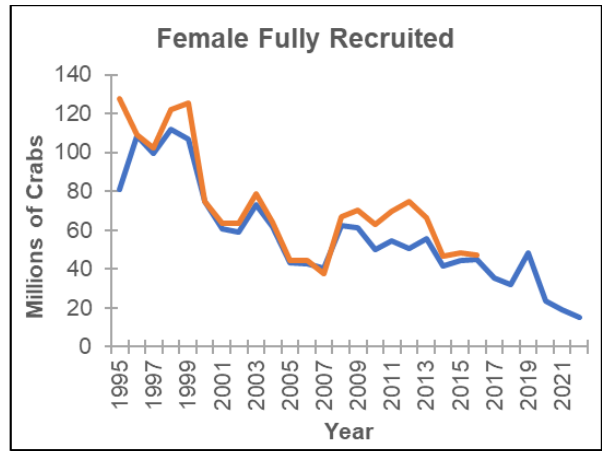
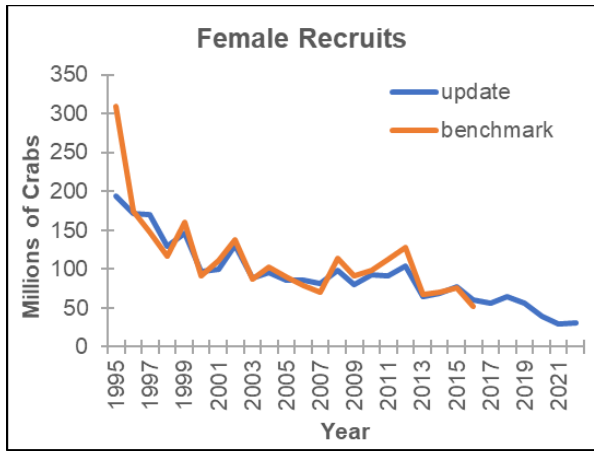
**Figure 3.20.** Population size of hard blue crabs in North Carolina by sex and stage, 1995–2022.



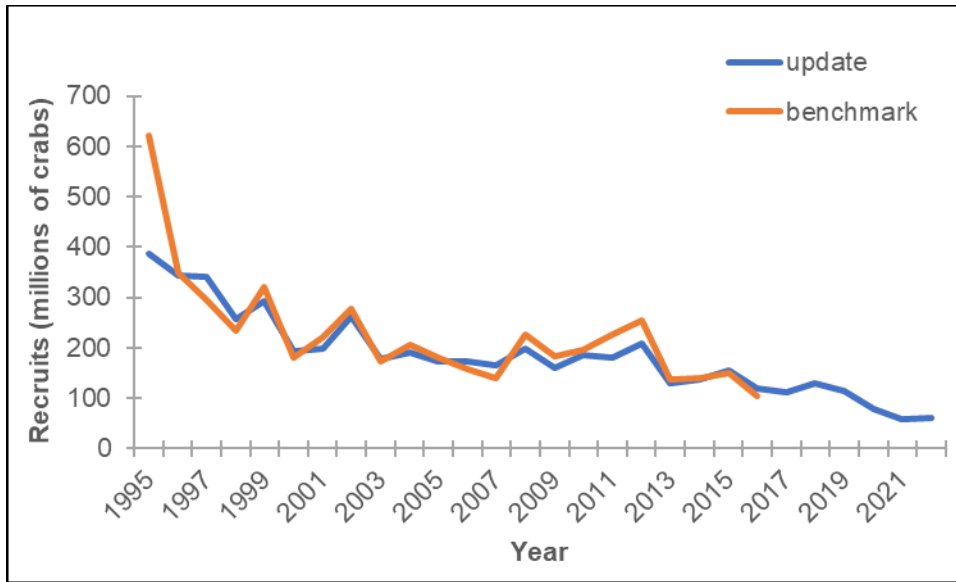
**Figure 3.21.** Annual estimates of recruits (top), spawners (middle), and fishing mortality (bottom) for hard blue crabs in North Carolina, 1995–2022.



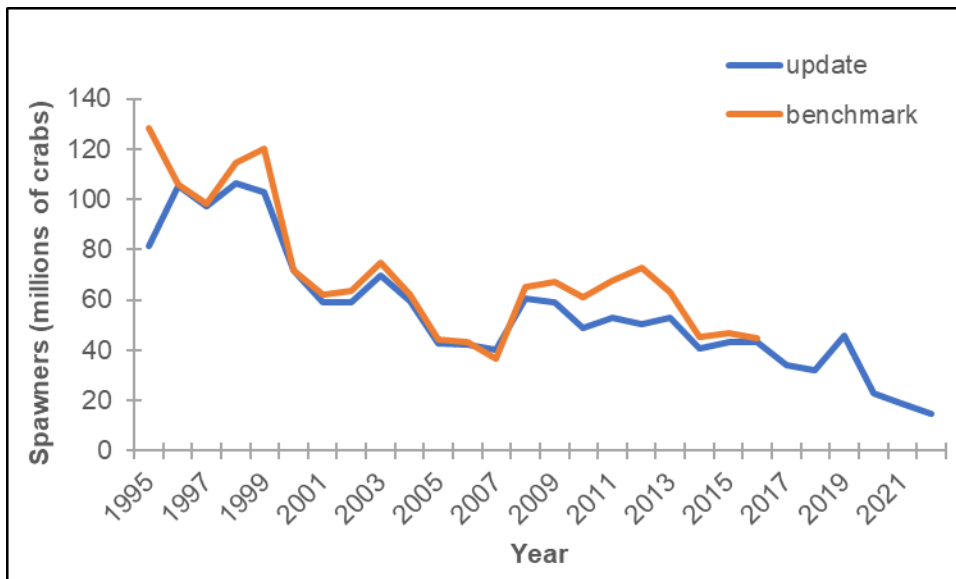
**Figure 3.22.** Box plots summarizing stock assessment model estimates of natural mortality for hard blue crabs in North Carolina.



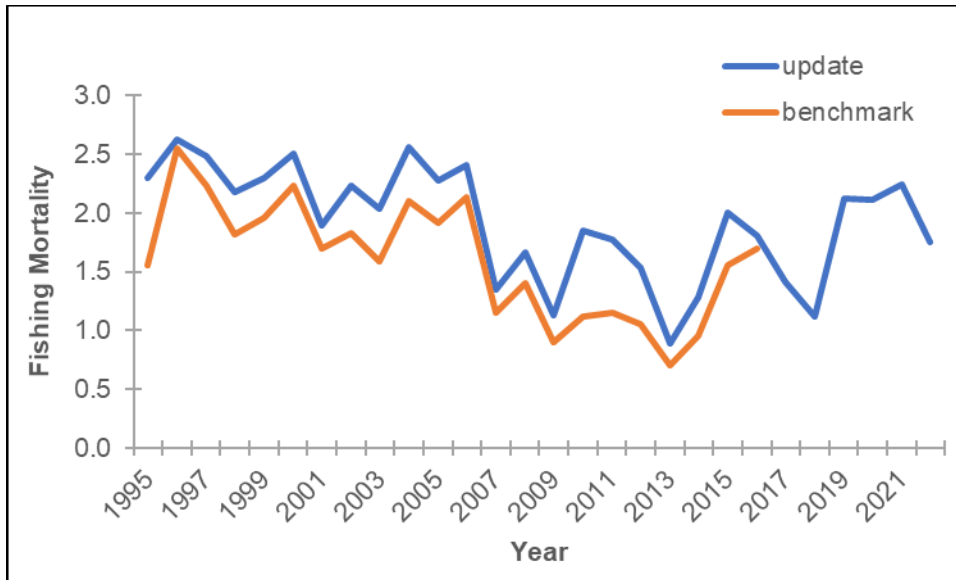
**Figure 3.23.** Comparison of sex- and stage-specific population size between the current assessment update and the previous benchmark stock assessment.



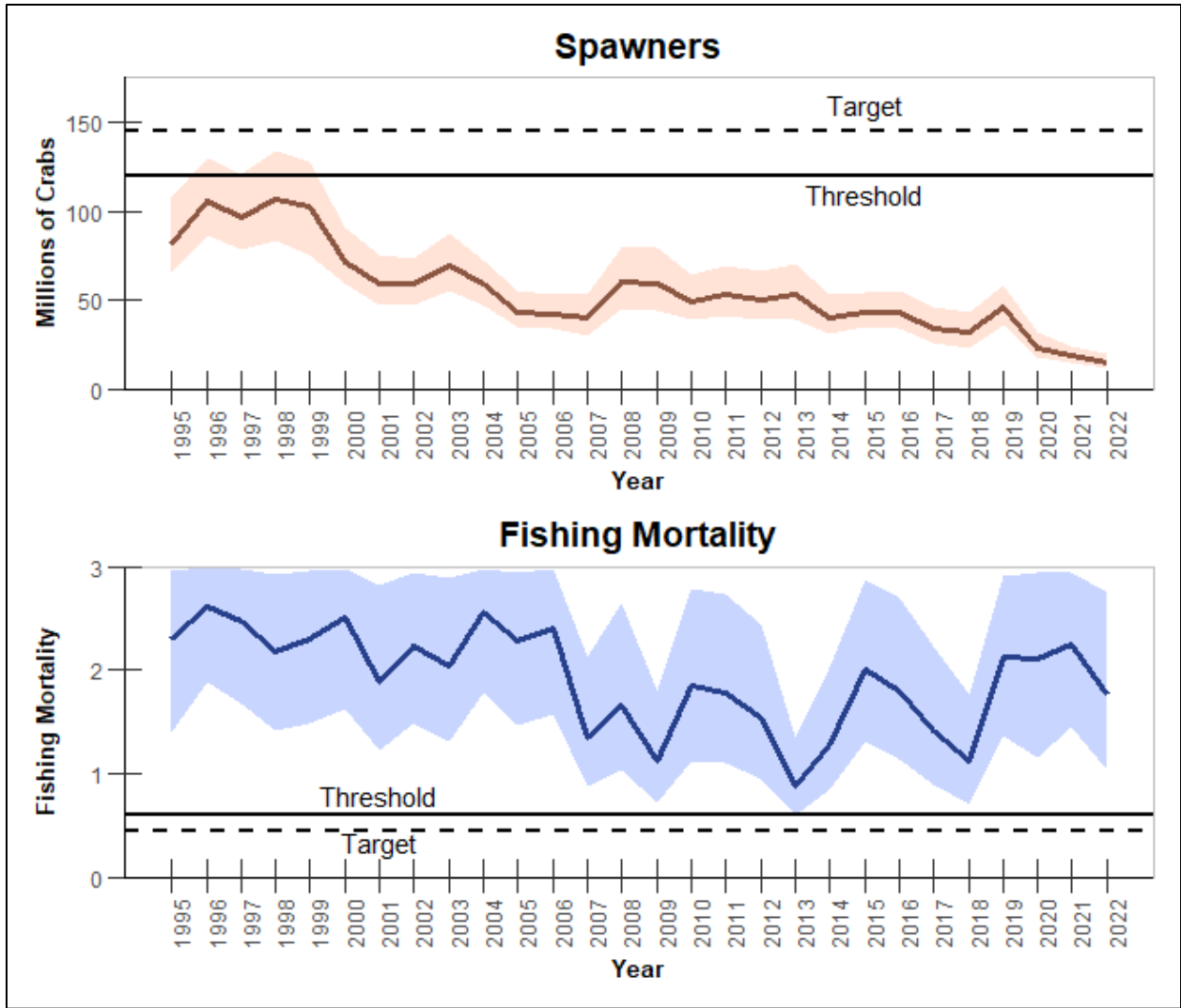
**Figure 3.24.** Comparison of estimates of total recruitment between the current assessment update and the previous benchmark stock assessment.



**Figure 3.25.** Comparison of estimates of female spawner abundance between the current assessment update and the previous benchmark stock assessment.



**Figure 3.26.** Comparison of estimates of fishing mortality between the current assessment update and the previous benchmark stock assessment.



**Figure 4.1.** Annual estimates of spawner abundance (top) and fishing mortality (bottom) relative to associated reference points for hard blue crabs in North Carolina.

**9 APPENDIX A: EXTERNAL DESK REVIEW REPORT**

**Review Report  
for the  
2023 Update Stock Assessment  
of  
Blue Crab in the North Carolina**

Dr. Jie Cao, Assistant Professor  
Center for Marine Sciences and Technology (CMAST), North Carolina State  
University

Dr. Yan Li, Lead Analyst for 2018 Stock Assessment  
Current Institution: Duke Cancer Institute Biostatistics Shared Resource, Duke  
University

January 3, 2024



A desk review of the update stock assessment of North Carolina blue crab (*Callinectes sapidus*) was conducted in November-December 2023. The reviewers evaluated the data sources, the model configuration, and model diagnostics. The reviewers also compared the results of this update assessment with those from the 2018 benchmark assessment. The reviewers appreciate all the hard work by the Assessment Team (AT) and are impressed with the quantity and quality of research and analysis conducted by the AT. The reviewers also thank Steve Poland, the Chief of Fisheries Management for providing an assessment report and additional support throughout the review.

Based on the information provided in the assessment report the reviewers believe the AT did an excellent job of summarizing and analyzing a large number of complex data sets that went into the assessment model. However, the reviewers feel the current model results are concerning due to (1) the strong residual patterns in the model fit to survey indices, especially Program 100 indices, (2) the extremely high estimates of fishing mortality over the entire assessment period, and (3) the constantly overfishing/overfished stock status over the entire assessment period. The following report provides detailed comments and recommendations from the reviewers:

1. Strong residual patterns were shown in the model fits to Program 100 indices (i.e., female fully recruit summer index, male fully recruit summer index, female fully recruit fall index, and male fully recruit fall index). Almost all residuals are negative before 2008 and positive afterwards (Figs. 3.6 and 3.7). Also, the model does not fit the high and variable indices after 2007/2008. This indicates potential model misspecifications. These strong residual patterns and lack of fit would undermine the validity and credibility of the overall results and conclusions, and thus, the reviewers strongly recommend resolving this issue before basing any management decisions on this update assessment. The reviewers recommend the following:
  - a. Investigate the Program 100, especially any changes before and after 2008 in fisheries management, environmental conditions or fishing behaviors
  - b. Consider time-block catchability when fitting these indices, with one catchability before and one after 2008
  - c. Reviewers did not find the CVs used for these indices (therefore, not sure about how they were weighted in the model fitting process). Suggest investigating the uncertainty associated with each index and weight them accordingly.
  - d. Run a sensitivity analysis with Program 100 indices removed
  - e. There are multiple surveys included in the assessment. Given the nature of these surveys (e.g., spatial coverages, survey timing), they may measure different portions of the blue crab population. The reviewers understand that catch rates were standardized using GLM for each index. However, the potential issue of sampling representativeness may remain. Therefore, the reviewers strongly recommend

future studies should explore combining all the survey and develop an integrated single index which may be more representative of the population.

2. The estimated fishing mortality is extremely/unrealistically high (Fig. 4.1). The estimated fishing mortality of the early time period was above 2, which suggests that about 90% of the population was removed by the fishery. The estimated natural mortality had an upper bound as twice as the one in the 2018 benchmark assessment (Fig. 3.32). The reviewers recommend the following:
  - a. Compared to the 2018 benchmark assessment, the estimated initial population size was low (Figs. 3.23-3.25). Setting a reasonable prior for the initial population is critical to regulate the overall scale of the estimation of parameters including fishing mortality.
3. The stock status of overfishing and overfished over the entire assessment period seems uncommon and concerning (Fig. 4.1). Addressing the above issues may potentially help resolve this issue.
4. The reviewers finally recommend investigating an integrated seasonal size-structured assessment model, which is often used for crustacean, in future. Such a model can potentially better describe the life history of blue crab and account for seasonality.

# DECISION DOCUMENT

## **Blue Crab Fishery Management Plan Amendment 3 Adaptive Management**



This document was developed to help the MFC track previous activity and prepare for upcoming actions for Blue Crab FMP Amendment 3 Adaptive Management.

May 2024

## Background

The original [North Carolina Blue Crab Fishery Management Plan \(FMP\)](#) was adopted in December 1998, [Amendment 1](#) was adopted in December 2004, and [Amendment 2](#) was adopted in November 2013. The adaptive management strategy adopted in Amendment 2 relied on annual updates to the Traffic Light Assessment (TLA) to provide information on relative condition of the stock. Based on results of the TLA update that included data through 2015, management action was required by the North Carolina Marine Fisheries Commission (MFC). To improve the condition of the blue crab stock, the MFC adopted management measures documented in the May 2016 [Revision to Amendment 2](#).

Comprehensive review of the Blue Crab FMP was originally scheduled to begin in July 2018, but at its August 2016 business meeting, the MFC voted to immediately begin formal review to assess the status of the blue crab stock and identify more comprehensive management strategies. Consequently, development of Amendment 3 began in August 2016.

## Amendment 3 Background

As part of [Amendment 3 to the North Carolina Blue Crab FMP](#), a benchmark [stock assessment](#) was undertaken using data from 1995-2016. Based on assessment results, the N.C. blue crab stock was classified as overfished in 2016. The probability the stock was overfished was 98% with the average spawner abundance in 2016 estimated at 50 million crabs (below the threshold estimate of 64 million crabs). Overfishing was also occurring in 2016 with a 52% probability. The average fishing mortality in 2016 was estimated at 1.48 (above the fishing mortality threshold of 1.46).

The North Carolina Fishery Reform Act requires the State to implement management that ends overfishing within two years and achieves sustainable harvest within 10 years of the adoption of the plan. To meet the legal requirement, the division determined reductions in commercial harvest were necessary. A harvest reduction of 0.4% (in numbers of crabs) was projected to end overfishing and a harvest reduction of 2.2% was projected to achieve sustainable harvest and rebuild the blue crab spawning stock within 10 years with a 50% probability of success (Table 1).

Table 1. Catch reduction projections for varying levels of fishing mortality ( $F$ ), based on 2016 data from the stock assessment, and the probability of achieving sustainable harvest within the 10-year rebuilding period defined in statute. The bolded row indicates the minimum requirement defined in statute.

$F$ (yr-1)	Catch Reduction (%)	Probability of achieving sustainable harvest within 10 years (%)	Comments
1.48	0.0	31	2016 average $F$ from stock assessment
1.46	0.4	45	Catch reduction to meet $F$ threshold and end overfishing
1.40	1.7	46	Catch reduction to meet spawner abundance threshold and end overfished status
<b>1.38</b>	<b>2.2</b>	<b>50</b>	<b>Catch reduction to meet minimum statutory requirement for achieving sustainable harvest</b>
1.30	3.8	67	
1.22	5.9	90	Catch reduction to meet $F$ target
1.10	9.3	96	
1.00	12.3	100	
0.90	15.7	100	
0.80	19.8	100	Catch reduction to meet spawner abundance target
0.70	24.3	100	

The MFC adopted Amendment 3 to the Blue Crab FMP in February 2020 to rebuild the blue crab stock. The management changes adopted in Amendment 3 were:

- Season closures (pot closure periods):
  - **January 1-31** north of the Highway 58 bridge
  - **March 1-15** south of the Highway 58 bridge
  - Possession of blue crabs is prohibited during the season closure period.
- A 5-inch minimum size limit for mature female crabs statewide.
- Remove all cull ring exempted areas.
- New crab spawning sanctuaries were established in Beaufort, Bogue, Bear, Browns, New River, Topsail, Rich, Mason, Masonboro, Carolina Beach, Cape Fear River, Shallotte, Lockwoods Folly, and Tubbs inlets with a **March 1-October 31** closure.
- Crab trawls prohibited in areas where shrimp trawls were already prohibited in the Pamlico, Pungo, and Neuse rivers.
- Crab bycatch allowance in oyster dredges reduced to 10% of the total weight of the combined oyster and crab catch or 100 pounds, whichever is less.
- Criteria were approved for designating Diamondback Terrapin Management Areas where use of approved terrapin excluders will be required.
- The adaptive management framework was revised (more details about this are below).

The adopted management strategy was estimated to provide a 2.4% harvest reduction with a 50% probability of achieving sustainable harvest. Amendment 3 management strategies have been fully in place since January 2021. Amendment 3 also maintained all measures implemented with the May 2016 Revision to the Blue Crab FMP. A summary of all management measures in place through Amendment 3 can be found in the annual [FMP Update](#) or in the [Amendment 3 flyer](#).

## Amendment 3 Adaptive Management

1. Update the stock assessment at least once in between full reviews of the FMP, timing at the discretion of the division.
  - a. If the stock is overfished and/or overfishing is occurring or it is not projected to meet the sustainability requirements, then management measures shall be adjusted using the director's proclamation authority.
  - b. If the stock is not overfished and overfishing is not occurring, then management measures may be relaxed provided it will not jeopardize the sustainability of the blue crab stock.
2. Any quantifiable management measure, including those not explored in this paper, with the ability to achieve sustainable harvest (as defined in the stock assessment), either on its own or in combination, may be considered .
3. Use of the director's proclamation authority for adaptive management is contingent on:
  - a. Consultation with the Northern, Southern, and Shellfish/Crustacean advisory committees.
  - b. Approval by the Marine Fisheries Commission.

Upon evaluation by the division, if a management measure adopted to achieve sustainable harvest (either through Amendment 3 or a subsequent Revision) is not working as intended, then it may be revisited and either: 1) revised or 2) removed and replaced as needed provided it conforms to steps 2 and 3 above.

## Post Amendment 3 Stock Assessment Update

Following full implementation of Amendment 3 management measures in 2021, division monitoring programs continued to observe historically low [commercial landings](#), coupled with continued [low abundance of all blue crab life stages](#) (e.g., male and female juveniles, male and female adults, mature females). In response to stock concerns expressed by commercial crabbers and continued poor trends in abundance since adoption of Amendment 3, the division began updating the stock assessment with data through 2022, adding six years of data to the benchmark assessment. As an assessment update, there were no changes to model parameters and a peer review was not conducted, as the model configuration of the prior peer reviewed model was maintained. Results of the model update indicate the magnitude and trends for estimated recruitment, female spawner abundance, and fishing mortality were similar to the prior benchmark assessment (Figure 1), however, the Maximum Sustainable Yield (MSY) based reference points used to determine stock status for both female spawner abundance and fishing mortality both drastically changed with the updated time series (Figure 2 and Figure3). Due to the magnitude of the change in reference points, the division requested an external review of the updated stock assessment.

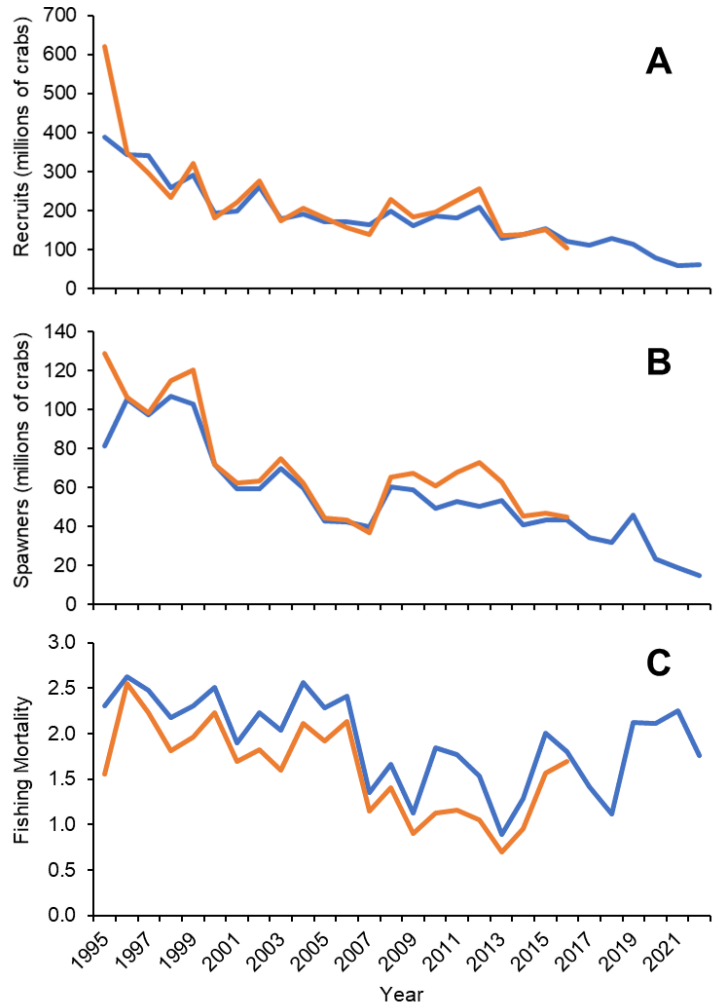


Figure 1. Comparison of estimates of (A) total recruitment, (B) female spawner abundance, and (C) fishing mortality between the 2023 stock assessment update (blue line) and the 2018 benchmark stock assessment (orange line).

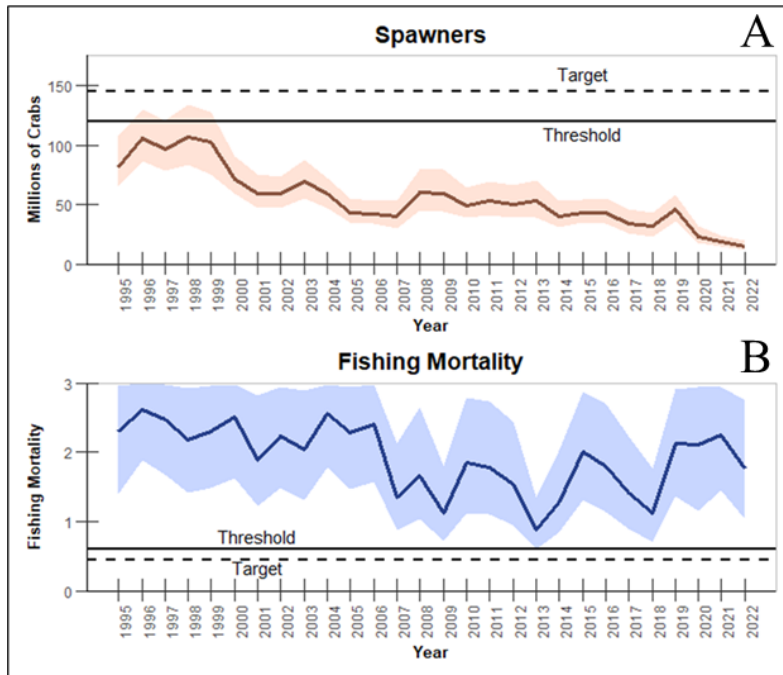


Figure 2. Annual estimates of (A) mature female spawner abundance and (B) fishing mortality relative to associated reference points for hard blue crabs in North Carolina from the 2023 stock assessment update.

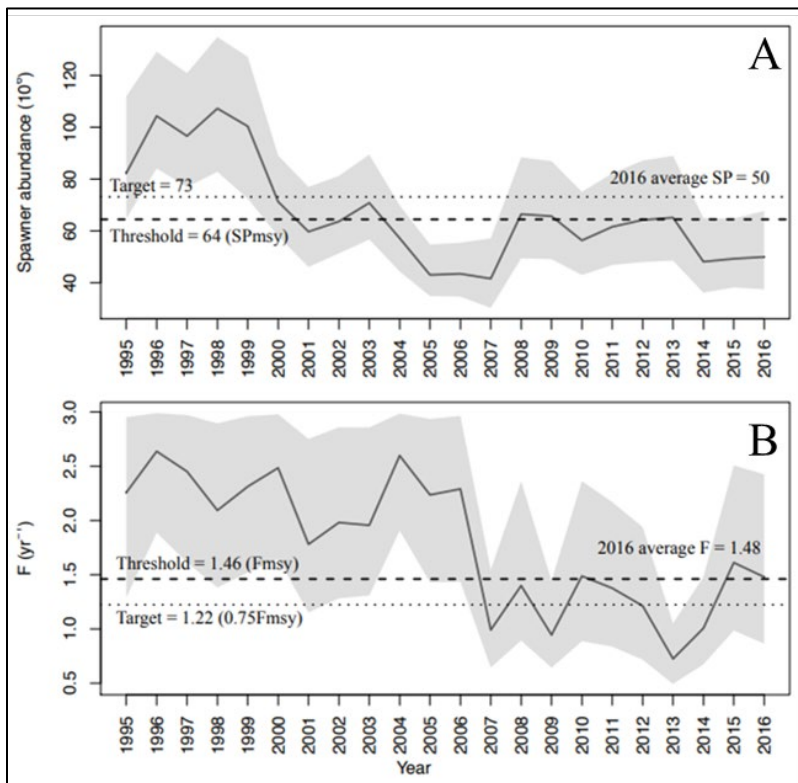


Figure 3. Annual estimates of (A) mature female spawner abundance and (B) fishing mortality relative to associated reference points for hard blue crabs in North Carolina from the 2018 benchmark stock assessment.



This external review was completed in late December 2023. The reviewers identified concerns with model specifications and results and strongly recommended resolving these issues before basing any management decisions solely on the assessment update. However, the suggestions provided by reviewers can only be incorporated with a new benchmark stock assessment. Given concerns with the assessment update identified by the division and external peer reviewers, **the division does not recommend using results of the 2023 stock assessment update to inform harvest reductions.**

Regardless of the availability of management advice from an updated stock assessment, stock concerns raised by commercial crabbers and trends in available data clearly show Amendment 3 management measures have not worked to reverse declining population trends as intended. Amendment 3 adopted management measures were only projected to result in a 2.4% harvest reduction with a 50% probability of achieving sustainable harvest, the minimum required by statute.

In addition, declines in the North Carolina blue crab stock are not unique, as blue crab stocks in other Atlantic coast states have shown similar declines. In January 2023 the South Carolina Department of Natural Resources released a [status report](#) for the South Carolina blue crab fishery. The report concluded the South Carolina blue crab stock has been in decline for nearly two decades and provided recommendations to prevent overharvesting, gradually reduce fishing pressure, prevent overexploitation, and strengthen enforcement capabilities. Concerns for the [Chesapeake Bay blue crab stock have also persisted](#). While the Chesapeake Bay blue crab stock is not depleted and overfishing is not occurring, juvenile abundance remains low. Precautionary management, focusing on protecting mature females and juveniles, has been recommended for the Chesapeake Bay stock and a benchmark stock assessment has been started to better understand the population.

## Adaptive Management

All available information suggests the blue crab stock has continued to decline since adoption of Amendment 3 management measures in February 2020. The Amendment 3 adaptive management framework will be used to immediately address the overall declining trends in the blue crab stock. This action is appropriate given the Amendment 3 adaptive management framework states: *“upon evaluation by the division, if a management measure adopted to achieve sustainable harvest is not working as intended, then it may be revisited and either 1) revised or 2) removed and replaced as needed...”*.

Because the 2023 stock assessment update cannot be used to inform harvest reduction decisions, the division will develop management recommendations based on results of the 2018 stock assessment. Using 2018 assessment results provides some guidance on what harvest reductions should be in lieu of a current stock assessment. Essentially, the division will develop recommendations that would have resulted in higher harvest reductions with a greater probability of achieving sustainable harvest based on 2018 assessment results and apply them to the current fishery (see Table 1 for harvest reductions and probability of achieving sustainable harvest).

The Amendment 3 adaptive management framework allows any quantifiable management measure, including those not discussed in Amendment 3, that has the ability to achieve sustainable harvest either on its own or in combination to be considered. Prior to implementation, the division will consult with the Northern, Southern, and Shellfish/Crustacean advisory committees and management recommendations will be brought to the MFC for approval.

## Amendment 3 Adaptive Management Timeline (gray indicates a step is complete)

May 2024	Division presents results of stock assessment update and adaptive management plan to MFC
May 2024 – August 2024	Division drafts management options
August 2024	Division updates the MFC on progress
September – October 2024	Division consults with Northern, Southern, and Shellfish/Crustacean advisory committees
November 2024	Division provides MFC with management recommendations and MFC votes on final approval
January 2025	New blue crab management measures implemented via proclamation

### Key Takeaways

- Amendment 3 management strategies have been fully in place since January 2021.
- The Blue Crab Stock Assessment Update was completed in 2023, but given the concerns expressed by the external peer reviewers, the Division does not recommend using the results of that update to inform harvest reductions.
- All available information suggests that the blue crab stock has continued to decline since the adoption of Amendment 3 management measures by the Commission in February 2020.
- The Amendment 3 adaptive management framework will be used to address the overall declining trends in the blue crab stock.
- The division will develop management recommendations that would have resulted in higher harvest reductions with a greater probability of achieving sustainable harvest based on 2018 assessment results and apply them to the current fishery.
- The Amendment 3 adaptive management framework allows any quantifiable management measure, including those not discussed in Amendment 3, that has the ability to achieve sustainable harvest either on its own, or in combination, to be considered.
- Prior to the implementation of any management, the Division will consult with the Northern, Southern, and Shellfish/Crustacean advisory committees, and management recommendations will be brought to the MFC for approval.

# Rulemaking

May 2024 Business Meeting

## Document

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Rulemaking Update Memo

2023-2024 Rulemaking Cycle  
Timeline

News Release for 2023-2024  
Rulemaking Public Hearing

North Carolina Register  
Excerpt

Public Comments

Public Hearing Summary

2024-2025 Rulemaking Cycle  
Timeline

Issue Paper Review

Interstate Wildlife Violator  
Compact Issue Paper



ROY COOPER  
*Governor*

ELIZABETH S. BISER  
*Secretary*

KATHY B. RAWLS  
*Director*

May 3, 2024

## MEMORANDUM

**TO:** N.C. Marine Fisheries Commission

**FROM:** Catherine Blum, Rulemaking Coordinator  
Marine Fisheries Commission Office

**SUBJECT:** Rulemaking Update

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### Issue

Update the N.C. Marine Fisheries Commission (MFC) on the status of rulemaking in support of the Periodic Review and Expiration of Existing Rules per N.C.G.S. § 150B-21.3A. Request the MFC vote on final approval of the 20 rules remaining in the 2023-2024 Rulemaking Cycle. Request the MFC vote on the management option and associated proposed rulemaking language for one issue under development in the 2024-2025 Rulemaking Cycle.

