Director's Report

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

STEPHEN W. MURPHEY
Director

May 16, 2018

MEMORANDUM

TO: Marine Fisheries Commission

FROM: Beth Govoni, Administrative Services Office Section Chief

SUBJECT: Coastal Recreational Fishing License - Fund Disbursement Update

---

In a 2013 federal aid audit finding, the U.S. Fish and Wildlife Service determined that North Carolina did not have specific assent legislation related to control of funds generated from the Coastal Recreational Fishing License, as required by the federal Pittman-Robertson Wildlife Restoration and Dingell-Johnson Sport Fish Restoration Acts. These federal laws require state agencies to have control of hunting and fishing license revenues and those revenues are to be used only for the expressed purposes. On March 2, 2017, the U.S. Fish and Wildlife Service restated this concern (see attached letter). To address the U.S. Fish and Wildlife Service's concerns, the Division of Marine Fisheries worked with the Department of Environmental Quality, U.S. Fish and Wildlife Service and the N.C. General Assembly to change the law to address these findings. Session Law 2017-57 was enacted to assent to provisions of certain federal fisheries acts, including the Pittman-Robertson Act and the Dingell-Johnson Sport Fish Restoration Act. More specifically, N.C. General Statutes 113-307.1, 113-175.1, and 113-175.5 were modified.

The U.S. Fish and Wildlife Service stated that these modifications, "…. [it] will satisfy the "assent" language requirement and close the audit finding. We can let headquarters know the findings in tracking can be closed. The license money is protected in a dedicated account, you assent and recognize the Dingell-Johnson Sport Fish Restoration Act, funds can only be disbursed under the written direction by the Division of Marine Fisheries Department of Environmental Quality. I interpret that to be your Director."

Based on this amended legislation, the Marine Fisheries Commission no longer has authority or oversight concerning the distribution of funds from the Marine Resources Fund or the Marine Resources Endowment Fund. However, the statutory purpose of these funds remains to manage, protect, restore, develop, cultivate, conserve, and enhance the marine resources of the State. The division intends to proceed with a request for proposals later this summer. Furthermore, the division will update the commission annually regarding the status of the fund and will consider any requests by the Marine Fisheries Commission with regard to disbursement of funds.

Received by
DMF 3-3-17
BYL

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1875 Century Boulevard
Atlanta, Georgia 30345

IN REPLY REFER TO:
FWS/R4/WSFR

MAR - 2 2017

Dr. Braxton Davis, Director
North Carolina Division of Marine Fisheries
North Carolina Department of Environmental Quality
P.O. Box 769
Morehead City, North Carolina 28557

Dear Dr. Davis:

I want to thank you for the progress that your office is working toward for successful resolution and implementation of a corrective action to an audit finding from Department of Interior Office of Inspector General (OIG) Auditors Report No. R-GR-FWS-0013-2013. The OIG audit determined that the current North Carolina assent legislation does not include language specifically applicable to the Division of Marine Fisheries, and therefore was determined to be an audit finding. It is our understanding that on October 7, 2016, the Division of Marine Fisheries submitted a Justification for Special Provision through the Secretary of Department of Environmental Quality to be submitted in the January –June 2017 legislative session. This Justification for Special Provision proposes to incorporate language into the existing Coastal Fishery License Statute 113-75.1 which is comprised of marine resources license revenues and establishes the North Carolina Marine Resources Fund.

In accordance with 50 CFR 80 entitled "Administrative Requirements, Pittman-Robertson Wildlife Restoration and Dingell-Johnson Sport Fish Restoration Acts, Part 80.10 states:

> Who is eligible to receive the benefits of the Acts?
> States acting through their fish and wildlife agencies are eligible for benefits of the Acts only if they pass and maintain legislation that:
> (a) Assents to the provisions of the Acts;
> (b) Ensures the conservation of fish and wildlife; and
> (c) Requires that revenue from hunting and fishing licenses be:
> (1) Controlled only by the State fish and wildlife agency; and
> (2) Used only for administration of the State fish and wildlife agency, which includes only the functions required to manage the agency and the fish and wildlife related resources for which the agency has authority under State law.

After a careful evaluation of the Coastal Recreational Fishing License Statute G.S. 113-175.1, we believe the statute is not in compliance with 50 CFR Part 80.10 (c) 1. State Game and Fish Agencies are required to control their license revenue, interest earned on license revenue and assets acquired with license revenue. The specific language in the Coastal Recreational Fishing License Statute G.S. 113-175.1 (b) states "*The State Treasurer shall disburse the principal of the Marine Resources Fund and*

marine resources investment income only upon the written direction of the Marine Fisheries Commission." In (c) it further reinforces that the Marine Fisheries Commission controls disbursement of the Marine Resources license revenue with the following statements: "*The Marine Fisheries Commission may authorize the disbursement of the principal of the Marine Resources Fund and marine resources investment income only to manage, protect, restore, develop, cultivate, conserve, and enhance the marine resources of the State. The Marine Fisheries Commission is encouraged to consider supporting the Oyster Sanctuary Program managed by the Division of Marine Fisheries. The Marine Fisheries Commission may not authorize the disbursement of the principal of the Marine Resources Fund and marine resources investment income to establish positions without specific authorization from the General Assembly.*" We believe this language is inconsistent with the requirement of 50 CFR 80.10 (c) (1) that requires the revenue from hunting and fishing licenses to be controlled only by the State Fish and Wildlife agency.

In summary, we believe that under the current North Carolina statutes, the Division of Marine Fisheries lacks the necessary control of the North Carolina Marine Resources Fund which is comprised of Marine Resources license revenues, and thus the State is not in compliance with 50 CFR 80.10 (c) (1) and 50 CFR 80.10 (c) (2). This lack of control of license revenues renders the State of North Carolina in non-compliance with the Acts and could result in North Carolina becoming ineligible to receive the funds and benefits of the Acts until control is restored (per 50 CFR 80.21 and 80.22).

We hope we have provided you with information and references needed to alert you of the potential consequences of the loss of control of license revenue. We look forward to working with you to resolve this issue. If you need additional clarification or information, please feel free to contact me at 404-679-4154.

Sincerely yours,

Michael L. Piccirilli
Chief – Wildlife and Sport Fish Restoration Program

cc: Michael S. Regan
Sheila C. Holman

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

STEPHEN W. MURPHEY
Director

May 16, 2018

MEMORANDUM

TO: Marine Fisheries Commission

FROM: Dee Lupton, Deputy Director

SUBJECT: Land or Sell License

The Marine Fisheries Commission requested the Division of Marine Fisheries research license requirements to determine if vessels with a homeport in North Carolina that take fish outside the territorial waters of the state can land or sell catch in the state through the purchase of a Land or Sell License.

North Carolina General Statute 113-169.5 governs the Land or Sell License as a commercial, non-transferable fishing license for vessels fishing beyond territorial waters (more than three miles in the ocean). Except for fee changes, the license has not been modified since before the 1997 Fisheries Reform Act. The *Final Report of the Fisheries Moratorium Steering Committee* noted the need to allow non-resident vessels not licensed in North Carolina the opportunity to come to port and land and sell their catch. The report further clarifies that the provision provides an advantage to North Carolina fish dealers and provides an advantage to non-resident fishermen who may be forced to port in North Carolina due to weather, mechanical problems, landing regulation or other factors.

The fee for a license for vessels not having a primary situs in North Carolina is $400, or an amount equal to the non-resident fee charged by the non-resident's state, whichever is greater. The fee is based on the vessel's homeport as listed on the U.S. Coast Guard documentation or the state in which the vessel is registered.

To determine fees, and because license systems and fees within jurisdictions change frequently, each year, the division surveys other state commercial fishing license programs to determine non-resident Standard Commercial Fishing License and Land or Sell License fees (see attachment for fees for the 2019 license year).

Table 1 shows a summary of data collected from Land or Sell Licenses by year from 2013–2017. License counts are based on the fiscal year which runs from July 1 to June 30. For example, license year 2013 includes July 1, 2012 through June 30, 2013. Most of the landings occur during the winter through the spring (December through May). Fish trawls (i.e., flounder trawl and flynet) were the primary gear used. Other gears used are longlines and handlines (i.e., rod-n-reel, trolling, greenstick), along with a variety of other gears. Summer flounder and highly migratory species (e.g., tunas, sharks (excluding dogfishes), swordfish) were the dominate species landed.

Other landed species include Atlantic croaker, black sea bass (north of Cape Hatteras), coastal migratory pelagics (e.g., king and Spanish mackerels, cobia, wahoo and dolphin), snapper-grouper complex species and a few others. Most vessels with a Land or Sell License were from New Jersey, Virginia, Massachusetts and New York.

Table 1. Land or Sell License information by year, 2013-2017.

Year[1]	Number of Licenses Issued	Pounds Landed	Value of Landings ($)	Number of Trips	Number of Vessels with Landings
2013	88	1,012,937	2,336,883	232	39
2014	83	1,770,076	4,376,153	237	49
2015	114	2,243,202	5,220,557	292	71
2016	102	1,636,676	5,039,305	292	71
2017	109	1,942,698	5,913,394	462	92

[1] Licenses issued is presented by fiscal year (July 1 to June 30). All other data are presented by calendar year.

There have been some comments that the Land or Sell License extends privileges to non-residents that are not available to residents. Allowing North Carolina residents this same privileges will require legislative action to amend North Carolina General Statute 113-169.5 to provide the division the authority to issue the license to North Carolina residents.

A few things to consider before pursuing such action:

The Land or Sell License is a reciprocal agreement commercial fishing license with other states. This establishes relationships with other states to extend landing and selling privileges with the understanding that this exchange benefits both parties. The likelihood of impacting this relationship by allowing North Carolina residents to purchase the license seems small, but there could be unintended consequences.

The Land or Sell License is a commercial fishing license. The commission had extensive debate and recommendations about restructuring the commercial fishing license system. Those recommendations will restrict who can purchase and retain a Standard Commercial Fishing License. If the commission decides there is a need to restrict some commercial fishing licenses, allowing residents to purchase this commercial fishing license, unabated, could place more fishing pressure on the resource. These two initiatives appear to be in conflict with one another. Even though resources harvested under this license are federally managed, as a resource agency, there should be a determination that this unabated fishing pressure will not harm fish stocks.

It will be very difficult to verify these individuals are not fishing in state waters if access to the Land and Sell License is expanded. From an enforcement perspective, there are currently a low number of these licenses to monitor and it is easier to identify traditional commercial fishing vessels. If the license is expanded, monitoring this license group will become more challenging.

A potential alternative is to identify specific species or fisheries to extend Land or Sell License privileges. Then ask for legislative authority to either provide a Land or Sell License Endorsement for residents for the identified species or fishery, or implement a new license type for the specific species, along with a fee.

2019 Non-Resident License Fees

1. Standard Commercial Fishing License (SCFL) - $400 or the amount charged to North Carolina residents in the non-resident state. In no event is it to be less than $400.

2. Retired Standard Commercial Fishing License (RSCFL) age 65 and older- $260

3. Land or Sell License - $400 or an amount equal to the non-resident fee charged by the non-resident's state, whichever is greater.

State	SCFL ($)	Land or Sell Fees ($)
Alabama	603.00	< 30 ft = 400.00 31-45 ft = 422.00 > 45 ft = 482.00
Connecticut	2,405.00	600.00
Delaware	2,260.00	1,500.00
Florida	1,350.00	600.00
Georgia	470.00	400.00
Louisiana	4,460.00	1,820.00
Maine	1,381.00	1,381.00
Maryland	860.00	800.00
Massachusetts	1,210.00	≤ 59 ft = 400.00 60-99 ft = 400.00 > 99 ft = 520.00
Mississippi	1,010.00	400.00
New Hampshire	1,600.00	500.00
New Jersey	700.00	400.00
New York	1,350.00	500.00
Rhode Island	525.00	400.00
South Carolina	925.00	400.00
Texas	4,275.00	1,827.00
Virginia	1,248.00	400.00

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

STEPHEN W. MURPHEY
Director

May 16, 2018

MEMORANDUM

TO: Marine Fisheries Commission

FROM: Dee Lupton, Deputy Director

SUBJECT: Standard Commercial Fishing License Assignments

The Standard Commercial Fishing License is an annual license for commercial fishermen who harvest and sell fish, shrimp, crab or any marine species, except for industrial menhaden and shellfish. Industrial menhaden harvest no longer occurs in North Carolina. To harvest shellfish with a Standard Commercial Fishing License, North Carolina resident fishermen must elect the shellfish endorsement. To be eligible for the license, an individual or business must have a valid Standard or Retired Standard Commercial Fishing License for the previous license year. Only Standard Commercial Fishing Licenses can be assigned.

A license assignment is a temporary delegation of license privileges to another eligible person but is not a transfer of ownership of the license. The person assigning the license delegates the privileges permitted under the license to an assignee, but retains the power to revoke the assignment at any time and is still the responsible party for the license. Landings reported by an assigned license are credited to the license holder, not the assignee. There is no cost to assign a license, whether the assignment is to a resident or non-resident. Authorities for the Standard Commercial Fishing License and assignment are:

- North Carolina General Statute 113-168.2 - Standard Commercial Fishing License
- Marine Fisheries Commission Rule 15A NCAC 03I.0101(5) – Definitions,
- Marine Fisheries Commission Rule15A NCAC03O.0101 – Procedures and Requirements to obtain Licenses, Endorsements, and Commercial Fishing Vessel Registrations
- Marine Fisheries Commission Rule15A NCAC 03O.0109 – Assignment of SCFL

The original purposes of the assignments as envisioned by those who drafted the 1997 Fisheries Reform Act were:

1. Ensure licensees, including corporations, partnerships, or individuals owning multiple commercial fishing vessels, have the ability to fish each vessel owned and properly licensed while complying with the requirement that a commercial license must be aboard the vessel at all times.

2. Act as a “disability provision” allowing fishermen to keep vessels working and produce income, when the licensee is either involuntary unable to fish (e.g., sickness or injury) or voluntary chooses not to fish for some reason.

A person with one or multiple Standard Commercial Fishing Licenses can assign their license to any eligible individual resident or non-resident. Marine Fisheries Commission Rule 15A NCAC 03O.0101(a)(5) requires single vessel corporations to designate a vessel master for the specified vessel. This allows others who are not the license holder to fish the vessel and eliminates the need to assign the license. This does not resolve the issue of multiple vessel corporations hiring others to fish their vessel. In these cases, the license is assigned.

Assignees must certify they qualify and are eligible to hold an assignment (e.g., someone who has a revoked license cannot hold an assignment nor can someone with a suspended or revoked license assign it to someone else). Assignments must be documented on a form provided by the division. The person holding the license must give the physical license to the assignee. The assignee must possess the license and assignment form when engaged in commercial fishing activities. Assignments are valid for the dates listed on the assignment form, until the assignor terminates the assignment, or until the end of the license year (i.e., June 30). All landings under the assigned license are credited to the license holder, not the assignee.

Analysis of assignment data using the trip ticket and license databases for calendar years 2011–2016 show that there was an average of 483 total assignments that reported landings each year with an average of 29 assignments to non-residents.

Table 1 shows the top 10 gears used by non-residents assigned a Standard Commercial Fishing License, cumulative pounds reported, number of unique participants and the number of trips taken. The highest average landings and trip counts were in the crab pot fishery, followed by shrimp trawl, flounder trawl and runaround gill net fisheries. Over the last six years, landings from non-resident assignments accounted for 1 percent of the total commercial landings in North Carolina.

Table 1. Average annual characterization of non-resident assignment activities by gear for calendar years 2011–2016. No attempt was made to identify if the assigned license was a resident or non-resident Standard Commercial Fishing License.

Gear	Average Pounds Reported per Year	Average Number of Unique Participants	Average Trips
Crab Pot	293,316	7	295
Shrimp Trawl	241,606	10	43
Flounder Trawl	48,286	1	5
Gill Net (runaround)	24,840	5	34
Cast Net	18,959	2	18
Others	5,311	2	17

If the commission determines that a fishery resource need exists to further restrict or refine license assignments, there are a couple of options to consider.

1. Legislative action - requiring payment for an assignment or eliminating assignments altogether requires legislative action.
2. Marine Fisheries Commission Rule – refine rules governing the assignments. One possible item for consideration for rule development is to restrict assignment of resident Standard Commercial Fishing Licenses to residents only (e.g., eliminate assignment of resident licenses to non-residents). For reference, the history note for Marine Fisheries Commission Rule 03O. 0109 documents an amendment date of Aug. 1, 2000. This amendment removed a statement from the original rule that stated in part (f): "A non-resident is not eligible for assignment of a resident Standard Commercial Fishing License". *Note: The rule development process, including fiscal note could take up to two years, depending on rule cycle.*

The Division of Marine Fisheries recommendation is to identify the resource problems regarding assignments, if any, and pursue commission rule development.

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

STEPHEN W. MURPHEY
Director

May 16, 2018

MEMORANDUM

TO: Marine Fisheries Commission

FROM: Dee Lupton, Deputy Director

SUBJECT: Standard or Retired Standard Commercial Fishing License Transfers

---

The Standard or Retired Standard Commercial Fishing License is an annual license for commercial fishermen who harvest and sell fish, shrimp, crab or any marine species, except for industrial menhaden and shellfish. Industrial menhaden harvest no longer occurs in North Carolina. To harvest shellfish with a Standard Commercial Fishing License, North Carolina resident fishermen must elect the shellfish endorsement. To be eligible for the license, the person must have a valid Standard or Retired Standard Commercial Fishing License for the previous license year.

Standard or Retired Standard Commercial Fishing Licenses are transferable. A license transfer is a permanent transferal to another person the privileges under the license. The person transferring the license does not retain any rights or interest under the license transferred. If the person has multiple licenses, landings history associated with the transferred license can be retained and associated to one of the other licenses held by the licensee. If the person holds a single license, when transferred, the license history transfers with it. Authorities for the Standard or Retired Standard Commercial Fishing License and transfer are:

- North Carolina General Statute 113-168.2 – Standard Commercial Fishing License
- North Carolina General Statute 113-168.3 – Retired Standard Commercial Fishing License
- Marine Fisheries Commission Rule 15A NCAC 03I.0101(5) – Definitions,
- Marine Fisheries Commission Rule15A NCAC03O.0101 – Procedures and Requirements to obtain Licenses, Endorsements, and Commercial Fishing Vessel Registrations
- Marine Fisheries Commission Rule15A NCAC 03O.0108 – License Transfers

Cost for a Standard Commercial Fishing License is $400 for residents and $200 for resident Retired Standard Commercial Fishing Licenses. Non-residents pay $400 for Standard Commercial Fishing Licenses, or the amount charged to a North Carolina resident in the non-resident's state, whichever is greater; in no event may the fee be less than $400. Retired

Standard Commercial Fishing Licenses are $260 for non-residents, regardless of the state of residence.

In fiscal year 2017, there were 6,296 Standard or Retired Standard Commercial Fishing Licenses issued; 90 (1.4 percent) of these were issued to non-residents. For fiscal years 2005-2017, there was an average of 511 transfers per year (see Table 1). There were 202 Standard or Retired Standard Commercial Fishing Licenses from fiscal year 2016 that were not renewed and were returned to the eligibility pool. Over the last 10 years, the number of licenses returning to the eligibility pool after not being renewed has been increasing.

Table 1. Number of Standard and Retired Standard Commercial Fishing License transfers, fiscal years 2005-2017.

Fiscal Year	Standard Commercial Fishing License	Retired Standard Commercial Fishing License	Total
2017	548	101	649
2016	381	80	461
2015	430	94	524
2014	391	96	487
2013	339	78	417
2012	381	80	461
2011	375	75	450
2010	417	86	503
2009	418	87	505
2008	443	76	519
2007	465	73	538
2006	488	69	557
2005	500	76	576

The Moratorium Steering Committee acknowledged that license transferability was one of the most difficult and complex issues discussed and public comment was divided with no clear consensus. They concluded that there is a need for license transferability in limited, specific situations and that license marketability would likely have undesirable consequences including potentially creating inequality, hastening demise of traditional, small family fishing operations in favor of larger fishing operations controlled by nonresident entrants in the industry, and promoting an increase in commercial fishing effort. The committee strongly supported that transferability needed to be slow and deliberate. They recommended authority to establish rules on transferability be given to the Marine Fisheries Commission. The subsequent law required the commission develop license transfer rules for:

1. From the license holder to an immediate family member;
2. Upon death of the license holder through a process whereby it can be transferred to an immediate family member and then can be transferred to a third-party purchaser of the deceased licensee's fishing vessel.

3. The licensee is retiring from commercial fishing and can transfer it to a third-party purchaser of the licensee's fishing vessel.

It has been difficult to determine if those involved in the transfer are adhering to these requirements along with other real world situations for a fisherman to continue to operate thus creating the 'other' category. Below is a brief characterization of these 'other' types of transfers.

1. A fisherman is licensed separately than the vessel. This was a fundamental and important aspect of the Fisheries Reform Act, much like the driver's license and vehicle registration. Both are needed to operate and to track fishing activity, independently, through time. The Standard or Retired Standard Commercial Fishing License holder does not need to be the owner of the vessel to fish commercially from it. This dual system needs to remain for effort and participation determination. The reality is, this linkage is difficult for the division to determine due to the independent nature of the licenses. To further add complexity, the same person may have the vessel set up as a business (e.g., corporation) for liability reasons, although the individual is the owner of the business that is licensed, the two are considered as different entities.
2. Businesses (i.e., corporations, partnerships, limited liability, etc.) have proven complexities within current transfer rules. A business can have a license; but the business is separate from an individual, even if the individual owns the business. Transfers occur from a person's company name to their personal name because the business has been dissolved. Transfers also occur from an individual to a company the individual maintains for business purposes. In addition, transfers occur between companies owned by the same individual.
3. Health conditions no longer allow the person to fish; therefore, will want to transfer their license for a period of time.
4. To be able to transfer a License to Land Flounder from the Atlantic Ocean, purchasers must have a Standard Commercial Fishing License or have one transferred to them, or they must have a non-transferable Land or Sell license for vessels without a home port in North Carolina.

The division acknowledges this complexity and recommends reducing and restricting Standard and Retired Standard Commercial Fishing transfers by refining the rules associated with transfers. Rules can be developed to allow transfers associated with business needs along with identifying better processes through rule development to allow transfers for retirement and death that do not involve vessel sales. In addition, the division recommends reviewing rules associated with the Eligibility Pool to direct people who do not meet transfer rules to apply through the pool. This will allow the Standard Commercial Fishing License Eligibility Pool committee the ability to review an applicant's expertise and experience to determine if they should be granted a license. By revising these rules, the 'marketability' of the Standard or Retired Standard Commercial Fishing License will be eliminated, while at the same time ensuring experienced fishermen can continue to enter the commercial fishing industry.

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

May 17, 2018

MEMORANDUM

TO: Marine Fisheries Commission

FROM: Stephanie McInerny, License and Statistics Section

SUBJECT: Target Species and Bycatch Reporting

Over the past few years, the Marine Fisheries Commission passed motions with regard to recording additional landings information on trip tickets to capture target/bycatch species and catch kept for personal use. The first motion was passed in August 2014:

> Motion by Chuck Laughridge from August 2014
> Motion that dealers allowing the bycatch of red drum and striped bass to be landed at their facility without the landings of target species will use the long form trip ticket on paper and not report the bycatch electronically. The target species will be weighed and recorded in the three unused species lines of the long form trip ticket until the N.C. Division of Marine Fisheries software updates take place.
>
> Motion by Chuck Laughridge and seconded by Sammy Corbett.
> Motion carries 6-1, with 2 abstentions.

Species identified in the motion (i.e., red drum, striped bass) require landed catch of other finfish or target species (i.e., flounder, bluefish, black drum, striped mullet) to be more than the catch of the bycatch to legally harvest those bycatch species.

In addition to the August 2014 motion, another motion was made in February 2016:

> Motion by Mike Wicker from February 2016
> Motion by Mike Wicker to ask the DMF to move forward with including a new disposition category to the development of the new FIN database software that accounts for the actions of August 2014 to document fish landed but not sold. Second by Rick Smith.
>
> Motion passes 5-1 with one abstention.

After the February 2016 motion was made and seconded, discussion from Marine Fisheries Commission members stated that this motion addressed the previous (August 2014) motion concerning targeted/bycatch reporting along with capturing personal consumption information (reference audio of discussion http://portal.ncdenr.org/web/mf/02-2016-mfc-audio under the second Issues for Commissioners section).

In response, and as provided in the February 2018 memo to the Marine Fisheries Commission, the Trip Ticket Program redesigned the Trip Ticket system to capture disposition of the catch. For your convenience that memo is also attached.

North Carolina General Statute 113-169.3(i) states a licensed seafood dealer is required to record the landings of any seafood that is bought or accepted at the time of transaction. Currently, there is no statutory authority to require licensed commercial fishermen to take fish not sold or provided to a licensed fish dealer and require that dealer to record catch not being bought or accepted (e.g., unsold, sold to another dealer, etc.) from commercial fishing license holders. Legislative action will be needed to further facilitate mandatory reporting of catch kept for personal use or to require catch of target species and bycatch be sold to the same dealer.

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

STEPHEN W. MURPHEY
Director

January 31, 2018

MEMORANDUM

TO: Marine Fisheries Commission

FROM: Stephanie McInerny, License and Statistics Section

SUBJECT: Documenting Unsold Standard Commercial Fishing License Catch

---

The N.C. Trip Ticket Program has the authority through G.S. 113-168.2,113-169.3, and 113-170.3 to require reporting of all seafood sold to a licensed dealer in North Carolina. Seafood caught by the holder of a commercial license with selling privileges (i.e., Standard Commercial Fishing License, Retired Standard Commercial Fishing License, Shellfish License, Recreational Tournament License to Sell Fish) is not required to be sold nor are they required to be reported. To document unsold catch from commercial fishing licenses, the Trip Ticket Program redesigned paper trip tickets to include a place to record the disposition of the catch (Figure 1). This disposition is typically "food" or "bait" but options such as "personal use" and "kept, disposition unknown" are now available to the dealer to record all catch retained by the fishermen; however, unsold catch cannot be reported if it is not seen by the dealer. The list of disposition types is in Table 1. Tickets with this new disposition field have been purchased and are being distributed to dealers when they exhaust their supply of old forms.

A few of these new tickets have been received back from the dealers, but dispositions were not recorded. Disposition of catch was previously available to federally permitted dealers who use the electronic trip ticket software and as of late 2016, state dealers had to update their software so they could use this field as well (Figure 2). Preliminary 2017 data show a small number of landings were reported under "personal use" and "kept, disposition unknown" as well as a few additional dispositions other than the default "food" and "bait" categories. Total landings in 2017 reported as "personal use" were 891 pounds, and most of the landings were bluefish and menhaden. Total landings in 2017 under "kept, disposition unknown" were 6,472 pounds, and the majority of those landings were unclassified bait fish and menhaden. These data are preliminary and may change after routine edits are performed.

Currently, South Carolina and Georgia do not collect disposition on trip tickets. Florida Fish and Wildlife does provide a space on their trip tickets to record disposition and North Carolina's approach was modeled after Florida. Virginia also records catch kept for personal use, but their system is based on mandatory harvester reporting.

Data provided by the Virginia Marine Resources Commission showed that species kept for personal use include striped bass, blue crab, Atlantic croaker, American eel, summer flounder, Atlantic menhaden, spotted seatrout, spot, and oysters (Tables 2-4). Most of the personal use catch of these species was less than three percent of the total harvest in Virginia waters from 2009-2013 (Table 4). American eel kept for personal use were between 1.9 and 8.1 percent of the catch because this species is typically kept for bait. Virginia's commercial landings are reported by the harvester making it easier to determine what the fisherman kept from his trip for personal use and what was sold to the dealer. North Carolina's commercial landings are reported by the dealer so fish kept for personal use by the fisherman are likely not ever seen by the dealer, and therefore, not easily captured using the existing dealer reporting system.

In 2015, the License and Statistics Section sent out a five-question pilot survey to a subsample of individuals holding either a Standard Commercial Fishing License, Retired Standard Commercial Fishing License, or Shellfish License to gather information on catch kept by these license holders for personal use (i.e., unsold). This was a very simplistic pilot survey to gauge if more effort was needed to investigate the extent of unsold catch and was not meant to be used to quantify the amount of seafood kept for personal use. The results of that study should not be used for management purposes, nor carry any weight when evaluating current license use characteristics. A more detailed survey could be designed and administered if more accurate information on the use of commercial fishing licenses for reasons other than selling their catch is desired.

According to G.S. 113-169.3(i), the dealer is required to record the landings of any seafood that he buys or accepts at the time of transaction. Without additional authority to require the dealer to record catch that they are not buying or accepting from (i.e., unsold) commercial fishing license holders, the division has exhausted its resources. A legal evaluation of the current authority is needed to determine what authority changes may be needed to facilitate mandatory reporting of catch kept for personal use.

Implementation of Disposition Code

<u>Progress to date</u>

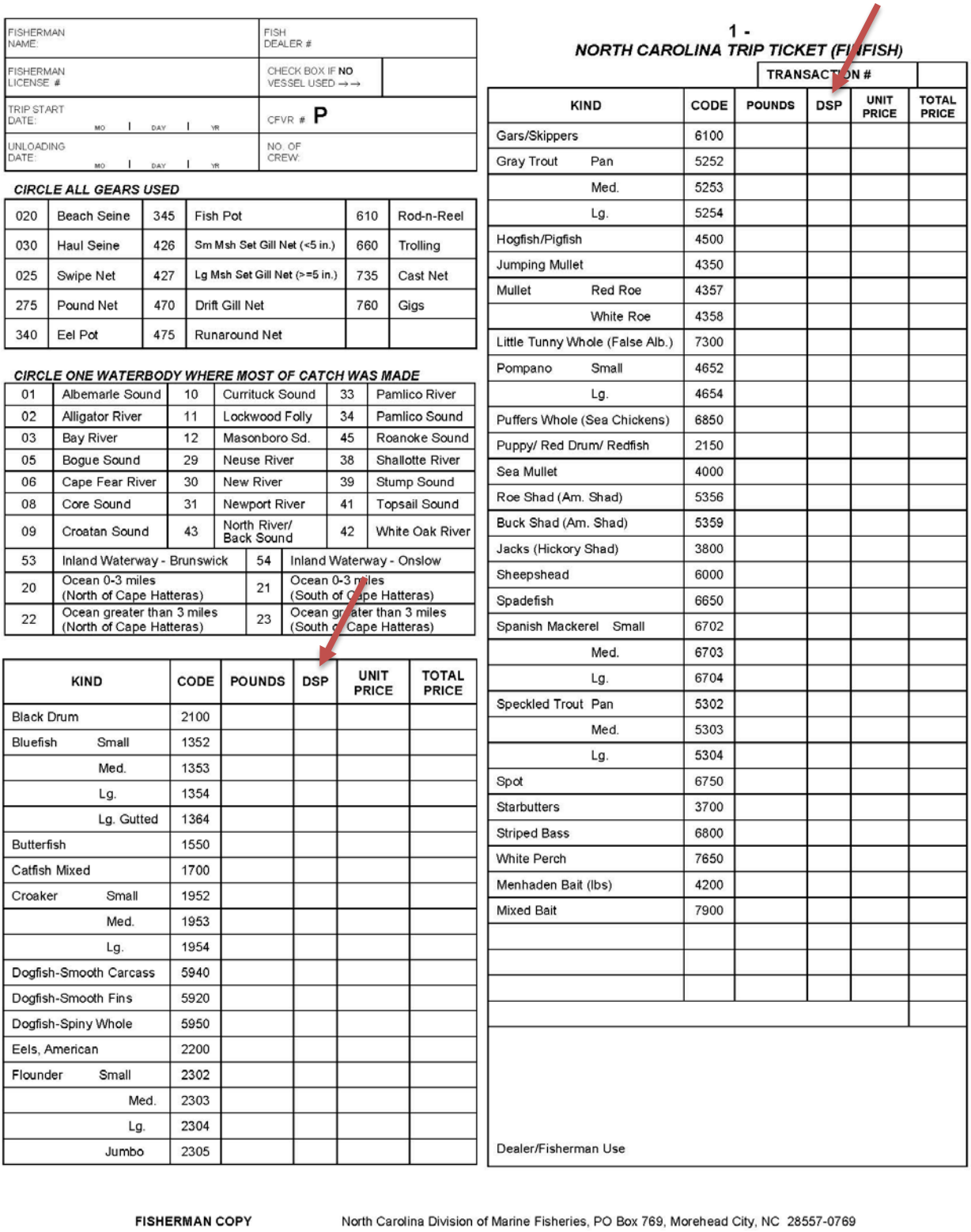
- A field to capture disposition has been added to the electronic trip ticket software and is visible to all dealers using the most current version of the software (Version 7.0.0).
- Data on disposition is being included in the electronic data files submitted by the dealers.
- Dispositions sent by the electronic dealers are being imported into the Fisheries Information Network database.
- New ticket templates, including a place to record disposition, were developed for all paper ticket types and purchased by the division.
- A reference sheet for disposition codes was developed and is included with all paper trip ticket books sent to the dealers (Table 1).
- Trip Ticket Program staff are documenting any dispositions other than the default ("food" and "bait") in a spreadsheet until these data can be entered into the Fisheries Information Network.
- Notice of these new disposition codes was provided in the semi-annual dealer reports in October of 2016 and 2017.

Next steps

- The Fisheries Information Network user interface will need to be modified to include disposition code so Trip Ticket Program staff can enter data collected on paper trip tickets into the database instead of the spreadsheet.
- Trip Ticket Program staff will do more outreach to the dealers to inform them of the new disposition codes.

Table 1. North Carolina Trip Ticket Program disposition codes.

Disposition Code	Description
0	No Disposition
1	Food
2	Personal Use
5	Aquaculture
6	Canned Pet Food
7	Animal Food
8	Bait
9	Reduction/Meal
10	Aquarium
11	Kept, Disposition Unknown
12	Biomedical Use
13	Packing, Only
14	Fertilizer
15	Research
100	Reason not specified
101	No Market
602	Seized by Law Enforcement



FISHERMAN NAME:	FISH DEALER #
FISHERMAN LICENSE #	CHECK BOX IF NO VESSEL USED → →
TRIP START DATE: MO / DAY / YR	CFVR # P
UNLOADING DATE: MO / DAY / YR	NO. OF CREW:

CIRCLE ALL GEARS USED

020	Beach Seine	345	Fish Pot	610	Rod-n-Reel
030	Haul Seine	426	Sm Msh Set Gill Net (<5 in.)	660	Trolling
025	Swipe Net	427	Lg Msh Set Gill Net (>=5 in.)	735	Cast Net
275	Pound Net	470	Drift Gill Net	760	Gigs
340	Eel Pot	475	Runaround Net		

CIRCLE ONE WATERBODY WHERE MOST OF CATCH WAS MADE

01	Albemarle Sound	10	Currituck Sound	33	Pamlico River
02	Alligator River	11	Lockwood Folly	34	Pamlico Sound
03	Bay River	12	Masonboro Sd.	45	Roanoke Sound
05	Bogue Sound	29	Neuse River	38	Shallotte River
06	Cape Fear River	30	New River	39	Stump Sound
08	Core Sound	31	Newport River	41	Topsail Sound
09	Croatan Sound	43	North River/ Back Sound	42	White Oak River
53	Inland Waterway - Brunswick	54	Inland Waterway - Onslow		
20	Ocean 0-3 miles (North of Cape Hatteras)	21	Ocean 0-3 miles (South of Cape Hatteras)		
22	Ocean greater than 3 miles (North of Cape Hatteras)	23	Ocean greater than 3 miles (South of Cape Hatteras)		

KIND	CODE	POUNDS	DSP	UNIT PRICE	TOTAL PRICE
Black Drum	2100				
Bluefish Small	1352				
Med.	1353				
Lg.	1354				
Lg. Gutted	1364				
Butterfish	1550				
Catfish Mixed	1700				
Croaker Small	1952				
Med.	1953				
Lg.	1954				
Dogfish-Smooth Carcass	5940				
Dogfish-Smooth Fins	5920				
Dogfish-Spiny Whole	5950				
Eels, American	2200				
Flounder Small	2302				
Med.	2303				
Lg.	2304				
Jumbo	2305				

1 -

NORTH CAROLINA TRIP TICKET (FINFISH)

TRANSACTION #

KIND	CODE	POUNDS	DSP	UNIT PRICE	TOTAL PRICE
Gars/Skippers	6100				
Gray Trout Pan	5252				
Med.	5253				
Lg.	5254				
Hogfish/Pigfish	4500				
Jumping Mullet	4350				
Mullet Red Roe	4357				
White Roe	4358				
Little Tunny Whole (False Alb.)	7300				
Pompano Small	4652				
Lg.	4654				
Puffers Whole (Sea Chickens)	6850				
Puppy/ Red Drum/ Redfish	2150				
Sea Mullet	4000				
Roe Shad (Am. Shad)	5356				
Buck Shad (Am. Shad)	5359				
Jacks (Hickory Shad)	3800				
Sheepshead	6000				
Spadefish	6650				
Spanish Mackerel Small	6702				
Med.	6703				
Lg.	6704				
Speckled Trout Pan	5302				
Med.	5303				
Lg.	5304				
Spot	6750				
Starbutters	3700				
Striped Bass	6800				
White Perch	7650				
Menhaden Bait (lbs)	4200				
Mixed Bait	7900				

Dealer/Fisherman Use

FISHERMAN COPY North Carolina Division of Marine Fisheries, PO Box 769, Morehead City, NC 28557-0769

Figure 1. Type 1 (Finfish) trip ticket with new disposition field.

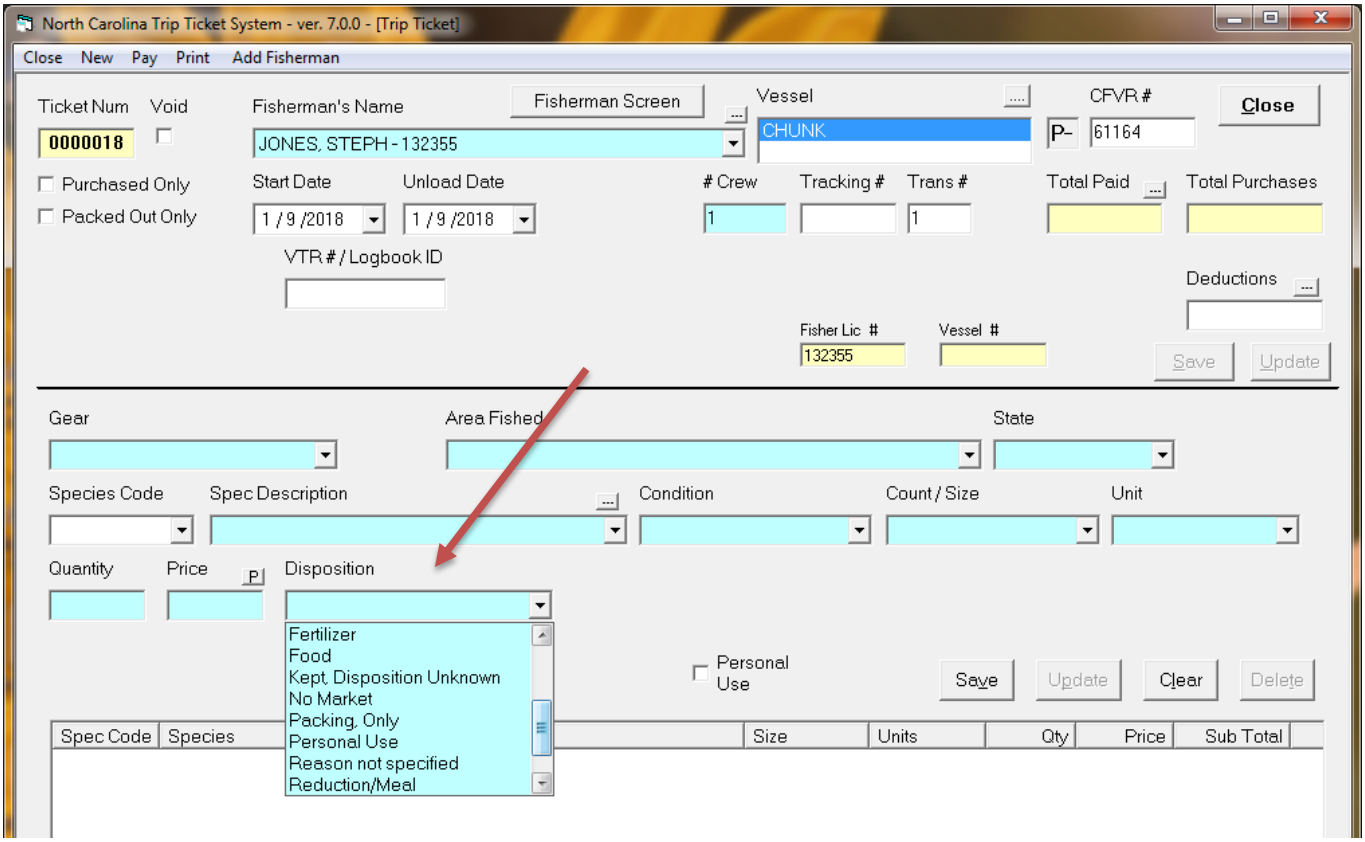


Figure 2. New disposition field within electronic trip ticket software. Dispositions of “Kept, Disposition Unknown” or “Personal Use” could be used to document unsold seafood.

Table 2. Total harvest (in pounds) of select species from Virginia waters, 2009-2013.

	Year				
Species	2009	2010	2011	2012	2013
Bass, Striped	1,553,753	1,440,849	1,436,723	1,510,407	1,188,154
Crab, Blue	26,073,609	29,969,987	30,288,070	24,871,904	17,948,632
Croaker, Atlantic	6,712,265	6,480,239	4,278,289	5,520,905	4,730,876
Eel, American	119,187	78,076	103,856	122,123	101,510
Flounder, Summer	218,408	271,402	170,863	130,643	50,037
Menhaden	4,129,080	4,552,360	3,648,617	4,866,005	5,096,027
Seatrout, Spotted	22,887	16,242	14,214	79,125	27,138
Spot	3,601,947	997,882	3,364,373	548,459	1,809,577
Oyster, Public	380,122	506,212	763,854	814,180	1,437,430

Table 3. Harvest reported as kept for personal use (in pounds) from Virginia waters by species, 2009-2013.

	Year				
Species	2009	2010	2011	2012	2013
Bass, Striped	5,537	8,073	6,631	7,212	1,416
Crab, Blue	622,476	699,276	350,044	525,793	312,641
Croaker, Atlantic	12,738	39,036	10,388	19,940	9,898
Eel, American	2,216	5,051	2,014	9,919	6,113
Flounder, Summer	1,911	3,677	2,607	2,786	1,367
Menhaden	41,518	47,785	36,039	61,822	91,644
Seatrout, Spotted	300	799	728	336	578
Spot	27,247	18,978	18,999	9,174	9,511
Oyster, Public	3,481	2,017	2,818	4,374	4,347

Table 4. Percent of total harvest from Virginia waters that was reported as kept for personal use by species, 2009-2013.

	Year				
Species	2009	2010	2011	2012	2013
Bass, Striped	0.4%	0.6%	0.5%	0.5%	0.1%
Crab, Blue	2.4%	2.3%	1.2%	2.1%	1.7%
Croaker, Atlantic	0.2%	0.6%	0.2%	0.4%	0.2%
Eel, American	1.9%	6.5%	1.9%	8.1%	6.0%
Flounder, Summer	0.9%	1.4%	1.5%	2.1%	2.7%
Menhaden	1.0%	1.0%	1.0%	1.3%	1.8%
Seatrout, Spotted	1.3%	4.9%	5.1%	0.4%	2.1%
Spot	0.8%	1.9%	0.6%	1.7%	0.5%
Oyster, Public	0.9%	0.4%	0.4%	0.5%	0.3%

Volume 27, Issue 1
February/March 2018

ASMFC
FISHERIES focus
Vision: Sustainably Managing Atlantic Coastal Fisheries

INSIDE THIS ISSUE

ASMFC Spring Meeting

April 30 - May 3, 2018

The Westin
1800 S. Eads Street
Arlington, VA

Preliminary Agenda

The agenda is subject to change. Bulleted items represent the anticipated major issues to be discussed or acted upon at the meeting. The final agenda will include additional items and may revise the bulleted items provided below. The agenda reflects the current estimate of time required for scheduled Board meetings. The Commission may adjust this agenda in accordance with the actual duration of Board meetings. Interested parties should anticipate Boards starting earlier or later than indicated herein.

Please note: Commission leadership is reviewing an appeal submitted regarding the Black Sea Bass Addendum XXX decision. Depending on the outcome of this review, a Summer Flounder, Scup, and Black Sea Bass Management Board meeting may be added to the agenda on Thursday, May 3.

MONDAY, APRIL 30

10 a.m. – Noon & 1:00 – 3:00 p.m. **Summer Flounder, Scup and Black Sea Bass Management Board Jointly with the Mid-Atlantic Fishery Management Council**

- Consider Approval of Summer Flounder Draft Amendment for Public Comment
- Review Alternatives for Black Sea Bass Framework/Addendum on Recreational Issues
- Review Black Sea Bass February Recreational Fishery Harvest

3:15 – 4:45 p.m. **Bluefish Management Board Jointly with the Mid-Atlantic Fishery Management Council**

- Review and Consider Approval of Public Information Document/Scoping Document for Allocation Amendment

TUESDAY, MAY 1

9 – 11 a.m. **Coastal Sharks Management Board**

- Review Results of North Atlantic Shortfin Mako Stock Assessment
  - Discuss Potential Management Response
- Review Results of Sandbar Shark Stock Assessment
- Update on Endangered Species Act Listing Status for Oceanic Whitetip Shark
- Review and Consider 2016 Fishery Management Plan Review and State Compliance Reports

continued, see SPRING MEETING PRELIMINARY AGENDA on page 6

Upcoming Meetings

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

April 2 (2 - 4:30 PM)
Atlantic Menhaden Technical Committee and Ecological Reference Point Workgroup Webinar; go to http://www.asmfc.org/calendar/ for more details

April 10 - 12
Mid-Atlantic Fishery Management Council, Montauk Yacht Club, 32 Star Island Road, Montauk, NY

April 10 - 12
Northern Shrimp Assessment Workshop, Westin Portland Harborview, 157 High Street, Portland, ME

April 17 (3 - 4:30 PM)
Atlantic Striped Bass Advisory Panel Conference Call; go to http://www.asmfc.org/calendar/ for more details

April 17 - 19
New England Fishery Management Council, Hilton, Mystic, CT

April 20 (10 AM - Noon)
American Lobster Electronic Reporting Subcommittee Webinar; go to http://www.asmfc.org/calendar/ for more details

April 23 (begins at 9 AM) - 25 (ends at 5 PM)
Atlantic Menhaden Data Workshop, Hyatt Centric Arlington, 1325 Wilson Boulevard, Arlington, VA

April 25 (begins at 9 AM) - 27 (ends at 5 PM)
Ecological Reference Point Workgroup Data Workshop, ASMFC Offices, 1050 N. Highland Street, Suite 200A-N, Arlington, VA

April 25 (10 AM - Noon)
Atlantic Herring Days Out Meeting, location to be determined

April 30 - May 3
ASMFC Spring Meeting, Westin Crystal City, 1800 South Eads Street, Arlington, VA

May 8 (begins at 1 PM) - 10 (ends at 1 PM)
Horseshoe Crab Assessment Workshop, ASMFC Offices, 1050 N. Highland Street, Suite 200A-N, Arlington, VA

May 14 (begins at 1 PM) - 17
American Lobster Data Workshop, University of Rhode Island Graduate School of Oceanography, 218 South Ferry Road, Narragansett, RI

May 15 (begins at 9 AM) - 17 (ends at 5 PM)
Atlantic Striped Bass Modeling Workshop, Renaissance Providence-Downtown, Providence, RI

May 17 - 18
Atlantic Coastal Fisheries Habitat Partnership Steering Committee, Savannah, GA

June 5 - 7
Mid-Atlantic Fishery Management Council, Doubletree by Hilton, 237 South Broad Street, Philadelphia, PA

June 11 - 15
South Atlantic Fishery Management Council, Bahia Mar Doubletree by Hilton, 801 Seabreeze Boulevard, Fort Lauderdale FL

Tina L. Berger, Editor
Director of Communications
tberger@asmfc.org

703.842.0740 Phone
703.842.0741 Fax
www.asmfc.org
info@asmfc.org

Adapting Fisheries Management to Changes in Species Abundance and Distribution Resulting from Climate Change

One only needs to look at the poor condition of northern shrimp in the Gulf of Maine or Southern New England American lobster to know that climate change is not on the horizon – it's here and it's already impacting Atlantic fisheries. As average temperatures rise, mobile marine species are migrating offshore or poleward into cooler, more habitable waters. Distribution and productivity changes are now resulting in ecological and economic disruptions – such as separating predator from prey, or fishing communities from the species their livelihood relies on. In the face of climatic shifts, change is likely to be the only constant. To address this change, fishery managers will need to adapt management from preserving historical abundances to sustaining ecological functions. As conditions change, current conservation goals and management objectives may no longer serve the resource or its users. Successful adaptation depends not only upon modifying management strategies, but also reevaluating and revising, as necessary, the underlying conservation goals and objectives of fishery management plans.

> Successful adaptation depends not only on adjusting management strategies, but also reevaluating and revising, as nescessary, the underlying conservation goals and objectives of fishery management plans.

Over a year ago, the Commission's Interstate Fisheries Management Program Policy Board (Policy Board) recognized the need for a suite of tools management boards may use to address the effects of warming water temperatures on Commission-managed resources, and established a Climate Change Work Group to undertake this task. Composed of members of the Policy Board (a mix of administrators, state legislators, Governor Appointees and federal representatives), the Management and Science Committee, and the Assessment Science Committee, the Work Group was tasked with developing science, policy, and management strategies to assist the Commission with adapting its management to climate-induced changes in species abundance and distribution. In February, the Work Group presented its recommendations to the Policy Board for approval. Outlined in the document, "Adapting Fisheries Management to Changes in Species Abundance and Distribution Resulting from Climate Change," are five main recommendations: (1) a stepwise approach for working through climate-related fishery management issues; (2) management options for stocks at persistently low biomass; (3) management options for stocks with changing spatial distributions; (4) the possible inclusion of a climate change terms of reference for stock assessments; and (5) the creation of a list of climate change data available for inclusion in analyses. For recommendations 2 and 3, the Work Group listed options that could be considered when evidence suggests a changing environment could be impacting species' biomass levels or distributions. However, none of the options have been analyzed based on their pros and cons, and there are options included that may not be consistent with current federal law or the fisheries management goals identified in the Interstate Fisheries Management Program Charter. Thus, the guidance provided in the document is intended to provide a starting point for managers as they discuss management options. Further, the document is meant to be dynamic, evolving as new information or data become available.

For the past several decades, marine fisheries management strategies have remained nearly static, focused on single species management. Although surveys and assessment models are advancing rapidly, adopting new management strategies that address productivity and distribution changes presents a formidable challenge. Mindsets and behaviors will need to shift at all levels of the management process — managers, scientists and stakeholders. Our experiences in exploring multispecies management and ecological reference points have taught us that fundamental changes in fisheries management strategies not only take a significant investment of resources, time, and energy, but the willingness among managers and stakeholders to make that shift. Moving away from traditional management to more contemporary approaches will be challenging, and will need to be done deliberately and incrementally to preserve what trust exists between state and federal managers and stakeholders. The Work Group's recommendations are an important step towards proactively addressing changes in marine species distributions and abundances due to environmental drivers.

As we consider sacrifices we may make together for a brighter tomorrow, may the words of wise and eminent Mainer Stephen King remind us all of what is at stake: "Resistance to change is proportional to how much the future might be altered by any given act."

For more details on the options provided in the document, go to http://www.asmfc.org/files/pub/ClimateChangeWorkGroupGuidanceDocument_Feb2018.pdf.

Cooperative Efforts Seek to Improve Management of Stock

Introduction

Avidly pursued by recreational anglers as ready biters and fierce fighters, cobia support recreational fisheries throughout the South Atlantic and into the Mid-Atlantic region. A fast growing, moderately lived species, they occur most abundantly from Chesapeake Bay through the Gulf of Mexico, preferring to stay close to structure to feed and find shelter from predation. While the 2013 stock assessment indicated overfishing was not occurring and the stock was not overfished, spawning stock biomass has experienced a general decline since 2002. A benchmark stock assessment is scheduled for 2019 through the SouthEast Data, Assessment and Review (SEDAR) process.

Landings are driven by the recreational fishery, with the commercial fishery primarily being a bycatch fishery. The Commission approved the Interstate Fishery Management Plan (FMP) for Atlantic Migratory Group (AMG) Cobia in October 2017. The FMP was initiated due to recent overages of the federal annual catch limit (ACL) for AMG cobia, which disrupted fishing opportunities and jeopardized the health of the stock. The Commission FMP introduces state-specific allocations of a coastwide recreational harvest and maintains the commercial regulations set under the South Atlantic Fishery Management Council's (SAFMC) FMP.

Life History

Cobia (*Rachycentron canadum*) are distributed worldwide in tropical and warm temperature waters. They occur along the Atlantic coast from Nova Scotia to Argentina, and are most abundant in U.S. waters from Chesapeake Bay south through the Gulf of Mexico.

Male cobia typically reach sexual maturity by 2 years (generally 2 feet long), while females are sexually mature by 2-3 years (generally 3 feet long). Females grow to be larger than males, and may reach 6 feet and weigh up to 100 pounds. An extended spawning season occurs from late June to mid-August along the Southeastern U.S., and from late summer to early fall in the Gulf of Mexico. Cobia are broadcast spawners; a single female may spawn many times each season. Cobia make seasonal migrations, wintering in the south and moving north for the summer months. They are drawn to structure to feed and find shelter from predation. Juveniles and adults are often found around live bottom, wrecks, and buoys, as well as flotsam and seaweed mats. Their diet consists primarily of fish and crustaceans.

Commercial & Recreational Fisheries

Enthusiastically pursued by recreational anglers, cobia support an important recreational fishery throughout the South Atlantic and into the Mid-Atlantic region. Primary methods include bottom fishing with natural bait as well as sight-casting, which has gained popularity in recent years. The annual recreational harvest of AMG cobia, found along the US Atlantic coast from New York to Georgia, has varied erratically with little trend since 2005, ranging from 328,000 to 1.7 million pounds. Landings have increased within the past two years. In 2015 and 2016, recreational anglers landed approximately 1.7 million and 1.3 million pounds of cobia, respectively. These are the two highest values in the time series, which extends back to 1981. These harvests resulted in significant overages of the federal ACL and federal fishery closures in 2016 and 2017.

The commercial fishery is on a much smaller scale, but has increased from 2011 to 2016. Primarily a bycatch fishery, it is has been associated with the snapper/grouper hook and line fishery and troll fisheries for many South Atlantic species, although more directed fisheries have recently developed in some areas. Commercial restrictions are consistent throughout the range, with a 2 fish per person possession limit, 6 fish vessel limit, and a 33" fork length minimum size limit. The two greatest commercial harvests in the time series, which extends back to 1950, occurred in 2015 (83,000 pounds) and 2016 (84,000 pounds).

Stock Status

Two cobia stocks are recognized off the U.S. Atlantic coast; AMG cobia and Gulf of Mexico Migratory Group (Gulf cobia), occurring throughout the Gulf of Mexico and extending to Florida's east coast. The SAFMC manages the Atlantic stock, and is allotted a small portion

Species Snapshot

Cobia
Rachycentron canadum

Common Names: black kingfish, black salmon, ling, lemonfish, crabeater, prodigal son, black bonito, sergeantfish, yew, cubby

Management Unit: New York to Georgia

Family: Rachycentridae
The name originates from the Greek words 'rhachis' (spine) and 'kentron' (sting), and was inspired by the dorsal spines that make up the first dorsal fin.

Interesting Facts
- Cobia is the only species in the family Rachycentridae.
- They are a close relative of remoras, suckerfish known for attaching to large marine mammals, sharks, and ships using a suction disk on top of their heads.
- They migrate seasonally, wintering in the Gulf of Mexico and moving up the coast as far as Massachusetts in the summer.
- Cobia feed primarily on crabs, squid, and fish, but will also follow large animals (sharks, turtles, manta rays) to scavenge what they leave behind.
- They are one of the best candidates for warm, open-water marine fish aquaculture due to their fast growth rate and the high quality of their flesh.

Maximum Size: 6.5 feet, 172 pounds

Life Span: 14 years old

Stock Status: Not overfished nor experiencing overfishing

Photo (c) Aaron Game

of the Gulf stock's ACL to manage the Gulf cobia which extend along the Atlantic coast of Florida. Genetic studies continue to explore appropriate stock boundaries, and an upcoming 2018 Stock Identification Workshop may result in modifications to these boundaries.

The 2013 SEDAR stock assessment indicated overfishing was not occurring and neither stock was overfished. ACLs were established as a precautionary measure to prevent the stocks from reaching an overfished status. Despite the stock status, the last assessment showed a general decline in spawning stock biomass since 2002. Since the assessment, recreational harvests have continued to be highly variable and exceeded the ACL (620,000 pounds) in 2015 and 2016. Future overages could lead to the stock becoming overfished. The stock status is expected to be updated by the upcoming SEDAR stock assessment in 2019.

Atlantic Coastal Management

In 2017, the Commission approved the Interstate FMP for AMG Cobia. Complementing many aspects of the SAFMC's cobia regulations for federal waters extending from Georgia through New York, the FMP was initiated in response to recent overages of the federal ACL for AMG cobia. Managing the recreational ACL on a coastwide basis has resulted in federal closures and significant overages in 2015 and 2016, disrupting fishing opportunities and jeopardizing the health of the stock.

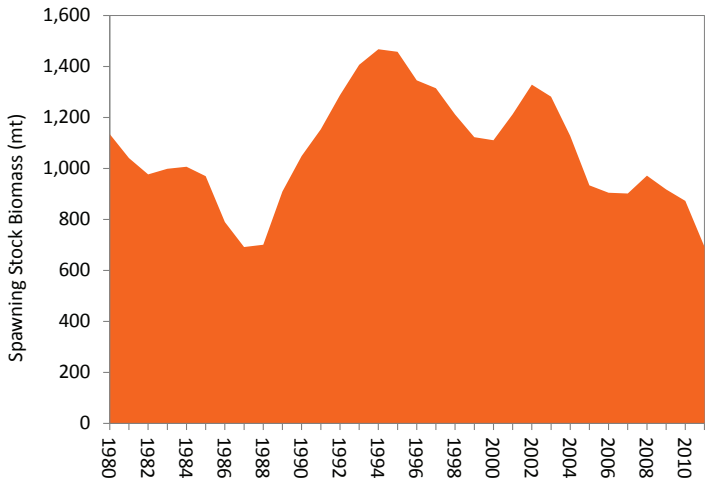
Under the Interstate FMP, the recreational fishery is managed with a one fish bag limit and a minimum size limit of 36" fork length (FL) or total length equivalent. Vessel limits will be determined once individual states set their seasonal restrictions, but may not exceed six fish per vessel. State-specific allocations of a coastwide recreational harvest limit that is equivalent to the federal AMG cobia recreational ACL of 620,000 pounds result in the following state-specific soft targets:

- Georgia - 58,311 pounds
- South Carolina - 74,885 pounds
- North Carolina - 236,316 pounds
- Virginia - 244,292 pounds

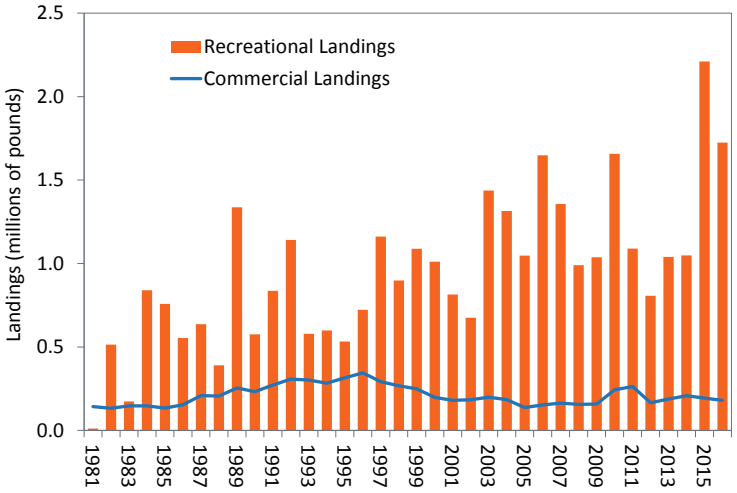
Recreational harvest of state-specific allocations will be evaluated over a three-year time period. If states exceed their soft harvest targets, states will be required to adjust management measures to achieve the soft harvest target in the subsequent three-year period.

The commercial fishery will maintain the current management measures as implemented through the SAFMC FMP and continue to be managed with a 33" FL minimum size limit and two fish limit per person, with a six fish maximum vessel limit. The federal ACL of 50,000 pounds is allocated to the entire commercial fishery from Georgia through New York. The commercial AMG cobia fishery will close once the ACL is projected to be reached. The FMP provides the opportunity for states to declare *de minimis* status for their recreational fishery if landings constitute less than 1% of the recreational AMG cobia harvest. For more information, please contact Mike Schmidtke, Fishery Management Plan Coordinator, at *mschmidtke@asmfc.org*.

Cobia Spawning Stock Biomass
Source: SouthEast Data Assessment and Review , 2013



Cobia Commercial & Recreational Landings
Source: ACCSP Data Warehouse, 2017



SPRING MEETING PRELIMINARY AGENDA continued from page 1

9 a.m. – 5 p.m. Law Enforcement Committee

(A portion of this meeting may be a closed session for Committee members only)

- Review and Comment on Ropeless Fishing Technologies
- Review of 2018 Action Plan Items
- ASMFC Species Management Issues
- State and Federal Agency Reports

11:15 a.m. – Noon Shad & River Herring Management Board

- Consider Approval of Shad and River Herring Sustainable Fishery Management Plans
  - Technical Committee Report
    - Massachusetts (Merrimack River)
- Report on the Funded Research Proposal on Blueback Herring
- Review and Consider 2018 Fishery Management Plan Review and State Compliance Reports

Noon – 1:15 p.m. Legislators and Governors' Appointees Luncheon

- Introductions
- General Comments/Discussion
- Discuss Non-compliance

1:15 – 2:45 p.m. Atlantic Striped Bass Management Board

- Provide Guidance to Stock Assessment Subcommittee Regarding Biological Reference Point Development for the 2018 Benchmark Stock Assessment

3 – 3:45 p.m. Atlantic Herring Section

- Discuss Potential Impact of River Herring/Shad Caps and Mackerel Fishery Possession Limits on Atlantic Herring Fishery
- Review Technical Committee Report on Scaling Up of Spawning Fish Samples Involving Less than One Hundred Fish

4 – 5 p.m. Atlantic Coastal Cooperative Statistics Program (ACCSP) Coordinating Council

- ACCSP Status Report
  - Program Status and Committee Updates
- Review and Consider Approval of FY19 Request for Proposals Package
- Accountability Standards

6 – 8 p.m. Annual Awards of Excellence Reception

WEDNESDAY, MAY 2

8:30 – 10:30 a.m. Executive Committee

(A portion of this meeting may be a closed session for Committee members and Commissioners only)

- Report of the Administrative Oversight Committee
  - Presentation of FY19 Budget
- Discuss Appeals Process
- Discuss Conservation Equivalency Process
- Discuss Commissioner Conflict of Interest
- Future Annual Meetings Updates
- CLOSED SESSION: Executive Director Performance Review

10:45 a.m. – Noon Atlantic Menhaden Management Board

- Review and Consider Approval of Terms of Reference for the 2019 Atlantic Menhaden-Specific and Ecosystem-Based Benchmark Stock Assessments and Peer Reviews

Public Comment Guidelines

In order to ensure a fair opportunity for public input, the ISFMP Policy Board has established the following guidelines for use at management board meetings:

For issues that are not on the agenda, management boards will continue to provide opportunity to the public to bring matters of concern to the board's attention at the start of each board meeting. Board chairs will use a speaker sign-up list in deciding how to allocate the available time on the agenda (typically 10 minutes) to the number of people who want to speak.

For topics that are on the agenda, but have not gone out for public comment, board chairs will provide limited opportunity for comment, taking into account the time allotted on the agenda for the topic. Chairs will have flexibility in deciding how to allocate comment opportunities; this could include hearing one comment in favor and one in opposition until the chair is satisfied further comment will not provide additional insight to the board.

For agenda action items that have already gone out for public comment, it is the Policy Board's intent to end the occasional practice of allowing extensive and lengthy public comments. Currently, board chairs have the discretion to decide what public comment to allow in these circumstances.

In addition, the following timeline has been established for the submission of written comment for issues for which the Commission has NOT established a specific public comment period (i.e., in response to proposed management action).

1. Comments received 3 weeks prior to the start of a meeting week will be included in the briefing materials.

2. Comments received by **5 PM on Tuesday, April 24, 2018** will be distributed electronically to Commissioners/Board members prior to the meeting and a limited number of copies will be provided at the meeting.

3. Following the April 24th deadline, the commenter will be responsible for distributing the information to the management board prior to the board meeting or providing enough copies for management board consideration at the meeting (a minimum of 50 copies).

The submitted comments must clearly indicate the commenter's expectation from the ASMFC staff regarding distribution. As with other public comment, it will be accepted via mail, fax, and email.