### Findings

- Periodic Review and Readoption of Rules – Requirements
  - North Carolina N.C.G.S. § 150B-21.3A, enacted in 2013, requires state agencies to review existing rules every 10 years in accordance with a prescribed process that includes a report phase, followed by rule readoption. For 15A NCAC 03 (Marine Fisheries), the MFC completed the initial rule readoption process.
  - For 15A NCAC 18A (Sanitation), the MFC had 79 rules remaining for readoption. On January 31, 2024, the Rules Review Commission (RRC) approved these rules. The MFC has completed the initial rule readoption process for 15A NCAC 18A.
  - For the second iteration of the periodic review requirements, the RRC approved the report deadlines effective June 1, 2023. For the MFC rules, the final reports will be due in early 2027. DMF staff will provide further information to the MFC as that time approaches.
- To meet rule readoption deadlines, the MFC approved 83 rules in the 2023-2024 Rulemaking Cycle at its November 2023 business meeting. There are 20 rules remaining in the package awaiting final approval by the MFC at its May 2024 business meeting.
- A rulemaking issue is under development for the 2024-2025 Rulemaking Cycle. At its May 2024 business meeting, the MFC will be asked to vote on the management option for this issue so the required fiscal analysis can be developed, and the formal rulemaking process can be ready to begin at the MFC's August 2024 business meeting.

### Action Needed

The MFC will be asked to vote on final approval of the 20 rules remaining in the 2023-2024 Rulemaking Cycle. The MFC will also be asked to vote on the management option and associated proposed rulemaking language for the "Interstate Wildlife Violator Compact Issue Paper" so the rulemaking development process can continue for the 2024-2025 Rulemaking Cycle.

## Recommendations

- 2024-2025 Annual Rulemaking Cycle: "Interstate Wildlife Violator Compact Issue Paper": The Division of Marine Fisheries recommends the Marine Fisheries Commission adopt rules to comply with existing statutes and directives to enter into the Interstate Wildlife Violator Compact.
- For more information, please refer to the rulemaking section of the briefing materials.

## 2023-2024 Rulemaking Cycle Update (20 of 103 rules remaining)

At its May 2023 business meeting, the MFC approved Notice of Text for Rulemaking to begin the process for 103 rules. A summary of the proposed rules by subject is provided below. A table showing the timing of the steps in the process is included in the rulemaking section of the briefing materials. A news release was issued August 1, 2023, and the proposed rules were published in the August 1, 2023, issue of the *N.C. Register*, beginning the public comment process. These documents are provided in the rulemaking section of the briefing materials.

The MFC accepted public comments on the proposed rules from August 1 through 5 p.m. October 2, 2023. Two written public comments were submitted about the rules that are described with the corresponding subjects below. A public hearing was held via WebEx with a listening station at the DMF's Central District Office in Morehead City on August 16 at 6 p.m. One member of the public provided comments that are described with the corresponding subject below. The public comments and a summary of the public hearing are provided in the rulemaking section of the briefing materials.

The MFC received the public comments at its November 2023 business meeting and voted to give final approval of 83 of the 103 rules that are related to shellfish plants and inspections, to meet re-adoption deadlines. There are 80 rules that became effective on April 1, 2024. These rules were published in the [April 1, 2024 supplement](#) to the April 1, 2020 North Carolina Marine Fisheries Commission Rules (see <https://www.deq.nc.gov/marine-fisheries/rules-regulations/marine-fisheries-commission-rules/4-1-24-mfc-rulebook-supplement/open>). Three rules are automatically subject to legislative review per Session Law 2019-198 and N.C.G.S. § 14-4.1 and are available for review during the 2024 short session. The remaining 20 rules are scheduled for final approval by the MFC at its May 2024 business meeting.

## READOPTION OF SHELLFISH PLANT AND INSPECTION RULES IN 15A NCAC 18A .0300 THROUGH .0800 (2 of 85 rules remaining)

Pursuant to N.C.G.S. § 150B-21.3A, this package of 85 rules in 15A NCAC 03K and 18A consisted of the re-adoption of one rule with no changes, re-adoption of 55 rules with amendments, repeal through re-adoption of 23 rules, amendment of two rules, adoption of three rules, and the repeal of one rule for shellfish plants and inspections. The changes help ensure that North Carolina remains in full compliance with national requirements, provide efficiencies for the DMF in the process of implementing and enforcing the rules, and clarify and update the rules for stakeholders. There are two remaining rules with minor conforming amendments that are scheduled for final approval by the MFC at its May 2024 business meeting: 15A NCAC 03K .0110 and 18A .0302. No public comments were submitted about these rules.

## DATA COLLECTION AND HARASSMENT PREVENTION FOR THE CONSERVATION OF MARINE AND ESTUARINE RESOURCES (5 rules)

Due to the increasing occurrence and severity of harassment during, and decreasing participation in, DMF data collection initiatives, amendments are proposed to five MFC rules. Proposed amendments set requirements to address harassment by any licensee or person engaged in regulated activity under Chapter 113, Subchapter IV, of the General Statutes (e.g., fishing) of DMF employees that occurs in the process of obtaining data for the conservation of marine and estuarine resources, and data for the protection of public health related to the public health programs that fall under the authority of the MFC. Additional amendments provide the types of data that may be collected. The amendments support the importance of participation by persons engaged in regulated fishing activity in division data collection and provide a safer working environment for division employees. One written public comment was submitted opposing these rules.

## OYSTER SANCTUARY RULE CHANGES (1 rule)

Proposed amendments add the boundaries of the two newest oyster sanctuaries (Cedar Island and Gull Shoal) and correct boundaries for three other oyster sanctuaries (Pea Island, Raccoon Island, and Swan Island) where published coordinates were found to be inconsistent with permitted and marked reef boundaries. These changes to permanent rule would protect oysters from bottom disturbing gear so they can serve their intended management function as oyster broodstock sanctuaries, as well as safeguard boaters navigating the sanctuaries; the changes are already in place via the Fisheries Director's proclamation authority (SF-6-2022). Additionally, coordinates for three sanctuaries are proposed to be reorganized to standardize the cardinal directions, for consistency; there are no changes to the overall sanctuaries, nor the coordinate pairs themselves. No public comments were submitted about this rule.

## CONFORMING RULE CHANGES FOR SHELLFISH RELAY PROGRAM AND SHELLFISH LEASES AND FRANCHISES (12 rules)

In 2021, the DMF began the process of discontinuing its Shellfish Relay Program (relaying of shellfish from certain polluted areas) due primarily to insufficient resources to run the program and lack of widespread use. The Shellfish Relay Program ended May 1, 2024. The MFC received information about the discontinuation of the Shellfish Relay Program at its February 2022 business meeting. DMF identified 11 rules relating to the Shellfish Relay Program that set specific requirements for the relaying of shellfish from certain polluted areas. Changes are proposed to amend portions of rules or repeal rules consistent with rulemaking requirements in the Administrative Procedure Act. There was one commenter at the public hearing that spoke against phasing out the shellfish relay program.

Additional proposed changes for shellfish lease and franchise requirements are proposed to 15A NCAC 03O .0201 to conform to requirements of Session Law 2019-37 (Act to Provide Further Support to the Shellfish Aquaculture Industry in North Carolina). Specifically, changes incorporate and conform the shellfish production and planting requirements from Session Law 2019-37 for shellfish leases granted before July 1, 2019, and for shellfish leases granted on or after this date. Additional proposed changes require shellfish lease or franchise holders to meet the listed production, marking, and permit requirements for current shellfish leases before being eligible for additional shellfish lease acreage. Doing so would help ensure more efficient and meaningful use of the public trust bottom by preventing persons not in good standing from precluding potential applicants from applying for a shellfish lease in affected areas. One written public comment was submitted opposing shellfish leases, generally.

## **2024-2025 Rulemaking Cycle (6 rules)**

At the MFC's February 2024 business meeting, DMF staff provided a preview of potential rules in the MFC's 2024-2025 annual rulemaking cycle, including rules to implement the Interstate Wildlife Violator Compact. This cycle is scheduled to begin the rulemaking process at the MFC's August 2024 business meeting; a table of the steps in the process is included in the briefing materials. The MFC's management option and associated proposed language for rulemaking is needed for development of the required fiscal analysis so the formal rulemaking process can be ready to begin in August. A table summarizing this issue is included in the briefing materials, as is the corresponding issue paper; a summary description is also included here. Proposed rules would have an earliest effective date of May 1, 2025.

## **INTERSTATE WILDLIFE VIOLATOR COMPACT RULE ADOPTIONS (6 rules)**

The Interstate Wildlife Violator Compact is a voluntary interstate agreement that provides participating states with a mechanism to participate in a reciprocal program to: (1) promote compliance with the statutes, laws, administrative rules and regulations relating to management of wildlife resources in their respective states; and (2) provide for the fair and impartial treatment of wildlife violators operating within the participating states in recognition of the individual's right of due process and the sovereign status of a party state. North Carolina's participation in the Interstate Wildlife Violator Compact has been enacted into state law, so it must be implemented and enforced. Article 22B includes G.S. § 113-300.7, which requires the Wildlife Resources Commission and the Marine Fisheries Commission to adopt rules necessary to carry out the purpose of Article 22B. The Wildlife Resources Commission has adopted its rules. For the purposes of the Interstate Wildlife Violator Compact, "wildlife" includes marine and estuarine resources managed by the Marine Fisheries Commission and the Division of Marine Fisheries.

## **Background Information**

### *Periodic Review and Expiration of Existing Rules per N.C.G.S. § 150B-21.3A*

Session Law 2013-413, the Regulatory Reform Act of 2013, implemented requirements known as the "Periodic Review and Expiration of Existing Rules." These requirements were codified in a new section of Article 2A of Chapter 150B of the General Statutes in N.C.G.S. § 150B-21.3A. Under the requirements, each agency is responsible for conducting a review of all its rules at least once every 10 years in accordance with a prescribed process. The MFC is the agency with the authority for the approval steps prescribed in the process for marine fisheries and crustacea and shellfish sanitation rules.

The review has two parts. The first is a report phase, which has concluded for the first iteration of the periodic review requirements. The second part is the readoption of rules. An evaluation of the rules under the authority of the MFC was undertaken in two lots (see Figure 1.) The MFC had 211 rules in Chapter 03 (Marine Fisheries), of which 172 were subject to readoption, and 164 rules in Chapter 18, Subchapter 18A (Sanitation) that were also subject to readoption.

Rules	2017	2018	2019	2020	2021	2022	2023	2024
Chapter 03 (172 rules)	Report	41 Rules Readopted	2 Rules Readopted	13 Rules Readopted	116 Rules Readopted	6/30/22 deadline		
Subchapter 18A (164 rules)			Report	42 Rules Readopted	42 Rules Readopted	1 Rule Readopted	79 Rules Readopted	6/30/24 deadline

Figure 1. Marine Fisheries Commission rule readoption schedule to comply with N.C.G.S. § 150B-21.3A, Periodic Review and Expiration of Existing Rules.

For 15A NCAC 03 (Marine Fisheries), the MFC completed the initial rule readoption process. For 15A NCAC 18A (Sanitation), the MFC had 79 rules remaining for readoption. On January 31, 2024, the RRC approved these rules. The MFC has completed the initial rule readoption process for 15A NCAC 18A. For the second iteration of the periodic review requirements, the RRC approved the report deadlines effective June 1, 2023. For the MFC rules, the final reports will be due in early 2027.



## N.C. Marine Fisheries Commission 2023-2024 Annual Rulemaking Cycle

May 2024

Time of Year	Action
February-April 2023	Fiscal analysis of rules prepared by DMF staff and approved by Office of State Budget and Management
May 26, 2023	MFC approved Notice of Text for Rulemaking
Aug. 1, 2023	Publication of proposed rules in the <i>North Carolina Register</i>
Aug. 1-Oct. 2, 2023	Public comment period held
Aug. 16, 2023	Public hearing held via WebEx with listening station
Nov. 17, 2023	MFC receives public comments and approves 83 of 103 permanent rules
Jan. 31, 2024	83 rules approved by Office of Administrative Hearings/ Rules Review Commission
April 1, 2024	Effective date of 80 rules not subject to legislative review
April 1, 2024	Rulebook supplement available online
2024 legislative session	Possible effective date of 3 rules subject to legislative review per S.L. 2019-198 and G.S. 14-4.1.
May 24, 2024	MFC receives reminder of public comments and votes on final approval of remaining 20 of 103 permanent rules
July 31, 2024	20 rules reviewed by Office of Administrative Hearings/ Rules Review Commission
August 1, 2024	Earliest effective date of rules not subject to legislative review
August 1, 2024	Rulebook supplement available online
2025 legislative session	Possible effective date of rules subject to legislative review per S.L. 2019-37, and S.L. 2019-198 and G.S. 14-4.1.

**Roy Cooper**  
Governor

**Elizabeth S. Biser**  
Secretary DEQ



**Kathy B. Rawls**  
Director

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Release: Immediate  
Date: Aug. 1, 2023

Contact: [Patricia Smith](#)  
Phone: 252-726-7021

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**MEDIA ADVISORY: Comment period opens, public hearing scheduled for 103 marine fisheries rules**

**MOREHEAD CITY** – The N.C. Marine Fisheries Commission is accepting public comment on 103 proposed rules pertaining to data collection and the prevention of harassment of N.C. Division of Marine Fisheries staff, the Shellfish Relay Program and shellfish leases and franchises, oyster sanctuaries, and shellfish sanitation procedures.

A public hearing will be held by web conference on Aug. 16 at 6 p.m. A listening station will be established at the N.C. Division of Marine Fisheries Central District Office at 5285 Highway 70 West, Morehead City. The public may join the meeting online; however, those who wish to comment during the hearing must register to speak by noon on the day of the hearing. Those who wish to speak at the listening station may sign up when they arrive.

Members of the public may also submit written comments through an online form or through the mail to N.C. Marine Fisheries Commission Rules Comments, P.O. Box 769, Morehead City, N.C. 28557. Comments must be posted online or be received by the N.C. Division of Marine Fisheries by 5 p.m. Oct. 2, 2023.

Links to the public hearing registration form and online comment form, as well as text of the proposed rules and links to join the meeting, can be found on the N.C. Marine Fisheries Commission's [2023-2024 Proposed Rules Page](#).

**Data Collection and Harassment Prevention** -- Proposed amendments to 15A NCAC 03I .0113 broaden and enhance protections for Division of Marine Fisheries employees from verbal, physical or sexual harassment by those engaging in fishing activities while the employees are in the process of obtaining data about fishing activity. Proposed amendments also strengthen rule language that requires fishermen to cooperate with Division data collection programs. The proposed amendments are needed because the Division has had increasing occurrence and severity of harassment incidences and decreasing participation in its data collection initiatives.

**Shellfish Relay Program and Shellfish Leases and Franchises** – The proposed repeals of 15A NCAC 03K .0104, .0401, .0403, and .0405 and amendments to 15A NCAC 03I .0101, 03K .0101, .0301, 03O .0201, .0501, .0503, 18A .0901, and .0906 remove outdated shellfish relay requirements, reflecting the discontinuation of the Division of Marine Fisheries Shellfish Relay Program. Proposed changes to a shellfish lease rule (15A NCAC 03O .0201) require shellfish lease or franchise holders to meet the listed production, marking, and permit requirements for current shellfish leases before being eligible for additional shellfish lease acreage. Doing so would help ensure more efficient and meaningful use of the public trust bottom by preventing persons not in good standing from precluding potential applicants from applying for a shellfish lease in affected areas.

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**Website:** <http://www.ncmarinefisheries.net>

**Facebook:** <https://www.facebook.com/NCMarineFisheries>

**Instagram:** [https://www.instagram.com/NC\\_DMFB](https://www.instagram.com/NC_DMFB)

**Twitter:** [https://twitter.com/NC\\_DMFB](https://twitter.com/NC_DMFB)

P.O. Box 769, 3441 Arendell St., Morehead City N.C. 28577

**Oyster Sanctuaries** – Proposed amendments to 15A NCAC 03R .0117 add the boundaries of the two newest oyster sanctuaries (Cedar Island and Gull Shoal) and correct boundaries for three other oyster sanctuaries (Pea Island, Raccoon Island, and Swan Island). These changes were implemented by proclamation while the rulemaking process is undertaken.

**Commercial Shellfish Sanitation and Processing Procedures** – Rules in 15A NCAC 03 and 18A are proposed for readoption, amendment, or repeal under a state-mandated periodic review schedule. The proposed changes are to ensure that North Carolina remains in compliance with National Shellfish Sanitation Program requirements. Many of the proposed rules codify existing practices or regulations implemented by proclamation.

The proposed rule changes will be presented to the N.C. Marine Fisheries Commission for final approval in November 2023 and have an earliest effective date of April 1, 2024.

For questions about the N.C. Marine Fisheries Commission rulemaking process, email [Catherine Blum](#), rules coordinator for the N.C. Division of Marine Fisheries.

<b>WHO:</b>	Marine Fisheries Commission
<b>WHAT:</b>	Public Hearing for Proposed Rules
<b>WHEN:</b>	Aug. 16 at 6 p.m.
<b>WHERE:</b>	Meeting by Web Conference <a href="#">Click Here</a> for Information and to Sign Up to Speak

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# ***NORTH CAROLINA REGISTER***

**VOLUME 38 • ISSUE 03 • Pages 103 – 171**

**August 1, 2023**

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## Contact List for Rulemaking Questions or Concerns

For questions or concerns regarding the Administrative Procedure Act or any of its components, consult with the agencies below. The bolded headings are typical issues which the given agency can address but are not inclusive.

### **Rule Notices, Filings, Register, Deadlines, Copies of Proposed Rules, etc.**

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### **Legislative Process Concerning Rulemaking**

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**NORTH CAROLINA REGISTER**  
Publication Schedule for January 2023 – December 2023

FILING DEADLINES			NOTICE OF TEXT		PERMANENT RULE			TEMPORARY RULES
Volume & issue number	Issue date	Last day for filing	Earliest date for public hearing	End of required comment Period	Deadline to submit to RRC for review at next meeting	RRC Meeting Date	Earliest Eff. Date of Permanent Rule	270 <sup>th</sup> day from publication in the Register
37:13	01/03/23	12/07/22	01/18/23	03/06/23	03/20/23	04/20/2023	05/01/23	09/30/23
37:14	01/17/23	12/20/22	02/01/23	03/20/23	04/20/23	05/18/2023	06/01/23	10/14/23
37:15	02/01/23	01/10/23	02/16/23	04/03/23	04/20/23	05/18/2023	06/01/23	10/29/23
37:16	02/15/23	01/25/23	03/02/23	04/17/23	04/20/23	05/18/2023	06/01/23	11/12/23
37:17	03/01/23	02/08/23	03/16/23	05/01/23	05/20/23	06/15/2023	07/01/23	11/26/23
37:18	03/15/23	02/22/23	03/30/23	05/15/23	05/20/23	06/15/2023	07/01/23	12/10/23
37:19	04/03/23	03/13/23	04/18/23	06/02/23	06/20/23	07/20/2023	08/01/23	12/29/23
37:20	04/17/23	03/24/23	05/02/23	06/16/23	06/20/23	07/20/2023	08/01/23	01/12/24
37:21	05/01/23	04/10/23	05/16/23	06/30/23	07/20/23	08/17/2023	09/01/23	01/26/24
37:22	05/15/23	04/24/23	05/30/23	07/14/23	07/20/23	08/17/2023	09/01/23	02/09/24
37:23	06/01/23	05/10/23	06/16/23	07/31/23	08/20/23	09/21/2023	10/01/23	02/26/24
37:24	06/15/23	05/24/23	06/30/23	08/14/23	08/20/23	09/21/2023	10/01/23	03/11/24
38:01	07/03/23	06/12/23	07/18/23	09/01/23	09/20/23	10/19/2023	11/01/23	03/29/24
38:02	07/17/23	06/23/23	08/01/23	09/15/23	09/20/23	10/19/2023	11/01/23	04/12/24
38:03	08/01/23	07/11/23	08/16/23	10/02/23	10/20/23	11/16/2023	12/01/23	04/27/24
38:04	08/15/23	07/25/23	08/30/23	10/16/23	10/20/23	11/16/2023	12/01/23	05/11/24
38:05	09/01/23	08/11/23	09/16/23	10/31/23	11/20/23	12/14/2023	01/01/24	05/28/24
38:06	09/15/23	08/24/23	09/30/23	11/14/23	11/20/23	12/14/2023	01/01/24	06/11/24
38:07	10/02/23	09/11/23	10/17/23	12/01/23	12/20/23	01/18/2024	02/01/24	06/28/24
38:08	10/16/23	09/25/23	10/31/23	12/15/23	12/20/23	01/18/2024	02/01/24	07/12/24
38:09	11/01/23	10/11/23	11/16/23	01/02/24	01/20/24	02/15/2024	03/01/24	07/28/24
38:10	11/15/23	10/24/23	11/30/23	01/16/24	01/20/24	02/15/2024	03/01/24	08/11/24
38:11	12/01/23	11/07/23	12/16/23	01/30/24	02/20/24	03/21/2024	04/01/24	08/27/24
38:12	12/15/23	11/22/23	12/30/23	02/13/24	02/20/24	03/21/2024	04/01/24	09/10/24

This document is prepared by the Office of Administrative Hearings as a public service and is not to be deemed binding or controlling.

## EXPLANATION OF THE PUBLICATION SCHEDULE

This Publication Schedule is prepared by the Office of Administrative Hearings as a public service and the computation of time periods are not to be deemed binding or controlling. Time is computed according to 26 NCAC 2C .0302 and the Rules of Civil Procedure, Rule 6.

### GENERAL

The North Carolina Register shall be published twice a month and contains the following information submitted for publication by a state agency:

- (1) temporary rules;
- (2) text of proposed rules;
- (3) text of permanent rules approved by the Rules Review Commission;
- (4) emergency rules
- (5) Executive Orders of the Governor;
- (6) final decision letters from the U.S. Attorney General concerning changes in laws affecting voting in a jurisdiction subject of Section 5 of the Voting Rights Act of 1965, as required by G.S. 120-30.9H; and
- (7) other information the Codifier of Rules determines to be helpful to the public.

**COMPUTING TIME:** In computing time in the schedule, the day of publication of the North Carolina Register is not included. The last day of the period so computed is included, unless it is a Saturday, Sunday, or State holiday, in which event the period runs until the preceding day which is not a Saturday, Sunday, or State holiday.

### FILING DEADLINES

**ISSUE DATE:** The Register is published on the first and fifteen of each month if the first or fifteenth of the month is not a Saturday, Sunday, or State holiday for employees mandated by the State Personnel Commission. If the first or fifteenth of any month is a Saturday, Sunday, or a holiday for State employees, the North Carolina Register issue for that day will be published on the day of that month after the first or fifteenth that is not a Saturday, Sunday, or holiday for State employees.

**LAST DAY FOR FILING:** The last day for filing for any issue is 15 days before the issue date excluding Saturdays, Sundays, and holidays for State employees.

### NOTICE OF TEXT

**EARLIEST DATE FOR PUBLIC HEARING:** The hearing date shall be at least 15 days after the date a notice of the hearing is published.

**END OF REQUIRED COMMENT PERIOD**  
An agency shall accept comments on the text of a proposed rule for at least 60 days after the text is published or until the date of any public hearings held on the proposed rule, whichever is longer.

**DEADLINE TO SUBMIT TO THE RULES REVIEW COMMISSION:** The Commission shall review a rule submitted to it on or before the twentieth of a month by the last day of the next month.

**Note from the Codifier:** The notices published in this Section of the NC Register include the text of proposed rules. The agency must accept comments on the proposed rule(s) for at least 60 days from the publication date, or until the public hearing, or a later date if specified in the notice by the agency. If the agency adopts a rule that differs substantially from a prior published notice, the agency must publish the text of the proposed different rule and accept comment on the proposed different rule for 60 days. Statutory reference: G.S. 150B-21.2.

**TITLE 15A – DEPARTMENT OF ENVIRONMENTAL QUALITY**

*Notice is hereby given in accordance with G.S. 150B-21.2 and G.S. 150B-21.3A(c)(2)g. that the Marine Fisheries Commission intends to adopt the rules cited as 15A NCAC 18A .0437-.0439, amend the rules cited as 15A NCAC 03I .0101, .0113; 03K .0101, .0110, .0301; 03O .0101, .0109, .0112, .0201, .0301, .0501, .0503; 03R .0117; 18A .0302, .0901, .0906, repeal the rules cited as 15A NCAC 03K .0104, .0401, .0403, .0405; 18A .0704, readopt with substantive changes the rules cited as 15A NCAC 18A .0301, .0401-.0410, .0412-.0422, .0424, .0426-.0430, .0432-.0435, .0501, .0502, .0504, .0601-.0603, .0605-.0616, .0618-.0620, .0701, .0801, readopt without substantive changes the rule cited as 15A NCAC 18A .0423, repeal through readoption the rules cited as 15A NCAC 18A .0305, .0411, .0436, .0503, .0604, .0617, .0621, .0702, .0703, .0705-.0713 and .0802-.0806.*

*Pursuant to G.S. 150B-21.17, the Codifier has determined it impractical to publish the text of rules proposed for repeal unless the agency requests otherwise. The text of the rules is available on the OAH website at <http://reports.oah.state.nc.us/ncac.asp>.*

*Pursuant to G.S. 150B-21.2(c)(1), the text of the rule(s) proposed for readoption without substantive changes are not required to be published. The text of the rules is available on the OAH website: <http://reports.oah.state.nc.us/ncac.asp>.*

**Link to agency website pursuant to G.S. 150B-19.1(c):** <https://deq.nc.gov/mfc-proposed-rules>

**Proposed Effective Date:** April 1, 2024 (15A NCAC 03K .0110; 03R .0117; 18A .0301, .0305, .0401-.0418, .0421-.0424, .0426, .0428-.0430, .0432-.0439, .0501-.0504, .0601-.0621, .0701-.0713, .0801-.0806)

**Rules automatically subject to legislative review:** S.L. 2019-198: 15A NCAC 03I .0113; 03K .0101, .0104, .0301, .0401, .0403, .0405; 03O .0101, .0109, .0112, .0301, .0501, .0503; 18A .0302, .0419, .0420, .0427; S.L. 2019-37: 15A NCAC 03O .0201

15A NCAC 03I .0101- Pending legislative review of 15A NCAC 03O .0201

15A NCAC 18A .0901, .0906 - Pending legislative review of 15A NCAC 03K .0104

**Public Hearing:**

**Date:** August 16, 2023

**Time:** 6:00 p.m.

**Location:**

WebEx Events meeting link:  
<https://ncdenrits.webex.com/ncdenrits/j.php?MTID=mfc74bc5016579e7a09f2b2ef4c36727d>  
 Event number: 2425 745 2610  
 Event password: 1234  
 Event phone number: 1-415-655-0003  
 Listening station: Division of Marine Fisheries Central District Office, 5285 Highway 70 West, Morehead City, NC 28557

**Reason for Proposed Action:**

Shellfish Relay Program

- 15A NCAC 03I .0101 DEFINITIONS
- 15A NCAC 03K .0101 PROHIBITED ACTIVITIES IN POLLUTED SHELLFISH AREAS
- 15A NCAC 03K .0104 PERMITS FOR RELAYING SHELLFISH FROM POLLUTED AREAS
- 15A NCAC 03K .0301 SIZE AND HARVEST LIMITS OF CLAMS
- 15A NCAC 03K .0401 POLLUTED AREA PERMIT REQUIREMENTS
- 15A NCAC 03K .0403 DISPOSITION OF MEATS
- 15A NCAC 03K .0405 OYSTERS, HARD CLAMS, OR MUSSELS PROHIBITED
- 15A NCAC 03O .0201 STANDARDS AND REQUIREMENTS FOR SHELLFISH LEASES AND FRANCHISES
- 15A NCAC 03O .0501 PROCEDURES AND REQUIREMENTS TO OBTAIN PERMITS
- 15A NCAC 03O .0503 PERMIT CONDITIONS; SPECIFIC
- 15A NCAC 18A .0901 DEFINITIONS
- 15A NCAC 18A .0906 RESTRICTED AREAS

*Proposed repeals (15A NCAC 03K .0104, .0401, .0403, .0405) and amendments (15A NCAC 03I .0101, 03K .0101, .0301, 03O .0201, .0501, .0503, 18A .0901, .0906) make conforming changes to remove outdated shellfish relay requirements to reflect the discontinuation of the N.C. Division of Marine Fisheries Shellfish Relay Program. Additional proposed amendments to 15A NCAC 03K .0101 clarify exceptions for activities allowed in polluted shellfish areas that require an Aquaculture Seed Transport Permit, Depuration Permit, or Shellfish Relocation Permit. Additional proposed amendments to 15A NCAC 03I .0101 move three defined terms to 15A NCAC 03O .0201 and update them consistent with Session Law 2019-37, Section 3, to apply to that section of rules about shellfish leases and franchises. Proposed amendments to Paragraphs (c) through (h) of 15A NCAC 03O .0201 incorporate and conform the shellfish production and planting requirements from Session Law 2019-37 for shellfish leases granted before July 1, 2019 and for shellfish leases granted on or after this date; proposed amendments to Paragraph (i) require shellfish lease or franchise holders to meet the listed production, marking, and permit requirements for current*



shellfish leases before being eligible for additional shellfish lease acreage. Doing so would help ensure more efficient and meaningful use of the public trust bottom by preventing persons not in good standing from precluding potential applicants from applying for a shellfish lease in affected areas. A technical change is proposed to 15A NCAC 03I .0101(5)(k) to remove Elizabeth City from the definition of "Office of the Division" since the license office there is permanently closed; the remaining offices are also proposed to be listed in geographic order from south to north. Additional minor changes to this group of rules correct cross-references to other rules.

Data Collection and Harassment Prevention for the Conservation of Marine and Estuarine Resources

**15A NCAC 03I .0113 DATA COLLECTION**

Proposed amendments set requirements to address harassment by any licensee or person engaged in regulated activity under Chapter 113, Subchapter IV, of the General Statutes (e.g., fishing) of N.C. Division of Marine Fisheries employees that occurs in the process of obtaining data for the conservation of marine and estuarine resources, and data for the protection of public health related to the public health programs that fall under the authority of the N.C. Marine Fisheries Commission. Additional amendments provide the types of data that may be collected. The amendments support the importance of participation by persons engaged in regulated fishing activity in division data collection and provide a safer working environment for division employees.

**15A NCAC 03O .0101 PROCEDURES AND REQUIREMENTS TO OBTAIN LICENSES, ENDORSEMENTS, AND COMMERCIAL FISHING VESSEL REGISTRATIONS**

**15A NCAC 03O .0109 ASSIGNMENT OF STANDARD COMMERCIAL FISHING LICENSE**

**15A NCAC 03O .0112 FOR-HIRE LICENSE REQUIREMENTS**

**15A NCAC 03O .0301 ELIGIBILITY AND REQUIREMENTS FOR RECREATIONAL COMMERCIAL GEAR LICENSES**

Proposed amendments make it unlawful for a holder of a Standard Commercial Fishing License or Retired Standard Commercial Fishing License (15A NCAC 03O .0101), an assignee of a Standard Commercial Fishing License (15A NCAC 03O .0109), a person involved in regulated activity related to for-hire fishing (15A NCAC 03O .0112), and a holder of a Recreational Commercial Gear License (15A NCAC 03O .0301) to fail to participate in and provide accurate information for data collection in accordance with 15A NCAC 03I .0113 and for survey programs administered by the N.C. Division of Marine Fisheries. The amendments support the importance of participation by persons engaged in regulated fishing activity in division data collection for the conservation of marine and estuarine resources and the protection of public health related to the public health programs that fall under the authority of the N.C. Marine Fisheries Commission, and also provide a safer working environment for division employees.

Oyster Sanctuary Changes

**15A NCAC 03R .0117 OYSTER SANCTUARIES**

Proposed amendments add the boundaries of the two newest oyster sanctuaries (Cedar Island and Gull Shoal) and correct boundaries for three other oyster sanctuaries (Pea Island, Raccoon Island, and Swan Island) where recently published coordinates were found to be inconsistent with permitted and marked reef boundaries. These changes will protect oysters from bottom disturbing gear and safeguard boaters navigating the sanctuaries. Coordinates for three sanctuaries are proposed to be reorganized to standardize the cardinal directions, for consistency; there are no changes to the overall sanctuary, nor the coordinate pairs themselves.

15A NCAC 18A Readoptions

**15A NCAC 03K .0110, 18A .0301, .0302, .0305, .0401-.0424, .0426-.0430, .0432-.0439, .0501-.0504, .0601-.0621, .0701-.0713, .0801-.0806**

North Carolina G.S. 150B-21.3A requires State agencies to review their existing rules every 10 years to determine which rules are still necessary, and to either readopt or repeal each rule as appropriate. This group of 85 rules in 15A NCAC 03 and 18A is proposed for the readoption of one rule with no changes, readoption of 55 rules with amendments, repeal through readoption of 23 rules, amendment of two rules, adoption of three rules, and the repeal of one rule pursuant to this requirement. Proposed changes would help ensure that North Carolina remains in full compliance with National Shellfish Sanitation Program requirements, allow the N.C. Division of Marine Fisheries to increase clarity of rules for stakeholders, and allow the division to efficiently support and enforce rules for the protection of public health related to the consumption of shellfish.

**Comments may be submitted to:** Catherine Blum, P.O. Box 769, Morehead City, NC 28557 (Written comments may also be submitted via an online form available at <https://deq.nc.gov/mfc-proposed-rules>)

**Comment period ends:** October 2, 2023

**Procedure for Subjecting a Proposed Rule to Legislative Review:** If an objection is not resolved prior to the adoption of the rule, a person may also submit a written objection to the Rules Review Commission. If the Rules Review Commission receives written and signed objections after the adoption of the Rule in accordance with G.S. 150B-21.3(b2) from 10 or more persons clearly requesting review by the legislature and the Rules Review Commission approves the rule, the rule will become effective as provided in G.S. 150B-21.3(b1). The Commission will receive written objections until 5:00 p.m. on the day following the day the Commission approves the rule. The Commission will receive letters via U.S. Mail, private courier service, or hand delivery to 1711 New Hope Church Road, Raleigh, North Carolina, or via email to [oah.rules@oah.nc.gov](mailto:oah.rules@oah.nc.gov). If you have any further questions concerning the submission of objections to the Commission, please review 26 NCAC 05 .0110 or call a Commission staff attorney at 984-236-1850.