- Review and Consider Approval of Stock Assessment Subcommittee Membership
- Review and Consider 2018 Fishery Management Plan Review and State Compliance Reports
    - Review Final 2018 Commercial Quotas

12:45 – 1:30 p.m. Atlantic Sturgeon Management Board
- Review and Consider 2018 Fishery Management Plan Review and State Compliance Reports

1:45 – 3:45 p.m. American Lobster Management Board
- Review Lobster Conservation Management Teams' Proposals to Reduce Latent Effort
- Law Enforcement Committee Report on Enforceability of Ropeless Fishing
- Plan Development Team Update on Development and Timeline of American Lobster Draft Addendum XXVII

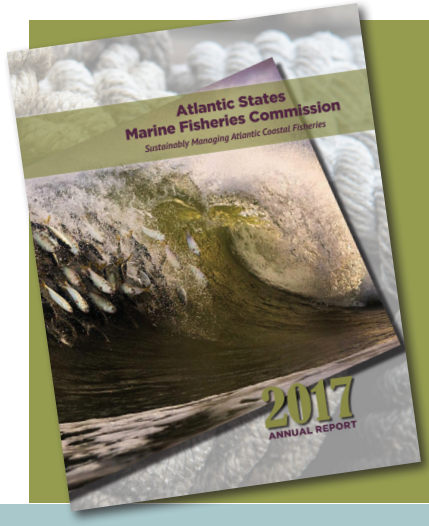
4 – 4:45 p.m. Winter Flounder Management Board
- Review and Consider Rhode Island's Conservation Equivalency Proposal
    - Technical Committee Report

THURSDAY, MAY 3

8 – 10 a.m. Interstate Fisheries Management Program Policy Board
- Law Enforcement and Artificial Reef Committee Reports
- Horseshoe Crab
    - Update on 2018 Benchmark Stock Assessment and Timeline
    - Consider Approval of Non-traditional Stakeholder Nominations

10 – 10:15 a.m. Business Session
- Consider Noncompliance Recommendations (If Necessary)

10:30 a.m. – 12:30 p.m. South Atlantic State/Federal Fisheries Management Board
- Review Public Comment on Draft Addendum I to the Black Drum Fishery Management Plan
    - Consider Draft Addendum I to the Fishery Management Plan for Final Approval
- Consider Management Action Based on Technical Committee/Plan Review Team Recommended Updates to the Annual Traffic Light Analyses for Atlantic Croaker and Spot
- Updates on SEDAR 58 Cobia Stock Identification Workshop and Board Tasking of Cobia Technical Committee from February 2018 Meeting
- Discuss Request to the Secretary of Commerce to Implement Cobia Regulations in Federal Waters in the Absence of a Federal Fishery Management Plan
- Elect Vice-Chair



2017 ANNUAL REPORT NOW AVAILABLE

The Commission has released its 2017 Annual Report, which provides an overview of significant management actions and associated science activities the Commission and its member states took in 2017 to maintain and restore the abundance of Commission-managed species. The report is available on our website at, www.asmfc.org, under Quick Links, or directly at *http://www.asmfc.org/files/pub/2017AnnualReport.pdf*. Limited printed copies are available; to request a copy, contact *info@asmfc.org*.

Comings and Goings

COMMISSIONERS

STEVEN BOWMAN
With his appointment as Commissioner of the Virginia Marine Resources Commission (VMRC), Steven Bowman returns to the ASMFC as Virginia's Administrative Commissioner. Mr. Bowman served as both VMRC and ASMFC Commissioner from 2006 to 2012. Prior to that, he worked as a VMRC conservation law enforcement officer and was an important contributor to the Commission's Law Enforcement Committee. After a six-year stint as Chief of Police for the Smithfield Police Department, he has returned to the realm of Atlantic coast fisheries management. Welcome back, Mr. Bowman!

STEPHEN MURPHEY
In January, in his new position as Director of North Carolina's Division of Marine Fisheries (DMF), Stephen Murphey became the state's Administrative Commissioner to the ASMFC. Mr. Murphey has over 30 years of experience in fishery and shellfish habitat enhancement programs, shellfish growing area surveys, shellfish processing inspection, and program administration. He began his career with the DMF in 1987 as a biologist. In 2010 he was promoted to Section Chief for Habitat and Enhancement. As Section Chief, Mr. Murphey was responsible for managing and coordinating large-scale marine and estuarine habitat restoration, management, and enhancement programs including shellfish aquaculture and oyster enhancement, and management of the Coastal Habitat Protection Plan. Welcome aboard, Mr. Murphey!

continued, see COMINGS & GOINGS on page 8

American Lobster Board Approves Addenda XXVI/III to the American Lobster/Jonah Crab FMPs

The Commission's American Lobster Management Board (Board) approved American Lobster Addendum XXVI/Jonah Crab Addendum III (Addenda) to the American Lobster and Jonah Crab Fishery Management Plans (FMPs). The Addenda improve the spatial resolution of harvester data collection, expand the required harvester reporting data elements, establish a timeline for increased harvester reporting in the American lobster and Jonah crab fisheries, and prioritize the development of electronic harvester reporting. In addition, the Addenda include recommendations for improved reporting and biological sampling in federal waters.

The Addenda respond to two concerns: (1) the current requirements for harvester reporting are insufficient to respond to external management actions; and (2) while the American lobster and Jonah crab fisheries continue to expand offshore, most of the biological sampling occurs inshore or nearshore. In particular, the Board expressed concern the spatial resolution of harvester data is too coarse to respond to finer-scale management issues. As a result, the Addenda improve the spatial resolution of data by requiring fishermen to report via 10 minute squares, which further divide the existing statistical areas. In addition, the addenda establish a one year pilot program to explore electronic tracking devices in the fishery which would address the special resolution and enforcement concerns. The addenda require additional data elements in harvester reports, including number of traps per trawl and number of buoy lines in order to collect information on gear configurations. Finally, the Addenda establish a deadline that, within five years, states are required to implement 100% harvester reporting, with the prioritization of electronic harvester reporting development during that time. In the interim, jurisdictions not at 100% harvester reporting should redistribute the current effort associated with harvester reporting to focus on active, as opposed to latent, permit holders.

The Addenda also improve the biological sampling requirements by establishing a baseline of ten sampling trips per year in the American lobster/Jonah crab fishery and encourage states with more than 10% of coastwide landings in either the American lobster or Jonah crab fisheries to conduct additional sampling trips.

Finally, the Addenda provide three recommendations for actions in federal waters. Specifically, a harvester reporting requirement be established for federal lobster permits in order to collect information from the growing offshore fishery; a fixed-gear VTR form be created to improve data collection in the American lobster and Jonah crab fisheries; and a biological sampling program be established in federal waters in order to address current data gaps in the assessment. These recommendations will be forwarded to NOAA Fisheries.

The Addenda can be obtained at *http://www.asmfc.org/uploads/file/5a9438ccAmLobsterAddXXVI_JonahCrabAddIII_Feb2018.pdf*. For more information, please contact Megan Ware, Fishery Management Plan Coordinator, at *mware@asmfc.org* or 703.842.0740.

COMINGS & GOINGS continued from page 7

JASON MCNAMEE

No stranger to the Commission, Jason McNamee has served on, chaired, and played a critical role on a number of ASMFC species technical committees throughout his career. Now Chief of Rhode Island's Marine Resources Section, Mr. McNamee oversees the administration of the Department of Environmental Management's marine fisheries science and management programs and staff, including its technical projects, scientific research, and outreach activities. In this role, he also serves as the state's Administrative Commissioner to the ASMFC. With a Bachelor's of Science in Zoology, a Master's of Science in Biological Oceanography and a soon to be Ph.D. in Oceanography, Mr. McNamee has a wealth of experience and outstanding qualifications to bring to the table as he works closely with his fellow Commissioners, federal partners, industry representatives, organizations and other stakeholders to develop interstate regional plans for the conservation and management of marine fisheries resources. Welcome aboard, Mr. McNamee!

STAFF

RACHEL COLLINS

In February, with her acceptance of a new position with Specialists on Call, the Commission bid farewell to Rachel Collins. Since September 2015, Ms. Collins served as Human Resources Manager, assisting in the implementation of ASMFC's HR policies and procedures. In her two and a half years with ASMFC, Ms. Collins assisted with the hiring and orientation of APAIS seasonal staff, updated ASMFC's employee handbook with current laws and regulations, and streamlined and improved accounting of employee timesheets and benefits through ADP software. We wish her the best of luck in her future endeavors!

ELIZABETH WYATT

In February, ACCSP said farewell to its Program Coordinator, Elizabeth Wyatt, as she accepted a program coordinator position in her home state of Michigan. Ms. Wyatt first joined the ACCSP staff as a Program Assistant back in May of 2014. Her role expanded to that of Program Coordinator in March 2016. During her time at ACCSP, Elizabeth was instrumental in coordinating ACCSP's annual funding process, organizing its Integrated Reporting Workshop, and ensuring program operations ran smoothly. She was a great boost to office morale, organizing socials and hosting a weekly trivia game. Elizabeth's affable nature, sense of humor, and levelheadedness will be greatly missed. We wish her the best of luck in her future endeavors!

Cooperative Research Seeks to Fill In Data Gaps to Support Fisheries Science and Management Efforts

Fisheries management is a data hungry endeavor. Whether it be recreational catch, commercial landings, fishing effort, or data on fish biology and life history, data feeds stock assessment processes and fisheries management decisions. Unfortunately, data collection is costly, labor intensive, and is becoming increasingly more challenging as state and federal fisheries science and management budgets and personnel have decreased in recent years.

The Commercial Fisheries Research Foundation (CFRF), a non-profit, private foundation established by commercial fishermen to conduct collaborative fisheries research and educational projects, seeks to provide more complete and consistent data to support fisheries science and management in a cost-efficient and scientifically reliable way. CFRF's work allows for the incorporation of fisherman-collected data into science and management measures. The cooperative research approach is especially useful for fisheries with significant temporal and spatial data gaps that would otherwise go unsampled (e.g., offshore areas).

CFRF is currently leading several projects, three of which are highlighted below.

Black Sea Bass Research Fleet

Black sea bass is a popular fishery throughout the Mid-Atlantic and Southern New England. Over the past few years, the distribution of black sea bass has begun to expand its range into more northern waters, largely in response to warming waters, leading to increased abundance throughout Southern New England. The species is also a protogynous hermaphrodite, meaning individuals change from female to male. These two factors – the species changing distribution and unique life history – make gathering comprehensive information about the population for use in future stock assessments and management plans particularly challenging and important.

The Black Sea Bass Research Fleet is a partnership between CFRF and the Rhode Island Department of Environmental Management (RI DEM) to collect and communicate black sea bass biological data in a cost-effective way using modern electronic technology and fishermen's time on the water. The goal is to develop a model approach for fishery-dependent data collection that involves the commercial and recreational fishing industries. The fleet consists of nine Rhode Island commercial and recreational fishermen, using several different gear types, to collect biological and fishery data on black sea bass during routine fishing practices throughout the year. Data collected include gear type and effort, sampling depth, percentage of catch retained and discarded, as well as fish length and sex. Data are transmitted to CFRF through a mobile tablet application, and then to RI DEM and the Atlantic Coastal Cooperative Statistics Program, allowing for timely transfer of the data for scientific and management use. The fishermen participating in the Black Sea Bass Research Fleet have sampled over 8,000 black sea bass since December 2016 and will continue through April 2019.

Brian Thibeault collecting Jonah crab data aboard the FV Ashley Ann. Photo (c) CFRF.

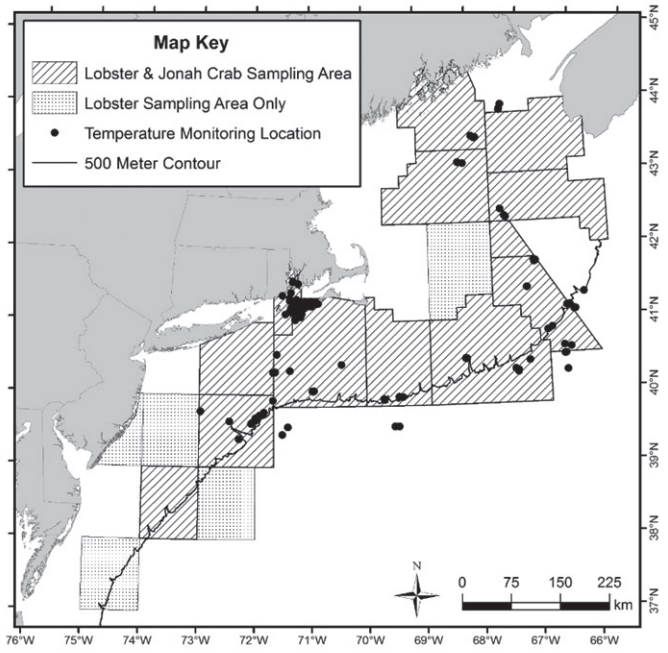
For more information on the Black Sea Bass Research Fleet, please contact Tom Heimann at theimann@cfrfoundation.org.

Supporting Management of Jonah Crab and American Lobster Fisheries in the Northeast

The Jonah Crab and Lobster Research Fleet works to implement a cost-effective method to collect critically needed biological data for two commercially important species. The American lobster fishery is one of the most valuable fisheries in New England, but significant data gaps exist in the southern part of its range and offshore waters. While the adult lobster population in the Gulf of Maine and Georges Bank is at historic highs, the Southern New England population is depleted, a status most likely driven by overfishing and changing environmental conditions, such as increased water temperatures in the area. Jonah crab is a rapidly expanding fishery whose popularity is partially driven by the decrease in availability of Southern New England lobster. An Interstate Fishery Management Plan for Jonah crab was approved in 2015. Information is needed to support the species' first stock assessment and evaluate the status of the stock.

continued, see SCIENCE HIGHLIGHT on page 10

SCIENCE HIGHLIGHT continued from page 9



Map of the areas sampled by the CFRF Lobster and Jonah Crab Research Fleet from June 1, 2013 to July 1, 2017, including bottom water temperature monitoring locations (black circles). Image (c) CFRF

The Jonah Crab and American Lobster Research Fleet collects data on the two species, which are caught in similar gear types, in order to better inform their stock assessments and management decisions.

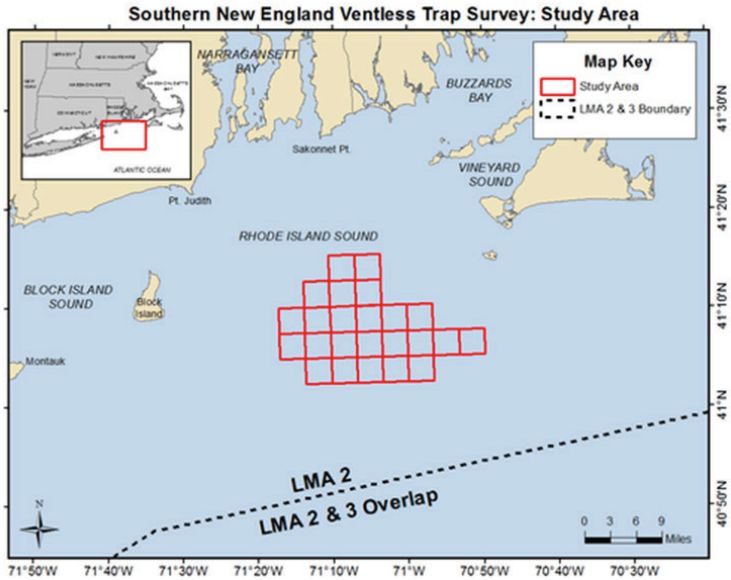
For the project, running since January 2013, 18 American lobster and Jonah crab fishing vessels use digital calipers and the 'On Deck Data' application (app) to collect biological and environmental data from their commercial and ventless traps. At the same time, fishermen also collect bottom water temperatures where they fish. The On Deck Data app was created by CFRF as a way for data to be easily deposited into Android tablets and transferred to a database for use. The project is especially useful in providing more complete temporal and spatial data for the species, as more traditional surveys that only sample within state waters and primarily during the summer months. The app records biological information, such as length, sex, shell disease, eggs, v-notch, shell hardness, and disposition. Each vessel samples at least 300 lobsters or 60 commercial traps each month, or 150 Jonah crabs or 60 commercial traps a month. For the past two years, over 2,300 male and female Jonah crabs have been collected from five geographical regions for Massachusetts Division of Marine Fisheries to analyze and better understand sexual maturity for both stocks. In 2018, the project started using Bluetooth caliper technology, hoping to pioneer its use in other fishery data collection projects. To date, the program has sampled 107,667 American lobsters and 47,400 Jonah crabs.

For more information on the Jonah Crab and American Lobster Research Fleet, please contact Aubrey Ellertson at aellertson@cfrfoundation.org.

Southern New England Cooperative Ventless Trap Survey

This survey is a continuation of the 2014/2015 Southern New England Ventless Trap Survey and will run from March 2018 to February 2019. The survey focuses on American lobster and Jonah crab, assessing the seasonal distribution, movement, and habitat use by these species in the Cox's Ledge Wind Energy Area. The goal is to establish a pre-construction baseline for the populations to enable assessment and mitigation of the impacts of offshore wind energy development. Commercial lobstermen are collaborating with CFRF on the project, providing the vessel capacity and expert knowledge to guide the research. Twenty-four lease blocks were selected in the Rhode Island-Massachusetts Wind Energy Area and biological sampling is conducted within each lease block twice a month from May to November. The project is being implemented in conjunction with a lobster tagging program to determine seasonal movement patterns and habitat use by lobsters in the area. The combined results of the projects will be used to better inform decisions about which locations should be selected for wind turbines in order to limit development impacts on American lobster and Jonah crab.

For more information on the Ventless Trap Survey, please contact Michael Long at mlong@cfrfoundation.org. Additional information on CFRF and its projects can be found at http://www.cfrfoundation.org/.



Map of the areas to be sampled by the Southern New England Cooperative Ventless Trap Survey from May 2018 - November 2018. Image (c) CFRF

-- This article was contributed by Jessica Kuesel, Fisheries Administrative Assistant

American Eel Draft Addendum V Approved for Public Comment

In February, the American Eel Management Board approved Draft Addendum V to the Interstate Fishery Management Plan for public comment. The Draft Addendum proposes alternative coastwide landings caps, management triggers, state-by-state allocations, and transfer provisions for the yellow eel commercial fishery; as well as alternatives to the current Maine glass eel commercial quota and the aquaculture provisions of the plan. The Board initiated Draft Addendum V in October 2017 in response to concerns over the management program as specified in Addendum IV.

Currently, the yellow eel fishery is managed to an annual coastwide landings cap of 907,671 pounds. The coastwide cap is evaluated against two management triggers: (1) the coastwide cap is exceeded by more than 10% in a given year; or (2) the coastwide cap is exceeded for two consecutive years, regardless of the percent overage. If either of these triggers are tripped, state-by-state quotas will be implemented. 2016 landings exceeded the coastwide cap by less than ten percent. If landings in 2017 exceeded the coastwide cap by any amount, state-by-state quotas would be implemented. The Board expressed concern that the current management triggers do not account for annual fluctuations in landings and the immediate implementation of state-by-state quotas would pose significant administrative challenges. Draft Addendum V proposes alternatives to the coastwide cap, management triggers, state-by-state allocations and transfer provisions to address the Board's concerns.

Draft Addendum V proposes alternative quota levels for the Maine glass eel fishery, increasing the quota above the 2015-2018 level of 9,688 pounds. The Draft Addendum also proposes changes to the aquaculture provisions of the plan. It includes an option that would allow contiguously bordered states to pool their 200 pound glass eel aquaculture allowance up to a maximum of 600 pounds.

It is anticipated the majority of states from Maine through Florida will be conducting public hearings on the Draft Addendum. A notice of the document's availability for public comment, as well as the public hearing schedule will be released late April/early May. The Board will meet in August at the Commission's Summer Meeting to review submitted comment and consider final action on the Addendum. For more information, please contact Kirby Rootes-Murdy, Senior FMP Coordinator, at krootes-murdy@asmfc.org.

ACCSP
Good Data, Good Decisions

ACCSP Announces FY2018 Funding Awards

The Atlantic Coastal Cooperative Statistics Program (ACCSP) has allocated nearly $1.4 million to its state and federal partners for 11 new and ongoing projects to improve data collection and processing for Atlantic coastal fisheries in 2018. The table details the projects that will be awarded funding.

ACCSP is a cooperative state-federal program focused on the design, implementation, and conduct of marine fisheries statistics data collection programs and the integration of those data into a single data management system that will meet the needs of fishery managers, scientists, and fishermen. It is composed of representatives from natural resource management agencies coastwide, including the Atlantic States Marine Fisheries Commission, the three Atlantic fishery management councils, the 15 Atlantic states, the Potomac River Fisheries Commission, the D.C. Fisheries and Wildlife Division, NOAA Fisheries, and the U.S. Fish & Wildlife Service. For further information please visit www.accsp.org.

PROGRAM PARTNER	PROJECT	AWARD (Rounded to nearest hundred)
Maine Department of Marine Resources	Managing Mandatory Dealer Reporting in Maine	$193,500
	Portside Commercial Catch Sampling and Bycatch Sampling for Atlantic Herring (*Clupea harengus*), Atlantic Mackerel (*Scomber scombrus*), and Atlantic Menhaden (*Brevoortia tyrannus*) Fisheries	$26,000
Rhode Island Division of Fish and Wildlife	Maintenance and Coordination of Fishery-Dependent Data Feeds to ACCSP from the State of Rhode Island	$77,000
	Voice Recognition and HeadBoat Survey Mobile Application	$48,300
	Advancing Fishery-Dependent Data Collection for Black Sea Bass (*Centropristis striata*) in the Southern New England and Mid-Atlantic Region Utilizing Modern Technology and a Fishing Vessel Research Fleet Approach	$135,600
New Jersey Division of Fish and Wildlife	Electronic Reporting and Biological Characterization of New Jersey Commercial Fisheries	$164,400
South Carolina Department of Natural Resources	ACCSP Data Reporting from South Carolina's Commercial Fisheries	$163,200
	VESL/SAFIS Integration Development	$86,400
Georgia Department of Natural Resources	Continuing Data Entry and Management of Commercial Fisheries Paper Trip Tickets in Georgia	$116,900
NOAA Fisheries' Southeast Fisheries Science Center	Continued Processing and Ageing of Biological Samples Collected from U.S. South Atlantic Commercial and Recreational Fisheries	$251,600
ACCSP Recreational Technical Committee and Florida Fish and Wildlife Conservation Commission	Increase At-sea Sampling Levels for the Recreational Headboat Fishery on the Atlantic Coast	$134,400

National Oceanic and Atmospheric Administration (in $ thousands)

	2016 Enacted	2017 Enacted	2018 Trump	2018 House	2018 Senate	2018 Enacted	2019 Trump
National Marine Fisheries Service							
Marine Mammals, Turtles & Other Species	110,246	111,342	106,993	108,500	113,342	113,342	108,460
Species Recovery Grants	6,000	6,200	5,989	5,989	7,000	7,000	5,993
Atlantic Salmon	6,163	6,224	6,151	6,224	6,224	6,224	6,218
Pacific Salmon	60,000	62,000	59,887	63,000	62,000	63,000	60,944
Ecosystem Science Programs & Services	139,489	139,489	141,323	141,323	141,327	144,196	141,185
Data Collections, Surveys & Assessments	163,271	164,000	154,961	163,000	164,749	164,749	156,558
Observers and Training	43,655	43,655	43,572	43,655	43,655	53,955	43,768
Fisheries Management Programs & Services	115,995	117,051	111,153	117,000	117,051	118,659	112,598
Aquaculture	6,300	9,300	6,288	8,000	15,000	15,000	9,327
Salmon Management Activities	31,500	33,500	31,440	34,000	35,469	35,500	31,524
Regional Councils & Fisheries Commissions	33,470	34,254	33,407	34,000	35,871	35,871	34,495
Interjurisdictional Fisheries Grants	3,000	3,004	0	3,000	3,004	3,004	0
Enforcement	69,000	69,000	68,943	69,000	69,000	69,073	51,495
Habitat Conservation and Restoration	61,408	52,524	51,334	51,334	53,342	53,384	47,919
Selected Additional NOAA Accounts							
National Sea Grant College Program	64,000	63,000	0	63,000	65,000	65,000	0
Marine Aquaculture Program	9,000	9,500	0	7,000	11,500	11,500	0
Coastal Zone Management and Services	40,000	42,500	39,924	39,600	42,500	42,500	40,489
Coastal Zone Management Grants	26,000	85,000	0	45,000	85,000	75,000	0
Title IX Fund	-	-	-	-	-	30,000	-
Coral Reef Program	26,000	26,100	25,955	26,100	26,600	26,604	26,033
Sanctuaries and Marine Protected Areas	49,000	51,000	48,907	52,000	51,000	54,500	49,739
National Estuarine Research Reserve System	23,000	23,500	0	23,500	25,000	25,000	0

Magnuson-Stevens Act Reauthorization

On February 28, 2018, the U.S. Senate Committee on Commerce, Science and Transportation approved S. 1520, the Modernizing Recreational Fisheries Management Act. S. 1520 contains a number of provisions championed by the recreational fishing community, including use of alternative fishery management measures, requiring allocation reviews for some South Atlantic and Gulf fisheries, and changes to how fisheries data is collected.

On December 13, 2017, the U.S. House Committee on Natural Resources approved its Magnuson-Stevens Fishery Conservation and Management Act (MSA) reauthorization bill, H.R. 200 – the Strengthening Fishing Communities and Increasing Flexibility in Fisheries Management Act. During the mark-up, H.R. 200 was amended to include provisions of H.R. 2023/S. 1520 – the Modernizing Recreational Fisheries Management Act.

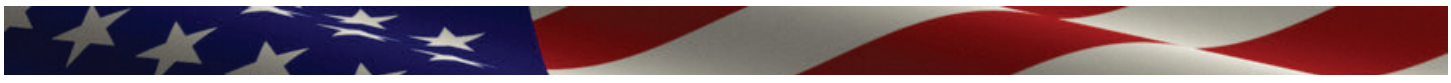
Federal Appropriations

On March 23, 2018, the President approved an omnibus appropriations bill for Fiscal Year 2018. In addition to funding the federal government, the legislation contains instructions to the various federal agencies, including NOAA Fisheries. Two provisions have the potential to impact Atlantic coast striped bass management:

- The Atlantic States Marine Fisheries Commission is completing a new stock assessment of Atlantic striped bass in 2018. After this assessment is complete, the Secretary of Commerce is directed to use this assessment to review the federal moratorium on Atlantic striped bass.
- NOAA Fisheries, in consultation with the Atlantic States Marine Fisheries Commission, is directed to consider lifting the ban on striped bass fishing in the Federal Block Island Transit Zone.

President Trump submitted his Fiscal Year 2019 Budget Request to Congress on February 12, 2018. The Budget again proposes to eliminate Interjurisdictional Fisheries Act Grants, National Estuarine Research Reserves, and Sea Grant. For the second year, the President also proposes to use all available Saltonstall-Kennedy funding to offset NOAA Fisheries' appropriation for Data Collections, Surveys, and Assessments. Therefore, no Saltonstall-Kennedy grants would be available for Fiscal Year 2019. The federal government is currently operating under a stop-gap funding measure at Fiscal Year 2017 levels through March 23, 2018.

Funding levels for NOAA Fisheries and other selected accounts within NOAA can be viewed in the above chart. For more information, please contact Deke Tompkins at dtompkins@asmfc.org.



ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

STEPHEN W. MURPHEY
Director

May 16, 2018

MEMORANDUM

TO: Marine Fisheries Commission

FROM: Kathy Rawls, Fisheries Management Section Chief

SUBJECT: Rule Suspensions

Attached is the temporary rule suspension information for the May 2018 meeting. In accordance with the North Carolina Division of Marine Fisheries Resource Management Policy Number 2014-2, the North Carolina Marine Fisheries Commission will vote on any new rule suspensions that have occurred since the last meeting of the commission. No new rule suspensions have occurred since the February 2018 meeting; therefore, no action is necessary. The current rule suspensions are as follows:

- Continued suspension of North Carolina Marine Fisheries Commission Rule 15A NCAC 03M .0516 Cobia, for an indefinite period of time. This continued suspension allows the division to manage the commercial and recreational cobia fisheries in accordance with management actions taken by the commission and in accordance with Framework Amendment 4 to the federal Coastal Migratory Pelagics Fishery Management Plan. This suspension was continued in Proclamation FF-10-2018.

- Continued suspension of portions of North Carolina Marine Fisheries Commission Rule 15A NCAC 03J .0301 Pots, for an indefinite period of time. This continued suspension allows the division to implement the crab pot escape ring requirements adopted by the commission in the May 2016 Revision to Amendment 2 of the North Carolina Blue Crab Fishery Management Plan. This suspension was effective January 15, 2017, implemented in Proclamation M-11-2016.

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

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

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

Red Drum Landings 2016-2017

Landings are complete through January 31, 2018
2016 and 2017 landings are final. 2018 landings are preliminary.

Year	Month	Species	Pounds	2009-2011 Average	2013-2015 Average
2016	9	Red Drum	18,748	28,991	35,003
2016	10	Red Drum	13,907	43,644	63,662
2016	11	Red Drum	8,308	14,318	27,643
2016	12	Red Drum	1,990	3,428	2,197
2017	1	Red Drum	1,313	5,885	1,699
2017	2	Red Drum	2,808	3,448	3,996
2017	3	Red Drum	5,392	5,699	3,971
2017	4	Red Drum	4,402	7,848	6,528
2017	5	Red Drum	7,775	13,730	9,664
2017	6	Red Drum	12,517	12,681	6,985
2017	7	Red Drum	14,108	13,777	15,618
2017	8	Red Drum	18,579	21,252	15,846
Fishing Year (Sept 1, 2016 - Aug 31, 2017) Landings			**109,848**		

Year	Month	Species	Pounds	2009-2011 Average	2013-2015 Average	
2017	9	Red Drum	28,280	28,991	35,003	
2017	10	Red Drum	58,824	43,644	63,662	
2017	11	Red Drum	27,750	14,318	27,643	
2017	12	Red Drum	4,714	3,428	2,197	
2018	1	Red Drum	2,056	5,885	1,699	
2018	2	Red Drum	1,842	3,448	3,996	*
2018	3	Red Drum	3,002	5,699	3,971	*
2018	4	Red Drum	***	7,848	6,528	*
Fishing Year (Sept 1, 2017 - Aug 31, 2018) Landings			**126,468**			

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

Year	Month	Species	Pounds	Dealers	Trips	Average (2007-2009)	
2015	1	SOUTHERN FLOUNDER	1,984	30	237	7,713	
2015	2	SOUTHERN FLOUNDER	495	21	93	4,617	
2015	3	SOUTHERN FLOUNDER	10,750	62	768	23,512	
2015	4	SOUTHERN FLOUNDER	20,824	88	1,074	68,389	
2015	5	SOUTHERN FLOUNDER	42,454	117	1,282	122,514	
2015	6	SOUTHERN FLOUNDER	53,838	116	1,482	154,090	
2015	7	SOUTHERN FLOUNDER	42,806	106	1,144	170,387	
2015	8	SOUTHERN FLOUNDER	43,900	111	1,152	201,862	
2015	9	SOUTHERN FLOUNDER	255,067	122	2,335	396,301	
2015	10	SOUTHERN FLOUNDER	429,234	127	2,554	781,717	
2015	11	SOUTHERN FLOUNDER	301,489	90	1,755	392,150	
2015	12	SOUTHERN FLOUNDER	89	7	10	37,303	
2016	1	SOUTHERN FLOUNDER	2,625	33	264	7,713	
2016	2	SOUTHERN FLOUNDER	1,643	31	291	4,617	
2016	3	SOUTHERN FLOUNDER	9,183	58	914	23,512	
2016	4	SOUTHERN FLOUNDER	10,558	72	628	68,389	
2016	5	SOUTHERN FLOUNDER	24,522	90	821	122,514	
2016	6	SOUTHERN FLOUNDER	44,952	100	1,242	154,090	
2016	7	SOUTHERN FLOUNDER	43,574	102	1,132	170,387	
2016	8	SOUTHERN FLOUNDER	53,057	106	1,409	201,862	
2016	9	SOUTHERN FLOUNDER	245,870	131	3,004	396,301	
2016	10	SOUTHERN FLOUNDER	279,618	117	2,161	781,717	
2016	11	SOUTHERN FLOUNDER	182,148	102	1,465	392,150	
2016	12	SOUTHERN FLOUNDER	14	5	5	37,303	
2017	1	SOUTHERN FLOUNDER	1,677	38	122	7,713	
2017	2	SOUTHERN FLOUNDER	2,758	55	215	4,617	
2017	3	SOUTHERN FLOUNDER	8,254	67	874	23,512	
2017	4	SOUTHERN FLOUNDER	9,591	83	787	68,389	
2017	5	SOUTHERN FLOUNDER	33,105	105	1,121	122,514	
2017	6	SOUTHERN FLOUNDER	74,973	115	1,906	154,090	
2017	7	SOUTHERN FLOUNDER	74,944	107	1,755	170,387	
2017	8	SOUTHERN FLOUNDER	102,877	116	2,366	201,862	
2017	9	SOUTHERN FLOUNDER	235,915	128	2,849	396,301	
2017	10	SOUTHERN FLOUNDER	548,723	142	3,970	781,717	
2017	11	SOUTHERN FLOUNDER	301,569	123	1,990	392,150	
2017	12	SOUTHERN FLOUNDER	166	7	8	37,303	
2018	1	SOUTHERN FLOUNDER	610	14	43	7,713	*
2018	2	SOUTHERN FLOUNDER	1,389	24	126	4,617	*
2018	3	SOUTHERN FLOUNDER	1,367	21	211	23,512	*
2018	4	SOUTHERN FLOUNDER	***	1	3	68,389	*

*2018 data are preliminary and only complete through January.

***data are confidential

Year	Species	Gear	Pounds	Dealers	Trips	
2012	SOUTHERN FLOUNDER	GIGS	149,387	112	3,000	
2012	SOUTHERN FLOUNDER	GILLNETS	879,373	168	14,713	
2012	SOUTHERN FLOUNDER	OTHER	47,989	105	1,462	
2012	SOUTHERN FLOUNDER	POUND NET	569,388	35	1,754	
2013	SOUTHERN FLOUNDER	GIGS	118,489	101	2,408	
2013	SOUTHERN FLOUNDER	GILLNETS	1,096,060	178	16,968	
2013	SOUTHERN FLOUNDER	OTHER	46,953	104	2,093	
2013	SOUTHERN FLOUNDER	POUND NET	924,889	41	2,112	
2014	SOUTHERN FLOUNDER	GIGS	135,273	109	2,655	
2014	SOUTHERN FLOUNDER	GILLNETS	659,394	145	11,778	
2014	SOUTHERN FLOUNDER	OTHER	18,628	115	1,887	
2014	SOUTHERN FLOUNDER	POUND NET	860,216	39	1,806	
2015	SOUTHERN FLOUNDER	GIGS	130,277	92	2,616	
2015	SOUTHERN FLOUNDER	GILLNETS	392,384	133	8,471	
2015	SOUTHERN FLOUNDER	OTHER	12,422	102	1,002	
2015	SOUTHERN FLOUNDER	POUND NET	667,847	40	1,803	
2016	SOUTHERN FLOUNDER	GIGS	126,983	92	2,657	
2016	SOUTHERN FLOUNDER	GILLNETS	361,570	126	8,422	
2016	SOUTHERN FLOUNDER	OTHER	10,953	84	838	
2016	SOUTHERN FLOUNDER	POUND NET	398,258	39	1,423	
2017	SOUTHERN FLOUNDER	GIGS	136,094	90	2,752	
2017	SOUTHERN FLOUNDER	GILLNETS	552,227	128	12,363	
2017	SOUTHERN FLOUNDER	OTHER	8,360	90	939	
2017	SOUTHERN FLOUNDER	POUND NET	697,870	45	1,912	
2018	SOUTHERN FLOUNDER	GIGS	958	7	44	*
2018	SOUTHERN FLOUNDER	GILLNETS	2,247	24	299	*
2018	SOUTHERN FLOUNDER	OTHER	149	11	25	*
2018	SOUTHERN FLOUNDER	POUND NET	***	2	15	*

*2018 data are preliminary and only complete through January.

***data are confidential

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

May 16, 2018

MEMORANDUM

TO: Marine Fisheries Commission

FROM: Chris Batsavage, Protected Resources Section Chief/Special Assistant for Councils and John McConnaughey, Protected Resources Section

SUBJECT: Protected Resources Section Update

Observer Program
Tables summarizing observer coverage and protected species interactions from January through March 2018 are included. These tables provide the number of trips, observed trips, observer coverage, and protected species interactions for anchored large and small mesh gill nets by month and management unit. Please note that observer coverage is based on the average number of trips from previous years' finalized data, because 2018 trip data are preliminary.

No sea turtle interactions* were observed in large or small mesh gill nets from January through March 2018, and no self-reported sea turtle interactions by gill net fishermen occurred during this time.

A total of 12 (11 alive and one dead) Atlantic sturgeon interactions were observed in large mesh gill nets and zero in small mesh gill nets from January through March 2018, with all but two interactions occurring in March. No self-reported Atlantic sturgeon interactions by gill net fishermen occurred during this time.

Management Unit Openings and Closures
The following management units opened or closed as a requirement of the Sea Turtle and Atlantic Sturgeon Incidental Take Permits:

- Portions of Management Unit A reopened to large mesh gill nets on Mar. 3, 2018 after closing on Dec. 1, 2017 to minimize Atlantic sturgeon interactions. These areas closed again after the end of the American shad season in Management Unit A (Mar. 25
- No other management units closed during this time.

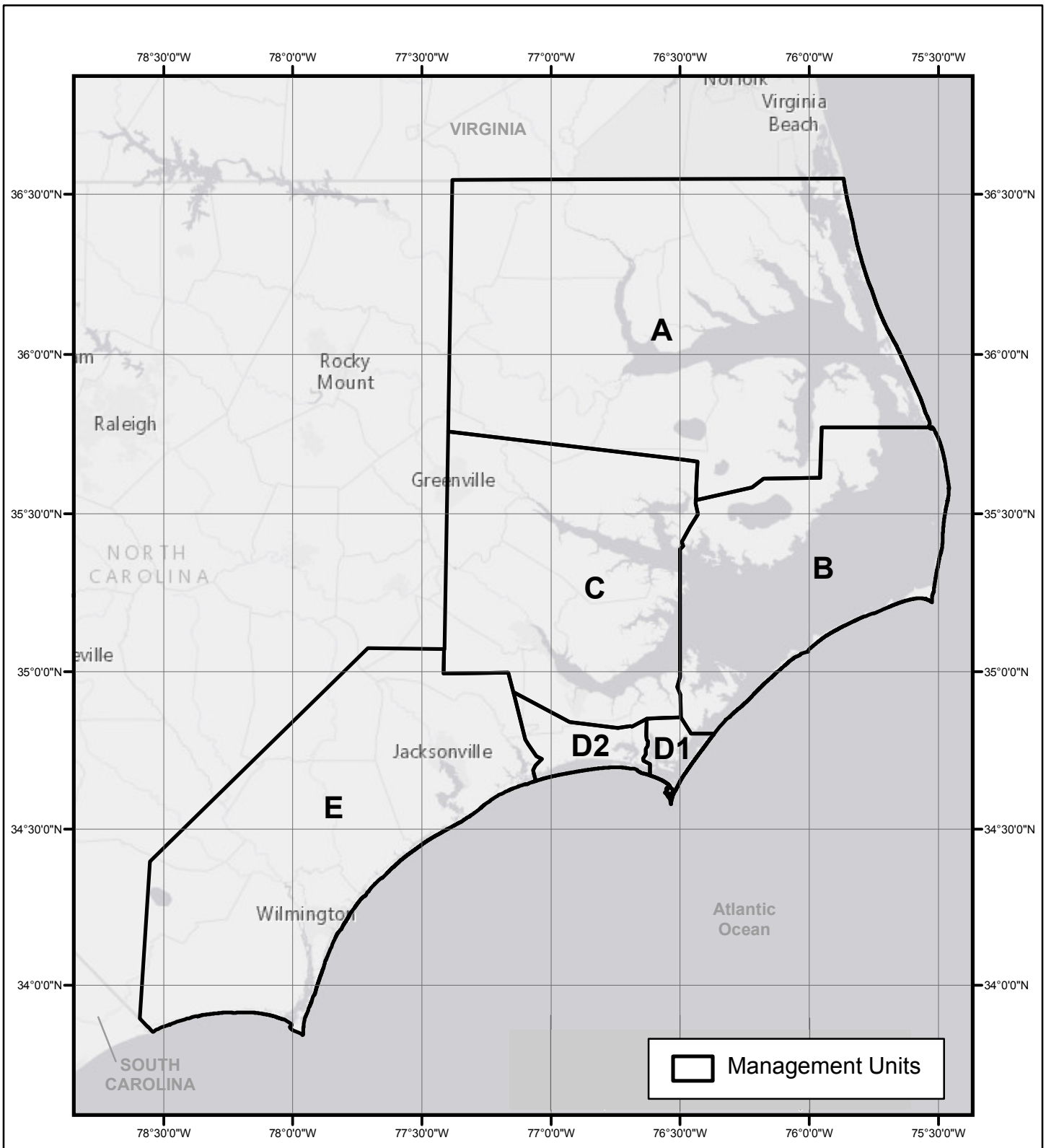
Annual Sea Turtle and Atlantic Sturgeon Incidental Take Permit Reports
Included in the briefing materials are the annual reports for the Sea Turtle and Atlantic Sturgeon Incidental Take Permits that were submitted to the National Marine Fisheries Service. The annual reports:

- Describe the methodology for monitoring sea turtle and Atlantic sturgeon takes in the estuarine anchored gill net fishery,
- Report the observer program activity by season,
- Provide the number of observed and fishermen-reported sea turtle and Atlantic sturgeon interactions, and
- Give the estimated total number of sea turtle and Atlantic sturgeon interactions based on percent observer coverage at the times the interactions occurred.

The reports also show maps of observer trips and protected species interactions and provide information on management unit closures, incidental take permit compliance, and outreach efforts.

***Definition**

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



NCDMF ESTUARINE GILLNET PERMIT MAP

April 2015

0 12.5 25 50 Miles

Table 1. Preliminary data collected for large mesh gill nets by month and management unit through the NCDMF Observer Program through March 5, 2018.

								Observed Takes By Species								
		Trips		Observer Large Mesh				Kemp's		Green		Loggerhead		Unknown	A.Sturgeon [5]	
Month	Unit	Estimated [1]	Actual [2]	AP Attempts [3]	Trips	Yards	Coverage [4]	Live	Dead	Live	Dead	Live	Dead	Live	Live	Dead
January	A	265	209	8	15	10,260	5.7									
	B	30	2	14	0	0	0.0									
	C	15	4	5	1	50	6.7									
	D1	0	0	0	0	0	0.0									
	D2	0	3	1	0	0	0.0									
	E	6	4	35	0	0	0.0									
February	A	527	221	29	25	12,490	4.7								**1**	
	B	52	7	21	0	0	0.0									
	C	102	45	21	16	12,180	15.7								**1**	
	D1	0	0	0	0	0	0.0									
	D2	1	2	6	1	100	0.0									
	E	22	3	41	0	0	0.0									
March	A	1,146	1	24	91	41,640	7.9								**9**	**1**
	B	69	0	17	1	600	1.4									
	C	655	0	11	29	19,360	4.4									
	D1	1	0	4	0	0	0.0									
	D2	7	0	2	3	1,100	42.9									
	E	59	0	52	2	180	3.4									
Total		2,957	501	291	184	97,960	6.2	0	0	0	0	0	0	0	11	1

[1] Finalized trip ticket data averaged from 2012-2016

[2] Preliminary trip ticket data for 2018

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

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

[5] A. Sturgeon numbers through March 2018

Table 2. Preliminary data collected for large mesh gill nets by month through the NCDMF Observer Program through March 5, 2018.

							Observed Takes By Species								
	Trips		Observer Large Mesh				Kemp's		Green		Loggerhead		Unknown	A. Sturgeon [5]	
Month	Estimated [1]	Actual [2]	AP Attempts [3]	Trips	Yards	Coverage [4]	Live	Dead	Live	Dead	Live	Dead	Live	Live	Dead
January	316	222	63	16	10,310	5.1	0	0	0	0	0	0	0	0	0
February	704	278	118	42	24,770	6.0	0	0	0	0	0	0	0	**2**	0
March	1,937	1	110	126	62,880	6.5	0	0	0	0	0	0	0	**9**	**1**
Total	2,957	501	291	184	97,960	6.2	0	0	0	0	0	0	0	11	1

[1] Finalized trip ticket data averaged from 2012-2016

[2] Preliminary trip ticket data for 2018

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

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

[5] A. Sturgeon numbers through March 2018

Table 3. Preliminary data collected for small mesh gill nets by month and management unit through the NCDMF Observer Program through March 5, 2018.

							Observed Takes By Species								
		Trips		Observer Small Mesh			Kemp's		Green		Loggerhead		Unknown	A. Sturgeon	
Month	Unit	Estimated [1]	Actual [2]	Trips	Yards	Coverage [3]	Live	Dead	Live	Dead	Live	Dead	Live	Live	Dead
January	A	394	131	1	150	0.3									
	B	151	58	1	300	0.7									
	C	47	20	4	1,000	8.5									
	D1	1	0	0	0	0.0									
	D2	21	1	5	900	23.8									
	E	27	5	1	800	3.7									
February	A	515	184	12	3,700	2.3									
	B	108	225	1	700	0.9									
	C	64	77	8	3,130	12.5									
	D1	1	3	0	0	0.0									
	D2	13	0	3	400	23.1									
	E	14	0	1	300	7.1									
March	A	575	0	3	750	0.5									
	B	262	6	6	2,080	2.3									
	C	87	0	3	1,000	3.4									
	D1	6	0	0	0	0.0									
	D2	4	0	0	0	0.0									
	E	23	1	1	600	4.3									
Total		2,313	711	50	15,810	2.2	0	0	0	0	0	0	0	0	0

[1] Finalized trip ticket data averaged from 2013-2016

[2] Preliminary trip ticket data for 2018

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

Table 4. Preliminary data collected for small mesh gill nets by month through the NCDMF Observer Program through March 5, 2018.

						Observed Takes By Species								
	Trips		Observer Small Mesh			Kemp's		Green		Loggerhead		Unknown	A. Sturgeon	
Month	Estimated [1]	Actual [2]	Trips	Yards	Coverage [3]	Live	Dead	Live	Dead	Live	Dead	Live	Live	Dead
January	641	215	12	3,150	1.9	0	0	0	0	0	0	0	0	0
February	715	489	25	8,230	3.5	0	0	0	0	0	0	0	0	0
March	957	7	13	4,430	1.4	0	0	0	0	0	0	0	0	0
Total	2,313	711	50	15,810	2.2	0	0	0	0	0	0	0	0	0

[1] Finalized trip ticket data averaged from 2013-2016

[2] Preliminary trip ticket data for 2018

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

Annual Sea Turtle Interaction Monitoring of the Anchored Gill-Net Fisheries in North Carolina for Incidental Take Permit Year 2017

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

Jacob Boyd

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

February 2018

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

The North Carolina Division of Marine Fisheries (NCDMF) applied for an Incidental Take Permit (ITP) under Section 10(a)(1)(B) of the Endangered Species Act of 1973 (Public Law 93-205) (ESA) on June 14, 2010 to address sea turtle interactions with anchored gill nets in North Carolina's internal coastal (estuarine) waters. Species of sea turtles found in the estuarine waters of North Carolina include green sea turtle (*Chelonia mydas*), Kemp's ridley sea turtle (*Lepidochelys kempii*), loggerhead sea turtle (*Caretta caretta*), hawksbill sea turtle (*Eretmochelys imbricate*), and leatherback sea turtle (*Dermochelys coriacea*). This request was prompted by notification from the National Marine Fisheries Service (NMFS) - Southeast Regional Office (SERO) in July and November 2009 indicating the need for the state of North Carolina to address unauthorized takes of sea turtles occurring in inshore anchored gill-net fisheries. A revised ITP application was submitted on August 17, 2011 based on feedback received from the NMFS on May 12, 2011. Feedback on the revised application from the NMFS was provided again on May 2, 2012 after public and peer review comments had been compiled. In response to requested changes from the NMFS, and considering the public and peer review comments, including the comments made by the North Carolina Sea Turtle Advisory Committee (NCSTAC), the NCDMF made extensive revisions to its application and resubmitted it on September 6, 2012. After another round of public and peer review comments the NMFS requested more information and clarification on certain portions of the application. On November 14, 2012, the response to the information request was discussed via teleconference between the NMFS and the NCDMF and provided to them beforehand. The NMFS recommended that the NCDMF update the current ITP application with an appendix containing all the updated information requested.

During the November 14, 2012 teleconference, the NMFS suggested breaking down the annual requested takes for Kemp's ridley and loggerhead sea turtles cumulatively, similar to the previous ITPs for the Pamlico Sound Gill Net Restricted Area (PSGNRA). The NCDMF also suggested annual cumulative requested takes for all species of sea turtles for the exempt areas. A revised application was resubmitted on January 18, 2013.

On April 17, 2013, the NMFS set up a teleconference with the NCDMF to go over the revised ITP application that was submitted on January 18, 2013. Information was provided to the NMFS to clarify issues they had with the application. On April 22, 2013, the NMFS again asked for further clarification on various aspects of the ITP application which the NCDMF promptly responded to. At that time, the NCDMF was informed by the NMFS that they hoped to have a draft permit within a month to discuss with the NCDMF. On April 30, 2013, the NCDMF staff were contacted by the NMFS for further explanation on the methodologies of the Observer Program. Explanations were provided and the NMFS did not have any more questions at the time.

On May 20, 2013, the NCDMF had another teleconference with the NMFS concerning the ITP application status and to review the Biological Opinion and Environmental Assessment protocols. At this time, the NMFS raised concerns on the number of observed takes requested in the ITP application. During the May teleconference, the NCDMF and the NMFS agreed to base authorized takes by area on an annual basis instead of a seasonal basis. The number of requested observed takes was reduced by taking the seasonal component out of the equation. The NMFS brought up the idea of having an Implementing Agreement for the Sea Turtle ITP, similar to the Implementing Agreement the NMFS had suggested for the Atlantic Sturgeon ITP. The NMFS explained that an Implementing Agreement would provide more flexibility and could reduce the risk of the permit being suspended due to excessive takes, but it will not allow for additional takes. The NMFS explained that any new information could be provided in another appendix to the existing application. The NCDMF asked the NMFS to provide a copy of a draft Implementing Agreement for consideration.

The NCDMF received the Sea Turtle ITP (No. 16230) on September 11, 2013. The Sea Turtle ITP defined an ITP Year as beginning on September 1 and running through August 31 of the following year. This ITP authorized the implementation of adaptive management measures to protect threatened and endangered sea turtles and other ESA listed species, while allowing anchored gill-net fisheries to be prosecuted in the estuarine waters of North Carolina. The ITPs Conservation Plan specifies further measures, which the NMFS determined will minimize, monitor, and mitigate the impacts of incidental takes of ESA-listed sea turtle species associated with the otherwise lawful anchored gill-net fisheries operating in estuarine North Carolina waters. Anchored gill nets are passive sets deployed with an anchor, stake, or boat at one or both ends of the net shots or operation. Anchored gill nets do not include the following types of gill nets: run-around, strike, drop or drift gill nets.

On November 21, 2016, the NCDMF requested a minor modification to extend the annual report deadlines for the Sea Turtle and Atlantic Sturgeon (No. 18102) ITPs from January 31 to the last day in February. This extension was to benefit staff due to a lag time in data being uploaded and verified, the time of year, the deadline for the fall seasonal report, and staff availability. On January 4, 2017, the NMFS sent a letter to the NCDMF concurring with NCDMF's request for the minor modification encouraging staff to incorporate any further anticipated minor modifications into the application process for an updated ITP (Appendix A).

The NCDMF Observer Program data were updated using the finalized 2016 Trip Ticket Program (TTP) data in May 2017 (Appendix B). The Annual Completion Report for the Sea Turtle ITP No. 16230 was completed for ITP Year 2016 and submitted in February 2017. Using the finalized 2016 data, Tables 1, 5, 10, and 11 from the Completion Report were updated to reflect the final estimates of observer coverage and sea turtle takes. The fall 2015 season was based on

finalized 2016 TTP data and did not deviate from the previous report for both anchored large and small mesh gill nets (Appendix B).

METHODS

Observer Activity

The conservation plan includes managing the estuarine anchored gill-net fisheries by dividing North Carolina's estuarine waters into six management units (A, B, C, D1, D2, and E; Figure 1). Trip Ticket Program data along with Observer Program data from previous years are used when estimating the number of trips needed for the current year in each management unit and season. Also, real time TTP data are used for areas where effort may be increasing. Each year effort can potentially shift from one management unit to another making it important for the NCDMF to not base the observer effort solely on previous years' data, but also on current effort. To account for fluctuations in TTP data caused by management unit closings, a five-year average was used for estimating anchored large mesh gill-net fishing trips and a four-year average was used for estimating anchored small mesh gill-net fishing trips for ITP Year 2017. This method of estimating trips proves to more accurately reflect the current fishing effort. Once TTP data are finalized in May of 2018, the final observer coverage will be recalculated and the finalized estimates of observer coverage will be provided to the NMFS.

Observer coverage was calculated for each season in each management unit by estimating fishing trips using an average of the previous five years' TTP data (2012-2016) for anchored large mesh gill nets, and the average of the previous four years' (2013-2016) TTP data for anchored small mesh gill nets, while taking reduced season dates in each management unit into account by calculating the proportion of actual to possible fishing days. This calculated estimated fishing effort was compared to the observer trips completed throughout the ITP Year. The average, normalized effort was used when estimating fishing trips to account for the fluctuation of fishing effort throughout the years due to closures and other regulations put in place throughout the time series.

The onboard Observer Program, where observers ride onboard fishermen's vessels, is the preferred method of obtaining observer data and is used most frequently. Protected species interactions, gear parameters, as well as detailed gill-net catch, bycatch, and discard information for all species caught are recorded. The alternative platform Observer Program requires two observers in a state-owned vessel to monitor commercial fishermen as they fish their gill nets. The alternative platform observers document protected species interactions and provide catch and discard estimates for other species that are observed. The amount of biological data that are collected on alternative platform observer trips is notably less than onboard observer trips. Therefore, onboard observer trips are highly preferred due to the amount of biological data collected which are used when making management decisions, in stock assessments, in the development of fishery management plans, and for identifying bycatch (finfish, protected species) problem areas. For alternative platform trips, observers and Marine Patrol follow similar protocols using NCDMF vessels to observe the fishing trip. Each observer attempts to obtain a minimum of three to four trips per working week when fishing activity is occurring.

Observers are assigned a management unit to work weekly and the number of observers assigned to a management unit depends upon the season and fishing effort. Fishing effort is estimated from the previous 4-5 years' TTP data by week, month, and management unit to determine where and how much observer coverage is needed each week and for each management unit by month/season. Reports from observers and other staff are used to determine if effort is fluctuating between management units. Trends from the previous years' TTP data are also analyzed to determine if fishing effort is shifting from one management unit to another. Fishermen holding an Estuarine Gill Net Permit (EGNP) in North Carolina are pooled by management unit and further split into lists by geographic area within units. The contact information for these fishermen is then given to the observers assigned to that area and the observers contact the fishermen to set up trips from the list of names given. Preliminary TTP information is also used to refine the list to represent individuals who are actively participating in fishing activities. Observers also visit fish houses and dealers where they hand out business cards with their contact information and brochures explaining the Observer Program, giving the fishermen another outlet to allow observers on their vessels. Additionally, the Observer Program uses a website (http://portal.ncdenr.org/web/mf/observers-program) to provide outreach to fishermen to facilitate obtaining trips.

Alternative platform trips are used for areas that may be hard to get onboard trips (i.e., fishermen in remote locations that leave from their residence by boat) or when the fisherman's vessel is too small to safely accommodate an onboard observer. Alternative platform trips are also used in areas where fishing effort may increase quickly, where sea turtle abundance is high, and when observers are unable to set-up onboard trips due to fisherman non-compliance. Marine Patrol also conducts alternative platform trips weekly in all management units based on similar methodologies as the Observer Program. Coordination of onboard, alternative platform, and Marine Patrol alternative platform trips is done regularly to maximize efficiency by avoiding multiple observations of a single trip and to achieve the maximum amount of observer coverage possible for each management unit. Changes in effort, sea turtle abundance (i.e., observed and reported interactions), and other protected species interactions are monitored on a daily, weekly, and monthly basis to ensure proper observer coverage is being maintained. The ITP requires a minimum of 7% observer coverage, with a goal of 10% of the total anchored large mesh gill-net (≥4 inches stretched mesh-ISM) fishing trips, and a minimum of 1% coverage, with a goal of 2% of the total anchored small mesh gill-net (<4 ISM) fishing trips per management unit for the spring, summer, and fall seasons.

Observers are trained to identify, measure, evaluate condition, resuscitate, and tag sea turtles by the NMFS – Beaufort Lab and the NCDMF. Data collected on observed sea turtles includes: Date, time, tag numbers, location (latitude and longitude, when possible), condition (i.e., no apparent harm, injury including a description of the nature of the injury, or mortality), species, sex (if determinable), and curved carapace length (CCL) mm and curved carapace width (CCW)

mm are recorded for each sea turtle observed. Photographs and environmental parameters (i.e., salinity, water temperature) are also collected when feasible. Dead sea turtles are retained by the observer when possible. All live, debilitated sea turtles are retained by the observer and delivered to the North Carolina Sea Turtle Stranding Network for examination and treatment. Observers also collect data on location, gear parameters, catch, and bycatch for each haul depending on the observed trip type (onboard/alternative platform). The catch is sampled throughout each onboard trip including species, quantities, weights, lengths, and disposition (alive/dead). Data are coded onto NCDMF data sheets and uploaded to the NCDMF Biological Database for analysis. All observers are debriefed within 24 hours of each trip to obtain data on catch, set locations, gear parameters, and sea turtle interactions to provide estimates of sea turtle bycatch.

The total bycatch of sea turtles for each management unit was estimated using the stratified ratio method (SAS 2004). The bycatch rate (sea turtles caught per fishing trip) estimated from observer data was multiplied by the total fishing trips (average of the previous 3-5 years' TTP data). To estimate confidence intervals (95%), the bootstrap method was used to sample estimates. Strata consisted of the six management units (A, B, C, D1, D2, and E; Figure 1). Estimates were calculated by date of capture, management unit, species, and disposition. Estimates were accumulated each week to implement necessary management measures if authorized take thresholds were approached.

$$\text{Estimated Interactions} = \left(\frac{\text{\# of sea turtle interactions observed}}{\text{total gill-net trips observed}}\right) \text{total gill-net trips}$$

Seasons

The Observer Program's activities are reported on a weekly, seasonal, and annual basis. Seasons are defined as spring (March – May), summer (June – August), and fall (September – November). Weekly progress reports are required following a week in which a sea turtle interaction occurred and includes information such as take estimates, cumulative totals, number of observed trips, and observed takes with all associated information. The seasonal progress reports include a summary of the weekly reports, additional management measures if taken, compliance, violations that occurred, and any adaptive management actions taken during the season. Annual reports include actual and estimated takes including mortality and the level of uncertainty of the estimates (i.e., 95% confidence intervals) by management unit, size composition along with all other interaction information, one or more maps illustrating the geographic distribution of all observed anchored large and small mesh gill-net hauls and the locations of all interactions, and a description of the mitigation activities, adaptive management actions, and enforcement activities conducted during the ITP year.

Authorized Takes

Authorized levels of annual incidental takes are specified in Tables 1 - 5. The amount of incidental takes is expressed as either estimated or observed takes depending on the amount of data available for modeling predicted takes. Extrapolated sea turtle takes were computed by dividing the number of sea turtle interactions observed by the total anchored gill-net trips observed and then multiplying by the total anchored gill-net 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 2015). Bootstrap replicates were generated by sampling observer trips with replacement 5,000 times within strata (mesh/season/management unit; Tables 1 - 5). Because reaching the estimated or observed level for any category of authorized takes for any species would end the incidental take authorization for all species; it is highly unlikely that all five species would be impacted at these full levels. Takes must be incidental to otherwise lawful activities associated with the anchored large and small mesh gill-net fisheries, and as conditioned herein. The permit covers incidental takes from the date of issuance through August 31, 2023. The NCDMF uses preliminary data to monitor the total number of live and dead takes by species per unit to determine if the fishery is approaching or has reached the authorized takes for any sea turtle species. Once TTP data are finalized in May of 2018, the final authorized estimated sea turtle takes will be recalculated and the finalized estimates will be provided to the NMFS.

Compliance

The NCDMF observers and Marine Patrol conduct weekly fish house visits, boat patrols, fisherman spot checks, gear checks, aerial surveys, and continual outreach to the industry attempting to ensure industry compliance and to determine anchored large and small mesh gill-net fishing effort throughout the state.

The Observer Program has various ways to contact fishermen to schedule trips. The most common method is by phone due to limited program resources, fishermen leaving from their residence, and efficiency. The Observer Program has a contact log which is filled out for every phone call or contact that is made when attempting to obtain a trip. Each contact was put into a specific category and other information was gathered (Table 6). The contact log was analyzed by month and category to determine what percentage of phone calls resulted in observer trips.

RESULTS

Observer activity

Fall 2016

The fall 2016 season for anchored large and small mesh gill nets in North Carolina is September 2016 through November 2016 for ITP Year 2017 (September 1, 2016 – August 31, 2017) as defined in ITP No. 16230. Portions of management unit A (western Albemarle Sound, Currituck Sound, and the rivers) opened to anchored large and small mesh gill nets for the new ITP Year 2017 via proclamation M-15-2016 on September 5, 2016 while maintaining the closure of all anchored gill nets in the eastern portions of the management unit (eastern/southern Albemarle Sound and Croatan and Roanoke sounds) to avoid interactions with sea turtles (Table 7; Boyd 2016b). Further portions of management unit A (western/central Albemarle Sound) opened to anchored large and small mesh gill nets for the new ITP Year 2017 via proclamation M-21-2016 on October 15, 2016 while maintaining the closure of all anchored gill nets in the eastern portions of the management unit (eastern/southern Albemarle Sound and Croatan and Roanoke sounds) to avoid interactions with sea turtles. As the fall 2016 season progressed, further portions of management unit A (central/eastern Albemarle Sound) opened to anchored large and small mesh gill nets for the new ITP Year 2017 via proclamation M-23-2016 on October 31, 2016 while maintaining the closure of all anchored gill nets in the eastern portions of the management unit (eastern/southern Albemarle Sound and Croatan and Roanoke sounds) to avoid interactions with sea turtles (Table 7; Boyd 2016b).

Portions of management unit B (subunits SGNRA2-4, MGNRA) opened to anchored large mesh gill nets for the new ITP Year 2017 via proclamation M-16-2016 on September 5, 2016 while maintaining the closure of subunits SGNRA1 and CGNRA to minimize interactions with sea turtles (Table 7; Boyd 2016b). Remaining portions of management unit B (subunits SGNRA2-4, MGNRA) opened to anchored large mesh gill nets for the new ITP Year 2017 via proclamation M-19-2016 on October 3, 2016. Management unit B closed to anchored large mesh gill nets via proclamation M-24-2016 on November 2, 2016 due to sea turtle interactions and the lack of fishermen compliance (Table 7; Boyd 2016b).

Management unit C closed to anchored large and small mesh gill nets via proclamation M-20-2016 on October 1, 2016 for the remainder of the fall 2016 season due to sea turtle interactions. Management unit D1 opened to anchored large mesh gill nets for the new ITP Year 2017 via proclamation M-22-2016 on October 17, 2016 (Table 7; Boyd 2016b).

Management unit E opened to anchored small mesh gill nets for the new ITP Year 2017 via proclamation M-16-2016 on September 5, 2016 while maintaining the closure of upper Cape Fear and Northeast Cape Fear rivers to anchored large mesh gill nets to minimize sturgeon interactions (Table 7; Boyd 2016b).

The Observer Program achieved an estimated 11.2% overall anchored large mesh gill-net coverage for the fall 2016 season meeting the minimum requirement (7.0%) in all management units based on finalized data (Table 8; Figures 2 - 8; Boyd 2016b).

The Observer Program achieved an estimated 3.3% overall anchored small mesh gill-net coverage for the fall 2016 season meeting the minimum requirement (1.0%) in all management units except management unit A (0.0%) based on finalized data (Table 9; Figures 2 - 8; Boyd 2016b).

There were 28 observed sea turtle interactions from anchored large mesh gill nets during the fall 2016 season (Table 10; Figures 2 - 8; Boyd 2016b). There were no observed sea turtle interactions from anchored small mesh gill nets during this period. The species composition was made up of green sea turtles (n = 15 alive; n = 6 dead) and Kemp's ridley sea turtles (n = 6 alive; n = 1 dead). The majority of the interactions occurred in management unit B (71.5%) with 14.3% in management unit E, 7.1% in management unit C, and 7.1% in management unit D1 (Table 10; Figures 2 - 8). Two fisherman self-reported sea turtle interactions occurred in anchored large mesh gill nets and one in anchored small mesh gill nets during this period (Table 11; Boyd 2016b).

Spring 2017

The spring 2017 season for anchored large and small mesh gill nets in North Carolina is March 2017 through May 2017 for ITP Year 2017 (September 1, 2016 – August 31, 2017) as defined in ITP No. 16230. Management unit A opened to the use of anchored large mesh gill nets with gill-net configurations for harvesting American shad by removing vertical height restrictions for up to 1,000 yards of gill net with stretched mesh lengths of 5 ¼ through 6 ½ inches via proclamation M-5-2017 on March 3, 2017 while implementing the closure of all anchored gill nets in the eastern portions of the management unit (eastern/southern Albemarle Sound and Croatan and Roanoke sounds) to avoid interactions with sea turtles. Gill-net configurations for harvesting American shad were removed in management unit A following the end of the shad season via proclamation M-7-2017 on March 25, 2017 while maintaining the closure of all anchored gill nets in the eastern portions of the management unit (eastern/southern Albemarle Sound and Croatan and Roanoke sounds) to avoid interactions with sea turtles (Table 7; Boyd 2017b).

Management unit B remained closed to anchored large mesh gill nets through the spring 2017 season to allow for the recalculation of allowable sea turtle takes once finalized 2016 Trip Ticket data were completed (Table 7; Boyd 2017b).

Management unit D1 closed to anchored large mesh gill nets as part of the annual closure outlined in the ITP via proclamation M-10-2017 on May 8, 2017 (Table 7; Boyd 2017b).

The Observer Program achieved an estimated 9.7% overall anchored large mesh gill-net coverage for the spring 2017 season meeting the minimum requirement (7.0%) in all management units except management unit D1 (0.0%) based on preliminary data (Table 8; Figures 2 – 8; Boyd 2017b).

The Observer Program achieved an estimated 2.2% overall anchored small mesh gill-net coverage for the spring 2017 season meeting the minimum requirement (1.0%) in all management units except management units A (0.8%) and D2 (0.0%) based on preliminary data (Table 9; Figures 2 - 8; Boyd 2017b).

There were no observed sea turtle interactions from anchored large or small mesh gill nets during the spring 2017 season (Boyd 2017b). Three fisherman self-reported sea turtle interactions occurred in anchored large mesh gill nets during this period (Table 11; Boyd 2017b).

Summer 2017

The summer 2017 season for anchored large and small mesh gill nets in North Carolina is June 2017 through August 2017 for ITP Year 2017 (September 1, 2016 – August 31, 2017) as defined in ITP No. 16230. Management unit B opened to anchored large mesh gill nets except for the Inlet Corridors via proclamation M-11-2017 on June 19, 2017 (Table 7; Boyd 2017c).