**Fiscal impact. Does any rule or combination of rules in this notice create an economic impact? Check all that apply.**

State funds affected

- Local funds affected
- Substantial economic impact (>= \$1,000,000)
- Approved by OSBM
- No fiscal note required

CHAPTER 03 - MARINE FISHERIES

SUBCHAPTER 03I – GENERAL RULES

SECTION .0100 – GENERAL RULES

15A NCAC 03I .0101 DEFINITIONS

All definitions set out in G.S. 113, Subchapter IV and the following additional terms shall apply to this Chapter:

- (1) enforcement and management terms:
  - (a) "Commercial quota" means total quantity of fish allocated for harvest by commercial fishing operations.
  - (b) "Educational institution" means a college, university, or community college accredited by an accrediting agency recognized by the U.S. Department of Education; an Environmental Education Center certified by the N.C. Department of Environmental Quality Office of Environmental Education and Public Affairs; or a zoo or aquarium certified by the Association of Zoos and Aquariums.
  - (c) "Internal Coastal Waters" or "Internal Waters" means all Coastal Fishing Waters except the Atlantic Ocean.
  - (d) length of finfish:
    - (i) "Curved fork length" means a length determined by measuring along a line tracing the contour of the body from the tip of the upper jaw to the middle of the fork in the caudal (tail) fin.
    - (ii) "Fork length" means a length determined by measuring along a straight line the distance from the tip of the snout with the mouth closed to the middle of the fork in the caudal (tail) fin, except that fork length for billfish is measured from the tip of the lower jaw to the middle of the fork of the caudal (tail) fin.
    - (iii) "Pectoral fin curved fork length" means a length of a beheaded fish from the dorsal insertion of the pectoral fin to the fork of the tail measured along the contour of the body in a line that runs along the

- top of the pectoral fin and the top of the caudal keel.
- (iv) "Total length" means a length determined by measuring along a straight line the distance from the tip of the snout with the mouth closed to the tip of the compressed caudal (tail) fin.
- (e) "Nongovernmental conservation organization" means an organization whose primary mission is the conservation of natural resources.
- (f) "Polluted" means any shellfish growing waters as defined in 15A NCAC 18A .0901:
  - (i) that are contaminated with fecal material, pathogenic microorganisms, poisonous or deleterious substances, or marine biotoxins that render the consumption of shellfish from those growing waters hazardous;
  - (ii) that have been determined through a sanitary survey as defined in 15A NCAC 18A .0901 to be adjacent to a sewage treatment plant outfall or other point source outfall with public health significance;
  - (iii) that have been determined through a sanitary survey as defined in 15A NCAC 18A .0901 to be in or adjacent to a marina;
  - (iv) that have been determined through a sanitary survey as defined in 15A NCAC 18A .0901 to be impacted by other potential sources of pollution that render the consumption of shellfish from those growing waters hazardous; or
  - (v) where the Division of Marine Fisheries is unable to complete the monitoring necessary to determine the presence of contamination or potential pollution sources.
- (g) "Recreational possession limit" means restrictions on size, quantity, season, time period, area, means, and methods where take or possession is for a recreational purpose.
- (h) "Recreational quota" means total quantity of fish allocated for harvest for a recreational purpose.

- (i) "Regular closed oyster season" means March 31 through October 15, unless amended by the Fisheries Director through proclamation authority.
  - (j) "Scientific institution" means one of the following entities:
    - (i) an educational institution as defined in this Item;
    - (ii) a state or federal agency charged with the management of marine or estuarine resources; or
    - (iii) a professional organization or secondary school working under the direction of, or in compliance with mandates from, the entities listed in Sub-items (j)(i) and (ii) of this Item.
- (2) fishing activities:
- (a) "Aquaculture operation" means an operation that produces artificially propagated stocks of marine or estuarine resources, or other non-native species that may thrive if introduced into Coastal Fishing Waters, or obtains such stocks from permitted sources for the purpose of rearing on private bottom (with or without the superadjacent water column) or in a controlled environment. A controlled environment provides and maintains throughout the rearing process one or more of the following:
    - (i) food;
    - (ii) predator protection;
    - (iii) salinity;
    - (iv) temperature controls; or
    - (v) water circulation, utilizing technology not found in the natural environment.
  - (b) "Attended" means being in a vessel, in the water or on the shore, and immediately available to work the gear and be within 100 yards of any gear in use by that person at all times. Attended does not include being in a building or structure.
  - (c) "Blue crab shedding" means the process whereby a blue crab emerges soft from its former hard exoskeleton. A shedding operation is any operation that holds peeler crabs in a controlled environment. A controlled environment provides and maintains throughout the shedding process one or more of the following:
    - (i) food;
    - (ii) predator protection;
    - (iii) salinity;
    - (iv) temperature controls; or
    - (v) water circulation, utilizing technology not found in the natural environment.
- (d) "Depuration" means mechanical purification or the removal of adulteration from live oysters, clams, or mussels by any artificially controlled means.
  - (e) "Long haul operation" means fishing a seine towed between two vessels.
  - (f) "Peeler crab" means a blue crab that has a soft shell developing under a hard shell and having a white, pink, or red-line or rim on the outer edge of the back fin or flipper.
  - (g) "Possess" means any actual or constructive holding whether under claim of ownership or not.
  - (h) "Recreational purpose" means a fishing activity that is not a commercial fishing operation as defined in G.S. 113-168.
  - ~~(i) "Shellfish marketing from leases and franchises" means the harvest of oysters, clams, scallops, or mussels from privately held shellfish bottoms and lawful sale of those shellfish to the public at large or to a licensed shellfish dealer.~~
  - ~~(j) "Shellfish planting effort on leases and franchises" means the process of obtaining authorized cultch materials, seed shellfish, and shellfish stocks from polluted waters and the placement of those materials on privately held shellfish bottoms for increased shellfish production.~~
  - ~~(k) "Shellfish production on leases and franchises" means:
 
    - (i) the culture of oysters, clams, scallops, or mussels on shellfish leases and franchises from a sublegal harvest size to a marketable size.
    - (ii) the transplanting (relay) of oysters, clams, scallops, or mussels from areas closed due to pollution to shellfish leases and franchises in open~~

- ~~waters and the natural cleansing of those shellfish.~~
- (4)(i) "Swipe net operations" means fishing a seine towed by one vessel.
  - ~~(m)(j)~~ "Transport" means to ship, carry, or cause to be carried or moved by public or private carrier by land, sea, or air.
  - ~~(n)(k)~~ "Use" means to employ, set, operate, or permit to be operated or employed.
- (3) gear:
- (a) "Bunt net" means the last encircling net of a long haul or swipe net operation constructed of small mesh webbing. The bunt net is used to form a pen or pound from which the catch is dipped or bailed.
  - (b) "Channel net" means a net used to take shrimp that is anchored or attached to the bottom at both ends or with one end anchored or attached to the bottom and the other end attached to a vessel.
  - (c) "Commercial fishing equipment or gear" means all fishing equipment used in Coastal Fishing Waters except:
    - (i) cast nets;
    - (ii) collapsible crab traps, a trap used for taking crabs with the largest open dimension no larger than 18 inches and that by design is collapsed at all times when in the water, except when it is being retrieved from or lowered to the bottom;
    - (iii) dip nets or scoops having a handle not more than eight feet in length and a hoop or frame to which the net is attached not exceeding 60 inches along the perimeter;
    - (iv) gigs or other pointed implements that are propelled by hand, whether or not the implement remains in the hand;
    - (v) hand operated rakes no more than 12 inches wide and weighing no more than six pounds and hand operated tongs;
    - (vi) hook and line, and bait and line equipment other than multiple-hook or multiple-bait trotline;
    - (vii) landing nets used to assist in taking fish when the initial and primary method of taking is by the use of hook and line;
  - (d) "Corkline" means the support structure a net is attached to that is nearest to the water surface when in use. Corkline length is measured from the outer most mesh knot at one end of the corkline following along the line to the outer most mesh knot at the opposite end of the corkline.
  - (e) "Dredge" means a device towed by engine power consisting of a frame, tooth bar or smooth bar, and catchbag used in the harvest of oysters, clams, crabs, scallops, or conchs.
  - (f) "Fixed or stationary net" means a net anchored or staked to the bottom, or some structure attached to the bottom, at both ends of the net.
  - (g) "Fyke net" means an entrapment net supported by a series of internal or external hoops or frames, with one or more lead or leaders that guide fish to the net mouth. The net has one or more internal funnel-shaped openings with tapered ends directed inward from the mouth, through which fish enter the enclosure. The portion of the net designed to hold or trap fish is completely enclosed in mesh or webbing, except for the openings for fish passage into or out of the net (funnel area).
  - (h) "Gill net" means a net set vertically in the water to capture fish by entanglement of the gills in its mesh as a result of net design, construction, mesh length, webbing diameter, or method in which it is used.
  - (i) "Headrope" means the support structure for the mesh or webbing of a trawl that is nearest to the water surface when in use. Headrope length is measured from the outer most mesh knot at one end of the headrope following along the line to the outer most mesh knot at the opposite end of the headrope.
  - (j) "Hoop net" means an entrapment net supported by a series of internal or
  - (viii) minnow traps when no more than two are in use;
  - (ix) seines less than 30 feet in length;
  - (x) spears, Hawaiian slings, or similar devices that propel pointed implements by mechanical means, including elastic tubing or bands, pressurized gas, or similar means.

- external hoops or frames. The net has one or more internal funnel-shaped openings with tapered ends directed inward from the mouth, through which fish enter the enclosure. The portion of the net designed to hold or trap the fish is completely enclosed in mesh or webbing, except for the openings for fish passage into or out of the net (funnel area).
- (k) "Lead" means a mesh or webbing structure consisting of nylon, monofilament, plastic, wire, or similar material set vertically in the water and held in place by stakes or anchors to guide fish into an enclosure. Lead length is measured from the outer most end of the lead along the top or bottom line, whichever is longer, to the opposite end of the lead.
  - (l) "Mechanical methods for clamming" means dredges, hydraulic clam dredges, stick rakes, and other rakes when towed by engine power, patent tongs, kicking with propellers or deflector plates with or without trawls, and any other method that utilizes mechanical means to harvest clams.
  - (m) "Mechanical methods for oystering" means dredges, patent tongs, stick rakes, and other rakes when towed by engine power, and any other method that utilizes mechanical means to harvest oysters.
  - (n) "Mesh length" means the distance from the inside of one knot to the outside of the opposite knot, when the net is stretched hand-tight in a manner that closes the mesh opening.
  - (o) "Pound net set" means a fish trap consisting of a holding pen, one or more enclosures, lead or leaders, and stakes or anchors used to support the trap. The holding pen, enclosures, and lead(s) are not conical, nor are they supported by hoops or frames.
  - (p) "Purse gill net" means any gill net used to encircle fish when the net is closed by the use of a purse line through rings located along the top or bottom line or elsewhere on such net.
  - (q) "Seine" means a net set vertically in the water and pulled by hand or power to capture fish by encirclement and confining fish within itself or against another net, the shore or bank as a result of net design, construction, mesh length, webbing diameter, or method in which it is used.
- (4) "Fish habitat areas" means the estuarine and marine areas that support juvenile and adult populations of fish species, as well as forage species utilized in the food chain. Fish habitats as used in this definition, are vital for portions of the entire life cycle, including the early growth and development of fish species. Fish habitats in all Coastal Fishing Waters, as determined through marine and estuarine survey sampling, include:
    - (a) "Anadromous fish nursery areas" means those areas in the riverine and estuarine systems utilized by post-larval and later juvenile anadromous fish.
    - (b) "Anadromous fish spawning areas" means those areas where evidence of spawning of anadromous fish has been documented in Division sampling records through direct observation of spawning, capture of running ripe females, or capture of eggs or early larvae.
    - (c) "Coral" means:
      - (i) fire corals and hydrocorals (Class Hydrozoa);
      - (ii) stony corals and black corals (Class Anthozoa, Subclass Scleractinia); or
      - (iii) Octocorals; Gorgonian corals (Class Anthozoa, Subclass Octocorallia), which include sea fans (*Gorgonia* sp.), sea whips (*Leptogorgia* sp. and *Lophogorgia* sp.), and sea pansies (*Renilla* sp.).
    - (d) "Intertidal oyster bed" means a formation, regardless of size or shape, formed of shell and live oysters of varying density.
    - (e) "Live rock" means living marine organisms or an assemblage thereof attached to a hard substrate, excluding mollusk shells, but including dead coral or rock. Living marine organisms associated with hard bottoms, banks, reefs, and live rock include:
      - (i) Coralline algae (Division Rhodophyta);
      - (ii) *Acetabularia* sp., mermaid's fan and cups (*Udotea* sp.), watercress (*Halimeda* sp.), green feather, green grape algae (*Caulerpa* sp.)(Division Chlorophyta);
      - (iii) *Sargassum* sp., *Dictyopteris* sp., *Zonaria* sp. (Division Phaeophyta);

- (iv) sponges (Phylum Porifera);
  - (v) hard and soft corals, sea anemones (Phylum Cnidaria), including fire corals (Class Hydrozoa), and Gorgonians, whip corals, sea pansies, anemones, Solengastrea (Class Anthozoa);
  - (vi) Bryozoans (Phylum Bryozoa);
  - (vii) tube worms (Phylum Annelida), fan worms (Sabellidae), feather duster and Christmas treeworms (Serpulidae), and sand castle worms (Sabellaridae);
  - (viii) mussel banks (Phylum Mollusca: Gastropoda); and
  - (ix) acorn barnacles (Arthropoda: Crustacea: Semibalanus sp.).
- (f) "Nursery areas" means areas that for reasons such as food, cover, bottom type, salinity, temperature, and other factors, young finfish and crustaceans spend the major portion of their initial growing season. Primary nursery areas are those areas in the estuarine system where initial post-larval development takes place. These are areas where populations are uniformly early juveniles. Secondary nursery areas are those areas in the estuarine system where later juvenile development takes place. Populations are composed of developing sub-adults of similar size that have migrated from an upstream primary nursery area to the secondary nursery area located in the middle portion of the estuarine system.
- (g) "Shellfish producing habitats" means historic or existing areas that shellfish, such as clams, oysters, scallops, mussels, and whelks use to reproduce and survive because of such favorable conditions as bottom type, salinity, currents, cover, and cultch. Included are those shellfish producing areas closed to shellfish harvest due to pollution.
- (h) "Strategic Habitat Areas" means locations of individual fish habitats or systems of habitats that provide exceptional habitat functions or that are particularly at risk due to imminent threats, vulnerability, or rarity.
- (i) "Submerged aquatic vegetation (SAV) habitat" means submerged lands that:
- (i) are vegetated with one or more species of submerged aquatic vegetation including bushy pondweed or southern naiad (*Najas guadalupensis*), coontail (*Ceratophyllum demersum*), eelgrass (*Zostera marina*), horned pondweed (*Zannichellia palustris*), naiads (*Najas* spp.), redhead grass (*Potamogeton perfoliatus*), sago pondweed (*Stuckenia pectinata*, formerly *Potamogeton pectinatus*), shoalgrass (*Halodule wrightii*), slender pondweed (*Potamogeton pusillus*), water stargrass (*Heteranthera dubia*), water starwort (*Callitriche heterophylla*), waterweeds (*Elodea* spp.), widgeongrass (*Ruppia maritima*), and wild celery (*Vallisneria americana*). These areas may be identified by the presence of above-ground leaves, below-ground rhizomes, or reproductive structures associated with one or more SAV species and include the sediment within these areas; or
  - (ii) have been vegetated by one or more of the species identified in Sub-item (4)(i)(i) of this Rule within the past 10 annual growing seasons and that meet the average physical requirements of water depth (six feet or less), average light availability (secchi depth of one foot or more), and limited wave exposure that characterize the environment suitable for growth of SAV. The past presence of SAV may be demonstrated by aerial photography, SAV survey, map, or other documentation. An extension of the past 10 annual growing seasons criteria may be considered when average environmental conditions are altered by drought, rainfall, or storm force winds.

This habitat occurs in both subtidal and intertidal zones and may occur in isolated patches or cover extensive areas. In defining SAV habitat, the Marine Fisheries Commission recognizes the Aquatic Weed Control Act of 1991 (G.S. 113A-220 et. seq.) and does not intend the submerged aquatic vegetation definition, or this Rule or 15A NCAC 03K .0304 and .0404, to apply to or conflict with the non-development control activities authorized by that Act.

- (5) licenses, permits, leases and franchises, and record keeping:
  - (a) "Assignment" means temporary transferal to another person of privileges under a license for which assignment is permitted. The person assigning the license delegates the privileges permitted under the license to be exercised by the assignee, but retains the power to revoke the assignment at any time, and is still the responsible party for the license.
  - (b) "Designee" means any person who is under the direct control of the permittee or who is employed by or under contract to the permittee for the purposes authorized by the permit.
  - (c) "For hire vessel", as defined by G.S. 113-174, means when the vessel is fishing in State waters or when the vessel originates from or returns to a North Carolina port.
  - (d) "Franchise" means a franchise recognized pursuant to G.S. 113-206.
  - (e) "Holder" means a person who has been lawfully issued in the person's name a license, permit, franchise, lease, or assignment.
  - (f) "Land" means:
    - (i) for commercial fishing operations, when fish reach the shore or a structure connected to the shore.
    - (ii) for purposes of trip tickets, when fish reach a licensed seafood dealer, or where the fisherman is the dealer, when fish reach the shore or a structure connected to the shore.
    - (iii) for recreational fishing operations, when fish are retained in possession by the fisherman.
  - (g) "Licensee" means any person holding a valid license from the Department to

take or deal in marine fisheries ~~resources-~~ resources, except as otherwise defined in 15A NCAC 03O .0109.

- (h) "Logbook" means paper forms provided by the Division and electronic data files generated from software provided by the Division for the reporting of fisheries statistics by persons engaged in commercial or recreational fishing or for-hire operators.
- (i) "Master" means captain or operator of a vessel or one who commands and has control, authority, or power over a vessel.
- (j) "New fish dealer" means any fish dealer making application for a fish dealer license who did not possess a valid dealer license for the previous license year in that name. For purposes of license issuance, adding new categories to an existing fish dealers license does not constitute a new dealer.
- (k) "Office of the Division" means physical locations of the Division conducting license and permit transactions in Wilmington, Morehead City, Washington, Morehead City, Roanoke Island, and Elizabeth City, and Roanoke Island, North Carolina. Other businesses or entities designated by the Secretary to issue Recreational Commercial Gear Licenses or Coastal Recreational Fishing Licenses are not considered Offices of the Division.
- (l) "Responsible party" means the person who coordinates, supervises, or otherwise directs operations of a business entity, such as a corporate officer or executive level supervisor of business operations, and the person responsible for use of the issued license in compliance with applicable statutes and rules.
- (m) "Tournament organizer" means the person who coordinates, supervises, or otherwise directs a recreational fishing tournament and is the holder of the Recreational Fishing Tournament License.
- (n) "Transaction" means an act of doing business such that fish are sold, offered for sale, exchanged, bartered, distributed, or landed.
- (o) "Transfer" means permanent transferal to another person of privileges under a license for which

transfer is permitted. The person transferring the license retains no rights or interest under the license transferred.

- (p) "Trip ticket" means paper forms provided by the Division and electronic data files generated from software provided by the Division for the reporting of fisheries statistics by licensed fish dealers.

Authority G.S. 113-134; 113-174; 113-182; 143B-289.52.

15A NCAC 03I .0113 BIOLOGICAL SAMPLING DATA COLLECTION

(a) For the purpose of this Rule, "responsible person" shall mean any licensee or person engaged in regulated activity under Chapter 113, Subchapter IV, of the General Statutes.

(b) It shall be unlawful for any licensee under Chapter 113, Subchapter IV, of the General Statutes responsible person to refuse to allow the Fisheries Director or the Fisheries Director's agents to obtain biological data, harvest information, or other statistical data necessary or useful to the conservation and management of marine and estuarine resources from for the taking of fish in the licensee's possession by the responsible person. Such data shall include, but is not limited to, may include:

- (1) species identification, identification;
(2) species length, length;
(3) species weight, weight;
(4) species age, age;
(5) species sex, sex;
(6) number, number of species;
(7) quantity of catch;
(8) area of catch, catch;
(9) harvest method, and of quantity catch, method;
(10) gear and gear specifications;
(11) target species;
(12) number of hours and days the responsible person spent fishing;
(13) state, county, and zip code of responsible person;
(14) number of individuals fishing with responsible person; and
(15) social and economic data, including fishing expenditures.

(c) It shall be unlawful for any responsible person to refuse to allow the Fisheries Director or the Fisheries Director's agents to obtain data for the protection of public health related to the public health programs that fall under the authority of the Marine Fisheries Commission.

(d) It shall be unlawful for any responsible person to harass the Fisheries Director or the Fisheries Director's agents in any way related to the requirements of Paragraphs (b) and (c) of this Rule, including verbal or physical harassment or sexual harassment. For the purpose of this Rule, "harassment" shall be defined consistent with 50 CFR 600.725(o), (t), and (u), including to:

- (1) harass;
(2) sexually harass, including making sexual connotations;

- (3) oppose;
(4) impede;
(5) intimidate;
(6) interfere;
(7) prohibit or bar by command, impediment, threat, coercion, interference, or refusal of reasonable assistance, the Fisheries Director or the Fisheries Director's agents from conducting his or her duties; or
(8) tamper with or destroy samples or equipment;
50 CFR 600.725(o), (t), and (u), is incorporated by reference except as provided in Paragraph (e) of this Rule, including subsequent amendments and editions. A copy of the reference material can be found at https://www.ecfr.gov/current/title-50/chapter-VI/part-600/subpart-H/section-600.725, at no cost.
(e) Exceptions to 50 CFR 600.725(t) include "assault".

Authority G.S. 113-134; 113-170.3; 113-174.1; 113-181; 113-182; 113-221.2; 143B-289.52.

SUBCHAPTER 03K - OYSTERS, CLAMS, SCALLOPS, AND MUSSELS

SECTION .0100 – SHELLFISH, GENERAL

15A NCAC 03K .0101 PROHIBITED ACTIVITIES IN POLLUTED SHELLFISH AREAS

(a) It shall be unlawful to possess, sell, or take oysters, clams, or mussels from areas that have been designated as polluted by proclamation by the Fisheries Director except as provided in Rules .0103, .0104, .0107, and .0401 of this Subchapter, except in accordance with:

- (1) a Depuration Permit as set forth in Rule .0107 of this Section;
(2) an Aquaculture Seed Transplant Permit; or
(3) a Shellfish Relocation Permit. The Fisheries Director may, by proclamation, designate sites for relocation where shellfish would otherwise be destroyed due to maintenance dredging, construction, or other development activities.

Individuals shall obtain an Aquaculture Seed Transplant Permit from the Secretary, or a Depuration Permit or a Shellfish Relocation Permit from the Fisheries Director setting forth the time, area, and method by which such shellfish may be taken. The procedures and requirements for obtaining permits are found in 15A NCAC 03O .0500.

(b) The Fisheries Director shall issue shellfish polluted area proclamations if criteria for approved shellfish harvest areas in accordance with 15A NCAC 18A .0900 have not been met. The Fisheries Director may reopen any such closed area by proclamation if criteria for approved shellfish harvest areas in accordance with 15A NCAC 18A .0900 have been met. Copies of these proclamations and maps of these areas are available upon request at the Division of Marine Fisheries, 3441 Arendell Street, P.O. Box 769, Morehead City, NC 28557; 800-682-2632 or 252-726-7021.

(c) The Fisheries Director may, by proclamation, close areas to the taking of oysters, clams, scallops, and mussels to protect the shellfish populations for management purposes or for protection



of public health related to the public health programs that fall under the authority of the Marine Fisheries Commission not specified in ~~Paragraph (a)~~ Paragraphs (a) or (b) of this Rule.

~~(c)~~(d) It shall be unlawful to possess or sell oysters, clams, or mussels taken from polluted waters outside North Carolina, except as provided in 15A NCAC 03I .0104.

Authority G.S. 113-134; 113-168.5; 113-169.2; 113-182; 113-203; 113-221.1; 113-221.2; 143B-289.52.

**15A NCAC 03K .0104 PERMITS FOR RELAYING SHELLFISH FROM POLLUTED AREAS**

Authority G.S. 113-134; 113-182; 113-203; 113-221.1; 143B-289.52.

**15A NCAC 03K .0110 PUBLIC HEALTH AND CONTROL OF OYSTERS, CLAMS, SCALLOPS, AND MUSSELS**

(a) The National Shellfish Sanitation Program Guide for Control of Molluscan Shellfish, Section II: Model Ordinance (Model Ordinance) includes requirements for the sale or distribution of shellfish from approved areas or shellstock shellfish dealers, as defined in 15A NCAC 18A .0301, and to ensure that shellfish have not been adulterated or mislabeled misbranded during cultivation, harvesting, processing, storage, or transport. To protect public health, the Fisheries Director may, by proclamation, impose requirements of the Model Ordinance as set forth in Paragraph (b) of this Rule on any of the following:

- (1) the cultivation, distribution, harvesting, processing, sale, storage, or transport ~~of~~ of:
  - (A) oysters;
  - (B) clams;
  - (C) scallops; ~~or~~ and
  - (D) mussels;
- (2) areas used to store shellfish;
- (3) means and methods to take shellfish;
- (4) vessels used to take shellfish; ~~or~~ and
- (5) shellstock conveyances as defined in 15A NCAC 18A .0301.

(b) Proclamations issued under this Rule may impose any of the following requirements:

- (1) specify time and temperature controls;
- (2) specify sanitation requirements to prevent a food safety hazard, as defined in 15A NCAC 18A .0301, or cross-contamination or adulteration of shellfish;
- (3) specify sanitation control procedures set forth in 21 ~~Code of Federal Regulations (CFR) Part~~ CFR 123.11;
- (4) specify Hazard Analysis Critical Control Point (HACCP) requirements set forth in 21 ~~CFR Part~~ CFR:
  - (A) 123.3 Definitions;
  - (B) 123.6 HACCP Plan;
  - (C) 123.7 Corrective Actions;
  - (D) 123.8 Verification;
  - (E) 123.9 Records; and
  - (F) 123.28 Source Controls;

- (5) specify tagging and labeling requirements;
- (6) implement the National Shellfish Sanitation Program's training requirements for shellfish harvesters and certified shellfish dealers;
- (7) require sales records and collection and submission of information to provide a mechanism for tracing shellfish product back to the water body of origin; and
- (8) require product recall and specify recall procedures.

21 CFR 123.3, 123.6-9, 123.11, and 123.28 are hereby incorporated by reference, including subsequent amendments and editions. A copy of the reference materials material can be found at [http://www.ecfr.gov/cgi-bin/text-idx?SID=f4cdd666e75f54ceda1d9938f4cdd9ab&mc=true&tpl=/ecfr/browse/Title21/21tab\\_02.tpl](http://www.ecfr.gov/cgi-bin/text-idx?SID=f4cdd666e75f54ceda1d9938f4cdd9ab&mc=true&tpl=/ecfr/browse/Title21/21tab_02.tpl), free of charge. <https://www.ecfr.gov/current/title-21/chapter-I/subchapter-B/part-123?toc=1>, at no cost.

(c) Proclamations issued under this Rule shall suspend appropriate rules or portions of rules under the authority of the Marine Fisheries Commission as specified in the proclamation. The provisions of 15A NCAC 03I .0102 terminating suspension of a rule pending the next Marine Fisheries Commission meeting and requiring review by the Marine Fisheries Commission at the next meeting shall not apply to proclamations issued under this Rule.

Authority G.S. 113-134; 113-182; 113-201; 113-221.1; 113-221.2; 143B-289.52.

**SECTION .0300 - HARD CLAMS (MERCENARIA)**

**15A NCAC 03K .0301 SIZE AND HARVEST LIMITS OF CLAMS**

(a) It shall be unlawful to take, land, or possess aboard a vessel more than 6,250 hard clams per commercial fishing operation from public bottom in internal waters. It shall be unlawful to take, possess, sell, or purchase any clams (except Rangia or freshwater clams) less than one inch thick except in accordance with Rule .0305 of this Section. Clams shall be culled where harvested and all clams of less than legal size with their shell, shall be immediately returned to the bottom from which they were taken. In determining whether the size and harvest limits have been exceeded, Marine Fisheries Inspectors shall be authorized and empowered to grade all, or any portion, or any combination of portions of the entire quantity being graded, and in cases of violations, may seize and return to public bottom or otherwise dispose of the clams as authorized by law the entire quantity being graded or any portion thereof.

(b) Size and harvest limits established in Paragraph (a) of this Rule and the season and area limitations established in Rule .0302 of this Section may or may not apply for:

- (1) harvest limits for temporary openings consistent with the requirements of 15A NCAC 18A .0900 and the North Carolina Hard Clam Fishery Management Plan; or
- (2) maintenance dredging operations, when clams would otherwise be destroyed, upon approval by the Division of Marine Fisheries and

- (3) consistent with the North Carolina Hard Clam Fishery Management ~~Plan; or Plan.~~  
~~relaying of clams from polluted waters to private shellfish bottom as permitted by Rule .0104 of this Subchapter.~~

- (2) a statement from the licensee that the information and supporting documentation submitted with the application is true and correct.

- (3) current and valid picture identification of the licensee. Acceptable forms of picture identification are state driver's license, state identification card issued by the Division of Motor Vehicles, military identification card, resident alien card (green card), or passport; or if purchased by mail, a copy thereof.

- (4) certification that the applicant does not have four or more marine or estuarine resource convictions during the previous three years.

- (5) current articles of incorporation and a current list of corporate officers when purchasing a license or Commercial Fishing Vessel Registration in a corporate name. In the case of incorporation of an individual fishing vessel, the name of the vessel master shall also be specified. The licensee shall notify the Morehead City Office of the Division within five days of changing the vessel master.

- (6) a current copy of a written partnership agreement shall be provided when purchasing a license, endorsement, or Commercial Fishing Vessel Registration in a partnership name, if a partnership is established.

- (7) valid documentation papers or current motor boat registration, or copy thereof when purchasing a Commercial Fishing Vessel Registration. If an application for transfer of documentation is pending, a copy of the pending application and a notarized bill of sale may be submitted.

- (8) affirmation of liability insurance and that the operator is knowledgeable of United States Coast Guard (USCG) safety requirements for the vessels used in the operation in accordance with G.S. 113-168.6 when purchasing a Commercial Fishing Vessel Registration with a for-hire endorsement.

- (d) In addition to the requirements of Paragraph (c) of this Rule, proof of residency for non-residents shall be documented by the licensee with certification of the state of residency. Proof of residency for residents of North Carolina shall be documented by the licensee as follows:

- (1) Standard or Retired Standard Commercial Fishing Licenses: A notarized certification from the applicant that the applicant is a resident of the State of North Carolina as defined by G.S. 113-130(4) and:

- (A) a notarized certification from the applicant that a North Carolina State Income Tax Return was filed for the previous calendar or tax year as a North Carolina resident;

- (B) a notarized certification that the applicant was not required to file a

Authority G.S. 113-134; 113-136; 113-137; 113-182; 113-221.2; 143B-289.52.

**SECTION .0400 - RANGIA CLAMS**

**15A NCAC 03K .0401 POLLUTED AREA PERMIT REQUIREMENTS**

Authority G.S. 113-134; 113-182; 113-201; 113-202; 143B-289.52.

**15A NCAC 03K .0403 DISPOSITION OF MEATS**

Authority G.S. 113-134; 113-182; 113-201; 113-202; 143B-298.52.

**15A NCAC 03K .0405 OYSTERS, HARD CLAMS, OR MUSSELS PROHIBITED**

Authority G.S. 113-134; 113-182; 113-201; 143B-289.52.

**SUBCHAPTER 030 - LICENSES, LEASES, FRANCHISES, AND PERMITS**

**SECTION .0100 - LICENSES**

**15A NCAC 030 .0101 PROCEDURES AND REQUIREMENTS TO OBTAIN LICENSES, ENDORSEMENTS, AND COMMERCIAL FISHING VESSEL REGISTRATIONS**

(a) Division of Marine Fisheries licenses are available at offices of the Division or by mail from the Morehead City Office of the Division, unless otherwise specified. In addition, Recreational Commercial Gear Licenses are available at license agents of the Wildlife Resources Commission in accordance with G.S. 113-270.1.

(b) For the purpose of this Rule, the procedures and requirements for the licensee shall also apply to the responsible party, the person holding power of attorney, the tournament organizer, and the vessel master.

(c) To obtain Division of Marine Fisheries licenses, endorsements, and Commercial Fishing Vessel Registrations, a licensee shall provide a completed application to an office of the Division by mail or in person. Applications submitted without complete and required information shall not be processed until all required information has been submitted. Incomplete applications shall be returned to the applicant with deficiency in the application so noted. The following shall be required for the application:

- (1) full name, physical address, mailing address, date of birth, and signature of the licensee. If the licensee is not appearing before a license agent or a representative of the Division, the licensee's signature shall be notarized.

- North Carolina State Income Tax Return for the previous calendar or tax year; or
    - (C) military identification or military dependent identification, and permanent change of station orders or assignment orders substantiating the military individual's active duty assignment at a military facility in North Carolina.
  - (2) All other types of licenses:
    - (A) North Carolina voter registration card;
    - (B) current North Carolina Driver's License;
    - (C) current North Carolina Certificate of Domicile;
    - (D) current North Carolina Identification Card issued by the North Carolina Division of Motor Vehicles; or
    - (E) military identification or military dependent identification, and permanent change of station orders or assignment orders substantiating the military individual's active duty assignment at a military facility in North Carolina.
  - (e) In addition to the requirements in Paragraphs (c) and (d) of this Rule, the following shall be required:
    - (1) Blanket For-Hire Captain's CRFL: a valid certification from the USCG that allows carrying six or fewer passengers or a certification from the USCG that allows carrying more than six passengers.
    - (2) Blanket For-Hire Vessel CRFL or Non-Blanket For-Hire Vessel License:
      - (A) valid documentation papers or current motor boat registration, or copies thereof for the vessel engaged as for-hire; or
      - (B) a copy of the pending application and a notarized bill of sale if an application for transfer of documentation is pending.
    - (3) Fish Dealer License:
      - (A) the physical address of the established location where business is conducted and, if different, the address where records are kept; and
      - (B) a valid Permit and Certificate of Compliance from the Division of Marine Fisheries Shellfish Sanitation and Recreational Water Quality Section, if purchasing a Fish Dealer License with clam or oyster categories or a consolidated license.
    - (4) Land or Sell License:
      - (A) valid documentation papers or current motor boat registration, or copy thereof; or
      - (B) a copy of the pending application and a notarized bill of sale if an application for transfer of documentation is pending.
- The fees for a Land or Sell License shall be based on the vessel's homeport as it appears on the USCG documentation papers or the state in which the vessel is registered, in accordance with G.S. 113-169.5.
- (5) Ocean Fishing Pier License:
    - (A) the information required in G.S. 113-169.4; and
    - (B) linear length of the pier. A Marine Fisheries inspector's signature is required to verify the linear length of the pier before the license can be issued.
  - (6) Recreational Fishing Tournament License to Sell Fish: name and date or dates of the tournament.
  - (7) Spotter Plane License:
    - (A) the information required in G.S. 113-171.1;
    - (B) the current aircraft registration; and
    - (C) a list of operators.
  - (f) For a License to Land Flounder from the Atlantic Ocean, in addition to the requirements in Paragraphs (c) and (d) of this Rule, the following shall be applicable:
    - (1) for the purpose of this Paragraph, "license year" means the period beginning July 1 of a year through June 30 of the following year.
    - (2) to qualify for a License to Land Flounder from the Atlantic Ocean, the applicant shall:
      - (A) have landed in North Carolina at least 1,000 pounds of flounder from a single vessel each year from the Atlantic Ocean during any two of the 1992-93, 1993-94, 1994-95 license years for which the person had a vessel that was licensed to land in North Carolina;
      - (B) have been licensed under G.S. 113-152 or 113-153 during any two of the 1992-93, 1993-94, or 1994-95 license years; and
      - (C) hold a valid Standard or Retired Standard Commercial Fishing License or valid Land or Sell License.
    - (3) it shall be unlawful for a person to hold more Licenses to Land Flounder from the Atlantic Ocean than the number of vessels that the person owns that individually met the eligibility requirements of Parts (f)(2)(A) and (f)(2)(B) of this Rule.
    - (4) the License to Land Flounder from the Atlantic Ocean is only valid when used on the vessel specified at the time of license issuance.
    - (5) at the time of issuance, the applicant for the License to Land Flounder from the Atlantic Ocean shall specify the name of the vessel

master for each License to Land Flounder from the Atlantic Ocean issued.