Management unit C closed to anchored large and small mesh gill nets for the remainder of the summer 2017 season on July 28, 2017 due to sea turtle interactions via proclamation M-12-2017 (Table 7; Boyd 2017c).

Management unit D1 remained closed through the summer 2017 season to anchored large mesh gill nets as part of the annual closure outlined in the Sea Turtle ITP (Table 7; Boyd 2017c).

The Observer Program achieved an estimated 11.3% overall anchored large mesh gill-net coverage for the summer 2017 season meeting the minimum requirement (7.0%) in all management units except management unit A (4.9%) and C (6.9%) based on preliminary data (Table 8; Figures 2 – 8; Boyd 2017c).

The Observer Program achieved an estimated 1.6% overall anchored small mesh gill-net coverage for the summer 2017 season meeting the minimum requirement (1.0%) in all management units except management unit D1 based on preliminary data (Table 9; Figures 2 – 8; Boyd 2017c).

There were 16 observed sea turtle interactions from anchored large mesh gill nets during the summer 2017 season (Table 10; Figures 2 - 8; Boyd 2017c). There was one observed sea turtle interaction from anchored small mesh gill nets during the summer 2017 season. The species

composition was made up of green sea turtles (n = 8 alive; n = 6 dead), Kemp's ridley sea turtles (n = 2 alive) and one alive loggerhead sea turtle. Interactions primarily occurred in management unit B (58.9%) with 17.6% in management unit C, 17.6% in management unit E, and 5.9% in management unit D2 (Table 10; Figures 2 - 8). Two fisherman self-reported sea turtle interactions occurred in anchored large mesh gill nets during this period (Table 11; Boyd 2017c).

Authorized Takes

There was a total of 44 observed sea turtle interactions in anchored large mesh gill nets and one in anchored small mesh gill nets for ITP Year 2017 (Table 10; Figures 2 – 8; Boyd 2016b, 2017b, 2017c). The species composition consisted of primarily green sea turtles (77.8%; n = 23 alive; n = 12 dead; Table 10; Figures 2 - 8). The remaining species consisted of Kemp's ridley sea turtles (20.0%; n = 8 alive; n = 1 dead), and one alive loggerhead sea turtle (Table 10; Figures 2 - 8). Observed interactions occurred in management unit B (66.7%), management unit C (11.1%), management unit D1 (4.4%), management unit D2 (2.2%), and management unit E (15.6%; Table 10; Figures 2 - 8). There was a total of eight fisherman self-reported sea turtle interactions for ITP Year 2017 (Table 11; Boyd 2016b, 2017b, 2017c).

The size distribution of green sea turtles (n = 25) ranged from a CCL of 263 mm to 395 mm and a CCW of 221 mm to 347 mm (Figures 9 and 10). The size distribution of Kemp's ridley sea turtles (n = 8) ranged from a CCL of 210 mm to 419 mm and a CCW of 205 mm to 429 mm (Table 10; Figures 11 and 12; Boyd 2016b, 2017b, 2017c).

The cumulative total estimated and observed takes for anchored large mesh gill nets did not reach the threshold of authorized takes for any management unit for ITP Year 2017 based on preliminary data. The cumulative total observed takes for anchored small mesh gill nets did not reach the threshold of authorized takes for any management unit for ITP Year 2017 based on preliminary data (Tables 1 - 5; Boyd 2016b, 2017b, 2017c).

The percentage of authorized takes that were used in ITP Year 2017 for anchored large mesh gill nets were calculated for estimated takes by species and disposition (green 51.1% alive, 35.5% dead; Kemp's ridley 53.5% alive, 0.0% dead; Boyd 2016b, 2017b, 2017c). The percentage of authorized takes that were used in ITP Year 2017 were also calculated for observed takes (green 28.6% alive/dead; Kemp's ridley 25.0% alive/dead). Overall, for both anchored large and small mesh gill nets, the percentage of estimated (51.1% alive, 27.4% dead) and observed (10.3% alive/dead) takes was below the authorized takes provided by the Sea Turtle ITP (Boyd 2016b, 2017b, 2017c).

Compliance

Marine Patrol made 366 gill-net checks during the fall 2016 season resulting in 44 citations issued (Tables 12 and 13; Boyd 2016b, 2017b, 2017c). Marine Patrol made 395 gill-net checks

for the spring 2017 season resulting in 10 citations issued. Marine Patrol made 960 gill-net checks for the summer 2017 season with no citations issued (Tables 12 and 13; Boyd 2016b, 2017b, 2017c).

For ITP Year 2017, phone calls (n = 7,776) were made with 57.0% (n = 4,430) categorized as 1, 8, 11, 12, 13, and 14 which inclusively represents not being able to get in touch with fishermen or fishermen refusing trips (Table 14; Boyd 2016b, 2017b, 2017c). In the fall 2016 season (n = 2,660), phone calls were made with 49.4% (n = 1,313) categorized as 1, 8, 11, 12, 13, and 14. In the spring 2017 season (n = 2,425), phone calls were made with 61.4% (n = 1,490) categorized as 1, 8, 11, 12, 13, and 14. In the summer 2017 season (n = 2,691), phone calls were made with 60.5% (n = 1,627) categorized as 1, 8, 11, 12, 13, and 14 (Table 14; Boyd 2016b, 2017b, 2017c).

Notice of Violations (NOV) were issued when fishermen were found to be out of compliance with the EGNP with eight NOVs issued during the fall 2016 season, six NOVs issued during the spring 2017 season, and five NOVs issued during the summer 2017 season (Table 15; Boyd 2016b, 2017b, 2017c).

Marine Mammals

There were no observed takes of marine mammals during ITP Year 2017.

DISCUSSION

Management history

The NCDMF has addressed protected sea turtle issues in the coastal waters since the 1970s. Sea turtle protection has been accomplished by cooperative agreements with the North Carolina Wildlife Resources Commission (NCWRC), establishment of a sea turtle sanctuary, proclamation authority delegated to the Director of the NCDMF, additional queries on recreational surveys, management of the PSGNRA, formation of the NCSTAC, implementation of an Observer Program, commercial bycatch reduction gear testing projects, outreach to the commercial and recreational fishing industries, and collaboration with the NMFS.

The NCDMF applied for and received four ITPs for the PSGNRA from 2000 to 2005 managing the area for sea turtle takes in the fall of each year through 2012 under these permits (Gearhart 2001, 2002, 2003; Price 2004, 2005, 2006, 2007a, 2008, 2009a, 2010a; Murphey 2011; Boyd 2012a, 2013). Between 2000 and 2012, a number of changes were made in the PSGNRA such as: adjustments to authorized fishing areas, modified restrictions (e.g., state closure and net length restriction), and authorized take levels reduced (Gearhart 2003; Price 2010a; Murphey 2011; Boyd 2012a). These adaptations were made feasible as a result of the extensive monitoring program conducted by the NCDMF in the PSGNRA. The NCDMF also observed limited trips in the large and small mesh gill-net fisheries outside of the PSGNRA from 2004 to 2010 (Brown and Price 2005; Price 2007b, Price 2009b, Price 2010b; Boyd 2012b). The information gathered from these direct observations authorized the NCDMF to generate requested estimated take numbers for observed fisheries and draft a functional Conservation Plan.

In June 2009, the NMFS began an Alternative Platform Observer Program in Core Sound, NC. The NMFS observers documented sea turtle interactions in anchored large mesh gill nets in this area beginning in late June and notified the NCDMF of their concern for these unauthorized takes. The NCDMF consulted with the NMFS-SERO via conference calls and correspondence to discuss short and long-term actions to address sea turtle takes in gill nets in Core Sound and throughout the state. In the short term, the agencies agreed for the NCDMF to implement gear restrictions (yardage limits, mesh depth reduction, and net shot reductions) and increased observer coverage in Core Sound and adjacent water bodies (NCDMF Proclamation M-16-2009). For the long-term, the NCDMF continued consultations with the NMFS-SERO concerning the preparation of an ITP application for all internal coastal waters while compiling sea turtle interaction data from gill-net surveys, research projects, and direct observations.

On October 20, 2009, the day that authorized sea turtle takes were reached in the 2009 PSGNRA, a 60-day Notice of Intent (NOI) to sue the NCDMF and the North Carolina Marine Fisheries Commission (NCMFC) was received from the Duke Environmental Law and Policy Clinic on behalf of the Karen Beasley Sea Turtle Rescue and Rehabilitation Center Foundation

(Beasley Center). The NOI stated that the NCDMF and the NCMFC violated Section 9 of the ESA by allowing gear in state waters that had unauthorized takes of threatened or endangered sea turtles.

The NCDMF consulted with the NMFS-SERO concerning this NOI while continuing to work toward the preparation of an application for a statewide ITP for gill-net fisheries in internal coastal waters. In November 2009, the NCDMF received further correspondence from the NMFS-SERO reiterating the need to "satisfy the requirements of the ESA" relative to Core Sound sea turtle interactions. The NCDMF continued to collect sea turtle interaction data while developing an interim plan to address sea turtle interactions in gill-net gear. As a result of discussions and correspondence with the NMFS-SERO, the NCDMF submitted an interim plan in January 2010 to address sea turtle interactions in gill-net fisheries prosecuted in internal coastal waters. The plan proposed to close large mesh gill-net fisheries throughout the majority of the estuarine waters of North Carolina from May to December 2010.

On February 18, 2010, the NCDMF presented the interim proposal to the NCMFC and the public at an emergency NCMFC meeting in New Bern, NC. During the meeting, numerous commercial fishery representatives expressed concern with the proposed closure on the basis of the negative economic impact that would result from such a closure. Representatives from the Coastal Conservation Association (CCA-NC) did not support the interim closure stating the plan was too limited in scope. After thoroughly debating the issue, the NCMFC voted to direct the NCDMF to implement alternative measures that included reductions in the number of days per week that large mesh gill nets were authorized to be fished, restricted soak times, reductions in the length of individual nets (shots), and reductions in total yardage.

On February 23, 2010, the Duke Environmental Law and Policy Clinic filed suit against the NCDMF and the NCMFC on behalf of the Beasley Center. Negotiations between the parties occurred between late February and March 23, 2010, when the NCMFC met again. During the meeting, the NCMFC directed the fisheries director to issue a gill-net proclamation effective May 15, 2010 restricting the number of days during the week that anchored large mesh gill nets would be authorized, limiting soak time, establishing a maximum yardage limit, mandating maximum mesh depth, requiring maximum individual gill-net (shot) lengths, establishing spacing between net shots, and eliminating the use of tie-downs and floats or corks along float lines. The NCDMF Director did not issue the proclamation because, as detailed below, ongoing negotiations with the Beasley Center and the Duke Environmental Law and Policy Clinic produced a settlement agreement which preempted this action.

The NCMFC met May 12 through 14, 2010 and discussed the parameters of the final Settlement Agreement between the Beasley Center (plaintiff) and the NCDMF and the NCMFC. At that meeting, the NCMFC reached an agreement concerning restrictions that would be implemented

in the anchored large mesh gill-net fishery in NC estuarine waters. As a result of the NCMFC action, the NCDMF issued Proclamation M-8-2010 effective May 15, 2010 implementing the provisions of the Settlement Agreement. Gill-net restrictions implemented by the proclamation included: a range of 4 ISM to, and including, 6 ½ ISM for anchored large mesh gill nets; soak times limited to overnight soaks an hour before sunset to an hour after sunrise, Monday evenings through Friday mornings; anchored large mesh gill nets were restricted to a height of no more than 15 meshes, constructed with a lead core or leaded bottom line and without corks or floats other than needed for identification; a maximum of 2,000 yards of anchored large mesh gill nets authorized to be used per vessel; and maximum individual net (shot) length of 100 yards with a 25-yard break between shots (except for exempted areas including management unit C and portions of management unit A).

The Settlement Agreement included gill nets from 4 ISM to less than 5 ISM in the large mesh category because of observed sea turtle takes in 4 ISM and 4 ½ ISM gill nets in the NCDMF Independent Gill Net Survey. The measures were modified slightly several times, with the concurrence of the Beasley Center, to improve gear efficiency or adjust fishing area boundaries without compromising the sea turtle conservation provisions of the Settlement Agreement with fishermen in the southern portion of the state authorized to set anchored large mesh gill nets an extra day (Sunday evenings through Friday mornings) and use floats on nets, but were restricted to the use of a maximum of 1,000 yards of anchored large mesh gill net per fishing operation.

The Annual Completion Report for ITP Year 2014 (September 1, 2013 – August 31, 2014) was submitted January 30, 2015 (Boyd 2015). During review of the 2014 Sea Turtle ITP Annual Completion Report, the NMFS requested modifications to certain tables and figures in the annual report. These modifications were addressed in the Annual Completion report for ITP Year 2015 (September 1, 2014 – August 31, 2015) which was submitted January 30, 2016 and included: maps for each management unit to include number of gill-net hauls and sea turtle interactions and tables which have all of the estimated/observed takes exactly as portrayed in the permit with 95% confidence intervals included (Boyd 2016a).

During the summer 2015 season a minor modification was enacted through the NMFS combining authorized takes for management units A (n = 4) and C (n = 4) for total authorized take limit of eight sea turtles from anchored large or small mesh gill nets and any species or disposition (Boyd 2016a).

Outreach

Staff from the NCDMF met with commercial industry leaders on July 11, 2016 to discuss the current ITPs and options for moving forward with amendments. The North Carolina Fisheries Association (NCFA) requested the meeting in response to NCDMF staff asking industry for their thoughts on potential ITP amendments and ways to further minimize sea turtle takes (in order to

keep management units open longer under the current ITPs). During the meeting, the NCFA discussed their interest in exploring gear modifications that are proven to reduce sea turtle interactions and would ultimately like to see the estuarine gill-net fishery managed under gear modifications (similar to the shrimp trawl fishery) without the constraints of the current ITPs. Staff from the NCDMF explained that while staff would be able to assist regarding the ITP permit process, the NCFA should work with researchers with expertise in gear development and apply for a research Section 10 permit. In order to reach their ultimate goal, the NCFA would like to work on minimizing takes and amending the current ITPs by soliciting feedback from commercial gill netters throughout the state.

The NCFA scheduled two meetings on August 30 and 31, 2016 that focused on potential ITP amendments and ways to further minimize sea turtle and sturgeon takes in the anchored gill-net fisheries. NCFA invited NCDMF staff to attend their meetings to hear the fishermen's feedback and to provide input on the feasibility of the fishermen's ideas. While discussing these meetings with the commercial industry leads, NCDMF staff raised the issue of the lack of fisherman compliance with the ITPs. NCFA fully agreed that it is a problem, and they plan on stressing the need for compliance at their meetings in order for the Observer Program to be successful. Another comment made by the NCFA was they felt that the onboard observations by the NCDMF are very important. They also mentioned that the onboard observations are needed to collect biological information from the catch as opposed to just monitoring protected species interactions.

Staff from the NCDMF attended both meetings NCFA held in Wanchese, NC on August 30, 2016 and in Morehead City, NC on August 31, 2016. While most of the meetings were discussions amongst fishermen or directed at NCFA members, NCDMF staff answered and/or clarified questions as needed. The questions and/or concerns from fishermen included: confusion that self-reporting sea turtle and sturgeon takes was a requirement of the ITPs, that the definition of a take includes live interactions, that the amount of restrictions already in place on the anchored gill-net fisheries were too great, and the belief that any further restrictions would lead to their inability to make a livelihood in the industry.

The North Carolina Watermen United (NCWU), which were in attendance at the August 30, 2016 meeting, sent the NCDMF a letter on September 2, 2016 listing many modifications that were already in place for the anchored gill-net fisheries and suggested another "more-inclusive" meeting for further discussion (Appendix C). The NCFA sent the NCDMF a follow-up email on September 19, 2016 with questions and concerns following the meetings (Appendix D). On November 30, 2016, the NCFA sent the NCDMF a commitment letter concerning their collaboration with Gettysburg College on a project titled, "Development of sensory-based bycatch reduction technologies to reduce sea turtle bycatch in North Carolina coastal gillnet and pound net fisheries" (Appendix E). The work on the project began in September 2017.

At the August 2016 NCMFC meeting, Chairman Sammy Corbett announced that he was disbanding the Sea Turtle Advisory Committee (STAC) because it is not statutorily required and the NCMFC committee system already has a multitude of committees which are statutorily mandated. Chairman Corbett sent a letter explaining his decision to the committee members on August 25, 2016 (Appendix F).

Observer Activity

There was turnover within the Observer Program with positions being filled as quickly as possible to maintain coverage. The Observer Program proportionally placed observers in areas with higher fishing effort. There were multiple closures of various management units throughout the state during ITP Year 2017 (Table 7). Fishermen are more elusive to attempts by observers contacting them to schedule trips after proclamations enacting stricter regulations are implemented. Therefore, making it harder to obtain observer trips. When a management unit closes for a portion of time, the observers are shifted to open management units. The contact log, which includes different categories to place each contact that was made to a fisherman, is beneficial for analyzing the type of contact that was being made and to see the number of observer trips that were obtained through the calling system.

During the fall 2016 season, attendance was required for anchored small mesh gill nets for the duration of the fall 2016 season in management unit A making it difficult to obtain observed trips (Boyd 2016b). In recent years, attendance requirements were lifted during the month of November allowing for observer trips to be obtained. Fishing practices for attended gill nets can be very different than other fishing practices, with fishing activity occurring throughout the night creating safety hazards for observers. Furthermore, fishing effort tends to be lower when attendance is required (Boyd 2016b).

During the spring 2017 season, no anchored large mesh gill-net trips were obtained in management unit D1 due to the management unit being closed for the latter portion of the spring 2017 season and minimal fishing effort (n = 25 fishing trips) while open. Observer coverage in the spring 2017 season for anchored small mesh gill-nets in management unit A was 0.8% and no anchored small mesh gill-net trips were obtained in management unit D2 due to minimal fishing effort (n = 42 fishing trips; Boyd 2017b).

During the summer 2017 season, observer coverage for anchored large mesh gill-nets in management unit A was 4.9% and C was 6.9% (Boyd 2017c). Management unit D1 was closed for the duration of the summer 2017 season as part of the annual closure outlined in the ITP. No anchored small mesh gill-net trips were obtained in management unit D1 due to minimal fishing effort (n = 10 fishing trips) for the summer 2017 season (Boyd 2017c).

Compliance

Although ITP Year 2017 is the fourth year for the statewide ITP, fishermen in many portions of the state are not as familiar with the Observer Program and requirements of the ITP as desired, so more time is needed to educate the industry. Alternative platform trips were employed in all management units more frequently throughout ITP Year 2017 to maintain observer coverage due to compliance issues with fishermen (i.e., not answering phone calls, not calling back). The required minimum 7% observer coverage for anchored large mesh gill nets is very difficult to achieve when observers must rely on alternative platform trips, as it requires two observers to obtain a trip. The NCDMF discussed the situation with industry leaders in an attempt to improve awareness and increase compliance. However, fisherman non-compliance continues to be a hurdle for ensuring the requirements for both ITPs are met. Each ITP Year (2015-2017) had >50% of contacts made by observers not being able to get in touch with fishermen or fishermen refusing trips with a 7.6% increase in non-compliance over the last three years (Boyd 2016a, 2017a).

Eight fishermen self-reported sea turtle takes occurred during ITP Year 2017 (Table 11; Boyd 2016b, 2017b, 2017c). NCDMF has discussed this situation with industry leads numerous times and has provided outreach to fishermen explaining the requirement in the ITP of self-reporting and further details on the subject to try and increase self-reporting throughout the industry as a whole with limited success.

Based on finalized data for ITP Years 2015-2016 and preliminary and finalized data for ITP Year 2017, the number of authorized sea turtle takes that were used by the anchored large and small mesh gill-net fisheries under the Sea Turtle ITP were analyzed to determine the percentage of unused takes for each ITP Year and therefore, remained in the populations of sea turtles. The percentage of authorized takes that remained for anchored large and small mesh gill nets was calculated for each species and disposition for estimated and observed takes for the last three years with variation between years. For ITP Year 2015, the percentage of estimated takes that remained for anchored large mesh gill nets was calculated by species and disposition (green 42.1% alive, 40.0% dead; Kemp's ridley 64.3% alive, 85.7% dead) with similar numbers for ITP Year 2016 (green 54.8% alive, 57.0% dead; Kemp's ridley 20.4% alive, 100.0% dead), and ITP Year 2017 (green 51.1% alive, 35.5% dead; Kemp's ridley 53.5% alive, 0.0% dead).

The percentage of authorized takes that remained in ITP Year 2015 for observed takes was calculated by species (green 50.0% alive/dead; Kemp's 91.7% alive/dead; loggerhead 83.3%; with no interactions with hawksbill or leatherback sea turtles) with similar numbers for ITP Year 2016 data (green 55.6% alive/dead; Kemp's 75.0% alive/dead; with no interactions hawksbill or leatherback sea turtles), and ITP Year 2017 (green 28.6% alive/dead; Kemp's ridley 25.0% alive/dead; with no interactions hawksbill or leatherback sea turtles).

The data clearly illustrate that while there are instances where the NCDMF have exceeded authorized sea turtle takes for specific species and dispositions, overall the management of the Sea Turtle ITP has led to less sea turtle takes in these fisheries. This is also due to management related to the Atlantic Sturgeon ITP as any closure of anchored large or small mesh gill nets from sturgeon interactions leads to infrequent sea turtle interactions with gear being out of the water for long periods of time. Also, as expected and discussed in the Sea Turtle ITP application, the requested authorized take numbers represent a worst-case scenario and it is highly unlikely, if not impossible, that the total authorized take levels would be approached for an ITP Year because the NCDMF will close a management unit for the remainder of that season or ITP Year if takes approached the authorized level for any of the five species for either disposition (alive/dead), not the authorized level for all species making it impossible to approach all five species authorized take levels for both dispositions. However, by not requesting the proper authorized amount for each species and disposition, the fisheries could close for long periods of time due to anomalous sea turtle events.

Estuarine Gill Net Permit

As per the ITP the NCDMF established an EGNP to register all fishermen participating in the anchored large and small mesh gill-net fisheries via proclamation M-24-2014 on September 1, 2014. The ITP's Implementing Agreement states that the NCDMF has two years to implement the EGNP to serve as a certificate of inclusion for fishermen. However, due to the compliance issues the NCDMF was facing during ITP Year 2014, the EGNP was developed and became effective September 1, 2014 (one year from ITP issuance; Boyd 2015). The multifaceted EGNP was enacted to attempt to allow the NCDMF to closely monitor compliance. The EGNP is also used as a tool to improve fishermen compliance by including Specific Permit Conditions requiring fishermen to allow the NCDMF observers aboard their vessels to monitor catches. Failure to comply with this permit provision can result in a permit suspension. There were 2,670 EGNPs issued for Fiscal Year 2017 (July 1, 2016 – June 30, 2017).

LITERATURE CITED

Boyd, J.B. 2012a. North Carolina Division of Marine Fisheries Pamlico Sound Gill Net Restricted Area Report for 2011 Section 10 ITP # 1528 (September 19 – November 30, 2011). North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries Completion Report for Incidental Take Permit # 1528. 4pp.

Boyd, J.B. 2012b. North Carolina Fishery Observer Response Team. Final Report to the NOAA National Marine Fisheries Service and Atlantic Coastal Cooperative Statistics Program. Grant Award #NA10NMF4740073. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 24pp.

Boyd, J.B. 2013. North Carolina Division of Marine Fisheries Pamlico Sound Gill Net Restricted Area Report for 2012 Section 10 ITP # 1528 (September 19 – November 30, 2011). North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries Completion Report for Incidental Take Permit # 1528. 4pp.

Boyd, J.B. 2015. North Carolina Division of Marine Fisheries Incidental Take Permit Annual Report for ITP Year 2014 Section 10 ITP # 16230 (September 1, 2013 – August 31, 2014). North Carolina Division of Marine Fisheries Annual Report for Incidental Take Permit # 16230. 32pp.

Boyd, J.B. 2016a. North Carolina Division of Marine Fisheries Incidental Take Permit Annual Report for ITP Year 2015 Section 10 ITP # 16230 (September 1, 2014 – August 31, 2015). North Carolina Division of Marine Fisheries Annual Report for Incidental Take Permit # 16230. 45pp.

Boyd, J.B. 2016b. North Carolina Division of Marine Fisheries Incidental Take Permit Seasonal Report for Fall 2016 Section 10 ITP # 16230 (September 1, 2016 – November 30, 2016). North Carolina Division of Marine Fisheries Seasonal Report for Incidental Take Permit # 16230. 29pp.

Boyd, J.B. 2017a. North Carolina Division of Marine Fisheries Incidental Take Permit Annual Report for ITP Year 2016 Section 10 ITP # 16230 (September 1, 2015 – August 31, 2016). North Carolina Division of Marine Fisheries Annual Report for Incidental Take Permit # 16230. 63pp.

Boyd, J.B. 2017b. North Carolina Division of Marine Fisheries Incidental Take Permit Seasonal Report for Spring 2017 Section 10 ITP # 16230 (March 1 – May 31, 2017). North Carolina Division of Marine Fisheries Seasonal Report for Incidental Take Permit # 16230. 13pp.

Boyd, J.B. 2017c. North Carolina Division of Marine Fisheries Incidental Take Permit Seasonal Report for Summer 2017 Section 10 ITP # 16230 (June 1 – August 31, 2017). North

Carolina Division of Marine Fisheries Seasonal Report for Incidental Take Permit # 16230. 15pp.

Brown, K.B., and B. Price. 2005. Evaluation of Low Profile Flounder Gill-net in Southeastern Pamlico Sound, North Carolina. Completion Report for NOAA Award No. NA 04 NMF 4740180 Segment 1. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 24 pp.

Canty, A. and B. Ripley. 2015. boot: Bootstrap R (S-Plus) Functions. R package version 1.3-17.

Davison, A.C., and D.V. Hinkley. 1997. Bootstrap Methods and Their Applications. Cambridge University Press, Cambridge. ISBN 0-521-57391-2.

Efron, B., and R.J. Tibshirani. 1993. An introduction to the bootstrap. Chapman and Hall, New York. 436 pp.

ESA 1973. Endangered Species Act, 1973.

Gearhart, J. 2001. Sea turtle bycatch monitoring of the 2000 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion Report for ITP 1259. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 26pp.

Gearhart, J. 2002. Sea turtle bycatch monitoring of the 2001 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion Report for ITP 1348. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 44pp.

Gearhart, J. 2003. Sea turtle bycatch monitoring of the 2002 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion Report for ITP 1398. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 39pp.

Murphey, T. 2011. Sea turtle bycatch monitoring of the 2010 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 4pp.

Price, B. 2004. Sea turtle bycatch monitoring of the 2003 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion Report for ITP 1398. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 26pp.

Price, B. 2005. Sea turtle bycatch monitoring of the 2004 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1398. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 33 pp.

Price, B. 2006. Sea turtle bycatch monitoring of the 2005 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 31 pp.

Price, B. 2007a. Sea turtle bycatch monitoring of the 2006 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 21 pp.

Price, B. 2007b. Estuarine Observer Program in North Carolina. Report to the United States Fish and Wildlife Service. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. Grant No. F-83-R. 44 pp.

Price, B. 2008. Sea turtle bycatch monitoring of the 2007 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 25 pp.

Price, B. 2009a. Sea turtle bycatch monitoring of the 2008 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 22 pp.

Price, B. 2009b. Estuarine Bycatch Assessment in NC Commercial Fisheries. NOAA Award Grant #NA07NMF4740061, under the Atlantic Coastal Cooperative Statistics Program. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 19 pp.

Price, B. 2010a. Sea turtle bycatch monitoring of the 2009 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 27pp.

Price, B. 2010b. North Carolina Estuarine Gill-net Biological and Bycatch Assessment. Report to NOAA/NMFS and ACCSP under grant award NA05NMF4741032. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 24 pp.

R Core Team. 2015. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/.

SAS® 2004. SAS® 9.1 Language Reference: Dictionary, Volumes 1, 2, ,3 and 4. SAS Institute, Cary, NC.

TABLES

Table 1. Authorized and actual annual estimated takes with confidence intervals (95%) using a bootstrap method based on observer data for coverage and sea turtle interaction levels in anchored large mesh (≥4 inch stretched mesh) gill nets for ITP Year 2017 (September 1, 2016 - August 31, 2017).

	Management Unit											
	B				D1				Total			
	Estimated Takes				Estimated Takes							
	Authorized		Actual		Authorized		Actual		Authorized		Actual	
Species	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead
Green	225	112	162 (17,227)	40 (0,84)	9	5	1 (0,3)	1 (0,3)	234	117	163	41
Kemp's ridley	53	26	33 (0,69)	0	15	7	0	0	68	33	33	0
Total	278	138	195	40	24	12	1	1	302	150	196	41

	Management Unit											
	D2				E				Total			
	Estimated Takes				Estimated Takes							
	Authorized		Actual		Authorized		Actual		Authorized		Actual	
Species	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead
Green	n/a [1]	n/a [1]	n/a [1]	n/a [1]	96	48	6 (0,18)	17 (0,39)	96	48	6	17
Kemp's ridley	6	3	0	0	24	13	16 (0,55)	0	30	16	16	0
Total	6	3	0	0	120	61	22	17	126	64	22	17

[1] Insufficient observer data exist to model an estimated annual take level; therefore, for management unit D2, an annual observed take number has been identified for green turtles, and is found in Table 2

Table 2. Authorized and actual annual observed (not estimated) takes in anchored large mesh (≥4 inch stretched mesh) gill nets for ITP Year 2017 (September 1, 2016 - August 31, 2017).

	Management Unit									
	B		D1		D2		E			
	Observed (live/dead)		Observed (live/dead)		Observed (live/dead)		Observed (live/dead)		Total	
Species	Authorized	Actual	Authorized	Actual	Authorized	Actual	Authorized	Actual	Authorized	Actual
Green	n/a [1]	n/a [1]	n/a [1]	n/a [1]	6	1	n/a [1]	n/a [1]	6	1
Kemp's ridley	n/a [1]	n/a [1]	n/a [1]	n/a [1]	n/a [1]	n/a [1]	n/a [1]	n/a [1]	n/a [1]	n/a [1]
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	13	1
Total	5	1	5	0	11	1	5	0	28	2

[1] Insufficient observer data exist to model an estimated annual take level for Kemp's ridley sea turtles in management units B, D1, D2 and E. See Table 1 for the authorized annual estimated take level

Table 3. Authorized and actual annual observed (not estimated) takes in anchored large mesh (≥4 inch stretched mesh) and anchored small mesh (<4 inch stretched mesh) gill nets combined for ITP Year 2017 (September 1, 2016 - August 31, 2017).

Species	Management Unit				Total	
	A		C			
	Authorized (live/dead)	Actual (live/dead)	Authorized (live/dead)	Actual (live/dead)	Authorized (live/dead)	Actual (live/dead)
Green, Hawksbill, Kemp's ridley, Leatherback, Loggerhead	4 (any species)	0 (any species)	4 (any species)	5 (any species)	8 (any species)	5 (any species)
Total	4	0	4	5	8	5

Table 4. Authorized and actual annual observed (not estimated) takes in anchored small mesh (<4 inch stretched mesh-ISM) gill nets for ITP Year 2017 (September 1, 2016 - August 31, 2017).

Species	Management Unit								Total	
	B		D1		D2		E			
	Observed (live/dead)		Observed (live/dead)		Observed (live/dead)		Observed (live/dead)			
	Authorized	Actual	Authorized	Actual	Authorized	Actual	Authorized	Actual	Authorized	Actual
Green	3	0	3	0	3	0	3	1	12	1
Hawksbill	1	0	1	0	1	0	1	0	4	0
Kemp's ridley	3	0	3	0	3	0	3	0	12	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	0	11	0	11	0	11	1	44	1

Table 5. Total annual authorized and actual takes (estimated and observed) by species and condition for ITP Year 2017 (September 1, 2016 - August 31, 2017).

	Observed (live/dead)		Estimated			
			Authorized		Actual	
Species	Authorized	Actual	Alive	Dead	Alive	Dead
Green	18	5	330	165	169	59
Hawksbill	8	0	n/a[1]	n/a[1]	n/a[1]	n/a[1]
Kemp's ridley	12	2	98	49	50	0
Leatherback	8	0	n/a[1]	n/a[1]	n/a[1]	n/a[1]
Loggerhead	24	1	n/a[1]	n/a[1]	n/a[1]	n/a[1]
Any Species	8	0	n/a[1]	n/a[1]	n/a[1]	n/a[1]
Total	78	8	428	214	219	59

[1] Insufficient observer data exist to model an estimated annual take level; therefore, takes are expressed as observed

Table 6. Categories and descriptions of fisherman responses for the Observer Program's contact logs used for analysis.

Categories	Category description
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

Table 7. Regulations for management units by date and regulation change for anchored large and small mesh gill nets for ITP Year 2017 (September 1, 2016 - August 31, 2017).

Year	Date(s)	Regulation change
2016	Sept 5	Management unit A open to large and small mesh gill nets for the new ITP Year 2017 for the western part of the sound, Currituck Sound, and the rivers. All the eastern/southern areas (Croatan and Roanoke Sounds) will remain closed until sea turtle abundance decreases to minimize interactions with sea turtles (M-15-2016).
2016	Sept 5	Portions of management unit B (subunits SGNRA2-4, MGNRA) open to large mesh gill nets for the new ITP Year 2017. Subunits SGNRA1 and CGNRA will remain closed until sea turtle abundance decreases to minimize interactions with sea turtles (M-16-2016).
2016	Sept 5	Management unit E open to small mesh gill nets (large mesh gill nets continually open through summer for the new ITP Year 2017. Portions of upper Cape Fear River and Northeast Cape Fear River remain closed to large mesh gill nets due to sturgeon interactions (M-16-2016).
2016	Oct 3	Remaining portions of management unit B (subunits SGNRA1 and CGNRA) open to large mesh gill nets for the new ITP Year 2017 (M-19-2016).
2016	Oct 1	Closed management unit C to large and small mesh gill nets due to sea turtle interactions (M-20-2016).
2016	Oct 15	Further portions of management unit A open to large and small mesh gill nets for the new ITP Year 2017 for the central part of the sound. All the eastern/southern areas (Croatan and Roanoke Sounds) will remain closed until sea turtle abundance decreases to minimize interactions with sea turtles (M-21-2016).
2016	Oct 17	Management unit D1 open to anchored large mesh gill nets (M-22-2016).
2016	Oct 31	Further portions of management unit A open to anchored large and small mesh gill nets for the new ITP Year 2017 for the central and eastern part of the sound. Croatan and Roanoke sounds will remain closed until sea turtle abundance decreases to minimize interactions with sea turtles (M-23-2016).
2016	Nov 2	Management unit B closed to anchored large mesh gill nets due to sea turtle interactions and the lack of fishermen compliance (M-24-2016).
2016	Dec 1	Management unit A small mesh anchored gill nets 3 though 3 3/4 ISM restrictions while removing attendance requirements for those small mesh anchored gill nets, and requiring small mesh anchored gill nets to be set so as to fish on the bottom and not exceed a vertical height of 48 inches (M-25-2016).
2016	Dec 5	Management unit C open to anchored large and small mesh gill nets (M-27-2016).
2016	Dec 13	Management unit A closed to anchored large mesh gill nets due to reaching allowable Atlantic sturgeon takes (M-32-2016).
2017	Jan 29	Portions of management unit A open to anchored large mesh gill nets (northern rivers) while maintaining closure of anchored large mesh gill nets in all other portions to allow directed gill-net fisheries for catfish while minimizing interactions with Atlantic sturgeon (M-1-2017).
2017	Feb 6	Further portions of management unit A open to anchored large mesh gill nets (Alligator River/Currituck Sound) while maintaining closure of anchored large mesh gill nets in all other portions to allow directed gill-net fisheries for catfish while minimizing interactions with Atlantic sturgeon (M-2-2017).

Table 7. (cont.).

Year	Date(s)	Regulation change
2017	Feb 15	Further portions of management unit A open to anchored large mesh gill nets (Alligator River/Currituck Sound) while maintaining closure of anchored large mesh gill nets in all other portions to allow directed gill-net fisheries for catfish while minimizing interactions with Atlantic sturgeon (M-2-2017).
2017	Feb 15	Management units C, D1, D2, and E implements gear restrictions for the shad fishery (M-4-2017).
2017	Mar 3	Management Unit A open to the use of gill nets and allows gill-net configurations for harvesting American shad by removing vertical height restrictions for up to 1,000 yards of gill net with stretched mesh lengths of 5 ¼ through 6 ½ inches while implementing additional gill-net restrictions for management subunit A-South of US-64-BYP/US-64, in accordance with the Sea Turtle and Atlantic Sturgeon ITPs (M-5-2017).
2017	Mar 25	Removes management Unit A gill-net configurations for harvesting American shad and maintains gill-net restrictions for management subunit A-South of US-64-BYP/US-64, in accordance with the Sea Turtle and Atlantic Sturgeon ITPs (M-7-2017).
2017	Apr 3	Gill nets with mesh length greater than 5 inches must be equipped with tie downs 10 yards apart and cannot be within 50 yards of the shore in the Neuse, Pamlico, and Pungo Rivers through December 31, 2017. Use of gill nets 5 inches or greater is prohibited within 10 feet of any point on the shoreline while set or deployed unless the net is attended from June to October (proclamation M-8-2017)
2017	May 1	Management unit A small mesh anchored gill-net attendance requirement (through November 30, 2017) and closes portions of management unit A (Subunit A-South of US-64-BYP/US-64) to the use of anchored large and small mesh gill nets (M-9-2017).
2017	May 8	Management unit D1 closed to large mesh gill nets and implements attendance requirements for gill nets with a stretched mesh length less than 4 inches in Management Subunit B. 1. (proclamation M-10-2017). **Annual ITP closure***
2017	Jun 19	Management unit B open to large mesh gill nets with a stretched mesh length of 4 inches through 6 1/2 inches. Portions of management unit B (Inlet Corridors) remain closed to the use of gill nets with a stretched mesh length of 4 inches through 6 1/2 inches to minimize interactions with threatened and/or endangered species (M-11-2017).

Table 8. Observer coverage calculated from previous years' trip ticket data and observer data for anchored large mesh gill nets by season and management unit through the NCDMF Observer Program for ITP Year 2017 (September 1, 2016 - August 31, 2017).

		Large Mesh		
Season [1]	Management Unit [2]	Fishing Trips	Observed Trips	Coverage [3]
Fall 2016	A	2,234	175	7.8
	B	950	131	13.8
	C	266	37	13.9
	D1	49	15	30.6
	D2	295	33	11.2
	E	461	85	18.5
Spring 2017	A	2,277	181	7.9
	B	n/a	n/a	n/a
	C	878	96	10.9
	D1	25	0	0.0
	D2	67	10	14.8
	E	279	55	19.7
Summer 2017	A	1,338	66	4.9
	B	812	128	15.8
	C	403	28	6.9
	D1	n/a	n/a	n/a
	D2	123	24	19.6
	E	505	112	22.2
Total		10,961	1,176	10.7

[1] Final trip ticket data for 2016 (Fall 2016) and preliminary trip ticket data for 2017 (Spring and Summer 2017)

[2] Table 7 contains all the openings and closings for each management unit

[3] Based on final trips for 2016 (Fall 2016) and estimated trips for 2017 (Spring and Summer 2017) compared to observer large mesh trips

Table 9. Observer coverage calculated from previous years' trip ticket data and observer data for anchored small mesh gill nets by season and management unit through the NCDMF Observer Program for ITP Year 2017 (September 1, 2016 - August 31, 2017).

		Small Mesh		
Season [1]	Management Unit [2]	Fishing Trips	Observed Trips	Coverage [3]
Fall 2016	A	380	0	0.0
	B	1,058	18	1.7
	C	79	7	8.9
	D1	60	10	16.7
	D2	240	15	6.3
	E	483	27	5.6
Spring 2017	A	1,311	10	0.8
	B	1,295	21	1.6
	C	263	16	6.1
	D1	39	8	20.3
	D2	42	0	0.0
	E	201	14	7.0
Summer 2017	A	280	4	1.4
	B	1,048	10	1.0
	C	312	10	3.2
	D1	10	0	0.0
	D2	54	4	7.5
	E	253	4	1.6
Total		7,406	178	2.4

[1] Final trip ticket data for 2016 (Fall 2016) and preliminary trip ticket data for 2017 (Spring and Summer 2017)

[2] Table 7 contains all the openings and closings for each management unit

[3] Based on final trips for 2016 (Fall 2016) and estimated trips for 2017 (Spring and Summer 2017) compared to observer large mesh trips

Table 10. Summary of observed sea turtle interactions in anchored large (n = 44) and small (n = 1) mesh gill nets through the NCDMF Observer Program for ITP Year 2017 (September 1, 2016 - August 31, 2017).

						Tag		Curved Carapace (mm)	
Date [1]	Management Unit	Latitude	Longitude	Species	Disposition	PIT	Inconel	Length	Width
9/7/2016	B	35.65913	75.52035	kemp's	alive	n/a	n/a	410	420
9/7/2016	B	35.65847	75.51970	kemp's	alive	n/a	n/a	370	380
9/13/2016	E	34.59066	77.40371	green	alive	989.001001951909	n/a	n/a	n/a
9/14/2016	B	35.30472	75.60518	green	alive	989.001001951749	EFT822	354	321
9/14/2016	E	34.47231	77.49011	kemp's	alive	989.001001951912	n/a	340	330
9/22/2016	B	35.13381	75.99700	green	alive	982.000364358025	n/a	315	245
9/22/2016	B	35.13408	75.99580	green	alive	982.000364301028	n/a	337	263
9/22/2016	B	35.13388	75.99703	green	dead	n/a	n/a	317	245
9/28/2016	B	35.17496	75.84647	green	dead	n/a	n/a	310	240
9/30/2016	C	35.51297	76.63842	kemp's	alive	n/a	n/a	406	429
9/30/2016	C	35.51297	76.63842	kemp's	dead	n/a	n/a	419	425
9/30/2016	B	35.28333	75.53361	green	dead	n/a	n/a	n/a	n/a
10/6/2016	B	35.02762	76.11351	green	alive	982.000364301837	n/a	290	250
10/6/2016	B	35.02029	76.11481	green	alive	n/a	n/a	n/a	n/a
10/12/2016	B	34.81970	76.36897	green	alive	n/a	n/a	n/a	n/a
10/12/2016	B	34.82031	76.36897	green	alive	989.001001952695	n/a	300	255
10/12/2016	B	35.01688	76.13003	green	dead	n/a	n/a	330	285
10/13/2016	B	34.81567	76.37873	green	alive	n/a	n/a	n/a	n/a
10/13/2016	B	35.04165	76.10800	green	alive	982.000364298693	n/a	347	304
10/14/2016	B	34.81885	76.36508	kemp's	alive	982.000364296939	n/a	210	205
10/18/2016	D1	34.79901	76.48180	green	alive	n/a	n/a	n/a	n/a
10/18/2016	D1	34.79735	76.48749	green	dead	n/a	n/a	350	310
10/20/2016	B	35.14932	75.90034	green	alive	n/a	n/a	n/a	n/a
10/25/2016	B	34.80941	76.38654	green	alive	982.000364297135	XXP661/XXP662	340	280
10/28/2016	E	34.12214	77.86340	kemp's	alive	989.001001951766	EET844/EET875	336	335
11/1/2016	B	35.14508	75.92924	green	alive	n/a	n/a	n/a	n/a
11/1/2016	B	35.14551	75.92901	green	alive	n/a	n/a	n/a	n/a

[1] No interactions occurred during the spring 2017 season

[2] Interaction occurred in anchored small mesh gill nets

Table 10. (cont.).

Date [1]	Management Unit	Latitude	Longitude	Species	Disposition	Tag		Curved Carapace (mm)	
						PIT	Inconel	Length	Width
11/4/2016	E	34.41676	77.57641	green	dead	n/a	n/a	263	221
6/14/2017	D2	34.68267	77.04958	green	dead	n/a		315	270
6/21/2017	E	33.97268	77.92255	green [2]	alive	3DD.003BB895A4/ 989.001001952676	EET846/ EET847	352	301
6/22/2017	B	35.30167	75.60813	green	alive	3DD.003BB895FE/ 989.001001952766	EET830/ EET831	320	290
6/27/2017	B	34.86224	76.37999	green	alive	3DD.003BB891EA/ 989.001001951722	EET821/ EET826	328	286
6/27/2017	E	33.93750	77.95202	green	dead	n/a	n/a	281	252
6/27/2017	E	33.93965	77.95006	green	dead	n/a	n/a	342	281
6/30/2017	C	35.19890	76.52740	green	dead	n/a	n/a	300	265
7/5/2017	B	35.61508	75.48758	loggerhead	alive	n/a	n/a	n/a	n/a
7/11/2017	B	35.20396	75.81295	kemp's	alive	n/a	n/a	n/a	n/a
7/11/2017	B	35.20090	75.80848	green	dead	n/a	n/a	372	302
7/13/2017	B	35.38477	75.54202	kemp's	alive	3D6.0015B6BAE5/ 982.000364296933	XXP659/ UUE037	325	332
7/25/2017	B	35.19176	75.83566	green	alive	n/a	n/a	304	254
7/26/2017	C	35.15580	76.57945	green	alive	3D6.001596B818/ 982.000362199064	UUE079/ UUE044	395	347
7/26/2017	C	35.15540	76.57973	green	dead	n/a	n/a	280	245
7/27/2017	B	35.20288	75.81908	green	alive	n/a	n/a	n/a	n/a
8/24/2017	B	35.14482	75.92638	green	alive	3D6.0015B2EFDE/ 982.000364048350	n/a	291	232
8/25/2017	B	35.06642	76.07711	green	alive	3D6.0015B2F2CC/ 982.000364049100	n/a	303	257

[1] No interactions occurred during the spring 2017 season

[2] Interaction occurred in anchored small mesh gill nets

Table 11. Summary of reported sea turtle interactions in anchored large and small mesh gill nets through the NCDMF Observer Program for ITP Year 2017 (September 1, 2016 - August 31, 2017).

						Curved Carapace (mm)	
Date	Management Unit	Latitude	Longitude	Species	Disposition	Length	Width
9/26/2016	E	n/a	n/a	green	alive	n/a	n/a
10/25/2016	D1	n/a	n/a	unknown	alive	n/a	n/a
11/8/2016	D2	34.68254	77.03699	green [1]	alive	n/a	n/a
5/2/2017	D2	n/a	n/a	unknown	alive	n/a	n/a
5/2/2017	D2	n/a	n/a	unknown	alive	n/a	n/a
5/8/2017	E	n/a	n/a	green	alive	n/a	n/a
7/10/2017	E	n/a	n/a	green	alive	n/a	n/a
8/1/2017	E	n/a	n/a	unknown	alive	n/a	n/a

[1] Indicates small mesh gear

Table 12. Number of gill-net checks made and citations issued by Marine Patrol for large and small mesh gill nets by season during ITP Year 2017 (September 1, 2016 - August 31, 2017).

Season	# Gill Net Checks	# Citations
Fall 2016	366	44
Spring 2017	395	10
Summer 2017	960	0
Total	1,721	54

Table 13. Citations written by Marine Patrol for large and small mesh gill nets by season and violation code during ITP Year 2017 (September 1, 2016 - August 31, 2017).

	Violation		
Season [1]	Date	Code	Description
Fall 2016	9/1/2016	NETG04	Leave gill net in waters when could not be legally fished
	9/8/2016	NETG03	Using gill net with improper buoys or identification
	9/13/2016	NETG01	Leave gill net in coastal waters unattended
	9/14/2016	NETG03	Using gill net with improper buoys or identification
	9/15/2016	NETG03	Using gill net with improper buoys or identification
	9/15/2016	NETG03	Using gill net with improper buoys or identification
	9/17/2016	NETG04	Leave gill net in waters when could not be legally fished
	9/20/2016	NETG03	Using gill net with improper buoys or identification
	9/20/2016	NETG53	Use large mesh gill net with corks or floats on top line
	9/22/2016	NETG03	Using gill net with improper buoys or identification
	9/22/2016	NETG08	Gill net within 200 yards of pound net
	9/25/2016	NETG03	Using gill net with improper buoys or identification
	9/29/2016	NETG03	Using gill net with improper buoys or identification
	10/2/2016	NETG04	Leave gill net in waters when could not be legally fished
	10/3/2016	NETG04	Leave gill net in waters when could not be legally fished
	10/17/2016	NETG01	Leave gill net in coastal waters unattended
	10/17/2016	NETG03	Using gill net with improper buoys or identification
	10/18/2016	NETG03	Using gill net with improper buoys or identification
	10/20/2016	NETG03	Using gill net with improper buoys or identification
	10/20/2016	NETG33	Violate provisions of Proc M-19-09 setting gill net more than 15 meshes deep in Core Sound
	10/20/2016	NETG53	Use large mesh gill net with corks or floats on top line
	10/22/2016	NETG03	Using gill net with improper buoys or identification
	10/23/2016	NETG03	Using gill net with improper buoys or identification
	10/29/2016	NETG17	Sink net in Neuse River during closed season
	10/30/2016	NETG34	Use unattended gill net w/mesh less than 5" in commercial operation from May 1 through Nov 30
	10/31/2016	NETG04	Leave gill net in waters when could not be legally fished
	11/3/2016	NETG03	Using gill net with improper buoys or identification
	11/3/2016	NETG03	Using gill net with improper buoys or identification
	11/3/2016	NETG30	Leave RCGL gill net unattended
	11/5/2016	NETG03	Using gill net with improper buoys or identification
	11/5/2016	NETG16	Use an unattended gill net in a restricted area
	11/5/2016	NETG30	Leave RCGL gill net unattended
	11/6/2016	NETG01	Leave gill net in coastal waters unattended
	11/6/2016	NETG04	Leave gill net in waters when could not be legally fished
	11/17/2016	NETG37	Leave small mesh gill nets unattended
	11/17/2016	NETG37	Leave small mesh gill nets unattended
	11/17/2016	NETG37	Leave small mesh gill nets unattended

[1] There were no citations written during the summer 2017 season

Table 13. (cont.).

Season [1]	Violation		
	Date	Code	Description
Fall 2016	11/19/2016	NETG02	Using gill net without buoys or identification
	11/19/2016	NETG03	Using gill net with improper buoys or identification
	11/22/2016	NETG01	Leave gill net in coastal waters unattended
	11/22/2016	NETG02	Using gill net without buoys or identification
	11/22/2016	NETG03	Using gill net with improper buoys or identification
	11/22/2016	NETG37	Leave small mesh gill nets unattended
	11/22/2016	NETG37	Leave small mesh gill nets unattended
Spring 2017	3/28/2017	NETG46	Set or retrieve large mesh gill nets later than one hour after sunrise on Tuesday through Friday
	3/28/2017	NETG53	Use large mesh gill net with corks or floats on top line
	4/10/2017	NETG22	Improperly set gill net
	4/15/2017	NETG03	Using gill net with improper buoys or identification
	4/15/2017	NETG60	Use gill nets with a mesh size of more than 6.5 inches (stretched mesh) in violation of proclamation
	4/20/2017	NETG03	Using gill net with improper buoys or identification
	4/20/2017	NETG29	RCGL gear without proper buoys
	4/21/2017	NETG22	Improperly set gill net
	5/7/2017	NETG29	RCGL gear without proper buoys
	5/17/2017	NETG45	Set or retrieve large mesh gill nets no sooner than one hour before sunset on Monday through Friday

[1] There were no citations written during the summer 2017 season

Table 14. Contacts attempted (n = 7,776) by the observers trying to set up trips by season categorized by contact type (0-14) and by total number, percent for each season, and percent for the entire ITP Year 2017 for ITP Year 2017 (September 1, 2016 - August 31, 2017).

	Categories (%) [1]														
Season	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Fall 2016	63	514	181	66	47	34	160	5	284	61	53	11	296	885	2,660
	2.4%	19.3%	6.8%	2.5%	1.8%	1.3%	6.0%	0.2%	10.7%	2.3%	2.0%	0.4%	11.1%	33.3%	100.0%
	Categories (%) [1]														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Spring 2017	61	440	171	30	18	28	98	9	130	20	93	16	320	991	2,425
	2.5%	18.1%	7.1%	1.2%	0.7%	1.2%	4.0%	0.4%	5.4%	0.8%	3.8%	0.7%	13.2%	40.9%	100.0%
	Categories (%) [1]														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Summer 2017	64	482	161	24	26	37	104	4	177	53	107	17	385	1,050	2,691
	2.4%	17.9%	6.0%	0.9%	1.0%	1.4%	3.9%	0.1%	6.6%	2.0%	4.0%	0.6%	14.3%	39.0%	100.0%
	Categories (%) [1]														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Total	188	1,436	513	120	91	99	362	18	591	134	253	44	1,001	2,926	7,776
	2.4%	18.5%	6.6%	1.5%	1.2%	1.3%	4.7%	0.2%	7.6%	1.7%	3.3%	0.6%	12.9%	37.6%	100.0%

[1] Contact type categories: 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

Table 15. Notice of Violations issued by season, date and violation code for the Estuarine Gill Net Permit for ITP Year 2017 (September 1, 2016 - August 31, 2017).

Season	Date	Code	Description
Fall 2016	11/3/2016	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	11/3/2016	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	11/3/2016	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
	11/3/2016	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
	11/29/2016	EGNP11	Failure to attend nets
	11/29/2016	EGNP11	Failure to attend nets
	11/29/2016	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
	11/29/2016	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Spring 2017	3/6/2017	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	4/24/2017	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	4/24/2017	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	4/24/2017	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
	4/28/2017	EGNP10	Set more than the legal length of gill net
	4/28/2017	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Summer 2017	6/28/2017	EGNP10	Set more than the legal length of gill net
	6/28/2017	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
	8/24/2017	EGNP30	Failure to comply with gill net configurations outlined in proclamation

FIGURES

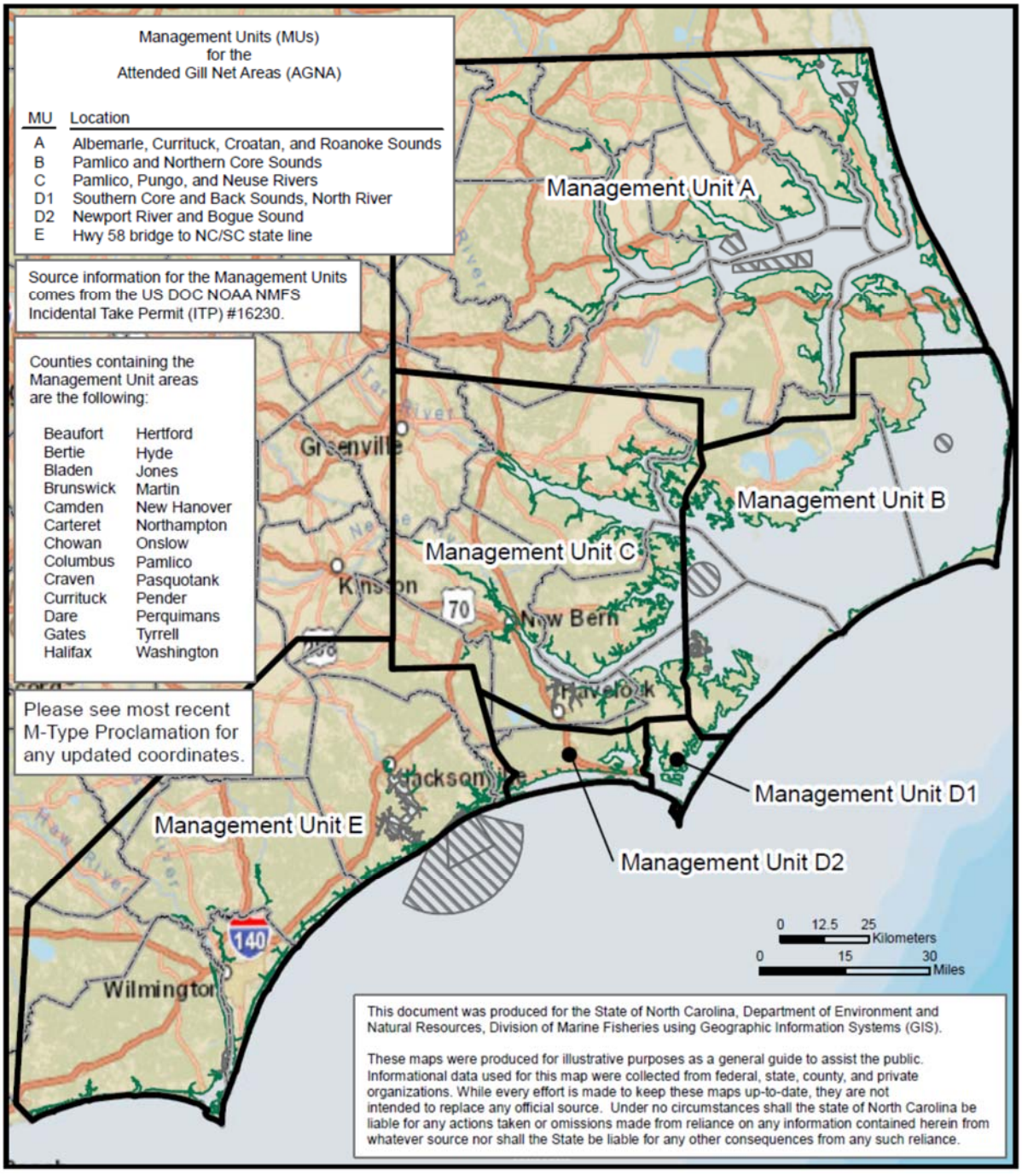


Figure 1. Management units (A, B, C, D1, D2, and E) as outlined in the Conservation Plan and utilized by the Observer Program for ITP Year 2017 (September 1, 2016 – August 31, 2017).

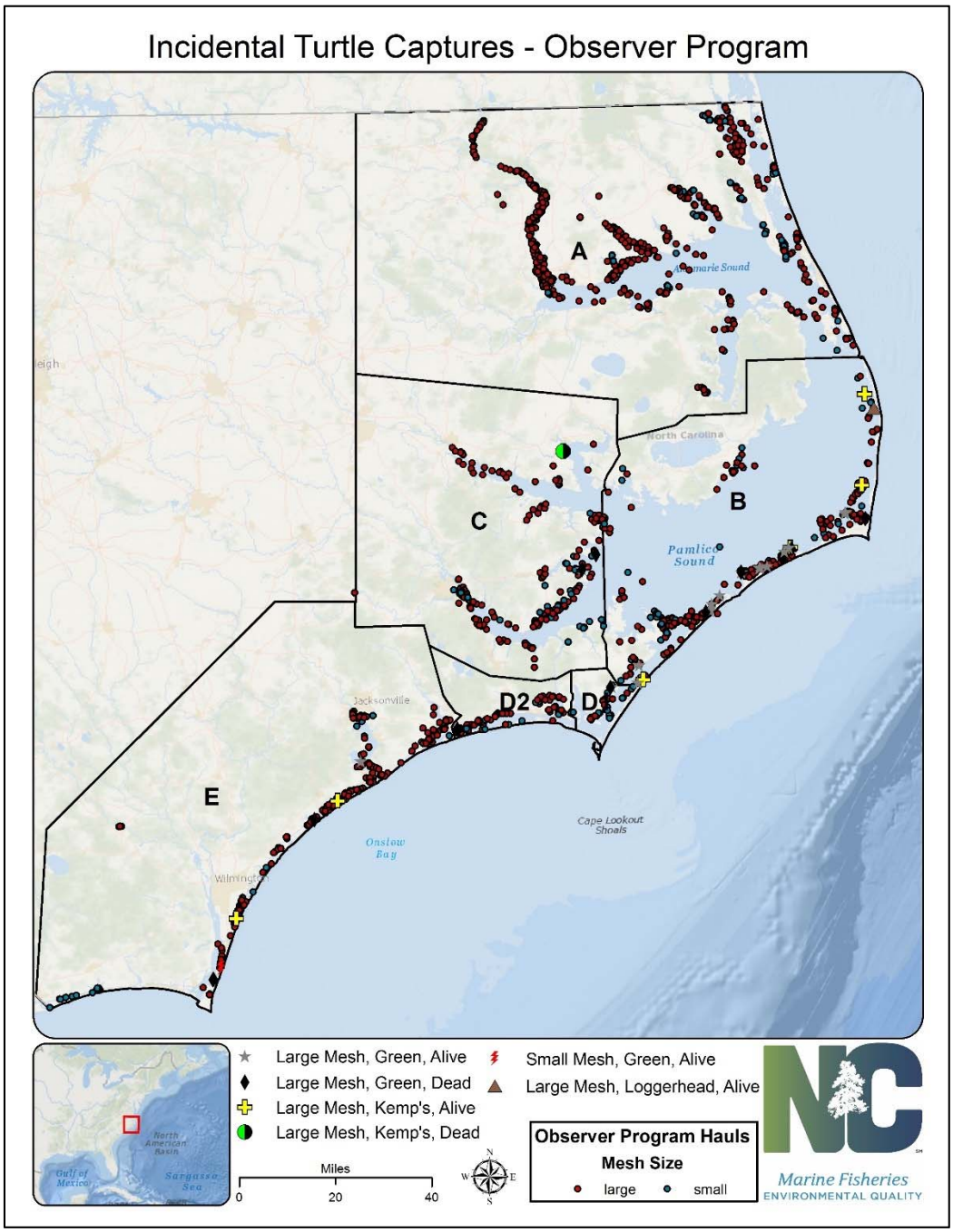


Figure 2. Sea turtle interaction locations by species, disposition, and gear and observer trips (hauls) by gear throughout all management units for ITP Year 2017 (September 1, 2016 – August 31, 2017).

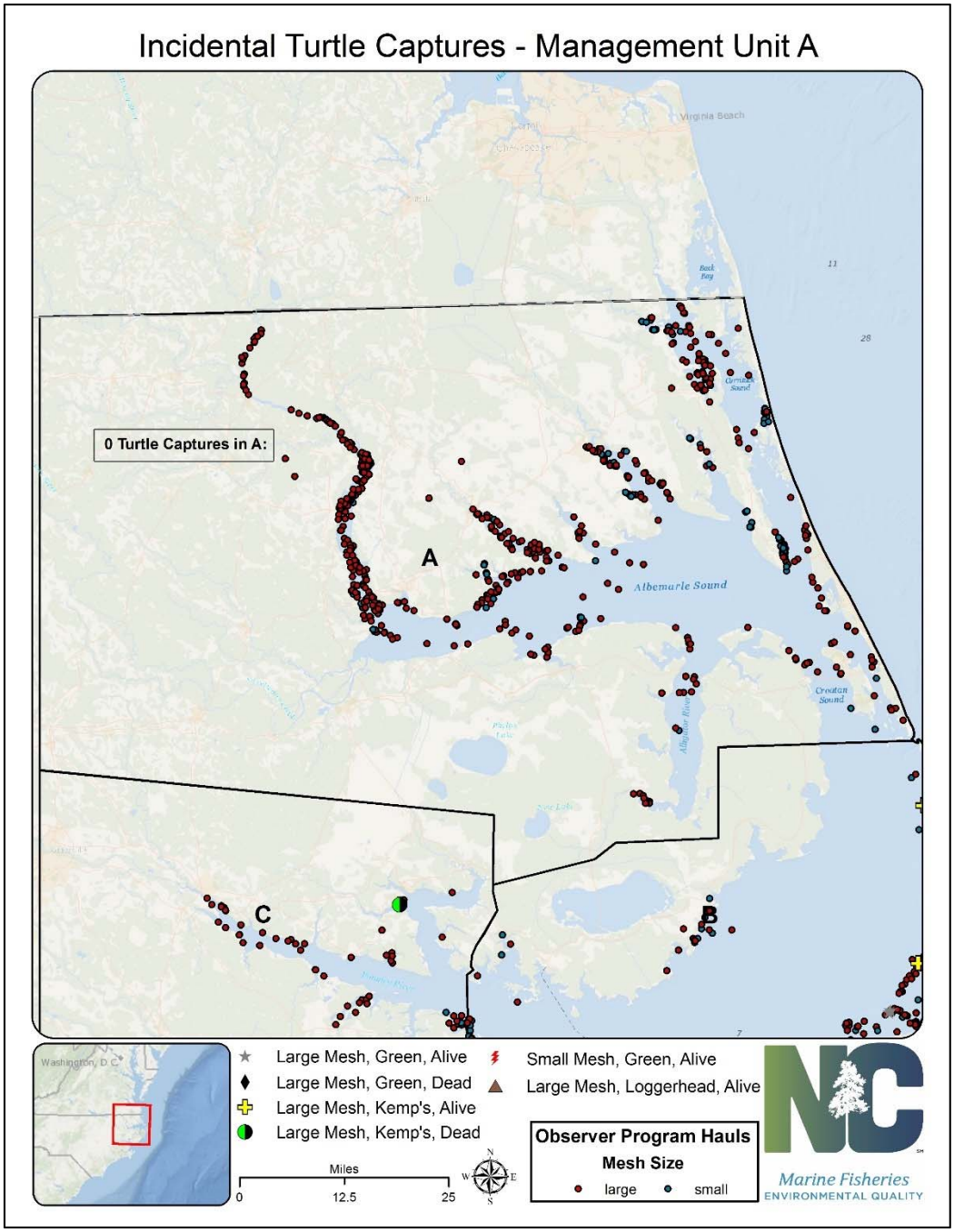


Figure 3. Sea turtle interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit A for ITP Year 2017 (September 1, 2016 – August 31, 2017).