(6) the holder of the License to Land Flounder from the Atlantic Ocean shall notify the Morehead City Office of the Division of Marine Fisheries within five days of change as to the vessel master identified on the license.

(7) Licenses to Land Flounder from the Atlantic Ocean are issued for the current license year.

(g) For a Recreational Fishing Tournament License to Sell Fish, in addition to the requirements in Paragraphs (c) and (d) of this Rule, the following shall be applicable:

(1) it shall be unlawful for anyone other than the holder of the Recreational Fishing Tournament License to Sell Fish to sell fish taken during a recreational fishing tournament.

(2) fish to be sold under the Recreational Fishing Tournament License to Sell Fish shall be sold only to licensed fish dealers and shall comply with all applicable rules of the Marine Fisheries Commission or provisions of proclamations issued by the Fisheries Director as authorized by the Marine Fisheries Commission.

(3) it shall be unlawful for a licensed recreational fishing tournament organizer to fail to accurately and legibly complete a North Carolina Recreational Fishing Tournament Disposition of Proceeds from the Sale of Fish Form provided by the Division of Marine Fisheries and submit the form to the Division within 30 days after the last day of the tournament.

(h) It shall be unlawful for a license, endorsement, or Commercial Fishing Vessel Registration holder to fail to notify the Division of Marine Fisheries within 30 days of a change of name or address, in accordance with G.S. 113-169.2.

(i) If requested by the Division, it shall be unlawful for a licensee to fail to participate in and provide accurate information for data collection in accordance with 15A NCAC 03I .0113 and for survey programs administered by the Division.

*Authority G.S. 113-134; 113-168; 113-168.1-6; 113-169.2-5; 113-171.1; 113-174.3; 113-182; 143B-289.52.*

**15A NCAC 030 .0109 ASSIGNMENT OF STANDARD COMMERCIAL FISHING LICENSE**

(a) For the purpose of this Rule, "licensee" shall mean the person issued a Standard Commercial Fishing License and "assignee" shall mean the individual to whom the licensee assigns a Standard Commercial Fishing License in accordance with the requirements of this Rule.

(b) If requested by the Division of Marine Fisheries, it shall be unlawful for a licensee or assignee to fail to participate in and provide accurate information for data collection in accordance with 15A NCAC 03I .0113 and for survey programs administered by the Division.

~~(b)(c)~~ The Division of Marine Fisheries shall provide assignment forms to the licensee upon request. Only Division assignment forms shall be used to obtain an assignment. On the assignment

form, the licensee shall designate what, if any, endorsements are included in the assignment. Endorsements shall not be assigned independent of the Standard Commercial Fishing License. It shall be unlawful for the licensee or the assignee to fail to submit within five days the completed assignment form to any office of the Division in person or by mail to the Morehead City Office. The Morehead City Office is located at 3441 Arendell Street, Morehead City, North Carolina, 28557. If the completed assignment form is not received by the Division within five days from the date it was signed, the assignment shall be null and void. Incomplete forms shall be returned to the licensee with deficiency in the form so noted. An assignment is in effect from the date specified on the assignment form and when:

- (1) the assignment form is complete with all required information;
- (2) signatures of the current license holder and the assignee are notarized; and
- (3) the assignee has in the assignee's possession the current licensee's original actual Standard Commercial Fishing License, including applicable endorsements in accordance with G.S. 113-169.2.

~~(e)(d)~~ For an extension of time for assignments, a new assignment form shall be completed in accordance with Subparagraphs (b)(1) through (b)(3) of this Rule.

~~(d)(e)~~ Assignments shall terminate:

- (1) when the date specified on the assignment form is reached;
- (2) if the licensee or assignee are determined ineligible for a license or assignment;
- (3) if the Division receives a notarized statement from the current license holder stating a revised date for an earlier assignment termination;
- (4) upon the licensee or assignee's death; or
- (5) when the Standard Commercial Fishing License expires.

~~(e)(f)~~ It shall be unlawful for an individual assigned a Standard Commercial Fishing License when involved in a commercial fishing operation to fail to have the original actual Standard Commercial Fishing License, any assigned endorsements, and a copy of the assignment form in the individual's possession ready at hand for inspection in accordance with G.S. 113-168.1.

~~(f)(g)~~ All landings occurring during the time of the assignment shall be credited to the licensee, not the assignee.

~~(g)(h)~~ It shall be unlawful to be assigned more than a single Standard Commercial Fishing License at any one time. It shall be unlawful to assign a Standard Commercial Fishing License to more than one individual at any one time. Assignments shall only be made by the licensee and shall not be further assigned by assignees. Masters identified on the Standard Commercial Fishing Licenses of corporations consisting of an individual fishing vessel shall not assign such licenses.

~~(h)(i)~~ It shall be unlawful for a person to accept assignment of a Standard Commercial Fishing License for which they are ineligible.

~~(i)(j)~~ It shall be unlawful for any assignee of a Standard Commercial Fishing License not to return the assignment and the Standard Commercial Fishing License with any assigned endorsements to the licensee within five days of notice that the

assignment has been terminated or a demand by the licensee to return the license.

Authority G.S. 113-134; 113-135; 113-168.1; 113-168.2; 113-168.5; 113-169.2; 113-182; 113-187; 143B-289.52.

**15A NCAC 030 .0112 FOR-HIRE LICENSE REQUIREMENTS**

(a) The license requirements for an operator of a vessel engaged in a for-hire operation are set forth in G.S. 113-174.3. Either the vessel owner or the for-hire vessel operator may seek to obtain the applicable for-hire vessel license. Only the vessel owner shall seek to obtain the applicable registration and endorsement required by G.S. 113-168.6. For the purpose of this Rule, "for-hire vessel operator" shall include the holder of a Blanket For-Hire Captain's Coastal Recreational Fishing License, Blanket For-Hire Vessel Coastal Recreational Fishing License, or Non-Blanket For-Hire Vessel License, as set forth in G.S. 113-174.3.

(b) It shall be unlawful for a for-hire vessel operator to operate without:

- (1) holding the United States Coast Guard certification required in Rule .0101(a) of this Section;
- (2) having a copy of the for-hire license in possession and ready at hand for inspection; and
- (3) having current picture identification in possession and ready at hand for inspection.

(c) If requested by the Division of Marine Fisheries, it shall be unlawful for a for-hire vessel operator or responsible person to fail to participate in and provide accurate information for biological sampling data collection in accordance with 15A NCAC 03I.0113 and for survey programs administered by the Division. For the purpose of this Rule, "responsible person" shall mean any licensee or person engaged in regulated activity under Chapter 113, Subchapter IV, of the General Statutes, including regulated activity related to for-hire fishing.

(d) Requirements for display of licenses and registrations for a vessel engaged in for-hire recreational fishing are set forth in Rule .0106 of this Section.

Authority G.S. 113-134; 113-168.6; 113-174.1; 113-174.3; 113-181; 143B-289.52.

**SECTION .0200 – SHELLFISH LEASES AND FRANCHISES**

**15A NCAC 030 .0201 STANDARDS AND REQUIREMENTS FOR SHELLFISH LEASES AND FRANCHISES**

(a) For the purpose of this Section:

- (1) "extensive shellfish culture" shall mean shellfish grown on the bottom without the use of cages, racks, bags, or floats.
- (2) "intensive shellfish culture" shall mean shellfish grown on the bottom or in the water column using cages, racks, bags, or floats.
- (3) "plant" shall mean providing evidence of purchasing shellfish seed or planting shellfish

seed or authorized cultch materials on a shellfish lease or franchise.

- (4) "produce" shall mean the culture and harvest of oysters, clams, scallops, or mussels from a shellfish lease or franchise and lawful sale of those shellfish to the public at large or to a licensed shellfish dealer.

(a)(b) All areas of the public bottom underlying Coastal Fishing Waters shall meet the following standards and requirements, in addition to the standards in G.S. 113-202, in order to be deemed suitable for leasing for shellfish aquaculture purposes:

- (1) the proposed shellfish lease area shall not contain a "natural shellfish bed," as defined in G.S. 113-201.1, or have 10 bushels or more of shellfish per acre;
- (2) the proposed shellfish lease area shall not be closer than 250 feet from a developed shoreline or a water-dependent shore-based structure, except no minimum setback is required when the area to be leased borders the applicant's property, the property of "riparian owners" as defined in G.S. 113-201.1 who have consented in a notarized statement, or is in an area bordered by undeveloped shoreline. For the ~~purposes~~ purpose of this Rule, a water-dependent shore-based structure shall include docks, wharves, boat ramps, bridges, bulkheads, and groins;
- (3) the proposed shellfish lease area shall not be closer than 250 feet to an existing lease;
- (4) the proposed shellfish lease area, either alone or when considered cumulatively with other existing leases in the area, lease areas in the vicinity, shall not interfere with navigation or with existing, traditional uses of the area; and
- (5) the proposed shellfish lease area shall not be less than one-half acre and shall not exceed 10 acres.

(~~b~~)(c) To be suitable for leasing for shellfish aquaculture purposes, shellfish water column leases superjacent to a shellfish bottom lease shall meet the standards in G.S. 113-202.1 and shellfish water column leases superjacent to franchises ~~recognized pursuant to G.S. 113-206~~ shall meet the standards in G.S. 113-202.2.

(~~e~~)(d) ~~Franchises recognized pursuant to G.S. 113-206 and shellfish bottom leases~~ Shellfish bottom leases and franchises granted on or before July 1, 2019 shall be terminated unless they meet the following requirements, in addition to the standards in and as allowed by G.S. 113-202:

- (1) they produce ~~and market~~ 10 bushels of shellfish per acre per year; and
- (2) they are planted with 25 bushels of seed shellfish per acre per year or 50 bushels of cultch per acre per year, or a combination of cultch and seed shellfish where the percentage of required cultch planted and the percentage of required seed shellfish planted totals at least 100 percent.

~~(d)~~(e) Shellfish water column leases granted on or before July 1, 2019 shall be terminated unless they meet the following requirements, in addition to the standards in and as allowed by G.S. 113-202.1 and G.S. 113-202.2:

- (1) they produce ~~and market~~ 40 bushels of shellfish per acre per year; or
- (2) the underlying bottom is planted with 100 bushels of cultch or seed shellfish per acre per year.

(f) Shellfish bottom leases and franchises granted after July 1, 2019 shall be terminated unless they meet the following requirements, in addition to the standards in and as allowed by G.S. 113-202.2:

- (1) they produce a minimum of 20 bushels of shellfish per acre averaged over the previous three-year period beginning in year five of the shellfish bottom lease or franchise; or
- (2) for intensive culture bottom operations, the holder of the shellfish bottom lease or franchise provides evidence of purchasing a minimum of 23,000 shellfish seed per acre annually and for extensive culture bottom operations, the holder of the lease or franchise plants a minimum of 15,000 shellfish seed per acre per year.

(g) Shellfish water column leases granted after July 1, 2019 shall be terminated unless they meet the following requirements, in addition to the standards in and as allowed by G.S. 113-202.1 and 113-202.2:

- (1) they produce a minimum of 50 bushels of shellfish per acre averaged over the previous three-year period beginning in year five of the shellfish water column lease; or
- (2) the holder of the shellfish water column lease provides evidence of purchasing a minimum of 23,000 shellfish seed per acre annually.

~~(e)~~(h) The following standards shall be applied to determine compliance with Paragraphs ~~(e)~~ and ~~(d)~~(d), (e), (f), and (g) of this Rule:

- (1) ~~Only only~~ shellfish ~~marketed, planted, planted~~ or produced as defined in ~~15A-NCAC 03I.0104~~ as the fishing activities "shellfish marketing from leases and franchises," "shellfish planting effort on leases and franchises," or "shellfish production on leases and franchises" Paragraph (a) of this Rule shall be included in the annual shellfish lease and franchise production reports required by Rule .0207 of this Section.
- (2) ~~If~~ if more than one shellfish lease or franchise is used in the production of shellfish, one of the leases or franchises used in the production of the shellfish shall be designated as the producing lease or franchise for those shellfish. Each bushel of shellfish shall be produced by only one shellfish lease or franchise. Shellfish transplanted between shellfish leases or franchises shall be credited as planting effort on only one lease or franchise.
- (3) ~~Production and marketing~~ production information and planting effort information

shall be compiled and averaged separately to assess compliance with the requirements of this Rule. ~~The shellfish lease or franchise~~ Shellfish bottom leases and franchises granted on or before July 1, 2019 shall meet both the production requirement and the planting effort requirement within the dates set forth in G.S. 113-202.1 and G.S. 113-202.2 to be deemed in ~~compliance for shellfish bottom leases.~~ compliance. Shellfish bottom leases and franchises granted after July 1, 2019 and shellfish water column leases shall meet either the production requirement or the planting effort requirement within the dates set forth in G.S. 113-202.1 and G.S. 113-202.2 to be deemed in ~~compliance for shellfish water column leases.~~ compliance.

(4) ~~All~~ all bushel measurements shall be in standard U.S. bushels.

(5) ~~In~~ in determining production and marketing averages and planting effort averages for information not reported in bushel measurements, the following conversion factors shall be used:

- (A) 300 oysters, 400 clams, or 400 scallops equal one bushel; and
- (B) 40 pounds of scallop shell, 60 pounds of oyster shell, 75 pounds of clam shell, or 90 pounds of fossil stone equal one bushel.

(6) ~~Production and marketing~~ production rate averages shall be computed irrespective of transfer of the shellfish lease or franchise. The ~~production and marketing~~ rates shall be averaged for the following situations using the time periods described:

- (A) for an initial shellfish bottom lease or franchise, over the consecutive full calendar years remaining on the bottom lease or franchise contract after December 31 following the second anniversary of the initial bottom lease or franchise;
- (B) for a renewal shellfish bottom lease or franchise, over the consecutive full calendar years beginning January 1 of the final year of the previous bottom lease or franchise term and ending December 31 of the final year of the current bottom lease or franchise contract;
- (C) for a shellfish water column lease, over the first five-year period for an initial water column lease and over the most recent five-year period thereafter for a renewal water column lease; or
- (D) for a shellfish bottom lease or franchise issued an extension period

under Rule .0208 of this Section, over the most recent five-year period.

- (7) ~~In~~ in the event that a portion of an existing shellfish lease or franchise is obtained by a new lease or franchise holder, the production history for the portion obtained shall be a percentage of the originating lease or franchise production equal to the percentage of the area of lease or franchise site obtained to the area of the originating lease or franchise.

~~(f)(i) Persons To be eligible for additional shellfish lease acreage, persons holding five or more any acres under all a shellfish bottom leases and franchises combined lease or franchise shall meet the requirements established in Paragraph (c) of this Rule before submitting an application for additional shellfish lease acreage to the Division of Marine Fisheries. in:~~

- (1) Paragraphs (d), (e), (f), and (g) of this Rule;
- (2) Rule .0204 of this Section; and
- (3) Rule .0503(a) of this Subchapter.

Authority G.S. 113-134; 113-182; 113-201; 113-202; 113-202.1; 113-202.2; 113-206; 143B-289.52; S.L. 2019-37, s. 3.

**SECTION .0300 – RECREATIONAL COMMERCIAL GEAR LICENSES**

**15A NCAC 030 .0301 ELIGIBILITY AND REQUIREMENTS FOR RECREATIONAL COMMERCIAL GEAR LICENSES**

- (a) Recreational Commercial Gear Licenses shall only be issued to individuals.
- (b) If requested by the Division of Marine Fisheries, it shall be unlawful for a Recreational Commercial Gear License holder to fail to participate in and provide accurate information for data collection in accordance with 15A NCAC 03I .0113 and for survey programs administered by the Division.

Authority G.S. 113-134; 113-173; 113-182; 143B-289.52.

**SECTION .0500 - PERMITS**

**15A NCAC 030 .0501 PROCEDURES AND REQUIREMENTS TO OBTAIN PERMITS**

- (a) To obtain a Division of Marine Fisheries permit, an applicant, responsible party, or person holding a power of attorney shall provide the following information:
  - (1) the full name, physical address, mailing address, date of birth, and signature of the applicant on the application and, if the applicant is not appearing before a license agent or the designated Division of Marine Fisheries contact, the applicant's signature on the application shall be notarized;
  - (2) a current picture identification of the applicant, responsible party, or person holding a power of attorney, acceptable forms of which shall include driver's license, North Carolina Identification card issued by the North Carolina Division of Motor Vehicles, military

identification card, resident alien card (green card), or passport or, if applying by mail, a copy thereof;

- (3) for permits that require a list of designees, the full names and dates of birth of the designees of the applicant who will be acting pursuant to the requested permit;
- (4) certification that the applicant and his or her designees do not have four or more marine or estuarine resource convictions during the previous three years;
- (5) for permit applications from business entities:
  - (A) the business name;
  - (B) the type of business entity: corporation, "educational institution" as defined in 15A NCAC 03I .0101, limited liability company (LLC), partnership, or sole proprietorship;
  - (C) the name, address, and phone number of responsible party and other identifying information required by this Subchapter or rules related to a specific permit;
  - (D) for a corporation applying for a permit in a corporate name, the current articles of incorporation and a current list of corporate officers;
  - (E) for a partnership that is established by a written partnership agreement, a current copy of such agreement shall be provided when applying for a permit; and
  - (F) for business entities other than corporations, copies of current assumed name statements if filed with the Register of Deeds office for the corresponding county and copies of current business privilege tax certificates, if applicable; and

(6) additional information as required for specific permits.

- (b) A permittee shall hold a valid:
    - (1) Standard or Retired Standard Commercial Fishing License in order to hold:
      - (A) an Atlantic Ocean Striped Bass Commercial Gear Permit;
      - (B) a Permit for Weekend Trawling for Live Shrimp; or
      - (C) a Pound Net Set Permit.
- The master designated on the single vessel corporation Standard Commercial Fishing License is the individual required to hold the Permit for Weekend Trawling for Live Shrimp.
- (2) Fish Dealer License in the proper category in order to hold dealer permits for monitoring fisheries under a quota or allocation for that category.
  - (c) An individual who is assigned a valid Standard Commercial Fishing License with applicable endorsements shall be eligible to

hold any permit that requires a Standard Commercial Fishing License except a Pound Net Set Permit.

(d) If mechanical methods to take shellfish are used, a permittee and his designees shall hold a valid Standard or Retired Standard Commercial Fishing License with a Shellfish Endorsement in order for a permittee to hold a:

- (1) Depuration Permit;
- (2) ~~Permit to Harvest Rangia Clams from Prohibited (Polluted) Areas;~~
- (3)(2) Permit to Transplant Oysters from Seed Oyster Management Areas; or
- (4) ~~Permit to Transplant Prohibited (Polluted) Shellfish; or~~
- (5)(3) Permit to Use Mechanical Methods for Shellfish on Shellfish Leases or Franchises, except as provided in G.S. 113-169.2.

(e) If mechanical methods to take shellfish are not used, a permittee and his designees shall hold a valid Standard or Retired Standard Commercial Fishing License with a Shellfish Endorsement or a Shellfish License in order for a permittee to hold a:

- (1) Depuration Permit; or
- (2) ~~Permit to Harvest Rangia Clams from Prohibited (Polluted) Areas;~~
- (3)(2) Permit to Transplant Oysters from Seed Oyster Management Areas; or Areas.
- (4) ~~Permit to Transplant Prohibited (Polluted) Shellfish.~~

(f) Aquaculture Operation Permit and Aquaculture Collection Permit:

- (1) A permittee shall hold a valid Aquaculture Operation Permit issued by the Fisheries Director to hold an Aquaculture Collection Permit.
- (2) The permittee or designees shall hold appropriate licenses from the Division of Marine Fisheries for the species harvested and the gear used under the Aquaculture Collection Permit.

(g) Atlantic Ocean Striped Bass Commercial Gear Permit:

- (1) An applicant for an Atlantic Ocean Striped Bass Commercial Gear Permit shall declare one of the following types of gear for an initial permit and at intervals of three consecutive license years thereafter:
  - (A) a gill net;
  - (B) a trawl net; or
  - (C) a beach seine.

For the purpose of this Rule, a "beach seine" shall mean a swipe net constructed of multi-filament or multi-fiber webbing fished from the ocean beach that is deployed from a vessel launched from the ocean beach where the fishing operation takes place. Gear declarations shall be binding on the permittee for three consecutive license years without regard to subsequent annual permit issuance.

- (2) A person is not eligible for more than one Atlantic Ocean Striped Bass Commercial Gear

Permit regardless of the number of Standard Commercial Fishing Licenses, Retired Standard Commercial Fishing Licenses, or assignments held by that person.

(h) Applications submitted without complete and required information shall not be processed until all required information has been submitted. Incomplete applications shall be returned to the applicant with the deficiency in the application noted.

(i) A permit shall be issued only after the application is deemed complete and the applicant certifies his or her agreement to abide by the permit general and specific conditions established under 15A NCAC 03J .0501, .0505, 03K .0103, .0104, .0107, .0111, .0401, .0501 and .0505, 03K .0103 and .0107, Rule .0211 of this Subchapter, and Rules .0502 and .0503 of this Section, as applicable to the requested permit.

(j) In determining whether to issue, modify, or renew a permit, the Fisheries Director or his or her agent shall evaluate factors such as the following:

- (1) potential threats to public health or marine and estuarine resources regulated by the Marine Fisheries Commission;
- (2) the applicant's demonstration of a valid justification for the permit; and
- (3) whether the applicant has a history of eight or more fisheries violations within 10 years.

(k) The Division of Marine Fisheries shall notify the applicant in writing of the denial or modification of any permit request and the reasons therefor. The applicant may submit further information or reasons why the permit should not be denied or modified.

(l) Permits are valid from the date of issuance through the expiration date printed on the permit. Unless otherwise established by rule, the Fisheries Director may establish the issuance timeframe for specific types and categories of permits based on season, calendar year, or other period based upon the nature of the activity permitted, the duration of the activity, compliance with federal or State fishery management plans or implementing rules, conflicts with other fisheries or gear usage, or seasons for the species involved. The expiration date shall be specified on the permit.

(m) For permit renewals, the permittee's signature on the application shall certify all information is true and accurate. Notarized signatures on renewal applications shall not be required.

(n) It shall be unlawful for a permit holder to fail to notify the Division of Marine Fisheries within 30 days of a change of name or address, in accordance with G.S. 113-169.2.

(o) It shall be unlawful for a permit holder to fail to notify the Division of Marine Fisheries of a change of designee prior to use of the permit by that designee.

(p) Permit applications shall be available at all Division of Marine Fisheries offices.

Authority G.S. 113-134; 113-169.1; 113-169.2; 113-169.3; 113-182; 113-210; 143B-289.52.

**15A NCAC 03O .0503 PERMIT CONDITIONS; SPECIFIC**

- (a) Aquaculture Operation Permit and Aquaculture Collection Permit:



- (1) It shall be unlawful to conduct aquaculture operations using marine and estuarine resources without first securing an Aquaculture Operation Permit from the Fisheries Director.
- (2) It shall be unlawful:
  - (A) to take marine and estuarine resources from Coastal Fishing Waters for aquaculture purposes without first obtaining an Aquaculture Collection Permit from the Fisheries Director;
  - (B) to sell or use for any purpose not related to North Carolina aquaculture marine and estuarine resources taken pursuant to an Aquaculture Collection Permit; or
  - (C) to fail to submit to the Fisheries Director an annual report, due on December 1 of each year on the form provided by the Division of Marine Fisheries, stating the amount and disposition of marine and estuarine resources collected under authority of an Aquaculture Collection Permit.
- ~~(3) Lawfully permitted shellfish-relaying activities authorized by 15A NCAC 03K .0103 and .0104 shall be exempt from requirements to have an Aquaculture Operation Permit or Aquaculture Collection Permit issued by the Fisheries Director.~~
- ~~(4)~~(3) Aquaculture Operation Permits and Aquaculture Collection Permits shall be issued or renewed on a calendar year basis.
- ~~(5)~~(4) It shall be unlawful to fail to provide the Division with a listing of all designees acting pursuant to an Aquaculture Collection Permit at the time of application.
- (b) Atlantic Ocean Striped Bass Commercial Gear Permit:
  - (1) It shall be unlawful to take striped bass from the Atlantic Ocean in a commercial fishing operation without first obtaining an Atlantic Ocean Striped Bass Commercial Gear Permit.
  - (2) It shall be unlawful to obtain more than one Atlantic Ocean Striped Bass Commercial Gear Permit during a license year, regardless of the number of Standard Commercial Fishing licenses, Retired Standard Commercial Fishing licenses, or assignments.
- (c) Blue Crab Shedding Permit: It shall be unlawful to possess more than 50 blue crabs in a shedding operation without first obtaining a Blue Crab Shedding Permit from the Division of Marine Fisheries.
- (d) Coastal Recreational Fishing License Exemption Permit:
  - (1) It shall be unlawful for the responsible party seeking exemption from recreational fishing license requirements for eligible individuals to conduct an organized fishing event held in Joint or Coastal Fishing Waters without first obtaining a Coastal Recreational Fishing License Exemption Permit.
- (2) The Coastal Recreational Fishing License Exemption Permit shall only be issued for recreational fishing activity conducted solely for the participation and benefit of one of the following groups of eligible individuals:
  - (A) individuals with physical or mental impairment;
  - (B) members of the United States Armed Forces and their dependents, upon presentation of a valid military identification card;
  - (C) individuals receiving instruction on recreational fishing techniques and conservation practices from employees of state or federal marine or estuarine resource management agencies or instructors affiliated with educational institutions; and
  - (D) disadvantaged youths as set forth in 42 U.S. Code 12511.

For the purpose of this Paragraph, educational institutions include high schools and other secondary educational institutions.
- (3) The Coastal Recreational Fishing License Exemption Permit shall be valid for the date, time, and physical location of the organized fishing event for which the exemption is granted and the duration of the permit shall not exceed one year from the date of issuance.
- (4) The Coastal Recreational Fishing License Exemption Permit shall only be issued if all of the following, in addition to the information required in Rule .0501 of this Section, is submitted to the Fisheries Director, in writing, at least 30 days prior to the event:
  - (A) the name, date, time, and physical location of the event;
  - (B) documentation that substantiates local, state, or federal involvement in the organized fishing event, if applicable;
  - (C) the cost or requirements, if any, for an individual to participate in the event; and
  - (D) an estimate of the number of participants.
- (e) Dealer permits for monitoring fisheries under a quota or allocation:
  - (1) During the commercial season opened by proclamation or rule for the fishery for which a dealer permit for monitoring fisheries under a quota or allocation shall be issued, it shall be unlawful for a fish dealer issued such permit to fail to:
    - (A) fax or send via electronic mail by noon daily, on forms provided by the Division of Marine Fisheries, the previous day's landings for the permitted fishery to the Division.

- Landings for Fridays or Saturdays shall be submitted on the following Monday. If the dealer is unable to fax or electronically mail the required information, the permittee shall call in the previous day's landings to the Division;
- (B) submit the required form set forth in Part (e)(1)(A) of this Rule to the Division upon request or no later than five days after the close of the season for the fishery permitted;
  - (C) maintain faxes and other related documentation in accordance with 15A NCAC 03I .0114;
  - (D) contact the Division daily, regardless of whether a transaction for the fishery for which a dealer is permitted occurred; and
  - (E) record the permanent dealer identification number on the bill of lading or receipt for each transaction or shipment from the permitted fishery.
- (2) Atlantic Ocean Flounder Dealer Permit:
- (A) It shall be unlawful for a fish dealer to allow vessels holding a valid License to Land Flounder from the Atlantic Ocean to land more than 100 pounds of flounder from a single transaction at their licensed location during the open season without first obtaining an Atlantic Ocean Flounder Dealer Permit. The licensed location shall be specified on the Atlantic Ocean Flounder Dealer Permit and only one location per permit shall be allowed.
  - (B) It shall be unlawful for a fish dealer to possess, buy, sell, or offer for sale more than 100 pounds of flounder from a single transaction from the Atlantic Ocean without first obtaining an Atlantic Ocean Flounder Dealer Permit.
- (3) Black Sea Bass North of Cape Hatteras Dealer Permit: It shall be unlawful for a fish dealer to purchase or possess more than 100 pounds of black sea bass taken from the Atlantic Ocean north of Cape Hatteras (35° 15.0321' N) per day per commercial fishing operation during the open season unless the dealer has a Black Sea Bass North of Cape Hatteras Dealer Permit.
- (4) Spiny Dogfish Dealer Permit: It shall be unlawful for a fish dealer to purchase or possess more than 100 pounds of spiny dogfish per day per commercial fishing operation unless the dealer has a Spiny Dogfish Dealer Permit.
- (5) Striped Bass Dealer Permit:
- (A) It shall be unlawful for a fish dealer to possess, buy, sell, or offer for sale striped bass taken from the following areas without first obtaining a Striped Bass Dealer Permit validated for the applicable harvest area:
    - (i) the Atlantic Ocean;
    - (ii) the Albemarle Sound Management Area as designated in 15A NCAC 03R .0201; or
    - (iii) the Joint and Coastal Fishing Waters of the Central/Southern Management Area as designated in 15A NCAC 03R .0201.
  - (B) No permittee shall possess, buy, sell, or offer for sale striped bass taken from the harvest areas opened by proclamation without having a valid Division of Marine Fisheries-issued tag for the applicable area affixed through the mouth and gill cover or, in the case of striped bass imported from other states, a similar tag that is issued for striped bass in the state of origin. Division striped bass tags shall not be bought, sold, offered for sale, or transferred. Tags shall be obtained at the Division offices. The Division shall specify the quantity of tags to be issued based on historical striped bass landings. It shall be unlawful for the permittee to fail to surrender unused tags to the Division upon request.
- (f) Horseshoe Crab Biomedical Use Permit:
- (1) It shall be unlawful to use horseshoe crabs for biomedical purposes without first obtaining a permit.
  - (2) It shall be unlawful for persons who have been issued a Horseshoe Crab Biomedical Use Permit to fail to submit an annual report on the use of horseshoe crabs to the Division of Marine Fisheries, due on February 1 of each year. Such reports shall be filed on forms provided by the Division and shall include a monthly account of the number of crabs harvested, a statement of percent mortality up to the point of release, the harvest method, the number or percent of males and females, and the disposition of bled crabs prior to release.
  - (3) It shall be unlawful for persons who have been issued a Horseshoe Crab Biomedical Use Permit to fail to comply with the Atlantic States Marine Fisheries Commission Interstate Fishery Management Plan for Horseshoe Crab. The Atlantic States Marine Fisheries Commission Interstate Fishery Management

Plan for Horseshoe Crab is incorporated by reference including subsequent amendments and editions. Copies of this plan are available via the Internet from the Atlantic States Marine Fisheries Commission at <http://www.asmfc.org/fisheries-management/program-overview> and at the Division of Marine Fisheries, 3441 Arendell Street, P.O. Box 769, Morehead City, NC 28557, at no cost.

(g) Permit for Weekend Trawling for Live Shrimp:

- (1) It shall be unlawful to take shrimp with trawls from 9:00 p.m. on Friday through 12 noon on Saturday without first obtaining a Permit for Weekend Trawling for Live Shrimp.
- (2) It shall be unlawful for a holder of a Permit for Weekend Trawling for Live Shrimp to use trawls from 12:01 p.m. on Saturday through 4:59 p.m. on Sunday.
- (3) It shall be unlawful for a permit holder during the timeframe specified in Subparagraph ~~(k)(1)~~(g)(1) of this Rule to:
  - (A) use trawl nets to take live shrimp except from areas open to the harvest of shrimp with trawls;
  - (B) take shrimp with trawls that have a combined headrope length of greater than 40 feet in Internal Coastal Waters;
  - (C) possess more than one gallon of dead shrimp (heads on) per trip;
  - (D) fail to have a functioning live bait tank or a combination of multiple functioning live bait tanks, with aerators or circulating water, with a minimum combined tank capacity of 50 gallons; or
  - (E) fail to call the Division of Marine Fisheries Communications Center at 800-682-2632 or 252-726-7021 prior to each weekend use of the permit, specifying activities and location.

(h) Pound Net Set Permit: The holder of a Pound Net Set Permit shall follow the Pound Net Set Permit conditions as set forth in 15A NCAC 03J .0505.

(i) Scientific or Educational Activity Permit:

- (1) It shall be unlawful for institutions or agencies seeking exemptions from license, rule, proclamation, or statutory requirements to collect, hold, culture, or exhibit for scientific or educational purposes any marine or estuarine species without first obtaining a Scientific or Educational Activity Permit.
- (2) The Scientific or Educational Activity Permit shall only be issued for collection methods and possession allowances approved by the Division of Marine Fisheries.
- (3) The Scientific or Educational Activity Permit shall only be issued for approved activities

conducted by or under the direction of Scientific or Educational institutions as defined in 15A NCAC 03I .0101.

- (4) It shall be unlawful for the responsible party issued a Scientific or Educational Activity Permit to fail to submit an annual report on collections and, if authorized, sales to the Division, due on December 1 of each year, unless otherwise specified on the permit. The reports shall be filed on forms provided by the Division. Scientific or Educational Activity permits shall be issued on a calendar year basis.
- (5) It shall be unlawful to sell marine or estuarine species taken under a Scientific or Educational Activity Permit without:
  - (A) the required license for such sale;
  - (B) an authorization stated on the permit for such sale; and
  - (C) providing the information required by 15A NCAC 03I .0114 if the sale is to a licensed fish dealer.
- (6) It shall be unlawful to fail to provide the Division with a list of all designees acting under a Scientific or Educational Activity Permit at the time of application.
- (7) The permittee or designees utilizing the permit shall call the Division of Marine Fisheries Communications Center at 800-682-2632 or 252-726-7021 ~~not~~ no later than 24 hours prior to use of the permit, specifying activities and location.
- (j) Under Dock Oyster Culture Permit:
  - (1) It shall be unlawful to cultivate oysters in containers under docks for personal consumption without first obtaining an Under Dock Oyster Culture Permit.
  - (2) An Under Dock Oyster Culture Permit shall be issued only in accordance with provisions set forth in G.S. 113-210(c).
  - (3) The applicant shall complete and submit an examination, with a minimum of 70 percent correct answers, based on an educational package provided by the Division of Marine Fisheries pursuant to G.S. 113-210(j), demonstrating the applicant's knowledge of:
    - (A) the application process;
    - (B) permit criteria;
    - (C) basic oyster biology and culture techniques;
    - (D) shellfish harvest area closures due to pollution;
    - (E) safe handling practices;
    - (F) permit conditions; and
    - (G) permit revocation criteria.
  - (4) Action by an Under Dock Oyster Culture Permit holder to encroach on or usurp the legal rights of the public to access public trust resources in Coastal Fishing Waters shall result in permit revocation.

Authority G.S. 113-134; 113-169.1; 113-169.2; 113-169.3; 113-182; 113-210; 143B-289.52.

**SUBCHAPTER 03R - DESCRIPTIVE BOUNDARIES**

**SECTION .0100 - DESCRIPTIVE BOUNDARIES**

**15A NCAC 03R .0117 OYSTER SANCTUARIES**

The Oyster Sanctuaries referenced in 15A NCAC 03K .0209 are delineated in the following ~~coastal water areas~~: Coastal Fishing Waters:

- (1) Pamlico Sound area:
  - (a) Croatan Sound: within the area described by a line beginning at a point 35° 48.2842' N - 75° 38.3360' W; running southerly to a point 35° 48.1918' N - 75° 38.3360' W; running westerly to a point 35° 48.1918' N - 75° 38.4575' W; running northerly to a point 35° 48.2842' N - 75° 38.4575' W; running easterly to the point of beginning.
  - (b) Crab Hole: within the area described by a line beginning at a point 35° 43.6833' N - 75° 40.5083' W; running southerly to a point 35° 43.5000' N - 75° 40.5083' W; running westerly to a point 35° 43.5000' N - 75° 40.7500' W; running northerly to a point 35° 43.6833' N - 75° 40.7500' W; running easterly to the point of beginning.
  - (c) Pea Island: within the area described by a line beginning at a point ~~35° 05.4760' N - 76° 23.5370' W~~ 35° 40.0800' N - 75° 36.7998' W; running southerly to a point ~~35° 05.4760' N - 76° 23.4040' W~~ 35° 39.8400' N - 75° 36.7998' W; running westerly to a point ~~35° 05.3680' N - 76° 23.4040' W~~ 35° 39.8400' N - 75° 37.0800' W; running northerly to a point ~~35° 05.3680' N - 76° 23.5370' W~~ 35° 40.0800' N - 75° 37.0800' W; running easterly to the point of beginning.
  - (d) Long Shoal: within the area described by a line beginning at a point ~~35° 33.8600' N - 75° 49.9000' W~~ 35° 33.8600' N - 75° 49.7670' W; running southerly to a point ~~35° 33.8600' N - 75° 49.7670' W~~ 35° 33.7510' N - 75° 49.7670' W; running westerly to a point ~~35° 33.7510' N - 75° 49.7670' W~~ 35° 33.7510' N - 75° 49.9000' W; running northerly to a point ~~35° 33.7510' N - 75° 49.9000' W~~ 35° 33.7510' N - 75° 49.9000' W

- (e) Gibbs Shoal: within the area described by a line beginning at a point 35° 27.3550' N - 75° 55.9190' W; running southerly to a point 35° 27.1010' N - 75° 55.9190' W; running westerly to a point 35° 27.1010' N - 75° 56.2300' W; running northerly to a point 35° 27.3550' N - 75° 56.2300' W; running easterly to the point of beginning.
- (f) Gull Shoal: within the area described by a line beginning at a point 35° 23.4520' N - 75° 58.0533' W; running southerly to a point 35° 22.9481' N - 75° 58.0721' W; running westerly to a point 35° 22.9596' N - 75° 58.5359' W; running northerly to a point 35° 23.4638' N - 75° 58.5173' W; running easterly to the point of beginning.
- (~~f~~)(g) Deep Bay: within the area described by a line beginning at a point 35° 22.9126' N - 76° 22.1612' W; running southerly to a point 35° 22.7717' N - 76° 22.1612' W; running westerly to a point 35° 22.7717' N - 76° 22.3377' W; running northerly to a point 35° 22.9126' N - 76° 22.3377' W; running easterly to the point of beginning.
- (~~g~~)(h) West Bluff: within the area described by a line beginning at a point ~~35° 18.3160' N - 76° 10.2960' W~~ 35° 18.3160' N - 76° 10.0690' W; running southerly to a point ~~35° 18.3160' N - 76° 10.0690' W~~ 35° 18.1290' N - 76° 10.0690' W; running westerly to a point ~~35° 18.1290' N - 76° 10.0690' W~~ 35° 18.1290' N - 76° 10.2960' W; running northerly to a point ~~35° 18.1290' N - 76° 10.2960' W~~ 35° 18.1290' N - 76° 10.2960' W; running easterly to the point of beginning.
- (~~h~~)(i) Middle Bay: within the area described by a line beginning at a point 35° 14.1580' N - 76° 30.1780' W; running southerly to a point 35° 14.1150' N - 76° 30.1780' W; running westerly to a point 35° 14.1150' N - 76° 30.3320' W; running northerly to a point 35° 14.1580' N - 76° 30.3320' W; running easterly to the point of beginning.
- (~~i~~)(j) Swan Island: within the area described by a line beginning at a point ~~35° 05.6170' N - 76° 27.5040' W~~ 35° 05.6414' N - 76° 26.7651' W;

running southerly to a point ~~35° 05.6020' N - 76° 26.7650' W~~ 35° 05.4846' N - 76° 26.7638' W; running westerly to a point ~~35° 05.4850' N - 76° 26.7640' W~~ 35° 05.4992' N - 76° 27.5033' W; running northerly to a point ~~35° 05.4990' N - 76° 27.5030' W~~ 35° 05.6554' N - 76° 27.5041' W; running easterly to the point of beginning.

~~(j)~~(k) Raccoon Island: within the area described by a line beginning at a point ~~35° 05.4760' N - 76° 23.5370' W~~ 35° 05.4760' N - 76° 23.4040' W; running southerly to a point ~~35° 05.4760' N - 76° 23.4040' W~~ 35° 05.3680' N - 76° 23.4040' W; running westerly to a point ~~35° 05.3860' N - 76° 23.4040' W~~ 35° 05.3680' N - 76° 23.5370' W; running northerly to a point ~~35° 05.3680' N - 76° 23.5370' W~~ 35° 05.4760' N - 76° 23.5370' W; running easterly to the point of beginning.

(l) Cedar Island: within the area described by a line beginning at a point 35° 03.4632' N - 76° 22.5603' W; running southerly to a point 35° 03.1653' N - 76° 22.5699' W; running westerly to a point 35° 03.1731' N - 76° 22.9321' W; running northerly to a point 35° 03.4710' N - 76° 22.9226' W; running easterly to the point of beginning.

~~(k)~~(m) West Bay: within the area described by a line beginning at a point 34° 58.8517' N - 76° 21.3632' W; running southerly to a point 34° 58.7661' N - 76° 21.3632' W; running westerly to a point 34° 58.7661' N - 76° 21.4735' W; running northerly to a point 34° 58.8517' N - 76° 21.4735' W; running easterly to the point of beginning.

(2) Neuse River area:

(a) Little Creek: within the area described by a line beginning at a point ~~35° 02.6940' N - 76° 30.9840' W~~ 35° 02.6940' N - 76° 30.7940' W; running southerly to a point ~~35° 02.6940' N - 76° 30.7940' W~~ 35° 02.5380' N - 76° 30.7940' W; running westerly to a point ~~35° 02.5380' N - 76° 30.7940' W~~ 35° 02.5380' N - 76° 30.9840' W; running northerly to a point ~~35° 02.5380' N - 76° 30.9840' W~~ 35° 02.6940' N - 76° 30.9840' W; running easterly to the point of beginning.

(b) Neuse River: within the area described by a line beginning at a point 35° 00.4910' N - 76° 31.9350' W; running southerly to a point 35° 00.3750' N - 76° 31.9350' W; running westerly to a point 35° 00.3750' N - 76° 32.0750' W; running northerly to a point 35° 00.4910' N - 76° 32.0750' W; running easterly to the point of beginning.

Authority G.S. 113-134; 113-182; 113-201; 113-204; 143B-289.52.

**CHAPTER 18 - ENVIRONMENTAL HEALTH**

**SUBCHAPTER 18A - SANITATION**

**SECTION .0300 – SANITATION OF SHELLFISH - GENERAL**

**15A NCAC 18A .0301 DEFINITIONS**

The following definitions shall apply throughout Sections .0300 to ~~.0900~~ through .0800 of this Subchapter:

- (1) "Adulterated" ~~means the following:~~ means:
- (a) ~~Any~~ any shellfish that have been harvested from ~~prohibited areas;~~ polluted areas as defined in 15A NCAC 03I .0101;
  - (b) ~~Any~~ any shellfish that have been shucked, packed, or otherwise processed in a plant ~~which that~~ which that has not been permitted by the Division of Marine Fisheries in accordance with these rules or by another state shellfish control "authority" as defined in the National Shellfish Sanitation Program (NSSP) Guide for the Control of Molluscan Shellfish, Section I: Purposes and Definitions, in accordance with these Rules; This definition is incorporated by reference, including subsequent amendments and editions. A copy of the reference material can be found at <https://www.fda.gov/food/federalstate-food-programs/national-shellfish-sanitation-program-nssp>, at no cost;
  - (c) any shellfish that may have been contaminated by flood waters in accordance with Rule .0405 of this Subchapter;
  - ~~(e)~~(d) ~~Any~~ any shellfish ~~which that~~ which that exceed the ~~bacteriological~~ bacteriological standards in Rule .0430 of this Subchapter; and
  - ~~(d)~~(e) ~~Any~~ any shellfish ~~which are that~~ which are that have been deemed to be an imminent ~~hazard;~~ hazard.

- (2) ~~"Approved area" means an area determined suitable for the harvest of shellfish for direct market purposes.~~
- (3) ~~"Bulk shipment" means a shipment of loose shellstock.~~
- (4) ~~"Buy boat or buy truck" means any boat which that complies with Rule .0419 of this Subchapter or truck which complies with Rule .0420 of this Subchapter that is used by a person permitted under these Rules to transport shellstock from one or more harvesters to a facility permitted under these Rules.~~
- (5)(2) "Certification number" means the unique identification number assigned by the state shellfish dealer agency to each certified shellfish ~~dealer.~~ dealer for each location. It consists of a ~~one to five digit~~ one-to-five-digit number preceded by the ~~two-letter~~ two-letter state abbreviation and followed by the ~~two letter~~ two-letter symbol two-letter abbreviation designating the type of operation certified.
- (3) "Clean" means free from dirt, debris, dust, marks, stains, waste materials, litter, or foreign material.
- (6)(4) "Critical control point" means a point, ~~step~~ step, or procedure in a food process at which control can be applied, and a food safety hazard can as a result be prevented, ~~eliminated~~ eliminated, or reduced to acceptable levels.
- (7)(5) "Critical limit" means the maximum or minimum value to which a physical, ~~biological~~ biological, or chemical parameter must be controlled at a critical control point to prevent, ~~eliminate~~ eliminate, or reduce to an acceptable level the occurrence of the identified food safety hazard.
- (8)(6) ~~"Depurate" or "Depuration" "deputation" means mechanical purification or the removal of adulteration from live shellstock by any artificially controlled means. the process of reducing the pathogenic organisms that may be present in shellstock by using a controlled aquatic environment as the treatment process.~~
- (9)(7) ~~"Depuration facility" means the physical structure wherein depuration is accomplished, including all the appurtenances necessary to the effective operation thereof. any establishment or place where the depuration of shellfish occurs by a shellfish dealer.~~
- (10)(8) ~~"Division" means the Division of Environmental Health or its authorized agent. Marine Fisheries.~~
- (9) "Easily cleanable" has the same meaning as defined in the 2017 U.S. Food Code. This definition is incorporated by reference, not including subsequent amendments and editions. A copy of the reference material can be found at <https://www.fda.gov/food/fda-food-code/food-code-2017>, at no cost.
- (10) "Food contact surface" means the parts of equipment, including auxiliary equipment, that may be in contact with the food being processed, or that may drain into the portion of equipment with which food is in contact.
- (11) ~~"Food safety hazard" means any biological, chemical, or physical property that may cause a food to be unsafe for human consumption.~~
- (12) "Good repair" means maintained to function as designed and without defect.
- (12)(13) ~~"HACCP plan" means a written document that delineates the procedures a shellfish dealer follows to implement food safety controls.~~
- (13)(14) ~~"Hazard analysis critical control point (HACCP)" means a system of inspection, control, control, and monitoring measures initiated by a shellfish dealer to identify microbiological, chemical, or physical food safety hazards which that are likely to occur in shellfish products produced by the dealer.~~
- (14)(15) ~~"Heat shock process" means the practice of heating shellstock to facilitate removal of the shellfish meat from the shell.~~
- (15)(16) ~~"Imminent hazard" means a situation which is likely to cause an immediate threat to human life, and immediate threat of serious physical injury, an immediate threat of serious physical adverse health effects, or a serious risk of irreparable damage to the environment if no immediate action is taken. has the same meaning as defined in G.S. 130A-2.~~
- (14)(17) "In-shell product" means non-living, processed shellfish with one or both shells present.
- (16)(18) ~~"Misbranded" means the following: as defined in G.S. 106-30 shall include any shellfish that are not labeled in compliance with these Rules.~~
- (a) ~~Any shellfish which are not labeled with a valid identification number awarded by regulatory authority of the state or territory of origin of the shellfish; or~~
- (b) ~~Any shellfish which are not labeled as required by these Rules.~~
- (19) "National Shellfish Sanitation Program (NSSP)" means the cooperative federal-state-industry program for the sanitary control of shellfish that is adequate to ensure that the shellfish produced in accordance with the NSSP Guide For The Control Of Molluscan Shellfish will be safe and sanitary.
- (17) ~~"Operating season" means the season of the year during which a shellfish product is processed.~~
- (18) ~~"Person" means an individual, corporation, company, association, partnership, unit of government or other legal entity.~~

- (20) "Pests" means animals or insects, including dogs, cats, birds, rodents, flies, and larvae.
- (21) "Plant" means the establishment or place where shellfish processing occurs by shellfish dealers.
- (22) "Processing" or "processed" means any activity associated with the handling, shucking, freezing, packing, labeling, or storing of shellfish in preparation for distribution. This includes the activities of a shellstock shipper, shucker-packer, repacker, reshipper, or depuration processor.
- (19) ~~"Prohibited area" means an area unsuitable for the harvesting of shellfish for direct market purposes.~~
- (20)(23) "Recall procedure" means the detailed procedure the permitted shellfish dealer will use to retrieve product from the market when it is determined that the product may not be safe for human consumption as determined by the State Health Director, is adulterated or misbranded.
- (21) ~~"Relaying or transplanting" means the act of removing shellfish from one growing area or shellfish grounds to another area or ground for any purpose.~~
- (22)(24) "Repacking plant" means a shipper, the establishment or place where a shellfish dealer, other than the original shucker-packer, who repacks shucked shellfish into other containers for delivery to the consumer, containers.
- (23)(25) ~~"Reshipper" means a shipper who ships shucked shellfish in original containers, or shellstock, from permitted shellstock dealers to other dealers or to consumers. person that purchases shellfish from a shellfish dealer and sells the product without repacking or relabeling to another shellfish dealer, wholesaler, or retailer.~~
- (26) "Responsible individual" means the individual present at a shellfish dealer that is the supervisor at the time of the inspection. If no individual is the supervisor, then any employee is the responsible individual.
- (24) ~~"Sanitary survey" means the evaluation of factors having a bearing on the sanitary quality of a shellfish growing area including sources of pollution, the effects of wind, tides and currents in the distribution and dilution of polluting materials, and the bacteriological quality of water.~~
- (25)(27) "Sanitize" means the a bactericidal treatment by a process which meets the temperature and chemical concentration levels in 15A NCAC 18A .2619, has the same meaning as defined in 21 CFR 110.3, which is incorporated by reference including subsequent amendments and editions. A copy of the reference material can be found at <https://www.ecfr.gov/current/title-21/chapter->
- [I/subchapter-B/part-110/subpart-A/section-110.3, at no cost.](#)
- (26)(28) "SELL BY date" means a date conspicuously placed on a container or tag by which a consumer is informed of the latest date the product will remain suitable for sale.
- (27)(29) "Shellfish" means oysters, mussels, scallops scallops, and all varieties of clams. However, clams, whether shucked or in the shell, fresh, frozen, whole, or in part, the term The requirements of Sections .0300 through .0800 of this Subchapter shall not include apply to scallops when if the final product is the shucked adductor muscle only.
- (30) "Shellfish dealer" means a plant to which a Shellfish Dealer Permit and Certificate of Compliance is issued by the Division for the activities of shellstock shipping, shucking or packing, repacking, reshipping, or depuration.
- (28)(31) "Shellstock" means any live molluscan shellfish which that remain in their shells.
- (29)(32) "Shellstock conveyance" means all trucks, vessels, trailers, or other conveyances used to transport shellstock.
- (30) ~~"Shellstock dealer" means a person who buys, sells, stores, or transports or causes to be transported shellstock which was not obtained from a person permitted under these Rules.~~
- (31)(33) "Shellstock plant" means any establishment or place where shellstock are washed, packed, or otherwise prepared for sale. sale by a shellfish dealer.
- (32)(34) "Shucking and packing plant" means any establishment or place where shellfish are shucked and packed for sale. sale by a shellfish dealer.
- (35) "Use" means employ, set, operate, or permit to be operated or employed.
- (33)(36) "Wet storage" means the temporary placement storage by a shellfish dealer of shellstock from approved areas, a growing area in the open status and classified as "approved" or "conditionally approved" as defined in Rule .0901 of this Subchapter, in containers or floats in natural bodies of water water, or in tanks containing natural or synthetic sea water. water at any permitted land-based activity or facility.

Authority G.S. 130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.

**15A NCAC 18A .0302 PERMITS**

(a) It shall be unlawful to operate any of the following facilities without first obtaining a Shellfish Dealer Permit and Certificate of Compliance from the Division of Marine Fisheries:

- (1) depuration facilities;
- (2) repacking plants;
- (3) shellstock plants; and
- (4) shucking and packing plants.

- (b) It shall be unlawful to operate as a ~~shellstock~~ shellfish dealer without first obtaining a Shellfish Dealer Permit and Certificate of Compliance from the Division.
- (c) It shall be unlawful to operate as a reshipper without first obtaining a Shellfish Dealer Permit and Certificate of Compliance from the Division if shellfish are purchased and shipped out of state.
- (d) Approval for wet storage of shellstock shall be granted only to persons permitted pursuant to this Rule.
- (e) Application for a permit shall be submitted in writing to the Division. Application forms may be obtained from the Division, P.O. Box 769, 3441 Arendell Street, Morehead City, NC 28557.
- (f) No permit shall be issued by the Division until an inspection by the Division shows that the facility and equipment comply with all applicable Rules in Sections .0300 through .0800 of this Subchapter. The owner or responsible ~~person~~ individual shall sign the completed inspection sheet to acknowledge receipt of the inspection sheet.
- (g) All permits shall be posted in a conspicuous place in the facility.
- (h) All permits shall expire on April 30 of each year and are non-transferrable.
- (i) Plans and specifications for proposed new construction, expansion of operations, or changes in operating processes shall be submitted to the Division for review and approval prior to beginning construction or making a change.
- (j) A permit may be revoked or suspended in accordance with 15A NCAC 030 .0504.

Authority G.S. 113-134; 113-182; 113-221.2; 143B-289.52.

**15A NCAC 18A .0305 APPEALS PROCEDURE**

Authority G.S. 130A-230.

**SECTION .0400 - SANITATION OF SHELLFISH - GENERAL OPERATION STANDARDS**

**15A NCAC 18A .0401 APPLICABILITY OF RULES**

The rules in this Section shall apply to the operation of all facilities and persons permitted in Rule .0302 of this Subchapter, including shellfish dealers, shellstock plants, reshippers, shucking and packing plants, repacking plants, depuration facilities, permittees with facilities approved for wet storage, and all other businesses and persons that buy, sell, transport, or ship shellfish. ~~These Rules do~~ rules shall not apply to ~~persons~~ individuals possessing shellfish for personal use.

Authority G.S. ~~130A-230;~~ 113-134; 113-182; 113-221.2; 143B-289.52.

**15A NCAC 18A .0402 GENERAL REQUIREMENTS FOR OPERATION**

- ~~(a) During the operating season the plant shall be used for no purpose other than the handling of shellfish. All unnecessary equipment and materials shall be removed from the plant and the floors kept clear for thorough cleaning.~~
- ~~(b)(a) All floors, walls, shucking benches and stools, shucking blocks, tables, skimmers, blowers, colanders, buckets, or any~~

~~other equipment or utensils used in the processing operation shall be cleaned and sanitized daily, or more frequently as may be necessary during the day's operation to prevent the introduction of undesirable microbiological organisms and filth into the shellfish product. Shellfish dealers shall provide mechanical refrigeration that is capable of maintaining an ambient temperature of 45°F or less and be sized to handle one day's production. The mechanical refrigeration shall include an automatic temperature regulating control and be equipped with an accurate, operating thermometer in the refrigerated storage area. If the sole means of refrigeration is a portable unit, that unit shall be capable of operating utilizing alternating current electrical power that will allow the unit to be plugged into a power supply during transport and at the certified facility.~~

~~(e)(b) Ceilings and windows shall also be kept clean. Refrigerators, refrigeration rooms, and ice boxes shall be washed and sanitized. Food contact surfaces shall be easily cleanable, corrosion-resistant, constructed of non-toxic and food-grade materials, and shall be kept in good repair. Shellfish dealers shall only use food contact surface equipment that conforms to standards found in the guidance document within the National Shellfish Sanitation Program (NSSP) Guide for the Control of Molluscan Shellfish, Section II: Model Ordinance titled "Shellfish Industry Equipment Construction Guide", which is incorporated by reference, including subsequent amendments and editions. A copy of the reference material can be found at <https://www.fda.gov/food/federalstate-food-programs/national-shellfish-sanitation-program-nssp> at no cost.~~

~~(c) Food contact surfaces of equipment, utensils, and containers shall be cleaned at the end of each day or operation and shall be sanitized prior to the start-up of each day's activities. Food contact surfaces shall also be cleaned and sanitized following any interruption during which the surfaces have become contaminated.~~

~~(d) Non-food contact surfaces such as equipment, floors, walls, ceilings, and windows shall be kept clean and in good repair.~~

~~(d)(e) Wheelbarrows, measures, baskets, shovels, and other implements used in the handling of shellstock shall not be used for any other purpose and shall be cleaned and stored in the shellstock room when not in prior to use.~~

~~(f) Shellfish dealers shall provide a temperature measuring device accurate to +/- 2°F for use in monitoring product temperatures.~~

Authority G.S. ~~130A-230;~~ 113-134; 113-182; 113-221.2; 143B-289.52.

**15A NCAC 18A .0403 SUPERVISION AND TRAINING**

(a) The ~~owner~~ shellfish dealer shall personally supervise or shall designate ~~an~~ a responsible individual whose principal duty shall be to supervise and be responsible for compliance with the Rules rules of this Subchapter. No unauthorized ~~persons~~ individuals shall be allowed in any processing area of the plant during periods of operation. For the purpose of this Rule, "unauthorized individual" shall mean an individual that is not designated and trained by the shellfish dealer or responsible individual to perform specific processing tasks in the facility.

(b) The shellfish dealer shall ensure that all employees that manufacture, process, pack, or hold food obtain training in the principles of food hygiene and food safety, including the



importance of employee health and personal hygiene, in accordance with 21 CFR 117.4, which is incorporated by reference, including subsequent amendments and editions. A copy of the reference material can be found at <https://www.ecfr.gov/current/title-21/chapter-I/subchapter-B/part-117/subpart-A/section-117.4> at no cost. Employees shall complete the training within 30 days following the initial hire date. The shellfish dealer or responsible individual shall maintain a record of the completed training.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0404 CONSTRUCTION**

Shellfish plants shall be ~~adequate in size and construction~~ sized and constructed to permit compliance with the operational provisions of Sections .0300 through .0800 of this Subchapter.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0405 PLANT LOCATION FACILITY FLOODING**

(a) Shellfish plants shall be located so that they will not be subject to flooding by high tides.

(b) If the facility floors are flooded, processing shall be discontinued until flood waters have receded and the facility and equipment are cleaned and sanitized.

(c) Any shellfish that may have been contaminated by flood waters shall be deemed adulterated and shall be destroyed.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 113-221.4; 143B-289.52.*

**15A NCAC 18A .0406 FLOORS**

Floors shall be ~~of~~ concrete or other equally impervious material, constructed so that they ~~may be~~ are easily and thoroughly cleaned cleanable, and shall be sloped so that water drains completely and rapidly. For new construction, the joints between walls and floors shall be rounded to expedite cleaning, completely, and kept in good repair. The junction between floors and walls shall be sealed to render them impervious to water in areas where the floor gets wet and is used to store shellfish, process food, or clean equipment and utensils.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0407 WALLS AND CEILINGS**

Walls to a height of at least two feet above the floor shall be constructed of smooth concrete or other equally impervious material. The remainder of the walls and ceilings shall be smooth concrete, cement plaster, or other material approved by the Division and shall be painted with a light color washable paint.

(a) Walls and ceilings in areas where shellfish are stored, handled, processed, or packaged or where food handling equipment or packaging materials are stored shall be constructed of smooth, easily cleanable, non-corrosive, impervious material. The walls

and ceilings in these areas shall also be light-colored, such as white in color, so that unclean surfaces can be detected.

(b) Doors and windows shall be tightly fitted and kept in good repair so as to keep pests and weather out of the facility.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0408 LIGHTING**

(a) Natural or artificial lighting shall be provided in all parts of the plant. ~~Light bulbs, fixtures, or other glass suspended within the plant shall be safety type or otherwise protected to prevent contamination in case of breakage.~~ Lighting intensities shall be a minimum of 25 ~~foot-candles~~ foot-candles on working surfaces in packing and shucking ~~rooms, rooms~~ and a minimum of 10 foot-candles measured at a height of 30 inches above the floor throughout the rest of the processing portion of the facility.

(b) Light bulbs, fixtures, or other glass within the plant shall be shatterproof or shielded to prevent food contamination in case of breakage.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0409 VENTILATION**

Ventilation shall be provided to ~~eliminate prevent~~ odors and ~~econdensation, condensation~~ from contaminating shellfish, food contact surfaces, or food packaging materials.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0410 FLY PEST CONTROL**

(a) All ~~outside exterior~~ openings shall be ~~screened, screened~~ or provided with wind ~~curtains curtains~~, or be provided with other fly control methods ~~approved by the Division~~ to prevent the entrance of pests. All screens shall be kept in good repair. All ~~outside exterior~~ doors shall open outward and shall be self-closing.

(b) The use and storage of pesticides and rodenticides shall comply with all applicable ~~state State~~ and federal ~~guidelines, laws~~ and rules.

(c) No pets or other animals shall be allowed in those portions of the facility where shellfish, food handling equipment, or packaging materials are stored, handled, processed, or packaged.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0411 RODENT AND ANIMAL CONTROL**

*Authority G.S. 130A-230.*

**15A NCAC 18A .0412 PLUMBING AND HAND WASHING FACILITIES**

(a) All plumbing shall be in compliance with applicable plumbing codes.

(b) Hand washing facilities shall be provided with running water at a minimum temperature of 100°F dispensed from a hot and cold combination faucet.

(c) Hand washing facilities shall be provided in or adjacent to each bathroom and in shucking and packing rooms. Hand washing facilities in packing areas shall be located where supervisors can observe employee use.

(d) Hand washing facilities shall be separate from three-compartment or other sinks used for cleaning equipment and utensils.

(e) Soap, single service towels in protected dispensers, and an easily cleanable waste receptacle shall be available and used at hand washing facilities. Other hand drying devices may be used if approved by the Division of Marine Fisheries based upon being equally effective at drying hands without the potential for recontamination.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0413 WATER SUPPLY**

~~(a) The water supply shall be from a source approved by the Division.~~

~~(b) The water supply used shall be located, constructed, maintained, and operated in accordance with the Commission for Public Health's rules governing water supplies. Copies of 15A NCAC 18A .1700 and 15A NCAC 18C may be obtained from the Division.~~

(a) The water supply used shall be in accordance with 15A NCAC 18A .1720 through .1728, 15A NCAC 18C, or 02 NCAC 09C .0703, which are incorporated by reference, including subsequent amendments.

(b) If the water supply is from a private source, samples for bacteriological analysis shall be collected by the Division of Marine Fisheries prior to use and after the water supply has been repaired or disinfected, and submitted for analysis to the State Laboratory of Public Health or other laboratory that is certified in accordance with 10A NCAC 42C .0102, which is incorporated by reference, including subsequent amendments.

(c) Cross-connections with unapproved water supplies shall be prohibited. A backflow or back siphonage of a solid, liquid, or gas containment into the water supply shall be precluded by use of an air gap or backflow prevention device in accordance with applicable plumbing codes.

(d) Hot and cold running water under pressure shall be provided to food preparation, utensil, and hand washing areas and any other areas in which water is required for cleaning. Running water under pressure shall be provided in sufficient quantity to carry out all food preparation, utensil washing, hand washing, cleaning, and other water-using operations.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0414 TOILET FACILITIES**

~~Separate and convenient toilet facilities shall be provided for each sex employed and shall comply with the N.C. State Building Code, Volume 2, Plumbing. Floors, walls, and ceilings shall be smooth, easily cleanable and kept clean. Fixtures shall be kept~~

~~clean. All toilet wastes and other sewage shall be disposed of in a public sewer system or in the absence of a public sewer system, by an on site sewage disposal system approved by the Department in accordance with G.S. 130A-335.~~

(a) Toilets shall be provided in the plant by the owner or responsible individual and shall be kept clean and in good repair.

(b) Toilet tissue, in a holder, shall be provided by the owner or responsible individual.

(c) Toilet room doors shall not open directly into a processing area and shall be tight-fitting and self-closing.

(d) All toilet wastes and other sewage shall be disposed of in accordance with 15A NCAC 18A .1900 or 15A NCAC 02H .0200, which are incorporated by reference, including subsequent amendments.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0415 WASTE DISPOSAL PREMISES**

~~Shells, washings, and other wastes shall be disposed of in a sanitary landfill or in a sanitary manner approved by the Division.~~

(a) The premises shall be maintained free from conditions that may constitute an attractant, breeding place, or harborage for pests such as unmowed weeds or grass, uncontained litter or waste, or unused equipment.

(b) To prevent pests and odors, shells and other solid waste shall not be permitted to accumulate on the premises.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0416 PERSONAL HYGIENE**

(a) All employees shall wash their hands thoroughly with soap and running water before beginning work and again after each ~~interruption~~ interruption or if their hands may have become soiled or contaminated. Signs to this effect shall be posted in conspicuous places in the plant by the operator. Hand washing signs shall be posted by the owner or responsible individual at each hand washing facility in a language understood by employees.

~~(b) All persons handling shucked shellfish shall sanitize their hands before beginning work and again after each interruption.~~

(e)(b) All persons ~~individuals~~ employed or engaged in the handling, shucking, or packing packing, or repacking of shellfish shall wear clean, washable outer clothing. Clean plastic or rubber aprons, overalls, and rubber gloves shall be considered satisfactory.

(c) All individuals employed or engaged in the shucking, packing, or repacking of shellfish shall wear hair restraints and have clean fingernails free from nail polish and that are short enough to not extend past the fingertips. Employees shall not wear jewelry other than easily cleanable rings. The use of absorbent wraps or absorbent finger cots shall not be permitted.

(d) Employees shall not eat, drink, use electronic cigarettes or vaping products, or use tobacco in any form in the rooms where shellfish are stored, processed, or handled.

(e) ~~All persons~~ An individual known to be a carrier of any disease which that can be transmitted through the handling of shellfish or who have has an infected wound or open lesion on any exposed

portion of ~~their bodies~~ the body shall be prohibited from handling ~~shellfish.~~ shellfish or coming into contact with food contact surfaces.