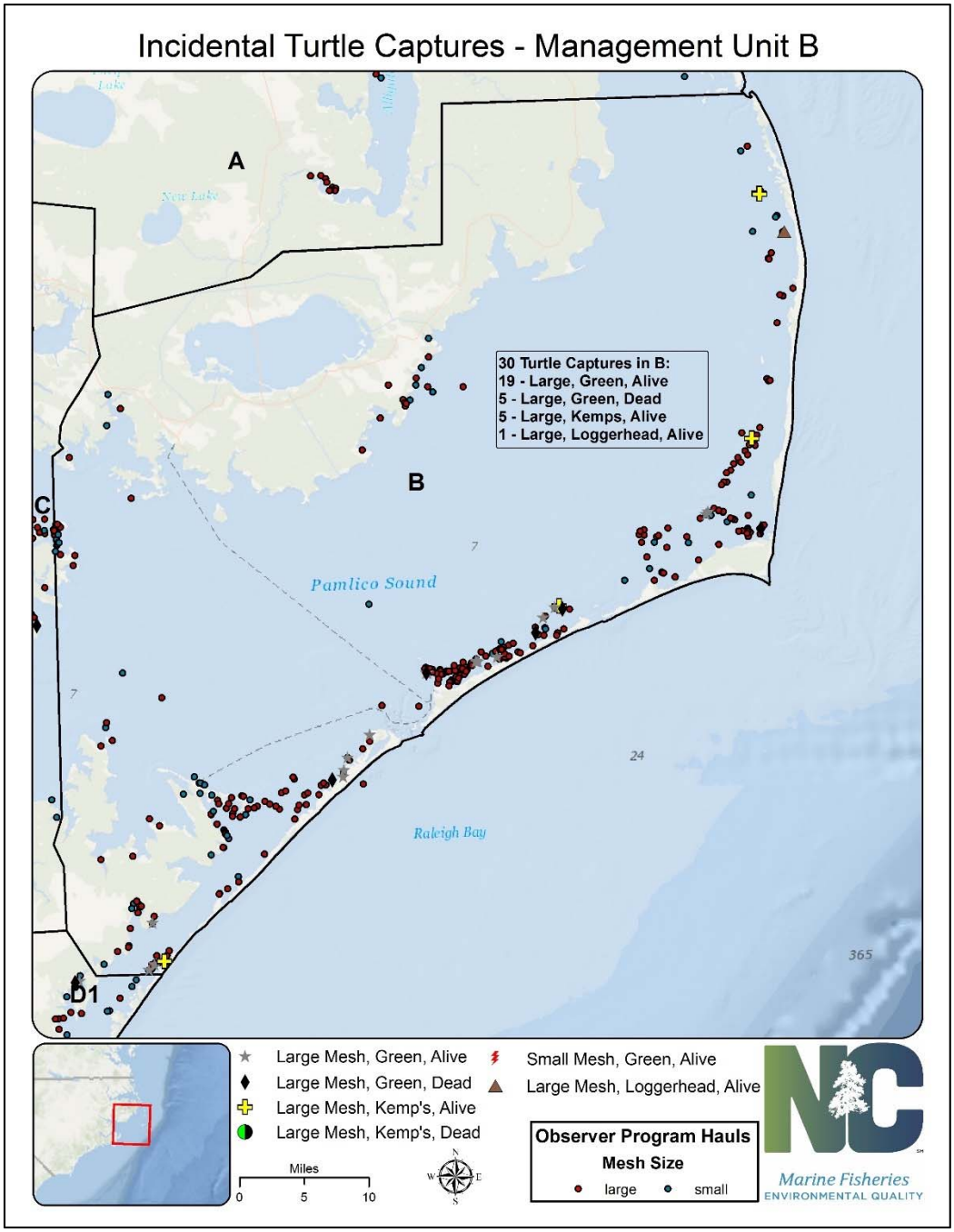


Figure 4. Sea turtle interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit B for ITP Year 2017 (September 1, 2016 – August 31, 2017).

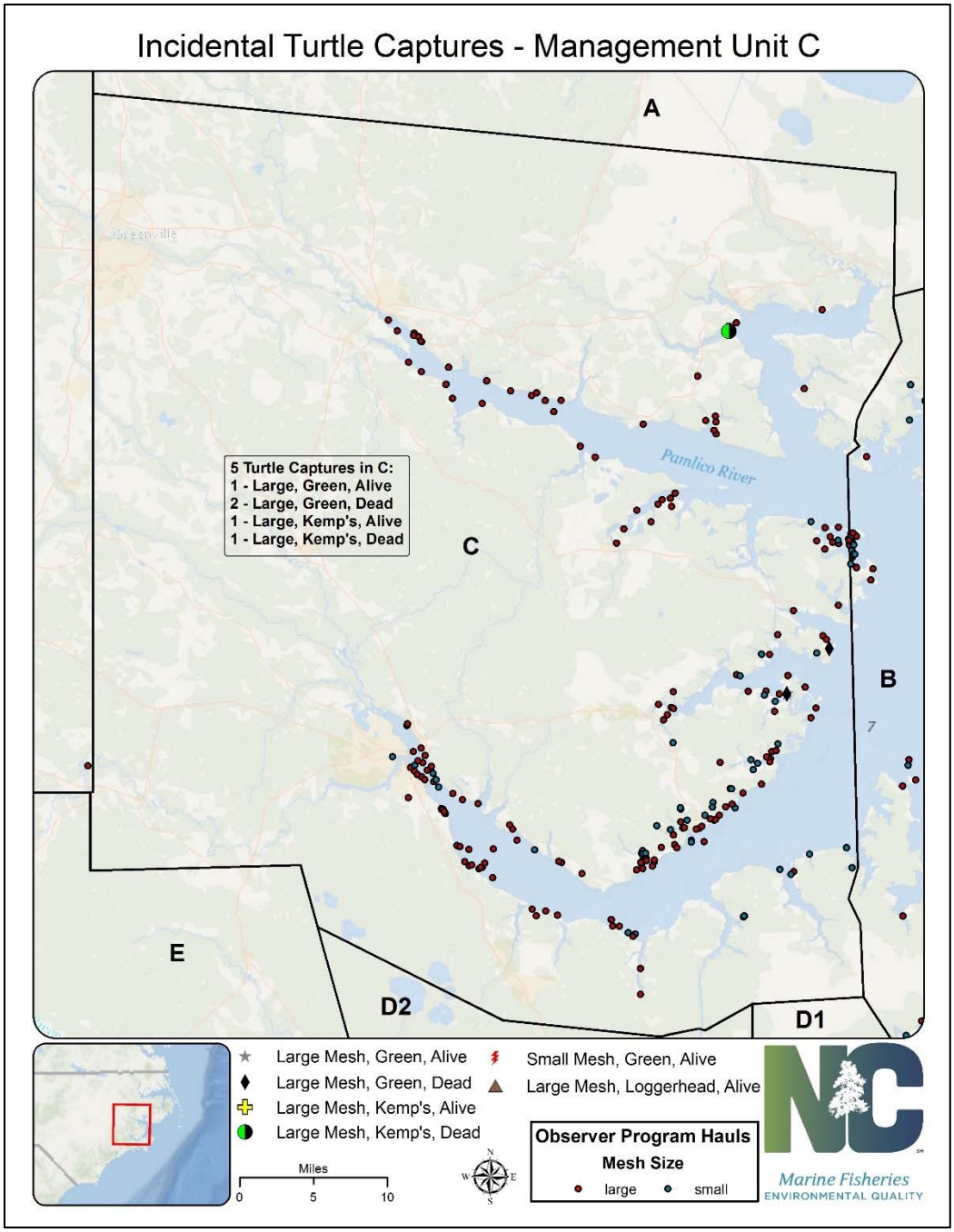


Figure 5. Sea turtle interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit C for ITP Year 2017 (September 1, 2016 – August 31, 2017).

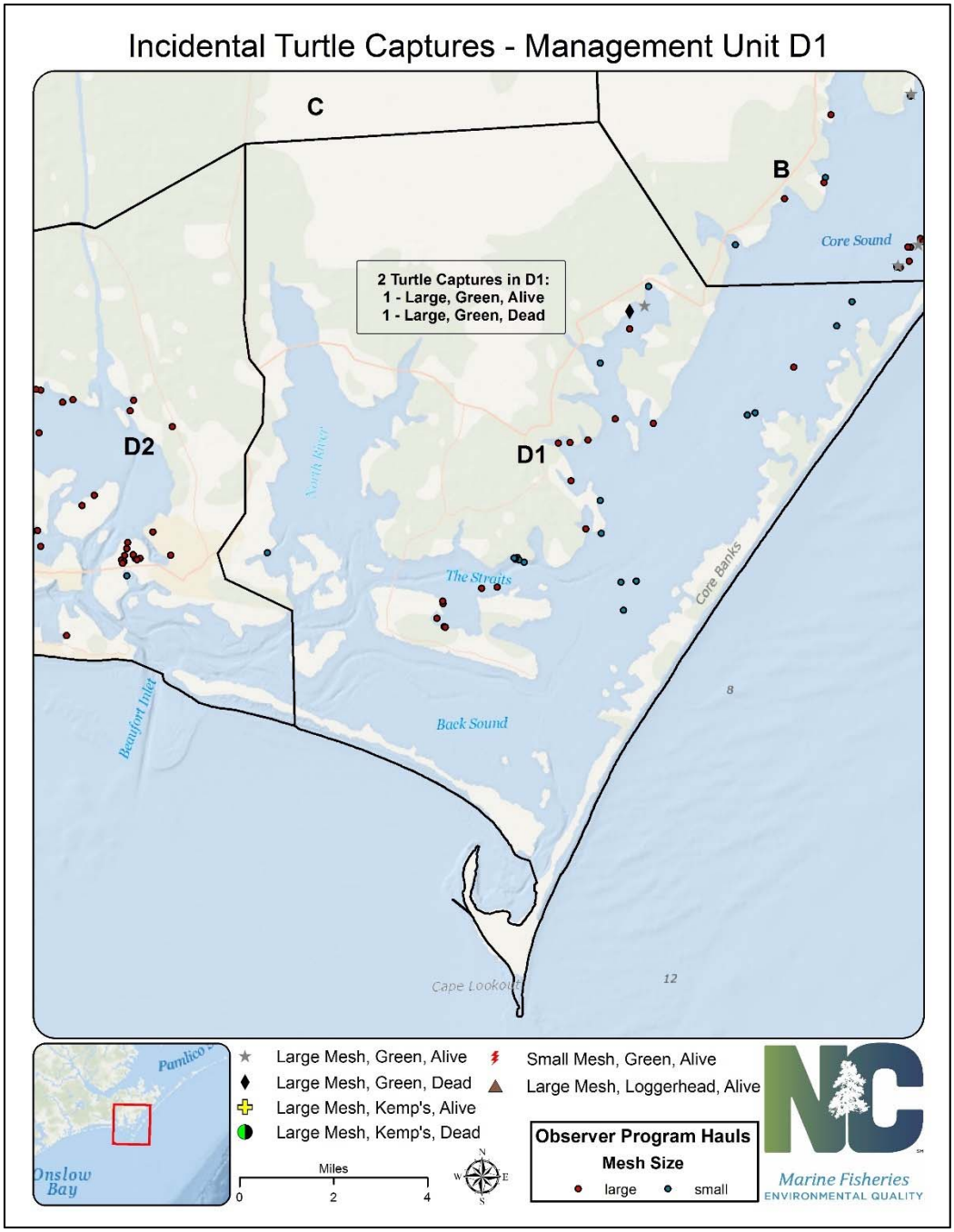


Figure 6. Sea turtle interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit D1 for ITP Year 2017 (September 1, 2016 – August 31, 2017).

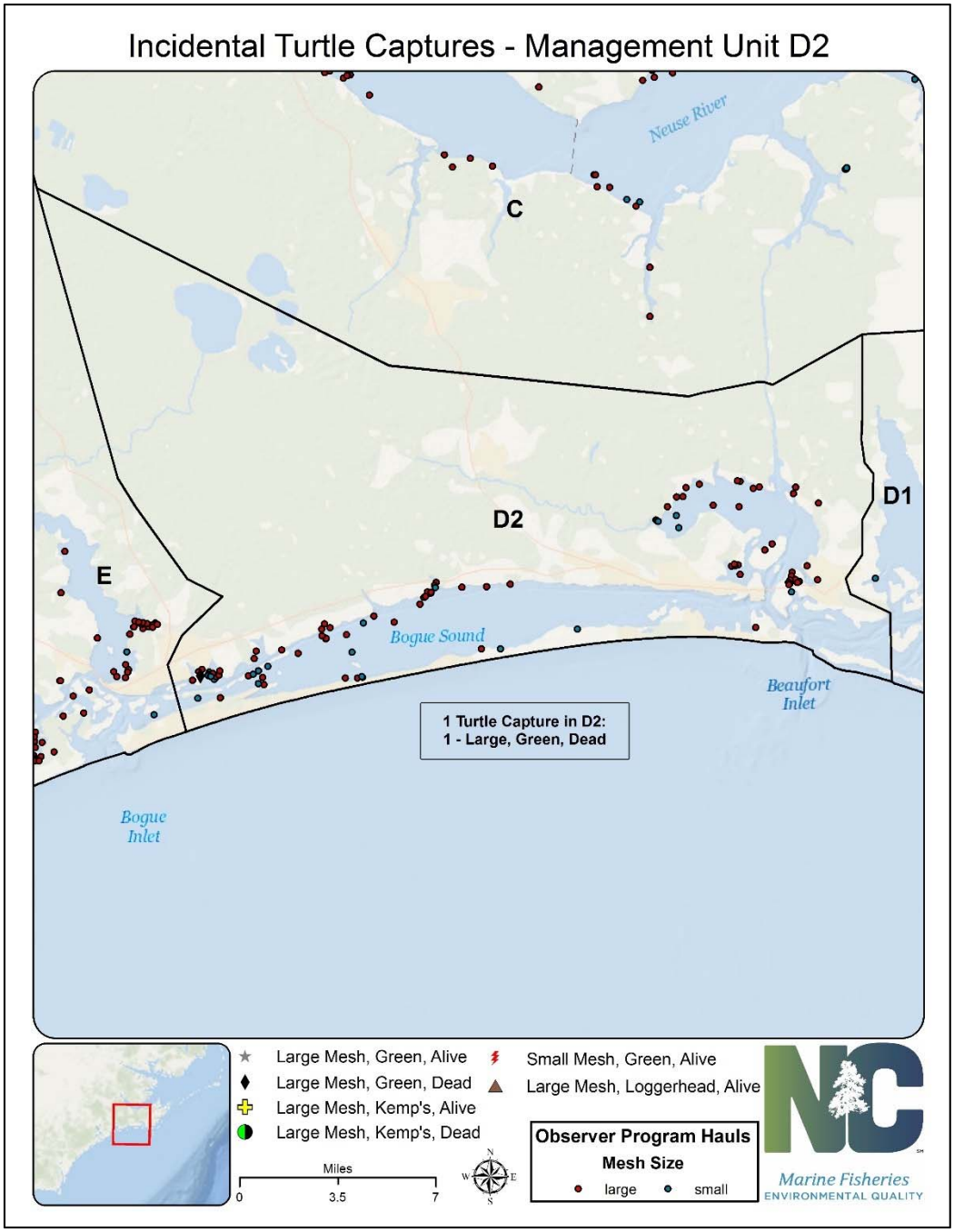


Figure 7. Sea turtle interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit D2 for ITP Year 2017 (September 1, 2016 – August 31, 2017).

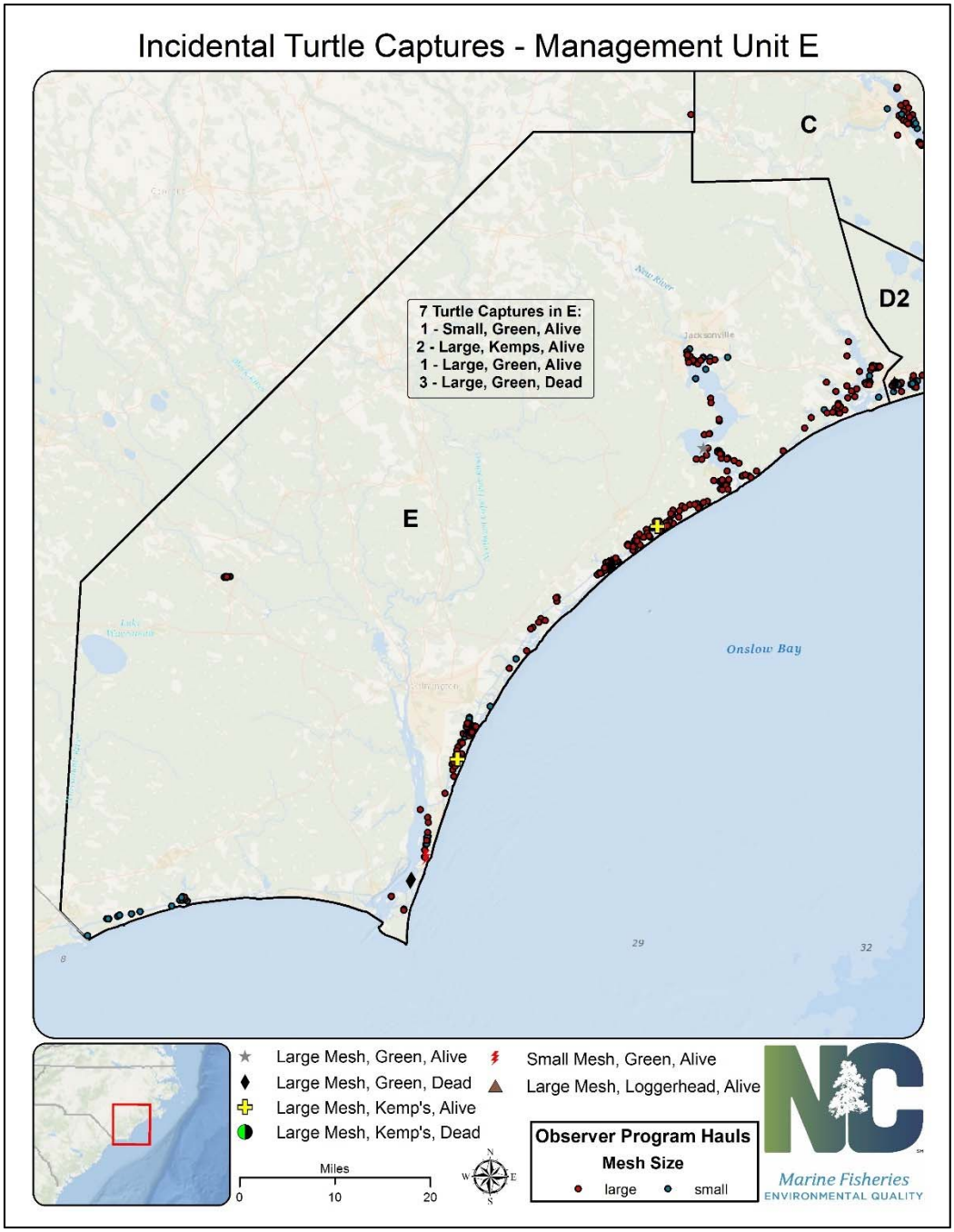


Figure 8. Sea turtle interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit E for ITP Year 2017 (September 1, 2016 – August 31, 2017).

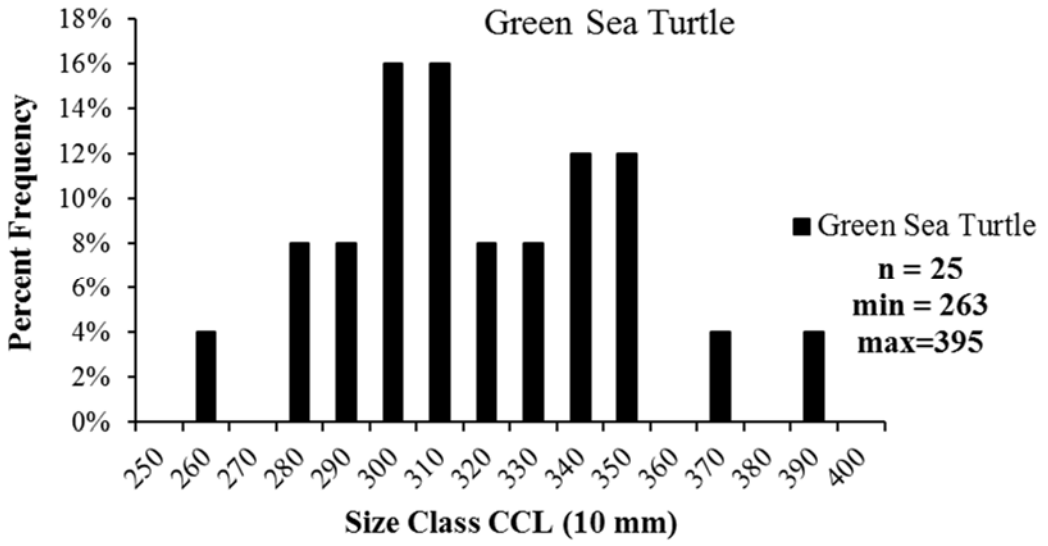


Figure 9. Length-frequency (curved carapace length) from notch to tip of observed incidental captures of green sea turtles where measurements were obtained (n = 25) collected by the Observer Program from onboard and alternative platform observations for ITP Year 2017 (September 1, 2016 – August 31, 2017).

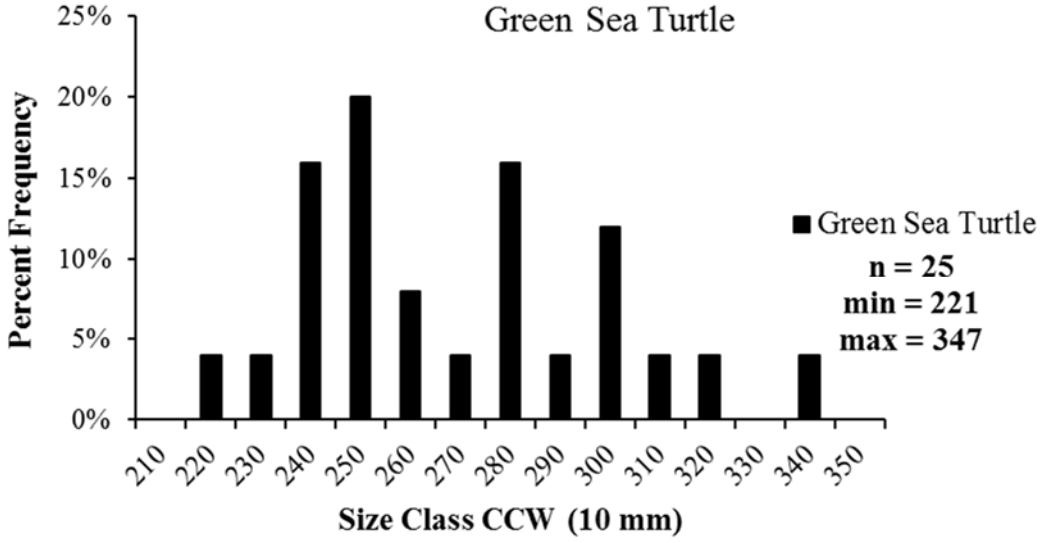


Figure 10. Length-frequency (curved carapace width) of observed incidental captures of green sea turtles where measurements were obtained (n = 25) collected by the Observer Program from onboard and alternative platform observations for ITP Year 2017 (September 1, 2016 – August 31, 2017).

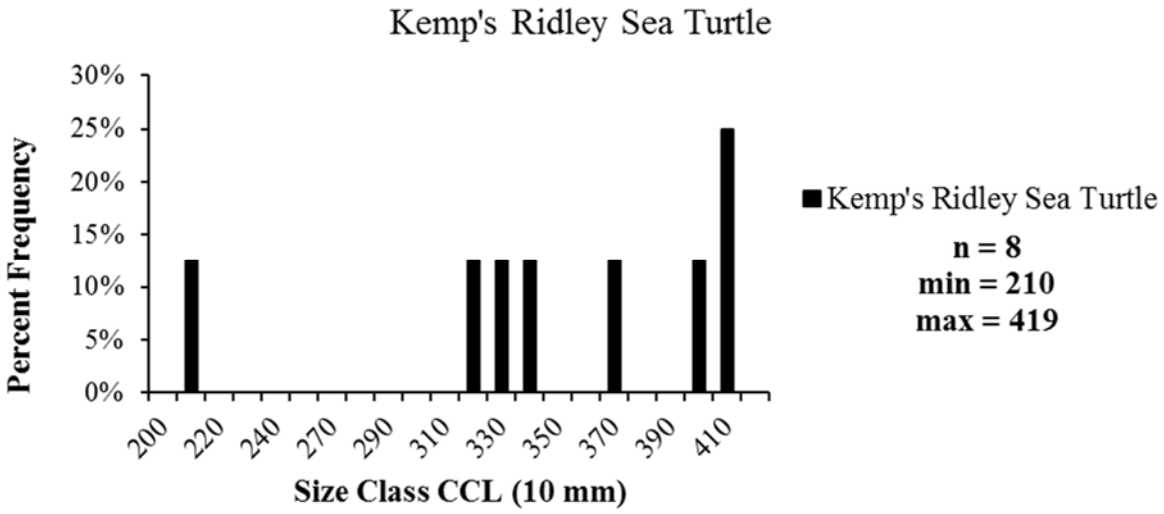


Figure 11. Length-frequency (curved carapace length) from notch to tip of observed incidental captures of Kemp's ridley sea turtles where measurements were obtained (n = 8) collected by the Observer Program from onboard and alternative platform observations for ITP Year 2017 (September 1, 2016 – August 31, 2017).

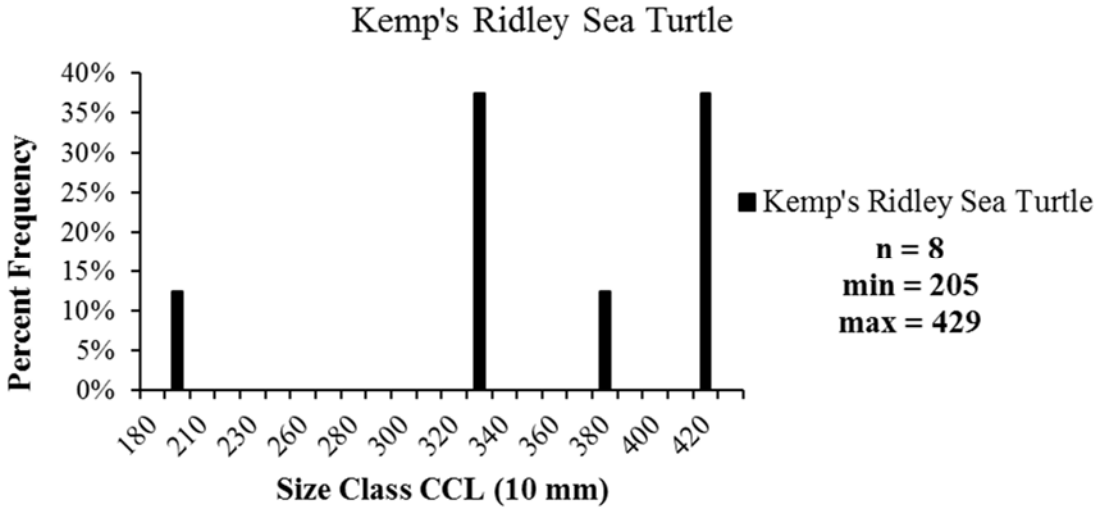


Figure 12. Length-frequency (curved carapace width) from notch to tip of observed incidental captures of Kemp's ridley sea turtles where measurements were obtained (n = 8) collected by the Observer Program from onboard and alternative platform observations for ITP Year 2017 (September 1, 2016 – August 31, 2017).

APPENDIX A

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

JAN 4 2017

Braxton C. Davis
Director, North Carolina Division of Marine Fisheries
3441 Arendell Street
P.O. Box 769
Morehead City, North Carolina 28557

Dear Mr. Davis:

On November 21, 2016, the North Carolina Division of Marine Fisheries (NCDMF) requested a minor modification to extend the future annual report deadlines for the Sea Turtle (No. 16230) and Atlantic Sturgeon (No. 18102) Incidental Take Permits from January 31 to the last day in February. You note that this extension would benefit your staff due to a lag time in data being uploaded and verified, the time of year, the deadline for the fall seasonal report, and staff availability.

We appreciate the challenges associated with staff availability and the data accessibility at this time of year, and this delay will not significantly impact our ability to review the annual report. National Marine Fisheries Service (NMFS) therefore concurs with your request for this minor modification. Please sign below to acknowledge that you will comply with the minor modifications specified in this letter and send a copy of the signed letter to Kristy Long on my staff at your earliest convenience.

We note that NCDMF has requested several modifications since the permit began and understand that you are in the process of developing an updated Incidental Take Permit application. We encourage you to incorporate any further anticipated minor modifications into that application process so we can more efficiently analyze these requests.

Please feel free to contact Ron Dean (ron.dean@noaa.gov) or Kristy Long (kristy.long@noaa.gov) with any questions about this minor modification request approval or your pending updated application.

We look forward to continuing to work with you on sea turtle conservation in North Carolina.

Sincerely,

Donna S. Wieting

Donna S. Wieting
Director, Office of Protected Resources

Printed on Recycled Paper

I acknowledge the minor modification specified above to Permit No. 16230 issued under Section 10 (a)(l)(B) of the Endangered Species Act to incidentally take threatened and endangered sea turtles in gillnet fisheries operating in inshore waters of North Carolina.

Braxton C. Davis
Director
N.C. Division of Marine Fisheries

1-5-17
Date

APPENDIX B

Marine Fisheries
ENVIRONMENTAL QUALITY

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
BRAXTON C. DAVIS
Director

Kristy Long
Office of Protected Resources (F/PR)
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910

Dear Kristy:

The North Carolina Division of Marine Fisheries (NCDMF) Observer Program data have been updated using the finalized 2016 Trip Ticket Program (TTP) data. The Annual Completion Report for the Sea Turtle Incidental Take Permit (ITP) No. 16230 was completed for ITP Year 2016 and submitted in February 2017. Using the finalized 2016 data, Tables 1, 5, 8, and 9 from the Completion Report were updated to reflect the final estimates of observer coverage and sea turtle takes (Tables 1 - 4). The fall 2015 season was based on finalized 2015 TTP data and did not deviate from the previous report for both anchored large and small mesh gill nets (Tables 1 and 2).

Anchored Large Mesh

The spring 2016 season had an increase in fishing trips for anchored large mesh gill nets than previously estimated in management units A, C, and D2 with all other management units having a decrease in fishing trips (Table 1). Observer coverage goals for anchored large mesh gill nets were met in all management units except management units D1 and D2 for the spring 2016 season. No trips were obtained in management unit D1 during the spring 2016 season due to the management unit being closed for the latter portion of the spring 2016 season and minimal fishing effort (n = 5 fishing trips) while open. Fishing effort (n = 92 fishing trips) in management unit D2 was also low compared to other management units during the same period. While observer coverage goals were not met in management units D1 and D2, they were far exceeded in management units B (15.8%) and E (30.2%) for anchored large mesh gill nets (Table 1).

The summer 2016 season had an increase in fishing trips for anchored large mesh gill nets than previously estimated in all management units except for C (Table 1). Observer coverage goals for anchored large mesh gill nets were met in all management units except management units A and B for the summer 2016 season (management unit D1 is closed annually from May 8 through October 14 as described in the ITP). Management unit A was open for only seven days before being closed to anchored large and small mesh gill nets for the remainder of the summer 2016 season allowing for only five trips to be obtained before the closure was implemented. Management unit B was open for only three days before being closed to anchored large mesh gill

nets for the remainder of the summer 2016 season allowing for only three trips to be obtained before the closure was implemented. While observer coverage goals were not met in management units A and B, they were exceeded in management units C (11.0%), D2 (13.5%), and E (19.8%) for anchored large mesh gill nets (Table 1).

Anchored Small Mesh

The spring 2016 season had an increase in fishing trips for anchored small mesh gill nets than previously estimated in management unit B (Table 2). Management unit E closed to anchored small mesh gill nets on May 4, 2016 for the remainder of ITP Year 2016 due to reaching allowable sea turtle takes. Observer coverage goals for anchored small mesh gill nets were met in all management units for the spring 2016 season. Furthermore, observer coverage goals were far exceeded in management units A (4.1%), C (7.4%), D1 (17.6%), D2 (10.0%), and E (8.3%) for anchored small mesh gill nets (Table 2).

The summer 2016 season had an increase in fishing trips for anchored small mesh gill nets than previously estimated in management units A and B (Table 2). Management unit E remained closed to anchored small mesh gill nets for the duration of the summer 2016 season. Observer coverage goals for anchored small mesh gill nets were met in all management units except management units A and B. Management unit A was open for only seven days before being closed to anchored large and small mesh gill nets for the duration of the summer 2016 season. Therefore, no anchored small mesh trips were able to be obtained during this short time frame. Attendance requirements for anchored small mesh gill nets during the summer season made it difficult to obtain trips in management unit B. While observer coverage goals were not met in management units A and B, they were far exceeded in management units C (4.5%), D1 (25.0%), D2 (18.8%) and E (7.8%) for anchored small mesh gill nets (Table 2).

Sea Turtle Takes

Annual estimated allowable sea turtle takes were recalculated using the finalized 2016 TTP data (Tables 3 and 4). The estimates of sea turtle takes decreased or remained constant from previous estimates for all species and dispositions except for alive green sea turtles in management unit E which increased by an estimated four takes. The anchored large mesh gill-net fishery remained below the annual estimated allowable sea turtle takes for all species and dispositions for ITP Year 2016 (Tables 3 and 4).

Table 1. Observer coverage calculated from finalized 2016 Trip Ticket data and observer data for anchored large mesh gill nets by season and management unit through the NCDMF Observer Program for ITP Year 2016 (September 1, 2015 - August 31, 2016).

		Anchored Large Mesh		
Season	Management Unit	Fishing Trips	Observed Trips	Coverage
Fall 2015	A	2,258	205	9.1
	B	424	63	14.9
	C	366	58	15.8
	D1	7	7	100.0
	D2	320	27	8.4
	E	518	36	6.9
Spring 2016	A	1,510	138	9.1
	B	273	43	15.8
	C	996	73	7.3
	D1	5	0	0.0
	D2	92	4	4.3
	E	179	54	30.2
Summer 2016	A	148	5	3.4
	B	159	3	1.9
	C	528	58	11.0
	D1	0	0	0.0
	D2	163	22	13.5
	E	500	99	19.8
Total		8,446	895	10.6

Table 2. Observer coverage calculated from finalized 2016 Trip Ticket data and observer data for anchored small mesh gill nets by season and management unit through the NCDMF Observer Program for ITP Year 2016 (September 1, 2015 - August 31, 2016).