Authority G.S. ~~130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.~~

**15A NCAC 18A .0417 LOCKERS EMPLOYEES' PERSONAL ARTICLES**

~~A separate room or locker shall be provided for storing employees' street clothing, aprons, gloves, and personal articles. Employees' street clothing, aprons, gloves, food, drink, and personal articles shall be stored in a room or locker separate from any area where shellfish are shucked or packed or any area that is used for the cleaning or storage of utensils.~~

Authority G.S. ~~130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.~~

**15A NCAC 18A .0418 SUPPLY STORAGE**

~~(a) Storage room shall be provided for storing shipping containers, tags, and other supplies. Shipping containers, boxes, and other supplies shall be stored in a storage room or area. The storage room or area shall be kept clean.~~

~~(b) Pesticides, rodenticides, chemical agents, sanitizers, and other toxic substances shall be stored separate from processing areas or food contact surfaces. Each of the following categories of toxic substances shall be stored separate from one another:~~

- ~~(1) pesticides and rodenticides;~~
- ~~(2) detergents, sanitizers, and cleaning agents; and~~
- ~~(3) caustic acids, polishes, and other chemicals.~~

~~(c) Cleaning compounds, sanitizers, and other toxic substances shall be labeled and used in accordance with the manufacturer's label directions.~~

Authority G.S. ~~130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.~~

**15A NCAC 18A .0419 HARVEST BOATS VESSELS AND VEHICLES**

~~All boats used in the harvesting and handling of shellstock shall be kept clean and repaired such that the shellstock thereon shall not be subject to adulteration by bilge water, by leakage of water from prohibited areas, or by other means. Decks, holds, or bins used for shellstock on boats shall not be washed with water from prohibited areas. Human wastes shall not be discharged into shellfish waters.~~

~~(a) It shall be unlawful to use vessels or vehicles that are engaged in the commercial harvest, handling, or transport of shellstock in such a manner that allows contact of shellstock with bilge water, standing water, or other sources of contamination in the vessel or vehicle.~~

~~(b) It shall be unlawful to allow dogs or other animals on or inside vessels or vehicles that are engaged in the commercial harvest or transport of shellstock.~~

~~(c) It shall be unlawful to discharge human waste overboard from vessels or vehicles used in the harvesting of shellstock.~~

Authority G.S. ~~130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.~~

**15A NCAC 18A .0420 TRANSPORTING SHELLSTOCK SHELLFISH**

~~(a) All shellstock shellfish storage areas in trucks, buy boats, buy trucks, vessels, trailers, and other conveyances used for transporting shellstock shellfish shall be enclosed, tightly constructed, painted with a light color washable paint, kept clean, and shall be subject to inspection by the Division. Division of Marine Fisheries.~~

~~(b) Shellstock shall be shipped under temperature and sanitary conditions in accordance with these Rules which will keep them alive and clean and will prevent adulteration or deterioration. All shellstock shall be kept under mechanical refrigeration at a temperature of 45°F (7.1°C) or below. All conveyances used to transport shellstock shall be equipped with an operating thermometer. It shall be unlawful to transport shellstock and in-shell product unless shipped under mechanical refrigeration and the shipping conveyance is pre-chilled and maintained at an ambient temperature of 45°F or below. The storage area of the shipping conveyance shall be equipped with an accurate, operating thermometer.~~

~~(c) Buy boats and buy trucks shall be kept clean with water from a source approved by the Division under Rule .0413 of this Subchapter. Buy boats and buy trucks shall provide storage space for clean shipping containers, identification tags, and records. It shall be unlawful to transport shucked shellfish unless maintained under temperature control of 45°F or below.~~

Authority G.S. ~~130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.~~

**15A NCAC 18A .0421 DAILY-RECORD RECORDS**

~~(a) All permitted persons shellfish dealers who conduct any business of buying, selling, or shipping shellfish shall keep an accurate, daily record which that shall show the names and addresses of all persons from whom shellfish are received, the address of any shellfish dealer from whom shellfish are received, the location of the source of shellfish, and the names and addresses of all persons to whom shellfish are sold or shipped. shipped with the exception of retail sales. These records shall be recorded and shall be kept on file for a minimum of one year. year for fresh shellfish, and a minimum of two years for frozen shellfish. All records shall be open to inspection by the Division of Marine Fisheries at the dealer facility at any time during business hours.~~

~~(b) All shellfish dealers who receive shellstock from licensed harvesters shall record the following information at the time of receipt:~~

- ~~(1) harvester name;~~
- ~~(2) harvest area;~~
- ~~(3) time of the start of harvest;~~
- ~~(4) quantity and type of shellfish received;~~
- ~~(5) time shellfish were received; and~~
- ~~(6) time shellfish were mechanically refrigerated.~~

~~(c) Each shellfish shipment shipped by a shellfish dealer shall be accompanied by a shipping document that includes:~~

- (1) name, address, and certification number of shipping dealer;
- (2) name and address of major consignee;
- (3) type and quantity of shellfish product;
- (4) date and time of shipment;
- (5) documentation that shipping conveyance is pre-chilled at 45°F or below prior to shipment; and
- (6) temperature of shellstock recorded by shipping dealer at time of shipment.

(d) A dealer receiving a shellfish shipment from another shellfish dealer shall record the temperature of the shipping conveyance and the temperature of the shellfish product received. These records shall be kept on file for a minimum of one year for fresh shellfish, and a minimum of two years for frozen shellfish. All records shall be open to inspection by the Division at the dealer facility at any time during business hours.

(e) Within 72 hours of any purchase or sale of shellfish, each purchase or sale shall be entered into a permanently bound ledger book, computer record, or any other method that permanently records the information and is organized so that it can be reviewed by the Division.

*Authority G.S. 130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0422 SHELLSTOCK CLEANING**

No person shall offer for sale any shellstock ~~which~~ that have not been washed free of ~~bottom~~ harvest area sediments and detritus. Water used for shellstock washing shall be obtained from a water source in accordance with Rule .0413 of this Section or from a growing area in the open status and classified as "approved" or "conditionally approved" as defined in Rule .0901 of this Subchapter.

*Authority G.S. 130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0423 SALE OF LIVE SHELLSTOCK (READOPTION WITHOUT SUBSTANTIVE CHANGES)**

**15A NCAC 18A .0424 SHELLFISH RECEIVING**

No ~~person~~ shellfish dealer shall receive or ~~accept~~ accept:

- (1) any shellfish shellstock from:
  - (a) a licensed shellfish harvester unless unless:
    - (i) the container or package bears the harvest tag ~~or label~~ required by these Rules, as required in Rule 15A NCAC 03K .0109 and in accordance with the HACCP plan; and
    - (ii) the shellstock was harvested from a growing area in the open status and classified as "approved" or "conditionally approved" as defined in Rule .0901 of this Subchapter and as indicated on the harvest tag; or

- (b) another shellfish dealer unless the container or package bears the tag as required in Rule .0425 of this Section or, in the case of a bulk shipment, Rule .0426 of this Section; and

- (2) any shellfish from another shellfish dealer unless:

- (a) it is accompanied by the documentation required in Rule .0421(c) of this Section; and
- (b) the shellfish temperature and other critical limits are in compliance with the HACCP plan.

*Authority G.S. 130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0426 BULK SHIPMENTS BETWEEN SHELLFISH DEALERS**

(a) For the purpose of this Rule:

- (1) "bulk shipment" shall mean a shipment of a shellstock lot between shellfish dealers.
- (2) "shellstock lot" shall mean a single type of bulk shellstock or containers of shellstock of no more than one day's harvest from a single growing area harvested by one or more harvesters.

(b) ~~Shipment in bulk~~ Bulk shipments shall not be made except ~~where~~ if the shipment is from only one consignor to one ~~consignee~~ consignee and ~~accompanied by the uniform shipping tag.~~ consignee, both of which shall be shellfish dealers.

(c) When a shellstock lot is shipped, if multiple containers are used they shall be on a wrapped pallet, in a tote, in a net bailer, or other container and the unit shall be tagged with a single tag in accordance with Rule .0425 of this Section. The single tag shall also include a statement that "All shellstock containers in this lot have the same harvest date and area of harvest" and shall include the number of individual containers in the unit.

(d) The shellfish dealer shall provide a transaction record that accompanies the bulk shipment that contains the same information required on a dealer's tag in Rule .0425 of this Section and additionally states the name of the consignee, which shall be a shellfish dealer.

(e) Bulk shipments shall be kept above the floor using pallets to prevent the shellstock from becoming contaminated, unless the shipping conveyance has a channeled floor.

*Authority G.S. 130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0427 SHELLSTOCK SHELLFISH STORAGE**

Shellstock held in wet or dry storage must be kept so that they will not become adulterated. All shellstock held in dry storage shall be kept under mechanical refrigeration at a temperature of 45°F (7.1°C) or below. All refrigerated shellstock storage areas shall be equipped with an operating thermometer.

(a) It shall be unlawful to fail to keep shellstock and in-shell product under mechanical refrigeration at a temperature of 45°F

or below unless otherwise required by proclamation issued under the authority of 15A NCAC 03K .0110 or otherwise specified in the HACCP plan.

(b) Refrigerated storage areas shall be equipped with an accurate, operating thermometer.

(c) It shall be unlawful to fail to keep shucked shellfish under temperature control at a temperature of 45°F or below.

Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.

**15A NCAC 18A .0428 SAMPLING AND TESTING**

Samples of shellfish may be taken and bacteriologically examined for any public health reason under the authority of the Marine Fisheries Commission by agents of the Division of Marine Fisheries at any time or place. This may include bacteriological examination or analysis for poisonous or deleterious substances as listed in the latest approved edition of the National Shellfish Sanitation Program (NSSP) Guide for the Control of Molluscan Shellfish, Section IV: Guidance Documents, Chapter II: Growing Areas; Action Levels, Tolerances and Guidance Levels for Poisonous or Deleterious Substances in Seafood, which is incorporated by reference, including subsequent amendments and editions. A copy of the reference material can be found at <https://www.fda.gov/food/federalstate-food-programs/national-shellfish-sanitation-program-nssp>, at no cost. Samples of shellfish shall be furnished, upon request, request of the Division, by operators of plants, trucks, carriers, stores, restaurants, and other places where shellfish are sold.

Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.

**15A NCAC 18A .0429 STOPSALE EMBARGO OR DISPOSAL OF SHELLFISH**

(a) When it has been determined by the Division of Marine Fisheries that shellfish have not been grown, harvested, stored, treated, transported, handled, shucked, packed, or offered for sale in compliance with 15A NCAC 18A Sections .0300 through .0900 of this Subchapter, those shellfish shall may be deemed adulterated, adulterated in accordance with Rule .0438 of this Section, except as required in Rules .0405 and .0430 of this Section.

(b) Shellfish or shellfish products processed or prepared for sale to the public determined to be adulterated or misbranded shall be subject to stopsale or disposal by the Division. The Division may temporarily or permanently issue an order to stop sale or condemn, destroy, or otherwise dispose of all shellfish or shellfish containers found to be adulterated or misbranded, embargo or disposal by the Division in accordance with G.S. 113-221.4. The authority of marine fisheries inspectors to seize shellfish or shellfish products pursuant to G.S. 113-137 shall not be affected by this Rule.

(c) All shellfish shall be disposed of in a manner prescribed by the Division or by a court of appropriate jurisdiction.

(c) If voluntary disposal of adulterated or misbranded shellfish or shellfish products is alternatively chosen by the shellfish dealer, responsible individual, or other person or facility specified in Rule

.0401 of this Section, the product disposal shall be observed by a Division employee.

Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 113-221.4; 143B-289.52.

**15A NCAC 18A .0430 BACTERIOLOGICAL AND CONTAMINATION STANDARDS**

Shellfish shucked or in the shell and intended or offered for sale in North Carolina that exceed an Escherichia coli Most Probable Number of 230 per 100 grams of sample or a total bacteria count of more than 500,000 per gram or contain pathogenic organisms in sufficient numbers to be hazardous to the public health shall be deemed adulterated by the Division. Shellfish contaminated by any other substance which renders it unsafe for human consumption shall be deemed adulterated by the Division. shall be deemed adulterated by the Division of Marine Fisheries if:

- (1) the concentration of Escherichia coli exceeds a Most Probable Number (MPN), as defined in Rule .0901 of this Subchapter, of 230 per 100 grams of sample;
- (2) the total bacteria count, as determined by a standard plate count, exceeds 500,000 colony-forming units, as defined in Rule .0901 of this Subchapter; or
- (3) the shellfish contain any contaminant that renders it unsafe for human consumption in accordance with the latest approved edition of the National Shellfish Sanitation Program (NSSP) Guide for the Control of Molluscan Shellfish, Section IV: Guidance Documents, Chapter II: Growing Areas; Action Levels, Tolerances and Guidance Levels for Poisonous or Deleterious Substances in Seafood, which is incorporated by reference, including subsequent amendments and editions. A copy of the reference material can be found at <https://www.fda.gov/food/federalstate-food-programs/national-shellfish-sanitation-program-nssp>, at no cost.

Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.

**15A NCAC 18A .0432 PUBLIC DISPLAY OF CONSUMER ADVISORY**

All facilities and persons shellfish dealers permitted in by Rule .0302 of this Subchapter and all other businesses and persons that sell or serve raw shellfish shall post one of the following consumer advisories or an equivalent statement in a conspicuous place where it may be readily observed by the public the following consumer advisory: in the area where raw shellfish is sold or served:

- (1) "Consumer Advisory  
Eating raw or undercooked oysters, clams, clams, whole scallops, or mussels may cause severe illness. People with the following conditions are at especially high risk: liver disease, alcoholism, diabetes, cancer, stomach

or blood disorder, or weakened immune system. Ask your doctor if you are unsure of your risk. If you eat shellfish and become sick, see a doctor ~~immediately.~~ immediately.; or

- (2) "Consuming raw or undercooked meats, poultry, seafood, shellfish, or eggs may increase your risk of foodborne illness, especially if you have certain medical conditions."

Nothing in this Rule is intended to supersede regulation of restaurants or other establishments subject to 15A NCAC 18A .2600 or the U.S. Food Code.

*Authority G.S. ~~130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.~~*

**15A NCAC 18A .0433 HAZARD ANALYSIS**

Each shellfish dealer shall conduct a hazard analysis to determine the food safety hazards that are reasonably likely to occur for each kind of shellfish product processed by that dealer and to identify the preventative measures that the dealer can apply to control those hazards. For the purpose of this Rule, "reasonably likely to occur" shall mean a food safety hazard for which a processor would establish controls because experience, illness data, scientific reports, or other information provide a basis to conclude that there is a reasonable possibility that it will occur in the absence of those controls, as defined in 21 CFR 123.6, which is incorporated by reference, including subsequent amendments and editions. A copy of the reference material can be found at <https://www.ecfr.gov/current/title-21/chapter-I/subchapter-B/part-123>, at no cost.

*Authority G.S. ~~130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.~~*

**15A NCAC 18A .0434 HACCP PLAN**

(a) Each shellfish dealer shall have and implement a written HACCP Plan. plan specific to each kind of shellfish product processed. The owner or authorized designee individual shall sign the plan when implemented and after any modification. implemented, which shall signify that the plan has been accepted for implementation by the dealer. The HACCP plan shall also be signed by the owner or authorized individual after any modification or verification of the plan as required by this Rule. The plan shall be reviewed and updated, if necessary, at least annually. The plan shall, at a minimum:

- (1) ~~List~~ list the food safety hazards that are reasonably likely to occur;
- (2) ~~List~~ list the critical control points for each of the food safety hazards;
- (3) ~~List~~ list the critical limits that must be met for each of the critical control points;
- (4) ~~List~~ list the procedures, and frequency thereof, that will be used to monitor each of the critical control points to ensure compliance with the critical limits;
- (5) ~~List~~ list any corrective action plans to be followed in response to deviations from critical limits at critical control points;

- (6) ~~Provide~~ provide a record keeping system that documents critical control point monitoring; and
- (7) ~~List~~ list the verification procedures, and frequency thereof, that the dealer will use.

For the purpose of this Rule, "reasonably likely to occur" shall mean a food safety hazard for which a processor would establish controls because experience, illness data, scientific reports, or other information provide a basis to conclude that there is a reasonable possibility that it will occur in the absence of those controls, as defined in 21 CFR 123.6, which is incorporated by reference, including subsequent amendments and editions. A copy of the reference material can be found at <https://www.ecfr.gov/current/title-21/chapter-I/subchapter-B/part-123>, at no cost.

(b) With the exception of a shellfish dealer that has not been permitted for interstate commerce, the following functions shall be performed by an individual who has successfully completed training in the application of HACCP principles to shellfish processing:

- (1) developing a HACCP plan;
- (2) reassessing and modifying the HACCP plan; and
- (3) performing the record review specified in Paragraph (d) of this Rule.

(c) If a deviation from a critical limit occurs, the shellfish dealer shall take corrective action in accordance with 21 CFR 123.7, which is incorporated by reference, including subsequent amendments and editions. A copy of the reference material can be found at [https://www.ecfr.gov/current/title-21/chapter-I/subchapter-B/part-123/subpart-A/section-123.7#p-123.7\(b\)](https://www.ecfr.gov/current/title-21/chapter-I/subchapter-B/part-123/subpart-A/section-123.7#p-123.7(b)), at no cost.

(d) At least annually, each shellfish dealer shall verify that the HACCP plan is being implemented to control food safety hazards. Verification procedures shall include:

- (1) a reassessment of the plan when a change occurs that could affect the hazard analysis, and a review of any consumer complaints that have been received; and
- (2) a review, including signing and dating by the trained individual or responsible individual, of the records that document the monitoring of critical control points, the taking of corrective actions, and the calibrating of any process-monitoring instruments. This review shall occur within one week of the day that the records are made.

(e) All records required by this Rule shall be retained at the dealer facility for at least one year after the date they were prepared in the case of refrigerated products, and at least two years after the date they were prepared in the case of frozen products and shall include:

- (1) the name and location of the dealer;
- (2) the date and time of the activity that the record reflects;
- (3) the signature or initials of the individual performing the operation; and
- (4) the identity of the product and the production code, if any.

Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 113-221.4; 143B-289.52.

**15A NCAC 18A .0435 SANITATION MONITORING REQUIREMENTS**

(a) Each shellfish dealer shall ~~monitor, at a minimum,~~ monitor the following sanitation ~~items:~~ items when the plant is operational:

- (1) ~~Safety~~ safety of water;
- (2) ~~Condition~~ condition and cleanliness of food contact surfaces;
- (3) ~~Prevention~~ prevention of ~~cross-contamination;~~ cross-contamination;
- (4) ~~Maintenance~~ maintenance of hand ~~sanitizing~~ sanitizing, and toilet facilities;
- (5) ~~Protection~~ protection of shellfish, shellfish packaging ~~materials~~ materials, and food contact surfaces from ~~adulteration;~~ becoming adulterated;
- (6) ~~Proper~~ proper labeling, ~~storage~~ storage, and use of toxic compounds;
- (7) ~~Control~~ control of employees with adverse health conditions; and
- (8) ~~Exclusion~~ exclusion of pests from the facility.

(b) Monitoring records of these sanitation items shall be recorded at least daily and shall include the date and time of the activity that the record reflects, and the signature or initials of the individual performing the operation. The records shall be reviewed and signed by the owner or designated individual within one week of recording.

Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.

**15A NCAC 18A .0436 MONITORING RECORDS**

Authority G.S. 130A-230.

**15A NCAC 18A .0437 IN-SHELL PRODUCT**

(a) In-shell product shall be kept under mechanical refrigeration at a temperature of 45°F or below.

(b) In-shell product shall be tagged or labeled to contain the following indelible and legible information listed in sequential order:

- (1) the shellfish dealer's name, address, and certification number assigned by the shellfish control agency in the state of the shellfish dealer's location;
- (2) the original shipper's certification number, except if the in-shell product is depurated, the original shipper's certification number is not required;
- (3) a "SELL BY DATE" that indicates the shelf-life or the words "BEST IF USED BY" followed by a date when the product would be expected to reach the end of its shelf-life. The date shall include month, day, and year;
- (4) if the in-shell product is depurated, the depuration cycle number or lot number;

(5) the most precise identification of the harvest location as is practicable, including the initials of the state of harvest, and the state or local shellfish control authority's designation of the growing area by indexing, administrative, or geographic designation. If the authority in another state has not indexed growing areas, then a geographical or administrative designation shall be used (e.g., Long Bay, shellfish lease or franchise number, or lot number);

(6) the type and quantity of in-shell product; and  
(7) the following statement in bold type on each tag or label: "THIS TAG IS REQUIRED TO BE ATTACHED UNTIL CONTAINER IS EMPTY OR IS RETAGGED AND THEREAFTER KEPT ON FILE, IN CHRONOLOGICAL ORDER, FOR 90 DAYS." "RETAILERS: DATE WHEN LAST SHELLFISH FROM THIS CONTAINER SOLD OR SERVED (INSERT DATE) \_\_\_\_\_." OR "THIS LABEL IS REQUIRED TO BE ATTACHED UNTIL CONTAINER IS EMPTY OR IS RELABELED AND THEREAFTER KEPT ON FILE, IN CHRONOLOGICAL ORDER, FOR 90 DAYS." "RETAILERS: DATE WHEN LAST SHELLFISH FROM THIS CONTAINER SOLD OR SERVED (INSERT DATE) \_\_\_\_\_."

(c) In-shell product shall include one of the following consumer advisories, or equivalent statement:

(1) "Consumer Advisory Eating raw or undercooked oysters, clams, whole scallops, or mussels may cause severe illness. People with the following conditions are at especially high risk: liver disease, alcoholism, diabetes, cancer, stomach or blood disorder, or weakened immune system. Ask your doctor if you are unsure of your risk. If you eat shellfish and become sick, see a doctor immediately."

(2) "Consuming raw or undercooked meats, poultry, seafood, shellfish, or eggs may increase your risk of foodborne illness, especially if you have certain medical conditions."

(d) The statement "Keep Refrigerated" or an equivalent statement shall be included on the tag or label.

(e) If in-shell product for retail sale is packed in individual containers of five pounds or less and shipped in a master container that includes a tag in compliance with Paragraph (b) of this Rule, the individual containers of five pounds or less shall not require tags as specified in Paragraph (b) of this Rule if a lot code number is included on each container that allows traceback of the in-shell product to the master container. A consumer advisory shall be included on each retail package in accordance with Paragraph (c) of this Rule.

Authority G.S. 113-134; 113-182; 113-221.2; 143B-289.52.

**15A NCAC 18A .0438 INSPECTIONS AND COMPLIANCE SCHEDULE**

(a) If a critical deficiency is detected during an inspection of a shellfish dealer by a Division of Marine Fisheries inspector:

- (1) the deficiency shall be corrected by the shellfish dealer during that inspection; or
- (2) the shellfish dealer shall immediately cease production affected by the deficiency.

If the shellfish dealer fails to correct the deficiency during the inspection, the Division shall initiate the suspension or revocation process for the Shellfish Dealer Permit and Certificate of Compliance as set forth in 15A NCAC 03O .0504. For the purpose of this Rule, "critical deficiency" shall mean a condition or practice that results in the production of a shellfish product that is adulterated or presents a threat to the health or safety of the consumer.

(b) Shellfish products affected by a critical deficiency shall be controlled to prevent adulterated product from reaching consumers. The Division shall:

- (1) embargo or destroy adulterated shellfish in accordance with Rule .0429 of this Section;
- (2) initiate a recall of adulterated shellfish; and
- (3) notify enforcement officials for the United States Food and Drug Administration, as well as shellfish control authorities in states that are known to have received adulterated shellfish.

(c) If a key or other deficiency is detected during an inspection of a shellfish dealer by a Division inspector, a compliance schedule shall be issued by the Division inspector that provides a time frame by which the deficiency shall be corrected by the shellfish dealer. For the purpose of this Rule, "key or other deficiency" shall mean a deficiency other than a critical deficiency.

(d) If a shellfish dealer fails to meet the compliance schedule, the Division shall proceed with one of the following options:

- (1) revise the existing compliance schedule;
- (2) initiate the suspension or revocation process for the Shellfish Dealer Permit and Certificate of Compliance as set forth in 15A NCAC 03O .0504; or
- (3) seek other administrative remedies.

(e) Nothing in this Rule shall be construed to limit or make null any option for remedy in accordance with Rule 15A NCAC 03O .0504 or other available administrative remedy.

Authority G.S. 113-134; 113-182; 113-221.2; 113-221.4; 143B-289.52.

**15A NCAC 18A .0439 RECALL PROCEDURE**

Each shellfish dealer shall adopt and adhere to a written procedure for conducting recalls of adulterated or misbranded shellfish products. This written procedure shall be based on, and complementary to, the FDA Enforcement Policy on Recalls, CFR Title 21, Chapter 1, Subchapter A., Part 7-Enforcement Policy. This procedure shall include shellfish dealers notifying the Division of Marine Fisheries and any consignee receiving affected product when a recall begins, as well as removal or correction of the affected product.

Authority G.S. 113-134; 113-182; 113-221.2; 143B-289.52.

**SECTION .0500 - OPERATION OF SHELLSTOCK PLANTS AND RESHIPERS**

**15A NCAC 18A .0501 GENERAL REQUIREMENTS FOR SHELLSTOCK PLANTS AND RESHIPERS**

The rules in Section .0400 and the rules of this Section shall apply for the operation of shellstock plants and reshippers.

Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.

**15A NCAC 18A .0502 GRADING SHELLSTOCK AND COMMINGLING**

(a) For the purpose of this Rule:

- (1) "commingling" shall mean the act of combining different lots of shellfish harvested on different days in the same growing area or combining different lots of shellstock harvested from different growing areas.
- (2) "lot" shall mean clams from one day's harvest, from a single growing area, harvested by one or more harvesters.

~~(a)~~(b) The grading of shellstock by a shellfish dealer shall be conducted only in a permitted shellstock plant.

~~(b)~~(c) A separate grading room or area separate from other processing operations shall be required for the grading of shellstock.

(d) The grader used to grade shellstock, and any other accessories or tables used in the grading operation, shall be constructed to be easily cleanable and shall be kept in good repair.

(e) Shellfish dealers shall not commingle any shellfish, except for clams with prior approval of a commingling plan by the Division of Marine Fisheries. A commingling plan shall be approved by the Division based on limiting the dates of harvest and growing areas and maintaining lot identity so that each individual lot of shellfish can be traced back to its harvest source.

Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.

**15A NCAC 18A .0503 GRADER**

Authority G.S. 130A-230.

**15A NCAC 18A .0504 RESHIPERS**

~~(a) Reshippers shall meet all applicable requirements for shellstock plants. When shucked shellfish are reshipped, they shall be obtained from a permitted shipper. The shucked shellfish shall be received in approved shipping containers at a temperature of 40°F (4°C) or below. The temperature of the shellfish shall not exceed 40°F (4°C) during the holding and shipping periods.~~

~~(b) Reshippers shall keep adequate and accurate records indicating the source from which shellfish were purchased, the date purchased, the name of the waters from which the shellfish were harvested, and the names and addresses of persons to whom the shellfish were sold for a period of one year.~~



Reshippers shall only purchase shellfish from other shellfish dealers and sell the product to other shellfish dealers, wholesalers, or retailers without repacking or relabeling.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.*

**SECTION .0600 - OPERATION OF SHELLFISH SHUCKING AND PACKING PLANTS AND REPACKING PLANTS**

**15A NCAC 18A .0601 ~~GENERAL REQUIREMENTS FOR SHUCKING AND PACKING PLANTS AND REPACKING PLANTS~~**

The rules in Section .0400 and the rules of this Section shall apply for the operation of shucking and packing plants and repacking plants.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0602 SEPARATION OF OPERATIONS**

A shucking and packing plant shall provide separate ~~rooms~~ areas for shellstock storage, shucking, heat shock, and general storage. A ~~separate~~ packing area ~~with delivery shelf that is separate from other processing areas and with a delivery window or shelf as set forth in Rule .0605 of this Section~~ shall be required.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0603 HOT WATER SYSTEM**

An automatically regulated hot water system shall be provided ~~which that~~ has sufficient capacity to furnish water at a temperature of at least 130°F (54°C) during all hours of shucking and packing plant operation.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0604 HANDWASHING FACILITIES**

*Authority G.S. 130A-230.*

**15A NCAC 18A .0605 DELIVERY WINDOW OR SHELF**

(a) A delivery window or a non-corrosive shelf shall be installed ~~in the partition between the shucking room area and packing area. No shuckers or unauthorized personnel shall be allowed in the packing room or area.~~ If a delivery window is used it shall be equipped with a shelf completely covered with smooth, non-corrosive metal or other impervious material approved by the Division for such purpose, and shall be sloped to drain towards the shucking room area.

(b) No shuckers or individuals that are not designated as packers by the owner or responsible individual shall be allowed in the packing area.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0606 NON-FOOD CONTACT SURFACES**

All non-food contact surfaces of equipment such as cabinets and shelving shall be ~~non-absorbent~~, impervious and constructed to be easily ~~cleaned~~; cleanable.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0607 SHUCKING BENCHES**

Shucking benches, tables, and contiguous walls to a height of at least two feet above the bench top, shall be of smooth concrete, non-corrosive metal, or other durable ~~non-absorbent~~ impervious material, free from cracks and pits, and ~~so~~ constructed so that drainage is complete ~~and rapid~~ and is directed away from the stored shellfish. Shucking blocks shall be solid, one-piece construction, removable, and easily cleanable. The stands, ~~stalls~~ stalls, and stools shall be of smooth material and shall be painted with a ~~light colored~~ light-colored washable ~~paint~~; paint, such as white in color, so that unclean surfaces can be detected.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0608 EQUIPMENT CONSTRUCTION**

(a) All pails, skimmers, measures, tanks, tubs, blowers, paddles, and other equipment, ~~which that~~ come into contact with shucked shellfish or with ice used for direct cooling of shellfish, shall be made of smooth, non-corrosive, impervious materials and constructed so as to be easily cleanable and shall be kept clean and in good repair.

(b) All equipment, including external and internal blower lines and hoses below a point two inches above the overflow level of the tank and blower drain valves, shall be constructed as to be easily ~~cleanable~~; cleanable and there shall be no V-type threads in the food-product zone of the blower.

(c) The blower and skimmer drain shall not be directly connected with the sewer. There shall be an air ~~gap, approved by the Division,~~ gap between the blower and skimmer outlets. A floor drain shall be provided.

(d) Air-pump intakes shall be located in a place protected from dirt and other contamination, and shall be equipped with filters.

*Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.*

**15A NCAC 18A .0609 SANITIZING EQUIPMENT**

Washing and sanitizing facilities, including a three-compartment wash sink of adequate size to wash the largest utensils used in the ~~plant~~ shucking and packing plant, shall be provided in a section of the plant ~~convenient to~~ so that it can service the work areas. The sink shall be kept in good repair. Permanent hot and cold water connections, with combination supply faucets, shall be installed so that all vats may receive hot and cold water. Either steam, hot water, or a sanitizing solution shall be used to sanitize utensils and equipment.

Authority G.S. ~~130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.~~

**15A NCAC 18A .0610 EQUIPMENT SANITATION**

All utensils and tools, such as opening knives, shucking pails, measures, skimmers, colanders, tanks, tubs, paddles, and containers ~~which that~~ come in contact with the shellfish shall be thoroughly cleaned and then ~~sanitized; sanitized by:~~

- (1) ~~by steam in a steam chamber or box equipped with an indicating thermometer located in the coldest zone, by exposure to a temperature of 170°F (76°C) for at least 15 minutes, or to a temperature of 200°F (93°C) for at least five minutes;~~
- (2) ~~by immersion in hot water at a temperature of 170°F (76°C) for at least two minutes (a thermometer is required); minutes;~~
- (3) ~~by immersion for at least one minute in, or exposure for at least one minute to, to a constant flow of of, a solution containing not less than 100 parts per million chlorine residual. Utensils and equipment which have to that must be washed in place will shall require washing, rinsing, and sanitizing; or~~
- (4) ~~by a bactericidal treatment method which will provide equivalent sanitization to that provided by the methods authorized in (1), (2), or (3), as determined by the Division. If the bactericidal immersion or spray treatment is employed, testing kits shall be used to ensure that minimum solution strengths are maintained throughout the cleaning process. other equivalent products and procedures approved in 21 CFR 178.1010, which is incorporated by reference, including subsequent amendments and editions. A copy of the reference material can be found at <https://www.ecfr.gov/current/title-21/chapter-I/subchapter-B/part-178/subpart-B/section-178.1010>, at no cost.~~

A testing method or equipment shall be available and used to test chemical sanitizers to ensure minimum prescribed strengths.

Authority G.S. ~~130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.~~

**15A NCAC 18A .0611 EQUIPMENT STORAGE**

Equipment and utensils ~~which that~~ have been cleaned and ~~given bactericidal treatment~~ sanitized shall be stored in a manner to protect against prevent contamination.

Authority G.S. ~~130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.~~

**15A NCAC 18A .0612 ICE**

(a) Ice shall be obtained from a water supply approved by the Division of Marine Fisheries pursuant to Rule .0413 of this Subchapter and shall be stored and handled in a sanitary manner, manner to prevent contamination and keep the ice clean.

(b) All equipment used in the handling of ice shall be used for no other purpose and shall be cleaned and sanitized at least once each day the facility is in operation.

Authority G.S. ~~130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.~~

**15A NCAC 18A .0613 SHELLFISH SHUCKING**

(a) Shellfish shall be shucked in a manner ~~that they are not subject to adulteration. to prevent contamination.~~ Shellstock shall be ~~reasonably~~ free of ~~mud when excessive sediment prior to being~~ shucked. Only live shellstock shall be shucked.

(b) Shucking of shellstock shall only be permitted on ~~approved~~ shucking tables or ~~benches. benches in accordance with Rules .0402 and .0607 of this Subchapter.~~ Floors ~~used by shuckers~~ shall not be used for the storage of shellfish or the retention of shucking pails or other food contact containers.

(c) When shellstock are stored in the shucking room, protection shall be provided for the storage space to prevent ~~possible adulteration~~ the shellstock from becoming adulterated from wash water wastes and from the feet of the employees.

(d) Shucking pails shall be placed so as to exclude the drippings from shells and from the hands of shuckers. The pails shall be rinsed with running tap water before each filling.

(e) ~~Shucked shellfish, when washed, shellfish~~ shall be ~~thoroughly~~ washed on a skimmer or a container approved by the Division of Marine Fisheries with cold running water from a source ~~approved by the Division under in accordance with Rule .0413 of this Subchapter.~~

(f) The return of excess shucked shellfish from the packing room shall not be allowed. All shucked shellfish shall be packed before ~~leaving it leaves~~ the packing room.

(g) If blowers are used for cleansing, the total time that shellfish are in contact with water after leaving the shucker, including the time of washing, rinsing, and any other contact with ~~water water,~~ shall not be more than 30 minutes. In computing the time of contact with water, the length of time that shellfish are in contact with water that is ~~agitated, agitated~~ shall be calculated at twice ~~its~~ the actual length. length of time that the shellfish are in contact with the water. Before packing into containers for shipment or delivery for consumption, the shellfish shall be ~~drained and packed drained.~~ Shellfish shall be packed without any added substance.

~~(h) Pre cooling of shucked shellfish shall be done in equipment which meets National Sanitation Foundation standards or the equivalent.~~

Authority G.S. ~~130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.~~

**15A NCAC 18A .0614 CONTAINERS**

(a) Containers used for transporting shucked shellfish shall be made from ~~food safe materials approved by the United States Food and Drug Administration. food-safe materials.~~ These containers shall not be reused for packing shellfish.

(b) ~~Shucked shellfish shall be packed and shipped in containers, sealed so that tampering can be detected. Each individual container shall have permanently recorded container, so as to be conspicuous, the shucker/packer's, repacker's, or distributor's~~

~~name and address, and the shucker/packer's or repacker's certification number. The shucker/packer's or repacker's name and address and certification number shall be permanently and visibly recorded on the label of each container used for shucked shellfish.~~

(c) Any container of shucked shellfish ~~which that~~ has a capacity of 64 fluid ounces or more shall ~~be dated as of the date shucked~~ include the words "DATE SHUCKED" followed by the date shucked permanently recorded on ~~both the lid and sidewall or bottom, bottom of the container.~~ The date shall consist of either ~~the abbreviation for the month and number of the day of the month or the Julian format (YDDD), the last digit of the four-digit year and the three-digit number corresponding to the day of the year.~~

(d) Any container of shucked shellfish ~~which that~~ has a capacity of less than 64 fluid ounces shall ~~indicate a SELL BY date.~~ include the words "SELL BY" or "BEST IF USED BY" followed by a date when the product will reach the end of its projected shelf life. The date shall consist of the abbreviation for the month and number of the day of the month.

(e) For fresh frozen shellfish, the year shall be added to the date for non-Julian format. If fresh frozen, the container shall be labeled as frozen in equal size type immediately adjacent to the type of shellfish. If a frozen container of shucked shellfish is thawed and repacked, the container shall be labeled as previously frozen.

(f) Each container of shucked shellfish shall include a consumer advisory. The following statement, or an equivalent statement, shall be included on all containers: "Consuming raw or undercooked meats, poultry, seafood, shellfish, or eggs may increase your risk of foodborne illness, especially if you have certain medical conditions."

(g) No person shall use containers bearing a certification number other than the number assigned to ~~him, him or her.~~

Authority G.S. 130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.

**15A NCAC 18A .0615 SHELLFISH COOLING**

~~Shucked shellfish shall be cooled to an internal temperature of 45°F (7°C) or less within two hours after delivery to the packing room. Storage temperatures shall be 40°F (4°C) or below. No ice or other foreign substance shall be allowed to come into contact with the shellfish after processing has been completed.~~

(a) For shellstock that has not been refrigerated prior to processing, shucked meats and in-shell product shall be chilled to an internal temperature of 45°F or less within three hours of shucking or processing.

(b) For shellstock that has been refrigerated prior to processing, shucked meats and in-shell product shall be chilled to an internal temperature of 45°F or less within four hours after removal from refrigeration.

(c) If heat shock is used, once shellstock is shucked, the shucked shellfish meats shall be cooled to an internal temperature of 45°F or less within two hours from the time of heat shock.

(d) Shucked and packed shellfish shall be stored in covered containers at an ambient temperature of 45°F or less or covered in ice.

Authority G.S. 130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.

**15A NCAC 18A .0616 SHELLFISH FREEZING**

(a) If shellfish are to be frozen, they shall be frozen within three days of shucking and ~~packing and the shucked date shall be preceded by the letter (F).~~ packing. Containers of frozen shellfish shall be labeled in accordance with Rule .0614 of this Section.

(b) A temperature of ~~0°F (-18°C)~~ 0°F or less shall be maintained in the frozen storage rooms.

Authority G.S. 130A-230; 113-134; 113-182; 113-221.2; 143B-289.52.

**15A NCAC 18A .0617 SHIPPING**

Authority G.S. 130A-230.

**15A NCAC 18A .0618 HEAT SHOCK METHOD OF PREPARATION OF SHELLFISH**

(a) ~~Facilities.~~ If a shucking and packing plant uses the heat shock process, it shall be done in a separate room adjacent to the shellstock storage room and the shucking room.

(b) ~~Tank construction.~~ The heat shock tank shall be constructed of smooth, non-corrosive metal, designed to drain quickly and completely and to be easily ~~and thoroughly cleaned.~~ cleanable.

(c) ~~Booster heaters.~~ All heat shock tanks shall be equipped with booster heaters that are thermostatically controlled.

(d) ~~Shellstock washing.~~ All shellstock subjected to the heat shock process shall be ~~thoroughly~~ washed with flowing potable water immediately prior to the heat shock operation.

(e) ~~Water temperature.~~ During the heat shock process the water shall be maintained at not less than 140°F (60°C) or more than ~~150°F (65°C).~~ 150°F. An accurate thermometer shall be available and used to determine the temperature during the heat shock process. ~~The heat shock tanks shall be drained and cleaned at the end of each day's operation.~~

(f) ~~Alternatives to heat shock method.~~ Nothing in ~~these Rules~~ this Rule shall be construed to prohibit any other process ~~which that~~ has been found by the Division of Marine Fisheries to be equally effective.

(g) ~~Water requirements.~~ At least eight gallons of heat shock water shall be maintained in the tank for each ~~one-half~~ one-half bushel of shellstock being treated. All water used in the heat shock process shall be from a source approved by the Division ~~under in~~ accordance with Rule .0413 of this Subchapter.

(h) ~~Cooling.~~ Immediately after the heat shock process, all treated shellstock shall be subjected to a cool-down with flowing potable ~~tap~~ water. All ~~heat-shocked~~ heat-shocked shellstock shall be handled in a manner to prevent ~~adulteration of the product.~~ the product from becoming adulterated. Shellfish ~~which that~~ have been subjected to the heat shock process shall be cooled to an internal temperature of 45°F (~~7°C~~) or below within two hours after this process and shall be placed in storage at ~~40°F (4°C)~~ 45°F or below.

(i) ~~Cleaning.~~ At the close of each day's operation, the heat shock tank shall be completely emptied of all water, mud, and detritus, and ~~thoroughly~~ cleaned and then rinsed with flowing potable water.

- (j) ~~Sanitizing~~. All heat shock tanks shall be sanitized immediately before starting each day's operation.
- (k) The procedure for the heat shock process shall be posted in a location that can be viewed by employees to help ensure the correct procedure can be followed.

Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.

**15A NCAC 18A .0619 REPACKING OF SHELLFISH**

- (a) If repacking is practiced, it shall be ~~done strictly conducted~~ in accordance with all the requirements ~~stipulated~~ for shucking and packing plants in the rules of this Section except those for requirements related to shucking.
- (b) The shucked shellfish to be repacked shall be received at the repacking plant ~~in approved shipping containers~~ at a temperature of ~~32° - 40°F (0° - 4°C)~~ 45°F or less.
- (c) Shellfish shall not be repacked more than one time.
- (d) The temperature of the shellfish shall not exceed an internal temperature of 45°F (7°C) for more than two hours during the repacking process.
- (e) ~~Containers with a capacity of 64 fluid ounces or less in which shucked shellfish are repacked shall indicate a SELL BY date preceded by the letter R. Containers with a capacity above 64 fluid ounces in which shucked shellfish are repacked shall be dated to show the original shucking date and repacking date, which will be preceded by the letter (R).~~ Containers of repacked shellfish shall be repacked and labeled in accordance with Rule .0614 of this Section, except that the original date of shucking shall be added to the new repacked container or the original date of shucking shall be used in establishing the "SELL BY" or "BEST IF USED BY" date.
- (f) Repackers shall keep ~~accurate~~ records indicating the source from which shellfish were purchased, the date packed, the date of purchase, ~~the area within the state or territory from which the shellfish were harvested,~~ and the names and addresses of ~~persons shellfish dealers~~ to whom ~~the~~ shellfish were sold.

Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.

**15A NCAC 18A .0620 SHELLFISH THAWING AND REPACKING**

- (a) Frozen shellfish shall be thawed ~~under temperatures not to exceed 45° F (7° C)~~ at a temperature of 45°F or less.
- (b) Shellfish held for thawing shall be separated from other shellfish.
- (c) Thawed shellfish shall not exceed ~~45° F (7° C)~~ 45°F for more than two hours during the repacking process.
- (d) Containers of repacked, thawed shellfish shall be labeled as required in Rule .0619 of this Section and shall also be labeled as "PREVIOUSLY FROZEN", or equivalent.
- (e) Thawed ~~shellfish, which shellfish that~~ remain in original ~~containers, containers~~ shall be labeled as required in Rule .0614 of this Section and shall also be labeled as "PREVIOUSLY FROZEN", or equivalent.

Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.

**15A NCAC 18A .0621 RECALL PROCEDURE**

Authority G.S. 130A-230.

**SECTION .0700 - OPERATION OF DEPURATION (MECHANICAL PURIFICATION) FACILITIES**

**15A NCAC 18A .0701 GENERAL REQUIREMENTS FOR DEPURATION**

- (a) ~~The Rules in Section .0400 shall apply for the operation of depuration facilities. In addition to and to the extent not inconsistent with other applicable provisions of North Carolina Marine Fisheries Commission rules, requirements for depuration shall be in accordance with the 2019 Revision of the National Shellfish Sanitation Program (NSSP) Guide for the Control of Molluscan Shellfish chapter titled "Depuration", which is incorporated by reference, not including subsequent amendments and editions. A copy of the reference material is available online at:~~ <https://www.fda.gov/food/federalstate-food-programs/national-shellfish-sanitation-program-nssp>, at no cost.
- (b) All laboratory analyses used to evaluate the effectiveness of the depuration process shall be performed by a laboratory found by a Food and Drug Administration (FDA) Shellfish Laboratory Evaluation Officer or by an FDA-certified State Shellfish Laboratory Evaluation Officer to conform or provisionally conform to the requirements established under the National Shellfish Sanitation Program (NSSP).
- (c) If there is an immediate or ongoing critical need for a method for the analysis of depuration process water and shellfish that are used to evaluate the effectiveness of the depuration process and no method approved for use within the NSSP exists, the following may be used:
  - (1) a validated Association of Analytical Communities, Bacteriological Analysis Manual, or Environmental Protection Agency method; or
  - (2) an Emergency Use Method as set forth in the latest approved edition of the NSSP Guide for the Control of Molluscan Shellfish.

Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.

**15A NCAC 18A .0702 FACILITY SUPERVISION  
15A NCAC 18A .0703 FACILITY DESIGN AND SANITATION**

Authority G.S. 130A-230.

**15A NCAC 18A .0704 LABORATORY PROCEDURES**

Authority G.S. 113-134; 113-182; 113-221.2; 143B-289.52.

15A NCAC 18A .0705 FACILITY OPERATIONS  
 15A NCAC 18A .0706 SHELLFISH SAMPLING PROCEDURES  
 15A NCAC 18A .0707 DEPURATION PROCESS  
 WATER CONTROL - SAMPLING PROCEDURES  
 15A NCAC 18A .0708 DEPURATION TREATMENT  
 PROCESS WATER - STANDARDS  
 15A NCAC 18A .0709 DEPURATION - SHELLFISH  
 MEAT STANDARDS  
 15A NCAC 18A .0710 ULTRAVIOLET UNIT  
 15A NCAC 18A .0711 SHELLSTOCK STORAGE  
 15A NCAC 18A .0712 DEPURATION - TAGGING AND  
 RELEASE OF SHELLFISH  
 15A NCAC 18A .0713 DEPURATION - RECORDS

Authority G.S. 130A-230.

**SECTION .0800 - WET STORAGE OF SHELLSTOCK**

**15A NCAC 18A .0801 GENERAL REQUIREMENTS FOR WET STORAGE OF SHELLSTOCK**

(a) The rules in Section .0400 shall apply for wet storage of shellstock. In addition to and to the extent not inconsistent with other applicable provisions of North Carolina Marine Fisheries Commission Rules, requirements for wet storage shall be in accordance with the 2019 Revision of the National Shellfish Sanitation Program (NSSP) Guide for the Control of Molluscan Shellfish (hereinafter referred to as "Model Ordinance") chapter titled "Wet Storage in Approved and Conditionally Approved Growing Areas", which is incorporated by reference except as provided in Paragraph (b) of this Rule, not including subsequent amendments and editions. A copy of the reference material is available online at: <https://www.fda.gov/food/federalstate-food-programs/national-shellfish-sanitation-program-nssp>, at no cost.

(b) Amendments and exceptions to the Model Ordinance chapter titled "Wet Storage in Approved and Conditionally Approved Growing Areas" incorporated by reference include:

- (1) Section @.01, .04, C(1)(a) is amended to read: "Except for a water source in accordance with Rule .0413 of this Subchapter, the quality of the surface source water prior to treatment shall meet, at a minimum, the bacteriological standards for the conditionally approved classification in the open status. Water classified as prohibited or restricted shall not be used as source water."
- (2) the following sections are not incorporated by reference and shall not apply: Sections @.01, .04, C(2)(a)(ii), @.01, .04, C(2)(b), @.01, .04, C(2)(c), and @.01, .04, C(2)(d).

Authority G.S. ~~130A-230~~; 113-134; 113-182; 113-221.2; 143B-289.52.

15A NCAC 18A .0802 PLANT DESIGN: SANITATION:  
 AND WET STORAGE  
 15A NCAC 18A .0803 WET STORAGE WATER  
 15A NCAC 18A .0804 SHELLSTOCK CLEANING  
 15A NCAC 18A .0805 WET STORAGE TANKS  
 15A NCAC 18A .0806 SHELLSTOCK CONTAINERS

Authority G.S. 130A-230.

**SECTION .0900 - CLASSIFICATION OF SHELLFISH GROWING WATERS**

**15A NCAC 18A .0901 DEFINITIONS**

The following definitions shall apply to this Section.

- (1) "Approved" means shellfish growing waters determined suitable by the Division for the harvesting of shellfish for direct market purposes.
- (2) "Closed-system marina" means a marina constructed in canals, basins, tributaries, or any other area with restricted tidal flow.
- (3) "Colony forming unit" means an estimate of the number of viable bacteria cells in a sample as determined by a plate count.
- (4) "Commercial marina" means a marina that offers one or more of the following services: fuel, transient dockage, haul-out facilities, or repair services.
- (5) "Conditionally approved" means shellfish growing waters that are subject to predictable intermittent pollution but that may be used for harvesting shellfish for direct market purposes when management plan criteria are met.
- (6) "Division" means the Division of Marine Fisheries or its authorized agent.
- (7) "Estimated 90<sup>th</sup> percentile" means a statistic that measures the variability in a sample set that shall be calculated by:
  - (a) calculating the arithmetic mean and standard deviation of the sample result logarithms (base 10);
  - (b) multiplying the standard deviation in Sub-Item (a) of this Item by 1.28;
  - (c) adding the product from Sub-Item (b) of this Item to the arithmetic mean; and
  - (d) taking the antilog (base 10) of the results from Sub-Item (c) of this Item to determine the estimated 90<sup>th</sup> percentile.
- (8) "Fecal coliform" means bacteria of the coliform group that will produce gas from lactose in a multiple tube procedure liquid medium (EC or A-1) within 24 plus or minus two hours at 44.5° C plus or minus 0.2° C in a water bath.
- (9) "Geometric mean" means the antilog (base 10) of the arithmetic mean of the sample result logarithm.

- (10) "Marina" means any water area with a structure (such as a dock, basin, floating dock) that is utilized for docking or otherwise mooring vessels and constructed to provide temporary or permanent docking space for more than 10 boats.
- (11) "Marine biotoxins" means any poisonous compound produced by marine microorganisms and accumulated by shellstock.
- (12) "Median" means the middle number in a given sequence of numbers, taken as the average of the two middle numbers when the sequence has an even number of numbers.
- (13) "Most probable number (MPN)" means a statistical estimate of the number of bacteria per unit volume and is determined from the number of positive results in a series of fermentation tubes.
- (14) "National Shellfish Sanitation Program (NSSP)" means the cooperative federal-state-industry program for the sanitary control of shellfish that is adequate to ensure that the shellfish produced in accordance with the NSSP Guide For The Control Of Molluscan Shellfish will be safe and sanitary.
- (15) "Open-system marina" means a marina constructed in an area where tidal currents have not been impeded by natural or man-made barriers.
- (16) "Private marina" means any marina that is not a commercial marina as defined in this Rule.
- (17) "Prohibited" means shellfish growing waters unsuitable for the harvesting of shellfish for direct market purposes.
- (18) "Public health emergency" means any condition that may immediately cause shellfish waters to be unsafe for the harvest of shellfish for human consumption.
- (19) "Restricted" means shellfish growing waters from which shellfish may be harvested only by permit and are subjected to a treatment process through ~~relaying or~~ depuration that renders the shellfish safe for human consumption.
- (20) "Sanitary survey" means the written evaluation of factors that affect the sanitary quality of a shellfish growing area including sources of pollution, the effects of wind, tides, and currents in the distribution and dilution of polluting materials, and the bacteriological quality of water.
- (21) "Shellfish" means the term as defined in G.S. 113-129, except the term shall not include scallops when the final product is the shucked adductor muscle only.
- (22) "Shellfish growing area" means a management unit that defines the boundaries of a sanitary survey and that is used to track the location where shellfish are harvested.

- (23) "Shellfish growing waters" means marine or estuarine waters that support or could support shellfish life.
- (24) "Shellstock" means live molluscan shellfish in the shell.
- (25) "Shoreline survey" means an in-field inspection by the Division to identify and evaluate any potential or actual pollution sources or other environmental factors that may impact the sanitary quality of a shellfish growing area.
- (26) "Systematic random sampling strategy" means a sampling strategy designed to assess the bacteriological water quality of shellfish growing waters impacted by non-point sources of pollution and scheduled sufficiently far in advance to support random collection with respect to environmental conditions.

Authority G.S. 113-134; 113-182; 113-221.2; 143B-289.52.

**15A NCAC 18A .0906 RESTRICTED AREAS**

- (a) Shellfish growing waters may be classified as restricted if:
  - (1) a sanitary survey indicates there are no significant point sources of pollution; and
  - (2) levels of fecal pollution, human pathogens, or poisonous or deleterious substances are at such levels that shellstock can be made safe for human consumption by either relaying or depuration.
- ~~(b) Relaying of shellfish shall be conducted in accordance with all applicable rules, including 15A NCAC 03K and 15A NCAC 18A .0300.~~
- ~~(c)~~(b) Depuration of shellfish shall be conducted in accordance with all applicable rules, including 15A NCAC 03K and 15A NCAC 18A .0300 and .0700.
- ~~(d)~~(c) For shellfish growing waters classified as restricted and used as a source of shellstock for depuration, the microbiological survey, as set forth in Rule .0903(c)(3) of this Section, shall indicate the bacteriological water quality does not exceed the following standards based on results generated using the systematic random sampling strategy:
  - (1) a median fecal coliform most probable number (MPN) or geometric mean MPN of 88 per 100 milliliters;
  - (2) a median fecal coliform colony-forming units (CFU) or geometric mean CFU of 88 per 100 milliliters;
  - (3) an estimated 90<sup>th</sup> percentile of 260 MPN per 100 milliliters for a five-tube decimal dilution test; or
  - (4) an estimated 90<sup>th</sup> percentile of 163 CFU per 100 milliliters for a membrane filter membrane-Thermotolerant Escherichia coli (mTEC) test.

Authority G.S. 113-134; 113-182; 113-221.2; 143B-289.52.

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MFC 2023-2024 Proposed Rules-Public Comments

Created	Name	Address: City	Address: State	Are your comments for or against the proposed rulemaking?	Please enter your comments on proposed changes to the rules and cite the rule or rules on which you are commenting.
8/2/2023 10:06	Chris Potter	Morehead City	North Carolina	Against	<p>If you pass the legislation as referenced below, I will sue. There is no wiggle room when it comes to freedom of speech; you do not get an inch. The Director and his/her team's delicate sensibilities do not trump my God-given rights to Freedom of Speech, recognized in the first amendment of the U.S.A to which North Carolina belongs. Attempts to limit speech are in direct violation of my rights. I would now like to celebrate those rights by inviting the Director and team to lick my freedom-lovin' body and all it's parts.</p> <p>The following is the legislation I am opposed to:  It shall be unlawful for any responsible person to harass the Fisheries Director or the Fisheries Director's agents<sup>29</sup>  in any way related to the requirements of Paragraphs (b) and (c) of this Rule, including verbal or physical harassment<sup>30</sup>  or sexual harassment. For the purpose of this Rule, "harassment" shall be defined consistent with 50 CFR 600.725(o),<sup>31</sup>  (t), and (u), including to:<sup>32</sup>  (1) harass;<sup>33</sup>  (2) sexually harass, including making sexual connotations;<sup>34</sup>  (3) oppose;<sup>35</sup>  (4) impede;<sup>36</sup>  (5) intimidate</p>
8/18/2023 17:49	John Williams	Leland	North Carolina	Against	I do not support shellfish leases you are taking our public shoreline away for profit. I do not support being bothered while in the act of fishing

**MARINE FISHERIES COMMISSION  
SUMMARY OF PUBLIC HEARING FOR PROPOSED RULES  
DIVISION OF MARINE FISHERIES  
CENTRAL DISTRICT OFFICE, MOREHEAD CITY, N.C.  
AUGUST 16, 2023, 6 PM**

**Marine Fisheries Commission:** Donald Huggins

**Division of Marine Fisheries Staff:** Catherine Blum, Marla Chuffo, Brian Gupton, Neil Kendrick, Elizabeth McCormick, Shawn Nelson, Brandi Salmon, Hope Wade, David Wallen, Jason Walsh, Travis Williams

**Public:** Christian Bayer, M.C. Hayes, Neal Register

**Media:** None

Marine Fisheries Commission member Donald Huggins, serving as the hearing officer, opened the public hearing for Marine Fisheries Commission proposed rules at 6 p.m. He explained that there are changes to 103 rules proposed by the Marine Fisheries Commission and the proposed effective date of these rules is April 1, 2024, unless the rules are automatically subject to legislative review per S.L. 2019-198. He said public comments on the proposed rules will be presented to the Marine Fisheries Commission at its November 2023 business meeting prior to its vote on final approval of the rules. He reviewed guidelines of the public hearing process and explained the hearing is a formal process to receive public comments only about the proposed rules as published in the *N.C. Register*.

Division staff member Catherine Blum reviewed the proposed rules by explaining the reason for proposed action as published in Volume 38, Issue 03 of the *N.C. Register*. She said the comment period for these 103 rules ends at 5 p.m. October 2, 2023. Mrs. Blum said comments may be submitted via U.S. mail to the Division of Marine Fisheries, P.O. Box 769, Morehead City, NC 28557; written comments may also be submitted via an online form available on the Division of Marine Fisheries website, on the "2023-2024" proposed rules webpage.

Commissioner Huggins opened the floor for the public to provide comments.

Christian Bayer provided comments about shellfish relay. He said he has been participating in shellfish relay for years and his father has been participating in it for about 20 years. They have tried aquaculture for several years and have seen first hand how well it is not working, both on their own aquaculture farm and other nearby aquaculture farms. He said it is unacceptable to shut down something that has been working, namely shellfish relay. Mr. Bayer said he understands some people's concerns about it, but for no more people than are participating in the relay program and as many families benefit from it, he said it is the wrong path to discontinue it in the face of people trying to grow N.C. seafood in the N.C. oyster program. He said it needs to be understood where other people are coming from and he wants everyone to be aware of the situation, rather than just one person that may not see his point of view.

Hearing no further public comments on the proposed rules, Commissioner Huggins closed the hearing at 6:18 p.m.

/cb



## N.C. Marine Fisheries Commission 2024-2025 Annual Rulemaking Cycle

May 2024

Time of Year	Action
February-July 2024	Fiscal analysis of rules prepared by DMF staff and approved by Office of State Budget and Management
Aug. 23, 2024	MFC votes on approval of Notice of Text for Rulemaking
Oct. 1, 2024	Publication of proposed rules in the <i>North Carolina Register</i>
Oct. 1-Dec. 2, 2024	Public comment period held
November 2024	Public hearing held (details TBD)
February 2025	MFC votes on approval of permanent rules
April 2025	Rules reviewed by Office of Administrative Hearings/ Rules Review Commission
May 1, 2025	Earliest effective date of rules not subject to legislative review
May 1, 2025	Rulebook supplement available online
2026 legislative session	Possible effective date of rules subject to legislative review per S.L. 2019-198 and G.S. 14-4.1.

## Issue Paper Review for May 2024 N.C. Marine Fisheries Commission Meeting

Issue Paper Title	Issue	Origination	Proposed Rules	Division of Marine Fisheries Recommendation
<p>INTERSTATE WILDLIFE VIOLATOR COMPACT ISSUE PAPER</p>	<p>The Interstate Wildlife Violator Compact is a voluntary interstate agreement that provides participating states with a mechanism to participate in a reciprocal program to: (1) promote compliance with the statutes, laws, administrative rules and regulations relating to management of wildlife resources in their respective states; and (2) provide for the fair and impartial treatment of wildlife violators operating within the participating states in recognition of the individual's right of due process and the sovereign status of a party state. North Carolina's participation in the Interstate Wildlife Violator Compact has been enacted into state law, so it must be implemented and enforced. Article 22B includes G.S. § 113-300.7, which requires the Wildlife Resources Commission and the Marine Fisheries Commission to adopt rules necessary to carry out the purpose of Article 22B. The Wildlife Resources Commission has adopted its rules. For the purposes of the Interstate Wildlife Violator Compact, "wildlife" includes marine and estuarine resources managed by the Marine Fisheries Commission and the Division of Marine Fisheries.</p>	<ul style="list-style-type: none"> <li>• Chapter 113, Article 22B - Interstate Wildlife Violator Compact</li> <li>• Session Law 2008-120</li> <li>• Session Law 2009-15</li> </ul>	<ul style="list-style-type: none"> <li>• 15A NCAC 03O .0601-.0606</li> </ul>	<p>The Division of Marine Fisheries recommends the Marine Fisheries Commission adopt rules to comply with existing statutes and directives to enter into the Interstate Wildlife Violator Compact.</p>

## **Interstate Wildlife Violator Compact Issue Paper**

**April 18, 2024**

### **I. ISSUE**

Adopt N.C. Marine Fisheries Commission (MFC) rules to comply with the Interstate Wildlife Violator Compact (hereinafter, WVC).

### **II. ORIGINATION**

The N.C. General Assembly enacted the WVC (Article 22B) in statute via Senate Bill 175 in 2008. The bill was signed into law on July 14, 2008, and became effective on October 1, 2008.

In 2009, House Bill 105 added the MFC and the N.C. Division of Marine Fisheries (DMF) to the WVC and all species of animals they protect or regulate to the definition of "wildlife". This act became effective on October 1, 2009. Article 22B includes G.S. § 113-300.7, which requires the N.C. Wildlife Resources Commission (WRC) and the MFC to adopt rules necessary to carry out the purpose of Article 22B.

### **III. BACKGROUND**

The WVC is a voluntary interstate agreement that provides participating states with a mechanism to participate in a reciprocal program to: (1) promote compliance with the statutes, laws, administrative rules and regulations relating to management of wildlife resources in their respective states; and (2) provide for the fair and impartial treatment of wildlife violators operating within the participating states in recognition of the individual's right of due process and the sovereign status of a party state. North Carolina's participation in the WVC has been enacted into state law, so it must be implemented and enforced.

It is important to note that several terms in the WVC have definitions that differ from those found elsewhere in North Carolina. For the WVC, "wildlife" includes marine and estuarine resources, whereas G.S. 113-129(16) excludes marine and estuarine species. Likewise, suspension references include not just suspensions, but also any revocation, denial, withdrawal of any or all license privileges, including the privilege to apply for, purchase, or exercise the benefits conferred by any license or permit. Another term defined in the WVC is "party state", which means any state that enacts legislation to become a member of the WVC. The use of "member state" throughout this paper and its proposed rules is intended to have the same meaning.

The WVC has a set of bylaws and an operations manual (see <http://www.deq.nc.gov/wildlifeviolatorcompact>). The WVC Operations Manual states the concept of a wildlife violator compact was first advanced in the early 1980s by western states discussing the format of existing documents related to motor vehicle operator licensing and enforcement. During the 1989 legislative session, compact legislation was passed into law in Colorado, Nevada, and Oregon. These three states formed the nucleus for the development of the operational procedures of the WVC. As of 2024, the WVC has 49 member states, with Hawaii in the process of joining the WVC; Massachusetts is working to implement the WVC. The Manual provides the original 1989 legislative text, which is similar to the N.C. legislation. The Manual also addresses procedural and administrative matters and describes the compact process.

The WVC Bylaws provide that each state shall have a representative appointed by the Chief of Law Enforcement or the licensing authority in the participating state. For North Carolina this role would be shared by the DMF and WRC or the DMF would have to rely on the WRC for representation. Each state or province shall have one vote in matters affecting the WVC and that vote shall be in person. There shall be an annual meeting conducted in conjunction with the fall meeting of the Association of Fish and Wildlife Agencies. The WVC shall vote annually to elect a Chair, Vice-chair, and Secretary. Officers shall serve no more than three consecutive terms. The board shall formulate necessary procedures for the administration of the WVC and develop uniform forms and data formats for transmittal of compact information. These procedures are consistent with the N.C. legislation, specifically G.S. 113-300.6 Article VII.

After the N.C. General Assembly agreed to enter the WVC, there were a number of concerns about implementation by the DMF. The first was how a suspension from recreational activities would affect a commercial license holder; specifically, whether commercial licenses would be considered at all and if the DMF and MFC could opt out of the WVC (D. Lupton, NCDMF (retired), personal communication). Additional concerns were that charging language or

violations are different from one state to another and may be difficult to apply in North Carolina. DMF staff reached back to lawmakers for clarity, but it is unclear if the DMF received a response (J. Kelley, NCDMF (retired), personal communication). Additionally, the WRC had to enact their rules before the MFC could enact theirs, consistent with the legislation (D. Lupton, NCDMF (retired), personal communication).

North Carolina's participation in the WVC gives N.C. agencies a mechanism to increase accountability on wildlife violators who have been suspended in other jurisdictions. The adoption of MFC rules would allow DMF to hold those wildlife violators accountable and provide more opportunity and flexibility for N.C. Marine Patrol officers to treat non-residents as they would an N.C. resident. By providing a mechanism to suspend licenses in outside jurisdictions, there is a consequence for those charged should they fail to appear in court or fail to comply, thus serving as a deterrent for wildlife violators from outside jurisdictions. In other words, adoption of MFC WVC rules would result in the N.C. Marine Patrol being able to treat all wildlife violators equally, regardless of their state residency.

WRC adopted rules to implement the WVC that became effective August 1, 2017. (See Appendix I.) These six rules codified requirements to ratify suspensions from other member states, report suspensions to the WVC, send notices to those affected, and to give guidance on how to rectify or appeal suspensions to those affected. Per G.S. § 113-300.7, the WVC administrator is to be appointed by the chair of the WRC in consultation with the chair of the MFC and DMF director. The WVC administrator for North Carolina serves at the pleasure of the WRC chair.

There are several terms used in reference to the WVC that are helpful for DMF and MFC stakeholders to understand. Many of these terms are defined or referred to in G.S. § 113-300.6.

- "Wildlife" includes all species of animals that are protected or regulated by the WRC, MFC or DMF. This includes marine and estuarine species, e.g., fish. This differs from the definition of "Wildlife" in G.S. § 113-129(16), which excludes marine and estuarine species.
- "Wildlife violation" means any cited violation of a law or rule enacted or adopted to manage wildlife resources.
- A wildlife violation conviction can result in a product suspension, which for DMF and MFC stakeholders refers to the suspension or revocation of a commercial or recreational fishing license or permit for which the DMF has enforcement authority. Suspension of recreational fishing licenses or permits can include a Coastal Recreational Fishing License ("CRFL") or a Recreational Commercial Gear License ("RCGL") under the MFC's authority but sold by the WRC. A wildlife violation can also result in the loss of the privilege to obtain a fishing license or permit.
- Ratification under the WVC for DMF and MFC stakeholders means for DMF to recognize a violation and subsequent product suspension from another WVC member state by applying equivalent consequences to fishing privileges in N.C. marine and estuarine waters. Technically, the DMF would only be ratifying a product suspension, not also the violation or violations that led to a product suspension.
- "Personal recognizance" means an agreement by a person made at the issuance of a wildlife citation that the person will comply with the terms of that citation. For example, the terms may include appearing before a judge at a later time and/or paying a fine.
- Failure to appear refers to a person that did not comply with the terms of their citation; for example, a person that did not pay their fine ahead of time or appear for their court date in front of the judge.
- Failure to comply refers to a person that did not comply with the terms of their citation or judgment; for example, a person that did not pay their fine on or after their court appearance, or did not complete all of their community service hours, serve time, or comply with their probation, etc.

Although the WRC's rules have been in place since 2017, efforts to develop proposed MFC rules and processes to enact the WVC have moved slowly as DMF staff have worked to address the concerns described above. Currently, with the WRC actively participating in the WVC but the MFC and DMF not participating, the DMF has no voice or knowledge of suspensions being ratified or entered by the WRC on behalf of North Carolina. At a minimum, by the MFC adopting rules and the DMF joining the WVC, the DMF would have the ability to enter suspensions and to gain knowledge of wildlife violators that have product suspensions (i.e., licenses and permits) so that N.C. Marine Patrol officers could act to address those violations. Currently, the WRC colonel is the WVC administrator for North Carolina, so the DMF would have to rely on the WRC to coordinate the process of ratifying violations under the WVC. The DMF Marine Patrol staff have begun discussions to develop internal processes with the WRC enforcement staff on ways to do this as efficiently as possible.

Table 1 provides examples of wildlife violations (including all species of animals that are protected or regulated by the DMF and the MFC) to help demonstrate some of the advantages of the MFC complying with the legislative mandate to participate in the WVC.

Table 1. Examples of wildlife violations and subsequent suspensions with and without the DMF and MFC's participation in the WVC.

Wildlife violation type leading to suspension ratified in WVC	Without DMF/MFC participation in WVC	With DMF/MFC participation in WVC
Citizen of another state convicted of fishing violation outside of North Carolina and receives saltwater license suspension (all saltwater products)	No mechanism for N.C. Marine Patrol to even be notified if WRC ratifies the commercial and recreational license suspension	Mechanism in place for N.C. Marine Patrol to coordinate with the WRC about a decision to ratify the commercial and recreational license suspension
Citizen of another state convicted of fishing violation in North Carolina	No mechanism for N.C. Marine Patrol to avoid arresting/bonding of wildlife violator	Mechanism in place to release that citizen on personal recognizance to comply with the terms of their citation after the fact
N.C. citizen that is a N.C. licensed commercial fisherman convicted of fishing violation (commercial or recreational) outside of North Carolina and receives suspension of all fishing licenses	No mechanism for N.C. Marine Patrol to even be notified if WRC ratifies commercial and recreational license suspension	Mechanism in place for N.C. Marine Patrol to coordinate with the WRC about decision to ratify commercial and recreational license suspension
Review of all violation types leading to suspensions ratified in WVC	No additional administrative burden to DMF staff	Additional administrative burden to DMF staff

The WVC provides for flexibility in addressing differences in charging language or violations in other states and how to apply them in North Carolina and impacts to N.C. commercial license holders. The WVC provides a member state with latitude to apply suspensions only for similar offenses/license types, providing consideration for the variability for in-state charging penalties. As suspensions from member states are entered into the WVC database, they would be ratified or not ratified by the DMF based upon the similarity of the offense/license type as related to N.C. statute or rule, but the term of suspension would be set by the out-of-state jurisdiction. For example, if another member state entered a violation and subsequent saltwater license suspension of one year in the WVC, if the offense/license type as related to N.C. statute or rule was similar, the suspension for the other state would be ratified in North Carolina and the one-year suspension would be recognized for that person's N.C. marine and estuarine licenses and permits. For the inverse scenario, N.C. suspensions that are entered into the WVC would be reviewed by other member states as to the fit or similarity of a state's current statutes or rules, and member states would decide to ratify the N.C. suspension or not.

Violations charged by N.C. Marine Patrol officers span a range of levels depending on the violation and license type involved.

- G.S. 14-1. Felonies and misdemeanors defined. A felony is a crime which: (1) Was a felony at common law; (2) Is or may be punishable by death; (3) Is or may be punishable by imprisonment in the State's prison; or (4) Is denominated as a felony by statute. Any other crime is a misdemeanor.
- Misdemeanors (G.S. 14-3):
  - Class A1 misdemeanors carry a maximum sentence of 150 days in jail and a fine in an amount determined by the court.
  - The maximum penalty for a Class 1 misdemeanor is 120 days in jail and a fine in an amount determined by the court.
  - Class 2 misdemeanors carry up to 60 days in jail and a maximum fine of \$1,000.
  - A person convicted of a Class 3 misdemeanor faces up to 20 days' jail time and a \$200 fine.
- G.S. 14-3.1. Infraction defined; sanctions. (a) An infraction is a noncriminal violation of law not punishable by imprisonment. Unless otherwise provided by law, the sanction for a person found responsible for an

infraction is a penalty of not more than one hundred dollars (\$100.00). The proceeds of penalties for infractions are payable to the county in which the infraction occurred for the use of the public schools. (b) The procedure for disposition of infractions is as provided in Article 66 of Chapter 15A of the General Statutes.

There are four levels of misdemeanor violations. Most marine fisheries-related violations are charged as a Class 3 misdemeanor under G.S. § 113-135; although repeat offenses are elevated to a Class 2 misdemeanor, while Coastal Recreational Fishing License violations under G.S. § 113-174.1(a) are charged as infractions. Some more serious violations are charged as A1 misdemeanors under G.S. § 113-187, including those that pose a risk to public health, such as commercial harvesting of shellfish from polluted waters, or directly damaging natural resources, such as trawling in a primary nursery area. The most severe fisheries-related charge is taking or possessing shellfish from a polluted area at night or taking shellfish from polluted waters within two years of being convicted of that same offense, each of which is charged as a Class I felony.

As with criminal charges, a violation supporting the more severe charges also carries a longer suspension and varies based upon the license type involved. For instance, a commercial license holder using a trawl net in closed waters would be charged under G.S. 113-187 (more severe penalty, Class A1 Misdemeanor), but a holder of a Recreational Commercial Gear License would be charged under G.S. 113-135 (less severe penalty, Class 3 Misdemeanor). The example of taking shellfish from a polluted area further highlights the options for determining a penalty depending on the egregiousness of the offense. If a person was charged under G.S. § 113-135 for a first offense for recreational harvest, there would be no suspension; if a person was charged under G.S. § 113-187 for a first offense there would be a one-year suspension; and if a person was charged under G.S. § 113-209 (felony; taking polluted shellfish at night or with prior conviction) there would be a revocation.

Convictions like those described above would be entered into the WVC database. Member states would then be able to apply suspensions for similar offenses/license types, so another member state may or may not ratify this suspension example in the same way or at all. However, the length or severity of a suspension may vary from other jurisdictions so the DMF would ratify as entered as prescribed in G.S. § 300.6 Article I (b)(4) (for convictions against a person whose home state was not the issuing state) and Article V (all member states recognizing the suspension by any other member state of a person's licenses and permits).

For a suspension for failure to appear or comply issued by a member state, the wildlife violator would have to comply with the suspending jurisdiction before North Carolina would reinstate their license. Most WRC suspensions are for a single violation and for that reason they only ratify certain suspensions that would result in a suspension in North Carolina. In contrast, DMF subject matter-based convictions are cumulative and could result in a suspension if there was more than one conviction within three years.

#### **IV. AUTHORITY**

G.S. § 113-134.	Rules.
G.S. § 113-174.	Definitions.
G.S. § 113-182.	Regulation of fishing and fisheries.
G.S. § 113-300.5.	Short title.
G.S. § 113-300.6.	Governor to execute compact; form of compact.
G.S. § 113-300.7.	Appointment of Compact Administrator; implementation; rules; amendments.
G.S. § 113-300.8.	Violations.
G.S. § 143B-289.52.	Marine Fisheries Commission – powers and duties.
S.L. 2008-120.	AN ACT TO ENACT THE INTERSTATE WILDLIFE VIOLATOR COMPACT IN NORTH CAROLINA.
S.L. 2009-15.	AN ACT TO CLARIFY THAT THE INTERSTATE WILDLIFE VIOLATOR COMPACT INCLUDES VIOLATIONS OF MARINE RESOURCES LAW, AS RECOMMENDED BY THE JOINT LEGISLATIVE COMMISSION ON SEAFOOD AND AQUACULTURE.

#### **V. DISCUSSION**

House Bill 105 established a clear mandate for the MFC to implement the WVC. The WRC has enacted rules to implement the WVC and is currently administering the Act for the State. Complying with this legislative mandate

provides a wide range of benefits not only to the MFC and DMF, but also to the regulated public. Those benefits include:

- ensuring that N.C. residents issued citations in other jurisdictions can be released on personal recognizance like residents of member states;
- the ability to recognize reciprocal license suspensions, and suspensions for failure to appear in court or comply; and
- providing N.C. Marine Patrol officers with the flexibility to write non-resident violators a citation instead of arresting and bonding them.

It is not the current N.C. Marine Patrol policy to arrest all non-resident wildlife violators; officers would only arrest if they had reason to believe the wildlife violators would fail to appear in court or comply. But entering the WVC would give N.C. Marine Patrol officers increased confidence by knowing that if a wildlife violator does fail to appear in court there is recourse for the wildlife violator's license to be suspended in their home state. Agency benefits include:

- more time for patrol and less time processing wildlife violators;
- reduced burden on courts and jail facilities;
- improved public relations by not having to subject as many wildlife violators to bonding and incarceration;
- reduced failure to appear and non-compliance cases; and
- notice to wildlife violators that activities in any single member state can affect their privileges in all member states.

With the adoption of these rules by the MFC, the DMF would join the WRC in a reciprocal agreement representing 49 states to promote compliance with the statutes, laws, and rules/regulations relating to management of wildlife resources (including all species of animals that are protected or regulated by the DMF and the MFC). Suspensions that are entered into the WVC database by other states already impact Coastal Recreational Fishing Licenses (CRFL) because of the way most WRC licenses are packaged, such as sportsman's licenses or inland/coastal combinations. There are also instances of cross-agency suspensions when another member state suspends all products, and the WRC ratifies as such. The WRC could ratify a coastal/saltwater suspension or an all-product suspension (including commercial products) from another state that would trigger the suspension of a person's North Carolina coastal/saltwater products. This is problematic, as there is currently no mechanism by which DMF staff would be notified of the suspensions WRC would be ratifying. Conversely, a suspension that is warranted may not be ratified as the WRC may be unfamiliar with the charging or suspending language and license types, as WRC staff do not have access to the DMF database (Fisheries Information Network, or FIN) of commercial products a person possesses. Implementing the WVC would be the first step towards the DMF giving and receiving suspension information. The DMF would be able to enter suspensions and send notices to offenders independent of the WRC. A policy or an agreement between the agencies should also be considered and a Marine Fisheries representative should be assigned to oversee the flow of information between the agencies and notices to offenders.

Commercial licenses present another issue. Other states are split on whether commercial licenses are affected by WVC suspensions. The current WVC Compact Manager and Major of the Pennsylvania Game Commission, Michael Reeder, stated that this is left up to each individual state. The North Carolina legislation for the WVC does not distinguish between recreational and commercial licenses. Rather, G.S. § 113-300.6 (8) defines "license" to mean "any license, permit, or other public document which conveys to the person to whom it was issued the privilege of pursuing, possessing, or taking any wildlife regulated by statute, law, regulation, ordinance, or administrative rule of a party state." By not excluding commercial licenses in the legislation, the General Assembly has opted to include commercial licenses in the WVC.

G.S. § 113-300.7 requires both the MFC and the WRC to adopt rules necessary to implement the WVC. The WVC Manual and G.S. § 113-300.6 can serve as a template for the DMF as the administrative and procedural blueprints for implementation of the WVC. The proposed MFC rules would establish conditions for non-residents who commit misdemeanor fishing violations in North Carolina that result in a license suspension and failure to comply with the terms of their citation. The proposed MFC rules would establish the standards for the DMF to carry out the purpose of Article 22B. The rules would impact the criminal and administrative processing of non-resident wildlife violators and would impact the administrative procedures for resident wildlife violators. These rules would only apply to licenses and violation types within the DMF/MFC's jurisdiction.

An example of how this process would work is an N.C. resident receives a suspension after being convicted of taking shellfish from polluted waters in a member state. If the conviction from that member state resulted in a six-month

suspension, that suspension would likewise be ratified in North Carolina. Similarly, if a resident from another member state was convicted in North Carolina of taking shellfish from polluted waters, DMF would enter the corresponding suspension terms into the WVC database. It would then be up to that person's home jurisdiction as well as all the other member states to ratify or not. Also, suspensions that occur in a person's home state would be entered into the WVC so that member states could decide to ratify or not. As a WVC member, the DMF would be required to communicate all license suspension information through the WVC database to other participating states, and to determine if any suspension from another member state could have led to license suspension in North Carolina. If so, the licensing agency would issue an administrative suspension to that N.C. license holder.

One challenge presented by the WVC lies in determining whether to ratify a member state's suspension. DMF proposes to make this determination based upon the license type involved and type and severity of the violation. Under the WVC, only suspensions for violation types listed in the WVC manual as well as those that could be a basis for suspension by North Carolina may be considered. They are:

- illegal take of big game;
- illegal take or possession of endangered species;
- felony wildlife violations;
- license violations/fraud/false statement;
- waste of wildlife (e.g., out-of-season duck hunting violation);
- accumulated wildlife violations;
- violations while on revocation;
- sale/purchase of wildlife; and
- failure to appear.

Also included in considered offenses are:

- illegal take or possession of small game or migratory birds;
- illegal take or possession of fish;
- illegal take or possession of other wildlife;
- tag/permit/license transfer;
- federal wildlife violations;
- other criminal violations;
- guide/outfitter violations;
- safety violations;
- trespass violations;
- littering violations; and
- interfering with an officer.

Although the statute allows all suspension types from other jurisdictions to be ratified, the DMF recommends limiting the ratification of suspensions to egregious violations or those that are consistent within the DMF's subject matter. The DMF would not consider big game, small game, or migratory bird violations or any suspensions based strictly on hunting violations. However, cumulative hunting and fishing violations that trigger a suspension may be considered.

In considering suspensions, it is important to understand the suspension "triggers" in North Carolina. Presently, suspensions vary based upon the nature of the offense, the resource impacted, and the license type at issue. The consequences of some violations are more severe if the violation was committed during or as a result of occurring as part of a commercial fishing operation, such as commercially taking shellfish from polluted areas. All convictions for marine fisheries violations have a cumulative count towards suspensions within a three-year period. North Carolina's rules and statutes for suspension also affect all the products that a person holds (commercial and recreational). However, if a member state only suspended commercial or recreational products or only freshwater or saltwater products, the DMF would ratify as entered by the member state. Persons who are suspended under G.S. 113-300.6 are given appeals protections in G.S. 150B-23, as laid out in 15A NCAC 03O .0606. Table 2 provides specific examples of wildlife violations and how those would be considered by DMF and potentially applied to N.C. licenses and products. A wildlife violator must address their violation to address their suspension. For instance, if a person, resident or nonresident, was suspended for failure to appear or failure to comply from a member state, that person would need to pay their fine or comply with the judgement from the court (e.g., community service, time served, pay restitution) and provide documentation of that compliance to the member state that issued the suspension so that the suspension could be removed from the compact database and the person's license privileges and products could be returned.



Table 2. Examples of wildlife violations and how those would be considered by DMF and potentially applied to N.C. license holders.

State Where Conviction Occurred	Is Person with Conviction a N.C. Resident?	Violation Type	Was a Wildlife Resource License/Permit Suspended in Other Jurisdiction?	Does Person Have N.C. Fishing License/Permit?	Suspend N.C. Fishing License/Permit?	Comments
South Carolina	No	Over the limit flounder; multiple violations	Yes: all saltwater products for one year	No	Prevent purchase of N.C. licenses/permits for coastal fishing waters	Use duration of South Carolina's suspension; include recreational and commercial products
North Carolina	No	Harvest mullet during closed season	N/A	Yes: non-resident annual CRFL	No	First conviction in three-year period
Montana	Yes	Obtain license by fraud	Yes: all hunting and fishing products for one year	Yes: SCFL	Yes	Nature of violation and license type suspended considered
New Hampshire	Yes	Attempt to take game without valid tag	Yes: all hunting products for two years	Yes: RCGL	No	Nature of violation and license type suspended considered
Colorado	Yes	Illegal harvest of a deer	Yes: all products	Yes: Dealer's License	No	Nature of violation and license type suspended considered
California	No	Illegal harvest of a shark	Yes: all fishing	Yes: Land or Sell License	Yes	Nature of violation and license type suspended considered
Idaho	Yes	Assault	Yes: all products	Yes: dealers license	Yes	Conviction handled the same by DMF and WRC for egregious offense
Florida	No	Endangered species (taking of alligator)	DMF/MFC does not regulate this, but DMF would ratify due to egregiousness of offense. Yes: all products	Yes: CRFL	Yes	Would be for same duration as the member state entered
Georgia	Yes	Failure to Appear	Yes: all fishing	Yes: RCGL and Shellfish	Yes	Would remain suspended until the violation was addressed with the court

DMF anticipates some challenges in implementing the WVC. There may be some difficulty in out-of-state product holders receiving notice that they are suspended here. Currently all suspensions are served personally by N.C. Marine Patrol officers in the 26 coastal counties. Outside of the coastal counties notice is currently given by registered mail, with some exceptions. For out-of-state service, under the proposed rules N.C. Marine Patrol would have to rely on U.S. mail or confidence in the member state to provide notice to the person that they were also suspended in all the member states. For example, the WRC addresses this concern by giving notice to those being cited that they may be suspended in their home state for failure to appear or like-suspensions entered into the WVC.

DMF licenses that are held by corporations are unlikely to be affected by these rules as they are rarely if ever suspended. Most violations discovered by N.C. Marine Patrol officers are charged to a person. Typically, an officer will seek the person most culpable of a crime to make the strongest case in court rather than charge a group of people on a corporate board. Officers must have probable cause to issue a citation or make an arrest. To find probable cause an officer must have knowledge or evidence that a crime was committed and knowledge or evidence of who committed the crime. Finding probable cause for a corporate board that may not even be present for the possession of an illegal species or use of an illegal gear is much more difficult than finding probable cause for the person in actual possession of the illegal species or the person using the illegal gear. Masters listed on single vessel corporations could be suspended but the master designation is easily changed with a phone call to the DMF.

Entry into the WVC would increase accountability for non-resident applicants for Standard Commercial Fishing License (SCFL) eligibility. MFC rule 15A NCAC 03O .0404(2)(a) sets eligibility criteria and requirements and prevents consideration of an applicant for the SCFL Eligibility Pool who is suspended. Also, a person who is selected for eligibility that becomes suspended would become ineligible per 15A NCAC 03O .0404(2)(b). Presently, this only applies to N.C. licenses because out-of-state convictions and suspensions are not considered for suspensions per G.S. § 113-171 and 15A NCAC 03O .0404. Upon the effective date of these rules and the DMF's subsequent participation in the WVC, a **suspension** for a non-resident from any WVC member state would affect that person's license eligibility status in North Carolina. A non-resident applicant would remain ineligible as long as a suspension is in force. The non-resident would have to satisfy the terms of their violation and no longer be suspended to be considered in the eligibility process.

If that non-resident had **convictions** in a WVC member state that did not result in suspension in a WVC member state or had not yet resulted in suspension in a WVC member state, those convictions cannot be considered for non-resident applicants for SCFL eligibility in North Carolina per 15A NCAC 03O .0404 (2)(c) and (2)(d). So, convictions would still only be used against N.C. residents to determine SCFL eligibility consistent with G.S. § 113-300.6 Article I (b)(4) and (b)(5). But the DMF's participation in the WVC would allow the person's home state to recognize and treat any convictions that occurred in North Carolina as if they had occurred in the home state, which could ultimately lead to suspension. In short, once the DMF can participate in the WVC, while a non-resident's convictions cannot be considered, a non-resident's suspension in another WVC member state would make them ineligible in North Carolina for a SCFL from the Eligibility Pool.

There are six proposed MFC rules to implement the WVC. The following lists the name of each rule and its purpose:

- **15A NCAC 03O .0601 WVC GENERAL PROVISIONS:** incorporates relevant portions of the law (definitions) and clarifies that the scope is only fishing (not also hunting, trapping, etc.) It also includes a start date for the applicability of convictions under the proposed MFC rules.
- **15A NCAC 03O .0602 WVC OPERATIONS MANUAL:** establishes that the manual is the procedure guideline and provides a location for the reader to find it.
- **15A NCAC 03O .0603 WVC CONDITIONS FOR N.C. VIOLATIONS BY NON-RESIDENTS:** supports flexibility for inspectors (DMF) or protectors (WRC) to use their discretion for misdemeanor violations to issue a citation instead of arresting a person that commits a violation depending on the severity of the offense and the circumstances involved. Also establishes that if a wildlife violator does not resolve the terms of their violation, they will be suspended in the other WVC member states.
- **15A NCAC 03O .0604 WVC CONDITIONS FOR N.C. RESIDENTS FOR FAILURE TO APPEAR OR FAILURE TO COMPLY IN ANOTHER WVC MEMBER STATE:** addresses what happens for failure to appear or failure to comply when a N.C. resident is released on their own recognizance in another WVC member state for a wildlife violation but fails to resolve the terms of their violation; their N.C. licenses and permits can be suspended.

- **15A NCAC 030 .0605 WVC RECIPROCAL RECOGNITION OF SUSPENSIONS:** sets requirements and standards for DMF to decide to ratify or not ratify an out-of-state suspension.
- **15A NCAC 030 .0606 APPEALS:** identifies the appeals process for a licensee whose license is suspended or revoked pursuant to this Section of rules.

1 **VI. PROPOSED RULE(S)**

2  
3 15A NCAC 03O .0601 is proposed for adoption as follows:

4  
5 **SECTION .0600 – INTERSTATE WILDLIFE VIOLATOR COMPACT (WVC)**

6  
7 **15A NCAC 03O .0601 WVC GENERAL PROVISIONS**

8 (a) The purpose of this Section is to establish the rules necessary to implement G.S. 113 Article 22B, the Interstate Wildlife  
9 Violator Compact (hereinafter referred to as WVC).

10 (b) The rules in this Section shall apply to any person possessing a license, privilege, or right to take, possess, sell, buy, or  
11 transport wildlife in the State of North Carolina. Violations under this Section apply only to offenses charged by an inspector as  
12 set forth in laws or rules administered by the Division of Marine Fisheries or under G.S. 113-136(d). The rules shall not apply to  
13 any offenses committed in North Carolina or any other WVC state prior to July 1, 2025.

14 (c) The definitions in G.S. 113-300.6 Article II shall apply throughout this Section and to all forms prescribed pursuant to this  
15 Section, unless otherwise indicated.

16 (d) For the purpose of this Section, "member state" shall mean "party state" as defined in G.S. 113-300.6.

17  
18 *History Note: Authority G.S. 113-134; 113-300.7;*  
19 *Eff. May 1, 2025.*

1 15A NCAC 03O .0602 is proposed for adoption as follows:

2

3 **15A NCAC 03O .0602 WVC OPERATIONS MANUAL**

4 The Wildlife Violator Compact Operations Manual and G.S. 113-300.6 hereby establish the administrative and procedural  
5 guidelines for participation in the WVC. The Wildlife Violator Compact Operations Manual is incorporated by reference  
6 including subsequent amendments and editions, and is available at <http://www.ncwildlife.org> or  
7 <http://www.deq.nc.gov/wildlifeviolatorcompact>. at no cost.

8

9 *History Note: Authority G.S. 113-134; 113-300.7;*

10 *Eff. May 1, 2025.*

1 15A NCAC 03O .0603 is proposed for adoption as follows:

2

3 **15A NCAC 03O .0603 WVC CONDITIONS FOR N.C. VIOLATIONS BY NON-RESIDENTS**

4 (a) All offenses charged by an inspector as set forth in laws or rules administered by the Division of Marine Fisheries or under  
5 G.S. 113-136(d) are subject to the provisions of the WVC.

6 (b) Non-residents of North Carolina who are residents of a WVC member state at the time of a misdemeanor violation as set  
7 forth in Paragraph (a) of this Rule occurring in North Carolina may be released on personal recognizance when the violation  
8 consists of a written citation requiring a violator to resolve the violation directly with the court, either in person, by mail, or  
9 through an attorney.

10 (c) Upon failure to comply with the terms of a citation issued by an inspector, the Division shall send notice of failure to comply.  
11 The notice shall be a letter sent by the U.S. Postal Service to the last known address of the wildlife violator or be delivered  
12 personally. The Division shall report the failure to comply to the non-resident's home state to start suspension procedures in  
13 accordance with the Wildlife Violator Compact Operations Manual.

14 (d) To have any licenses or permits returned by the Division, the non-resident shall submit to the Division a judgment, receipt,  
15 or other official record indicating that the citation has been resolved through the North Carolina Court System. The Division shall  
16 return affected licenses and permits.

17

18 *History Note: Authority G.S. 113-134; 113-300.7;*

19 *Eff. May 1, 2025.*

1 15A NCAC 03O .0604 is proposed for adoption as follows:

2  
3 **15A NCAC 03O .0604 WVC CONDITIONS FOR N.C. RESIDENTS FOR FAILURE TO APPEAR OR FAILURE TO**  
4 **COMPLY IN ANOTHER WVC MEMBER STATE**

5 (a) North Carolina residents who commit a wildlife violation as defined by G.S. 113-300.6 in another WVC member state, who  
6 upon release on personal recognizance from the issuing state, failed to resolve the terms of his or her citation, shall have any  
7 licenses and permits for which the Division of Marine Fisheries has enforcement authority in North Carolina suspended pursuant  
8 to G.S. 113-300.7.

9 (b) If the Division receives notice of an unresolved citation, a Notice of Suspension shall be prepared and sent to the wildlife  
10 violator as follows:

11 (1) the suspension shall have a delayed effective date of at least 14 business days from the date of the mail used to  
12 send the notice of suspension to the wildlife violator, to allow the wildlife violator to contact the court in the  
13 issuing state and resolve the citation;

14 (2) the notice shall be a letter sent by the U.S. Postal Service to the last known address of the wildlife violator or  
15 be delivered personally;

16 (3) the notice of suspension shall inform the violator of the issuing state from which the wildlife violator is  
17 suspended, the details of the violation provided by that issuing state to the Division, and procedures to be  
18 followed in resolving the matter with the court in the issuing state; and

19 (4) the notice shall provide the procedure for appealing the suspension.

20 (c) Any suspension ratified by the Division shall remain in effect until such time as the North Carolina resident resolves the  
21 violation in the issuing state.

22 (d) When a North Carolina resident resolves a violation with the court in the issuing state, it is the responsibility of the resident  
23 to notify the Division and present documentation of compliance by submitting a copy of either the court judgment resolving the  
24 matter or a Notice of Compliance from the issuing state. Upon receipt of the required documentation, the Division shall issue an  
25 acknowledgement of compliance to the resident. If the acknowledgement is issued before the effective date of the suspension,  
26 the suspension shall be rescinded. If the acknowledgment of compliance is issued after the effective date of the suspension, the  
27 Division shall return any licenses or permits.

28 (e) The issuing state shall be notified by the Division if the suspension order is overturned by the Office of Administrative  
29 Hearings.

30  
31 *History Note: Authority G.S. 113-134; 113-300.7; 143B-289.52;*  
32 *Eff. May 1, 2025.*

1 15A NCAC 03O .0605 is proposed for adoption as follows:  
2

3 **15A NCAC 03O .0605 WVC RECIPROCAL RECOGNITION OF SUSPENSIONS**

4 (a) When the Division of Marine Fisheries receives notice of a suspension from a WVC member state of a person's license or  
5 permit that is the result of a conviction or an accumulation of convictions of wildlife violations in one or more WVC member  
6 states, the Division shall determine whether the conviction, or accumulation of convictions, leading to the suspension could have  
7 led to the suspension of licenses and permits for which the Division has enforcement authority pursuant to Chapter 113,  
8 Subchapter IV of the General Statutes. If it is determined that the person's licenses and permits would have been suspended under  
9 Chapter 113, Subchapter IV of the General Statutes, the person's North Carolina licenses and permits shall be suspended pursuant  
10 to G.S. 113-300.7 for the period of suspension imposed by the WVC member state where the violation occurred.

11 (b) North Carolina shall communicate suspension information to other WVC member states using the WVC database, and may  
12 include the following information about the wildlife violator:

13 (1) name;

14 (2) date of birth;

15 (3) last known address;

16 (4) violations and convictions upon which the suspension is based;

17 (5) scope of the suspension (e.g., fishing, hunting, trapping, all privileges or rights); and

18 (6) effective dates of the suspension and term of the suspension.

19 (c) In the event documentation of a violation and subsequent license suspension is needed by a WVC member state for license  
20 suspension hearings or other purposes, the Division may provide certified copies of the citation or other charging instrument, any  
21 arrest or investigation reports, suspension orders, and the disposition of the matter.

22  
23 *History Note: Authority G.S. 113-134; 113-300.7; 143B-289.52;*

24 *Eff. May 1, 2025.*



1 15A NCAC 03O .0606 is proposed for adoption as follows:

2

3 **15A NCAC 03O .0606 APPEALS**

4 A person served with a notice of suspension or revocation pursuant to this Section may obtain an administrative review of the  
5 suspension or revocation pursuant to G.S. 150B-23. Notice of the right to administrative review shall be included in the notice of  
6 suspension or revocation.

7

8 *History Note: Authority G.S. 113-134; 113-300.7; 143B-289.52;*

9 *Eff. May 1, 2025.*

10

## VII. PROPOSED MANAGEMENT OPTIONS

This issue paper presents a single option for consideration as it is the only option that would bring the DMF and MFC into compliance with the directive given in House Bill 105 from 2009 to adopt rules for North Carolina to enter into the WVC.

(+ Potential positive impact of action)

(- Potential negative impact of action)

- The DMF director loses some autonomy for N.C. licenses to be reinstated. He or she has to rely on compliance verification from other member states.
- Added burden to DMF staff to monitor WVC databases and ratify or not ratify suspension notices.
- Added burden for DMF staff to receive, enter, and disseminate information between agencies
- + Enhanced ability of DMF to keep wildlife violators from participating in fisheries activities
- + Enhanced ability of N.C. enforcement agencies to provide for the fair and impartial treatment of wildlife violators operating within member states
- + Affords N.C. residents the ability to be released on personal recognizance instead of being bonded in member states
- + Reduces delays and inconvenience associated with arrest that are comparable for residents and non-residents
- + More time for patrol and less time processing violators, and reduced burden on courts and jail facilities
- + Improved public relations by not having to subject as many violators to bonding and incarceration
- + Added deterrence for failure to appear and non-compliance cases
- + Notice to wildlife violators that activities in one state can affect their privileges in all member states
- + The DMF would have a say as to what suspensions are ratified.
- + The DMF would have knowledge of what suspensions are ratified.
- +/- The DMF would have to rely on WRC to gain access to the WVC databases for entries and ratifications.
- +/- N.C. license holders would have to comply with member states for their license to be reinstated for offenses that occurred outside of North Carolina.

## VIII. RECOMMENDATION

The DMF recommends the MFC adopt rules to comply with existing statutes and directives to enter into the WVC.

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04/03/2024

04/12/2024

04/18/2024

**Appendix I. NC Wildlife Resources Commission WVC Rules**

**SECTION .1400 – INTERSTATE WILDLIFE VIOLATOR COMPACT (WVC)**

**15A NCAC 10A .1401 GENERAL PROVISIONS**

- (a) Purpose. The purpose of this section is to establish the rules necessary to implement G.S. 113 Article 22B, the Interstate Wildlife Violator Compact (hereinafter referred to as WVC).
- (b) Applicability. The rules in this Section shall apply to any person possessing a license, privilege or right to hunt, fish, trap, possess, or transport wildlife in the State of North Carolina. Violations under this Section apply to only hunting, fishing and trapping. The rules shall not apply to any offenses committed in North Carolina or any other WVC state prior to August 1, 2017.
- (c) Definitions. The definitions in G.S. 113-300.6 Article II shall apply throughout this Subchapter and to all forms prescribed pursuant to this Subchapter, unless otherwise indicated.

*History Note: Authority G.S. 113-134; 113-300.7;  
Eff. August 1, 2017.*

**15A NCAC 10A .1402 WILDLIFE VIOLATOR COMPACT MANUAL**

The Wildlife Violator Compact Operations Manual, which is incorporated by reference, including subsequent amendments and editions, may be found free of charge, at <http://www.ncwildlife.org>, and G.S. 113-300.6 hereby establish the administrative and procedural guidelines for participation in the WVC.

*History Note: Authority G.S. 113-134; 113-300.7;  
Eff. August 1, 2017.*

**15A NCAC 10A .1403 WILDLIFE VIOLATOR COMPACT CONDITIONS FOR NON-RESIDENTS**

- (a) Non-residents of North Carolina who are residents of a WVC member state at the time of a misdemeanor hunting, fishing, or trapping violation occurring in North Carolina, may be released on personal recognizance when the violation consists of a written citation requiring a violator to resolve the violation directly with the court, either in person, by mail, or through an attorney.
- (b) All identified offenses set forth in G.S. 113 are subject to the provisions of the WVC.
- (c) Upon failure to comply with the terms of a citation for violation of North Carolina hunting, fishing, or trapping laws, the Wildlife Resources Commission shall send notice of failure to comply, by certified mail, return receipt requested, to the violator's last known address, and report the failure to comply to the home state to start suspension procedures in accordance with the Wildlife Violator Compact Manual.
- (d) License privileges shall only be restored when the citation is resolved through the North Carolina Court System.
- (e) Upon resolving the citation, the non-resident shall notify the Wildlife Resources Commission so that hunting, fishing or trapping privileges can be restored.

*History Note: Authority G.S. 113-134; 113-300.7;  
Eff. August 1, 2017.*

**15A NCAC 10A .1404 WILDLIFE VIOLATOR COMPACT CONDITIONS FOR RESIDENTS**

- (a) North Carolina residents committing hunting, fishing, or trapping violations in another WVC member state, who upon release on personal recognizance from the issuing state, failed to resolve the violation, shall have their hunting, fishing, or trapping privileges suspended in North Carolina.
- (b) If the Wildlife Resources Commission receives notice of an unresolved violation, a Notice of Suspension shall be prepared and sent to the violator:
- (1) the notice shall have a delayed effective date of at least 14 business days, to allow the violator to contact the court in the issuing state and resolve the case;
  - (2) the notice shall be delivered personally or by letter sent by certified mail, return receipt requested, to the last known address of the licensee or permit holder;
  - (3) the notice of suspension shall inform the violator of the facts supporting the suspension and procedures to be followed in resolving the matter with the court in the issuing state; and
  - (4) the notice shall provide the procedure for appealing the suspension.

- (c) Any suspensions received by the Wildlife Resources Commission shall remain in effect until such time as the North Carolina resident resolves the violation in the issuing state.
- (d) When a North Carolina resident resolves a violation with the court in the issuing state, it is the responsibility of the resident to present documents to the Wildlife Resources Commission that acknowledge compliance. Upon receipt of documentation set forth in Paragraph (e) of this Rule, an acknowledgement of compliance shall be issued directly to that person by the Wildlife Resources Commission.
- (e) The following shall be sufficient evidence of compliance in response to a notice of suspension for non-compliance:
  - (1) copy of the court judgment; or
  - (2) a copy of a Notice of Compliance from the issuing state.
- (f) The Wildlife Resources Commission shall reinstate the license if the acknowledgement of compliance is presented after the effective date of the suspension.
- (g) Residents receiving a Notice of Suspension from the Wildlife Resources Commission under the WVC provisions for failure to resolve a citation issued in another WVC member state may file a petition with the Office of Administrative Hearings, within 60 days from the date of delivery by certified mail to the residents last known address, pursuant to G.S. 150B-23.
- (h) The issuing state shall be notified if the suspension order is overturned by the Office of Administrative Hearings.

*History Note: Authority G.S. 113-134; 113-300.7;  
Eff. August 1, 2017.*

#### **15A NCAC 10A .1405 RECIPROCAL RECOGNITION OF SUSPENSIONS**

- (a) When the Wildlife Resources Commission receives notice of suspension of a North Carolina resident's hunting, fishing, or trapping privileges or licenses by a WVC member state that are the result of a conviction or an accumulation of convictions of wildlife violations in one or more states that participate in the WVC, the agency shall determine whether the violation, or accumulation of violations, leading to the suspension could have led to the suspension of rights, privileges, or licenses under G.S. 113. If it is determined that the resident's privileges or licenses would have been suspended under G.S. 113, the resident's licenses, rights, and privileges to hunt, fish, or trap in North Carolina shall be suspended pursuant to Article 22B of G.S. 113 for the same period as imposed by the WVC member state where the violation occurred.
- (b) North Carolina shall communicate suspension information to other member states, using the WVC database. Information may include the following:
  - (1) name;
  - (2) date of birth;
  - (3) last known address;
  - (4) violation(s) and convictions upon which the suspension is based;
  - (5) scope of the suspension (i.e., fishing, hunting, trapping, all privileges or rights); and
  - (6) effective dates of the suspension and term of the suspension.
- (c) In the event documentation of a violation and subsequent license suspension is needed by a member state for license suspension hearings or other purposes, the Wildlife Resources Commission may provide certified copies of the citation or other charging instrument, any arrest or investigation reports, suspension orders, and the disposition of the matter.

*History Note: Authority G.S. 113-134; 113-300.7;  
Eff. August 1, 2017.*

#### **15A NCAC 10A .1406 APPEALS**

A final agency decision made by the Wildlife Resources Commission to suspend any North Carolina hunting, fishing or trapping license pursuant to the WVC shall be appealable to the Office of Administrative Hearings pursuant to G.S. 150B-23. Notice of the right to appeal shall be included in the correspondence notifying the licensee of the final agency decision.

*History Note: Authority G.S. 113-134; 113-300.7;  
Eff. August 1, 2017.*