		Anchored Small Mesh		
Season	Management Unit	Fishing Trips	Observed Trips	Coverage
Fall 2015	A	358	10	2.8
	B	706	9	1.3
	C	95	7	7.4
	D1	26	6	23.1
	D2	195	17	8.7
	E	547	29	5.3
Spring 2016	A	675	28	4.1
	B	1,478	29	2.0
	C	95	7	7.4
	D1	34	6	17.6
	D2	20	2	10.0
	E	133	11	8.3
Summer 2016	A	51	0	0.0
	B	1,084	7	0.6
	C	157	7	4.5
	D1	4	1	25.0
	D2	16	3	18.8
	E [1]	n/a	n/a	n/a
Total		5,674	179	3.2

[1] Management unit E closed to anchored small mesh gill nets for the duration of the summer 2016 season

Table 3. Authorized and actual annual estimated takes with confidence intervals (95%) using a bootstrap method based on observer data for coverage and sea turtle interaction levels in anchored large mesh (≥4 inch stretched mesh) gill nets for ITP Year 2016 (September 1, 2015 - August 31, 2016).

	Management Unit											
	B				D1				Total			
	Estimated Takes				Estimated Takes							
	Authorized		Actual		Authorized		Actual		Authorized		Actual	
Species	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead
Green	225	112	59 (0,132)	26 (33,62)	9	5	1 (0,4)	0	234	117	60	26
Kemp's ridley	53	26	22 (12,121)	0	15	7	0	0	68	33	22	0
Total	278	138	81	26	24	12	1	0	302	150	82	26

	Management Unit											
	D2				E				Total			
	Estimated Takes				Estimated Takes							
	Authorized		Actual		Authorized		Actual		Authorized		Actual	
Species	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead
Green	n/a [1]	n/a [1]	n/a [1]	n/a [1]	96	48	73 (7,136)	19 (0,30)	96	48	73	19
Kemp's ridley	6	3	0	0	24	13	11 (0,26)	0	30	16	11	0
Total	6	3	0	0	120	61	84	19	126	64	84	19

[1] Insufficient observer data exist to model an estimated annual take level; therefore, for management unit D2, an annual observed take number has been identified for green turtles

Table 4. Total annual authorized and actual takes (estimated and observed) by species and condition for ITP Year 2016 (September 1, 2015 - August 31, 2016).

	Observed (live/dead)		Estimated			
			Authorized		Actual	
Species	Authorized	Actual	Alive	Dead	Alive	Dead
Green	18	8	330	165	133	45
Hawksbill	8	0	n/a[1]	n/a[1]	n/a[1]	n/a[1]
Kemp's ridley	12	3	98	49	33	0
Leatherback	8	0	n/a[1]	n/a[1]	n/a[1]	n/a[1]
Loggerhead	24	0	n/a[1]	n/a[1]	n/a[1]	n/a[1]
Any Species	8	3 [2]	n/a[1]	n/a[1]	n/a[1]	n/a[1]
Total	78	14	428	214	166	45

[1] Insufficient observer data exist to model an estimated annual take level; therefore, takes are expressed as observed

[2] Species identification unknown

Sincerely,

Jacob Boyd, Protected Species Biologist
Division of Marine Fisheries, NCDEQ

cc: Chris Batsavage
Braxton Davis
Dee Lupton
John McConnaughey

APPENDIX C

September 2, 2016

David,

The North Carolina Watermen United (NCWU) would like to thank you setting up the meeting with gill- and pound- netters. We appreciate your efforts to help re-open closed areas and keep others from being closed.

However, as many of the attendees at the meeting in Wanchese on Tuesday, August 30, 2016 mentioned, every possible action has been in effect for years to reduce interactions with endangered sea turtles under the regulations of the Sea Turtle ITPs since 2002. We already have many gear modifications, closures in high turtle interaction areas, a reduction in fishing times and a reduction in fishing efforts that include -

- 1. The state is divided into 6 Unit Areas and 4 of those 6 units have 4 days a week fishing only; night-time soaks only; 15-mesh deep nets and no floats. These are year-round restrictions in the 4 areas.

- 2. The southern portion of Unit A is also under these same restrictions. The entire deep-water area of Pamlico Sound is closed to the use of large mesh gillnet from September 1 until January of the next year.

- 3. All inlet corridors are closed to large mesh gillnets after September 1 each year.

- 4. Unit E is closed to the use of large mesh gillnets every May until October.

- 5. In all internal waters, the only areas that do not have gear modifications and further restrictions under the ITP are the northern parts of Unit A and Unit C – both of which have minimal interactions with sea turtles, and still only 4 interactions per unit per year are authorized.

At this time, NCWU would like to ask again that a meeting be set up with NCWU and NCFA fishermen, especially gill- and pound- netters, with representatives from the NC Division of Marine Fisheries and with Jean Beasley from the Karen Beasley Sea Turtle Foundation. Jean Beasley and NCWU asked the previous DMF Director for this meeting many times, but he never acted on our request. It is the perfect time to listen to her ideas and experiment with the devices that she has been advocating for years that she believes would help lessen the number of turtle interactions. I am a gillnetter and very willing to help test and monitor these devices.

We are hopeful that the cooperation between NCWU, NCFA and the NCDMF with Jean Beasley may help us all to solve some of the problems that our state's gillnet fishermen are experiencing.

Thank you.

Yours truly,

Andrew Berry

Andrew Berry
NCWU Board Member
252-722-4293
bowhunterab14@gmail.com

AB: mm
cc: NCDMF Director Braxton Davis, Chris Batsavage; Jacob Berg
NCDEQ Secretary van der Vaart
NCFA Director Jerry Schill, Chairman Brent Fulcher

APPENDIX D

Chris,

I am following up on the Protected Species Workgroup meetings. As was discussed at both meetings, there have been more than substantial measures directly, and indirectly, reducing mitigation of turtle interactions, but those measures need quantified.

I am requesting per the direction of the fishermen, that NCDFM quantify the total sea turtle mitigation reduction that has taken place from prior to the sea turtle lawsuit to present. It should also include impacts by other regulations such as fishery effort/harvest reductions. For the information to be useful, it may be necessary to separate reductions based on ITP closures from other reductions, so that we can determine how effective all of the other measures have been without closures. You may even include one total with, and one without closures.

It is also requested that a biological opinion be completed relating to those measures, once quantified, addressing the successful mitigation of sea turtles. It should include any potential measures that might be necessary, and only if necessary, to reduce interactions sufficiently, without relying on a set number to base closures on. This opinion should address both large and small mesh fisheries that have substantial interaction with turtles.

These items are being requested to work towards an ITP that sufficiently protects the species, while preventing unnecessary closures to the fishery.

I was just directed to make this request and wanted to get it to you as soon as possible. If in my haste I was unclear and need to clarify anything, please contact me anytime.

Take care,

David Bush
Fisheries Biologist,
NC Fisheries Association
(910)777-1605

APPENDIX E

November 23, 2016

Laura Runyan, Director
Foundation, Government and Faculty Grants Gettysburg College
300 North Washington Street
Gettysburg, PA 17325

Subj: Saltonstall-Kennedy Competitive Research Program Grant Proposal

Title: Development of sensory-based bycatch reduction technologies to reduce sea turtle bycatch in North Carolina coastal gillnet and pound net fisheries.

North Carolina Fisheries Association (NCFA) is excited at the opportunity to collaborate with Gettysburg College on the above referenced project. As a primary goal of our organization, we attempt to support all possible efforts to solidify the future of one of the oldest and proudest of professions, the commercial fishing industry. NCFA understands that to accomplish this, sustainable fishing efforts to harvest public trust resources is an absolute requirement.

The goal of this research, sea turtle bycatch reduction, is an important yet very complicated issue. It is one that NC fishermen understand, supporting substantial research efforts and enduring the subsequent changes to their fisheries to accomplish. The Turtle Excluder Device, or TED, is a prime example of successful collaboration between fishermen, academia, government scientists and management. The positive results of these efforts compound the issue within our internal water fisheries where the ever-increasing numbers of these animals are now encountered. This research is vital in finding ways to coexist with these endangered species, and it is hopeful that technology derived from this research will also be applicable to other industries and projects that affect them.

NCFA is experienced and knowledgeable in supporting research to develop bycatch reduction methods for finfish and sea turtles, and is eager to contribute to this project's successful implementation. We are currently in our second of three years of research concerning finfish bycatch reduction in the shrimp trawl industry. In collaboration with our state management agency, our preliminary results surpass all state and federal requirements. We support this proposed research methodology, and will also support the project to completion if awarded the requested grant.

We (NCFA) agree to act as subcontractor with Gettysburg College to complete the work plan as outlined in the proposal. It is understood that general concept of this work will involve coordination of the appropriate industry and state management personnel, facilitate workshops

as required, train and supervise independent observer efforts, directly contribute to this research utilizing accepted scientific methodology, and travel as required in performance of these duties.

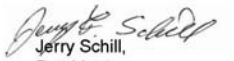
NCFA Fisheries Biologist David Bush will perform that work. He will coordinate with his Co-PI Wendy Piniak of Gettysburg College and report to his board of directors with work results and updates as outlined in the scope of work enclosed within the application.

It is our understanding that, in the event this proposal is awarded, a subcontract will be issued in the estimated amount of $12,505 for the period covering 9/1/2017 through 8/31/2019. While this amount and dates appear in the application, the actual amount and project dates awarded to NCFA will be determined based on Gettysburg College's executed award.

The appropriate programmatic and administrative personnel of each institution involved in this grant application are aware of the sponsor's guidelines and pertinent regulations and policies and are prepared to establish the necessary inter-institutional agreement(s) consistent with all such policies. NCFA hereby certifies that neither it nor its principles nor those performing services under this application are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency from participation in this transaction.

Thank you for the opportunity to contribute to this project and we look forward to working with Dr. Piniak and Gettysburg College.

Respectfully,



Jerry Schill,
President,
NC Fisheries Association
2807 Neuse Blvd Suite 11
New Bern, NC 28562
252-633-6232 Ext. 100

cc: NCDMF - Director Braxton Davis, Biologists: Chris Batsavage, Jacob Boyd
NCFA - Board and Director

APPENDIX F

NORTH CAROLINA MARINE FISHERIES COMMISSION
DEPARTMENT OF ENVIRONMENTAL QUALITY

Aug. 25, 2016

Mr. Bob Lorenz
P.O. Box 10512
Wilmington, NC 28404

Dear Bob:

I wanted to let you know at last week's Marine Fisheries Commission meeting I announced the Sea Turtle Advisory Committee was being disbanded. I wanted to contact you directly and let you know I had taken this action and the reason why.

The commission has a multitude of committees, many of which are statutorily mandated, such as the Northern and Southern regional advisory committees and the Finfish, Shellfish/Crustacean and Habitat and Water Quality advisory committees. These committees require a great deal of attention, both in staff time and in resources. In looking for efficiencies in our committee system, I felt our regional and pertinent standing advisory committees could serve as venues to review and provide the needed input on sea turtle issues. So, after much consideration, I decided to disband the Sea Turtle Advisory Committee, because it is not statutorily required. This was a difficult decision, especially since I served on the Sea Turtle Advisory Committee prior to being appointed to the Marine Fisheries Commission.

Later this fall we will be doing our annual solicitation for advisers. If any of you are interested in serving on other committees, please let me know and I will make every effort to place you on one of these committees as openings become available.

In closing, please know how much I appreciate your dedication and service to the state. I encourage you to please stay involved in fisheries issues and I hope to see you or hear from you in the future.

Sincerely,

Sammy Corbett, Chairman
N.C. Marine Fisheries Commission

cc: Chris Batsavage, Division of Marine Fisheries

Annual Atlantic Sturgeon Interaction Monitoring of the Gill-Net Fisheries in North Carolina for Incidental Take Permit Year 2017

Annual Completion Report for Activities under Endangered Species Act
Section 10 Incidental Take Permit No. 18102

Jacob Boyd

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

February 2018

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

The North Carolina Division of Marine Fisheries (NCDMF) applied 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 April 5, 2012 for Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) interactions with the anchored gill-net fisheries in North Carolina's internal coastal (estuarine) waters. This request was prompted by notification from the National Marine Fisheries Service (NMFS) in February 2012 indicating the intent to list the Carolina Distinct Population Segment (DPS) of Atlantic sturgeon as endangered under the ESA. The NCDMF requested an ITP to implement a proposed conservation plan that ensured only a reasonable level of authorized Atlantic sturgeon incidental takes will occur, while allowing North Carolina's estuarine gill-net fisheries to operate. The NCDMF requested the NMFS to authorize such takes that are incidental to normal fishing activity with increased public outreach by the NCDMF to help fishermen avoid, minimize, and mitigate incidental takes of Atlantic sturgeon.

Feedback on the ITP application was received from the NMFS on May 29, 2012 via a teleconference with the NCDMF and the NMFS staff. After further review, on July 20, 2012 the NMFS requested the NCDMF to submit a revised permit application and Conservation Plan that addressed issues that were provided. In response to requested changes from the NMFS, the NCDMF made extensive revisions and resubmitted the application on December 20, 2012. Upon further review the NMFS provided the NCDMF with a list of questions they had regarding the application. On February 4, 2013, the NMFS and the NCDMF went over questions regarding the ITP application and Conservation Plan. Another revised ITP application was resubmitted to the NMFS on June 28, 2013 encompassing all comments and concerns raised by the NMFS. On July 9, 2013, the NMFS published a notice of receipt of the NCDMF application (File No. 18102) in the Federal Register (78 FR 41034). The comment period ended August 8, 2013. After further deliberation with the NMFS another revision of the Atlantic Sturgeon ITP was resubmitted on January 2, 2014.

The NCDMF received the Atlantic Sturgeon ITP (No. 18102) on July 22, 2014. The Atlantic Sturgeon ITP defined an ITP Year as beginning on September 1 and running through August 31 of the following year. This ITP authorized the implementation of adaptive management measures to protect endangered Atlantic sturgeon and other ESA listed species, while allowing anchored gill-net fisheries to be prosecuted in the estuarine waters of North Carolina. The ITPs Conservation Plan specifies further measures, which the NMFS determined will minimize, monitor, and mitigate the impacts of incidental takes of ESA-listed Atlantic sturgeon from the Gulf of Maine, New York Bight, Chesapeake, Carolina, and South Atlantic DPSs, associated with the otherwise lawful anchored gill-net fisheries operating in estuarine North Carolina waters. Anchored gill nets are passive sets deployed with an anchor, stake, or boat at one or both ends of the net shots or operation. Anchored gill nets do not include the following types of gill nets: run-around, strike, drop or drift gill nets.

On November 21, 2016, the NCDMF requested a minor modification to extend the future annual report deadlines for the Atlantic Sturgeon and Sea Turtle (No. 16230) ITPs from January 31 to the last day in February. This extension was to benefit staff due to a lag time in data being uploaded and verified, the time of year, the deadline for the fall seasonal report, and staff availability. On January 4, 2017, the NMFS sent a letter to the NCDMF concurring with NCDMF's request for the minor modification encouraging staff to incorporate any further anticipated minor modifications into the application process for an updated ITP (Appendix A).

The NCDMF Observer Program data were updated using the finalized 2016 Trip Ticket Program (TTP) data in May 2017 (Appendix B). The Annual Completion Report for the Atlantic Sturgeon ITP was completed for ITP Year 2016 and submitted in February 2017. Using the finalized 2016 data, Tables 1, 2, 5, and 6 from the Completion Report were updated to reflect the final estimates of observer coverage and Atlantic sturgeon takes. The fall 2015 season was based on finalized 2016 TTP data and did not deviate from the previous report for both anchored large and small mesh gill nets (Appendix B).

On July 13, 2017, the NCDMF requested a minor modification to the Atlantic Sturgeon ITP to modify the allocation of allowed Atlantic sturgeon takes in management units A and C as annual takes rather than seasonal takes. Discussions with NMFS staff noted the number of allowed seasonal takes is very low in some cases, and the seasonal takes have been reached on a few occasions (resulting in seasonal closures). Further discussions with NMFS staff concluded that a minor modification would be feasible. However, there was a concern noted on the issue of warmer water temperatures (20°C – 30°C) being correlated with more mortalities. The NCDMF addressed this concern describing how by using adaptive management, the NCDMF has more flexibility in managing the fishery with annual allocated takes to ensure the allowed takes are not exceeded for any management unit during the ITP Year. Lower fishing effort in the summer season (compared to the fall season) due to increasing water temperatures and fish availability should not create an issue for Atlantic sturgeon mortalities going over the allowed mortalities levels for takes. The NCDMF further explained that by actively monitoring the fisheries and take levels daily, it better ensures take levels (including limiting mortality levels) are not exceeded. On July 19, 2017, the NMFS sent a letter to the NCDMF concurring with NCDMF's request for the minor modification encouraging staff to incorporate any further anticipated minor modifications into the application process for an updated ITP (Appendix C).

METHODS

Observer Activity

The conservation plan includes managing inshore gill-net fisheries by dividing estuarine waters into seven management units (A1, A2, A3, B, C, D, and E; Figure 1). Trip Ticket Program data along with Observer Program data from previous years are used when estimating the number of trips needed for the current year in each management unit and season. Also, real time TTP data are used for areas where effort may be increasing. Each year effort can potentially shift from one management unit to another making it important for the NCDMF to not base the observer effort solely on previous years' TTP data, but also on current effort changes. To account for fluctuations in TTP data caused by management unit closings, a five-year average was used for estimating anchored large mesh gill-net fishing trips and a four-year average was used for estimating anchored small mesh gill-net fishing trips for ITP Year 2017. This method of estimating trips proves to more accurately reflect the current fishing effort. Once TTP data are finalized in May of 2018, the final observer coverage will be recalculated and the finalized estimates of observer coverage will be provided to the NMFS.

Observer coverage was calculated for each season in each management unit by estimating fishing trips using an average of the previous five years' TTP data (2012-2016) for anchored large mesh gill nets and the average of the previous four years' (2013-2016) TTP data for anchored small mesh gill nets, while taking reduced season dates in each management unit into account by calculating the proportion of actual to possible fishing days. This calculated estimated fishing effort was compared to the observer trips completed throughout the ITP Year. The average, normalized effort was used when estimating fishing trips to account for the fluctuation of fishing effort throughout the years due to closures and other regulations put in place throughout the time series.

The onboard Observer Program, where observers ride onboard fishermen's vessels, is the preferred method of obtaining observer data and is used most frequently. Protected species interactions, gear parameters, as well as detailed gill-net catch, bycatch, and discard information for all species caught are recorded. The alternative platform Observer Program requires two observers in a state-owned vessel to monitor commercial fishermen as they fish their gill nets. The alternative platform observers document protected species interactions and provide catch and discard estimates for other species that are observed. The amount of biological data that are collected on alternative platform observer trips is notably less than onboard observer trips. Therefore, onboard observer trips are highly preferred due to the amount of biological data collected which are used when making management decisions, in stock assessments, in the development of fishery management plans, and for identifying bycatch (finfish, protected species) problem areas. For alternative platform trips, observers and Marine Patrol follow similar protocols using NCDMF vessels to observe the fishing trip. Each observer attempts to obtain a minimum of three to four trips per working week when fishing activity is occurring.

Observers are assigned a management unit to work weekly and the number of observers assigned to a management unit depends upon the season and fishing effort. Fishing effort is estimated from the previous 4-5 years' TTP data by week, month, and management unit to determine where and how much observer coverage is needed each week and for each management unit by month/season. Reports from observers and other staff are used to determine if effort is fluctuating between management units. Trends from the previous years' TTP data are also analyzed to determine if fishing effort is shifting from one management unit to another. Fishermen holding an Estuarine Gill Net Permit (EGNP) in North Carolina are pooled by management unit and further split into lists by geographic area within units. The contact information for these fishermen is then given to the observers assigned to that area and the observers contact the fishermen to set up trips from the list of names given. Preliminary TTP information is also used to refine the list to represent individuals who are actively participating in fishing activities. Observers also visit fish houses and dealers where they hand out business cards with their contact information and brochures explaining the Observer Program, giving the fishermen another outlet to allow observers on their vessels. Additionally, the Observer Program uses a website (http://portal.ncdenr.org/web/mf/observers-program) to provide outreach to fishermen to facilitate obtaining trips.

Alternative platform trips are used for areas that may be hard to get onboard trips (i.e., fishermen in remote locations that leave from their residence by boat) or when the fisherman's vessel is too small to safely accommodate an onboard observer. Alternative platform trips are also used in areas where fishing effort may increase quickly, where Atlantic sturgeon abundance is high, and when observers are unable to set-up onboard trips due to fisherman non-compliance. Marine Patrol also conducts alternative platform trips weekly in all management units based on the same methodology as the Observer Program. Coordination of onboard, alternative platform, and Marine Patrol alternative platform trips is done regularly to maximize efficiency and to achieve the maximum amount of observer coverage possible for each management unit. Changes in effort, Atlantic sturgeon abundance (i.e., observed and reported interactions), and other protected species interactions are monitored on a daily, weekly, and monthly basis to ensure proper observer coverage is being maintained. The ITP requires a minimum of 7% observer coverage with a goal of 10% of the total anchored large mesh gill-net (≥5 inches stretched mesh-ISM) fishing trips and 1% coverage with a goal of 2% of the total anchored small mesh gill-net (<5 ISM) fishing trips per management unit for the spring, summer, fall, and winter seasons.

Observers are trained to identify, measure, evaluate condition, and tag Atlantic sturgeon by the NCDMF. Date, time, tag numbers, location (latitude and longitude, when possible), condition (i.e., no apparent harm, injury including a description of the nature of the injury, or mortality), species, total length (TL mm), and fork length (FL mm) are recorded for each sturgeon observed. Photographs and environmental parameters (i.e., salinity, water temperature) are also collected when feasible. Dead Atlantic sturgeon are retained by the observer when possible. Observers

also collect data on location, gear parameters, catch, and bycatch for each haul depending on the observed trip type (onboard/alternative platform). The catch is sampled throughout each onboard trip including species, quantities, weights, lengths, and disposition (alive/dead). Data are coded on the NCDMF data sheets and uploaded to the NCDMF Biological Database for analysis. All observers are debriefed within 24 hours of each trip to obtain data on catch, set locations, gear parameters, and Atlantic sturgeon interactions to provide estimates of Atlantic sturgeon bycatch.

The total bycatch of Atlantic sturgeon for each management unit was estimated using the stratified ratio method (SAS 2004). The bycatch rate (Atlantic sturgeon caught per fishing trip) estimated from observer data was multiplied by the total fishing trips. To estimate confidence intervals (95%), the bootstrap method was used to sample estimates. Strata consisted of five management units (A, B, C, D, and E) where management unit A1-A3 (A) and D1-D2 (D) were combined for analysis (Figure 1). Estimates were calculated by date of capture, management unit, and disposition. Estimates were accumulated each week to implement necessary management measures if authorized take thresholds were approached.

$$\text{Estimated Interactions} = \left(\frac{\text{\# of Atlantic sturgeon interactions observed}}{\text{total gill-net trips observed}}\right) \text{total gill-net trips}$$

Seasons

The Observer Program's activities are reported on a monthly and annual basis. Seasons are defined as spring (March – May), summer (June – August), fall (September – November), and winter (December – February). Monthly progress reports include information such as take estimates, cumulative totals, number of observed trips, and observed takes with all associated. Annual reports include actual and estimated takes including mortality and the level of uncertainty of the estimates (i.e., 95% confidence intervals) by management unit, size composition along with all other interaction information, one or more maps illustrating the geographic distribution of all observed anchored large and small mesh gill-net hauls and the locations of all interactions, and a description of the mitigation activities, adaptive management actions, and enforcement activities conducted during the ITP year.

Authorized Takes

Authorized levels of annual incidental takes are specified in Tables 1 and 2. The amount of incidental takes is expressed as either estimated or observed takes depending on the amount of data available for modeling predicted takes. Management unit A has estimated allowable takes per season for both anchored large and small mesh gill nets due to having robust data sets for the area. All other management units (i.e., B, C, D, E) have observed allowable takes which are actual takes and not estimated due to the lack of data for modeling estimated takes. Extrapolated Atlantic sturgeon takes were computed by dividing observed interactions by observer coverage.

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 2015). Bootstrap replicates were generated by sampling observer trips with replacement 5,000 times within strata (mesh/season/management unit; Tables 1 and 2). Takes must be incidental to otherwise lawful activities associated with the anchored large and small mesh gill-net fisheries, and as conditioned herein. The permit covers incidental takes from the date of issuance through July 17, 2024. The NCDMF uses preliminary data to monitor the total number of live and dead takes per unit and season to determine if the NCDMF is approaching or has reached the allowable Atlantic sturgeon takes. However, there is no "real time" method to determine the actual DPS taken. The genetic sampling required by the ITP will provide the actual take numbers per DPS, but this will not be determined until after genetic samples are processed and if funding allows. Once TTP data are finalized in May of 2018, the final authorized estimated Atlantic sturgeon takes will be recalculated and the finalized estimates will be provided to the NMFS.

Compliance

The NCDMF observers and Marine Patrol conduct weekly fish house visits, boat patrols, fisherman spot checks, gear checks, aerial surveys, and continual outreach to the industry attempting to ensure industry compliance and to determine anchored large and small mesh gill-net fishing effort throughout the state.

The Observer Program has various ways to contact fishermen to schedule trips. The most common method is by phone due to limited program resources, fishermen leaving from their residence, and efficiency. The Observer Program has a contact log which is filled out for every phone call or contact that is made when attempting to obtain a trip. Each contact was put into a specific category and other information was gathered (Table 3). The contact log was analyzed by month and category to determine what percentage of phone calls resulted in observer trips.

RESULTS

Observer activity

Fall 2016

The fall 2016 season for anchored large and small mesh gill nets in North Carolina is September 2016 through November 2016 for ITP Year 2017 (September 1, 2016 – August 31, 2017) as defined in ITP No. 18102. Portions of management unit A (western Albemarle Sound, Currituck Sound, and the rivers) opened to anchored large and small mesh gill nets for the new ITP Year 2017 via proclamation M-15-2016 on September 5, 2016 while maintaining the closure of all anchored gill nets in the eastern portions of the management unit (eastern/southern Albemarle Sound and Croatan and Roanoke sounds) to avoid interactions with sea turtles (Table 4; Boyd 2016b). Further portions of management unit A (western/central Albemarle Sound) opened to anchored large and small mesh gill nets for the new ITP Year 2017 via proclamation M-21-2016 on October 15, 2016 while maintaining the closure of all anchored gill nets in the eastern portions of the management unit (eastern/southern Albemarle Sound and Croatan and Roanoke sounds) to avoid interactions with sea turtles. As the fall 2016 season progressed, further portions of management unit A (central/eastern Albemarle Sound) opened to anchored large and small mesh gill nets for the new ITP Year 2017 via proclamation M-23-2016 on October 31, 2016 while maintaining the closure of all anchored gill nets in the eastern portions of the management unit (eastern/southern Albemarle Sound and Croatan and Roanoke sounds) to avoid interactions with sea turtles (Table 4; Boyd 2016b).

Portions of management unit B (subunits SGNRA2-4, MGNRA) opened to anchored large mesh gill nets for the new ITP Year 2017 via proclamation M-16-2016 on September 5, 2016 while maintaining the closure of subunits SGNRA1 and CGNRA to minimize interactions with sea turtles (Table 4; Boyd 2016b). Remaining portions of management unit B (subunits SGNRA2-4, MGNRA) opened to anchored large mesh gill nets for the new ITP Year 2017 via proclamation M-19-2016 on October 3, 2016. Management unit B closed to anchored large mesh gill nets via proclamation M-24-2016 on November 2, 2016 due to sea turtle interactions and the lack of fishermen compliance (Table 4; Boyd 2016b).

Management unit C closed to anchored large and small mesh gill nets via proclamation M-20-2016 on October 1, 2016 for the remainder of the fall 2016 season due to sea turtle interactions. Management unit D1 opened to anchored large mesh gill nets for the new ITP Year 2017 via proclamation M-22-2016 on October 17, 2016 (Table 4; Boyd 2016b).

Management unit E opened to anchored small mesh gill nets for the new ITP Year 2017 via proclamation M-16-2016 on September 5, 2016 while maintaining the closure of upper Cape Fear and Northeast Cape Fear rivers to anchored large mesh gill nets to minimize sturgeon interactions (Table 4; Boyd 2016b).

The Observer Program achieved an estimated 11.2% overall anchored large mesh gill-net coverage for the fall 2016 season meeting the minimum requirement (7.0%) in all management units based on finalized data (Table 5; Figures 2 - 7; Boyd 2016b).

The Observer Program achieved an estimated 3.3% overall anchored small mesh gill-net coverage for the fall 2016 season meeting the minimum requirement (1.0%) in all management units except management unit A (0.0%) based on finalized data (Table 6; Figures 2 – 7; Boyd 2016b).

There were 53 observed Atlantic sturgeon interactions from anchored large mesh gill nets for the fall 2016 season (Table 7; Figures 2 – 7; Boyd 2016b). Of the 53 interactions, 96.2% were alive. The majority of the interactions (98.1%) occurred in management unit A. Management unit E had one alive interaction during this period (Table 7; Figures 2 - 7). A shortnose sturgeon was also observed alive in management unit A during this period. There were two fisherman self-reported reported Atlantic sturgeon interactions during this period (Table 8; Boyd 2016b).

Winter 2016-2017

The winter 2016-2017 season for anchored large and small mesh gill nets in North Carolina is December 2016 through February 2017 for ITP Year 2017 (September 1, 2016 – August 31, 2017) as defined in ITP No. 18102. Management unit A implemented restrictions on anchored small mesh gill nets requiring nets to be set so as to fish on the bottom and not exceed a vertical height of 48 inches on December 1, 2016 via proclamation M-25-2016 (Table 4). Management unit A closed to anchored large mesh gill nets on December 13, 2016 via proclamation M-32-2016 due to reaching allowable Atlantic sturgeon takes. Portions of management unit A (northern rivers) reopened to anchored large mesh gill nets via proclamation M-1-2017 on January 29, 2017 to allow fishermen to participate in the catfish fishery while maintaining a closure of all anchored gill nets in the eastern portions to avoid interactions with Atlantic sturgeon. Further portions of management unit A (Alligator River/Currituck Sound) reopened to anchored large mesh gill nets via proclamation M-2-2017 on February 6, 2017 (Table 4).

Management unit C opened to anchored large and small mesh gill nets on December 5, 2016 via proclamation M-27-2016 (Table 4).

Gear exemptions implemented on February 15, 2017 via proclamation M-4-2017 for portions of the Internal Coastal Waters south of management unit A to allow large mesh gill nets for the shad fishery. All other management units remained open to anchored large and small mesh gill nets for the duration of the winter 2016-2017 season (Table 4).

The flounder commercial harvest season in internal coastal waters closed on December 1, 2016 via proclamation FF-53-2016 as per Amendment 1 to the Southern Flounder Fishery Management Plan (Table 4).

The Observer Program achieved an estimated 8.6% overall anchored large mesh gill-net coverage for the winter 2016-2017 season meeting the minimum requirement (7.0%) in all management units except for management unit B based on preliminary data. Observer coverage for management unit B was 1.1% for the winter 2016-2017 season (Table 5; Figures 2 – 7).

The Observer Program achieved an estimated 5.6% overall anchored small mesh gill-net coverage for the winter 2016-2017 season meeting the minimum requirement (1.0%) in each management unit based on preliminary data (Table 6; Figures 2 - 7).

There were 10 observed Atlantic sturgeon interactions from anchored large mesh gill nets and one from anchored small mesh gill nets during the winter 2016-2017 season. All 11 Atlantic sturgeon interactions were alive with 10 observed in management unit A and one in management unit C during this period (Table 7; Figures 2 - 7). There was one reported Atlantic sturgeon interaction from illegally set gill net during this period (Table 8).

Spring 2017

The spring 2017 season for anchored large and small mesh gill nets in North Carolina is March 2017 through May 2017 for ITP Year 2017 (September 1, 2016 – August 31, 2017) as defined in ITP No. 18102. Management unit A opened to the use of anchored large mesh gill nets with gill net configurations for harvesting American shad by removing vertical height restrictions for up to 1,000 yards of gill net with stretched mesh lengths of 5 ¼ through 6 ½ inches via proclamation M-5-2017 on March 3, 2017 while implementing the closure of all anchored gill nets in the eastern portions of the management unit (eastern/southern Albemarle Sound and Croatan and Roanoke sounds) to avoid interactions with sea turtles. Gill-net configurations for harvesting American shad were removed in management unit A following the end of the shad season via proclamation M-7-2017 on March 25, 2017 while maintaining the closure of all anchored gill nets in the eastern portions of the management unit (eastern/southern Albemarle Sound and Croatan and Roanoke sounds) to avoid interactions with sea turtles (Table 4; Boyd 2017b).

Management unit B remained closed to anchored large mesh gill nets through the spring 2017 season to allow for the recalculation of allowable sea turtle takes once finalized 2016 Trip Ticket data were completed (Table 4; Boyd 2017b).

Management unit D1 closed to anchored large mesh gill nets as part of the annual closure outlined in the ITP via proclamation M-10-2017 on May 8, 2017 (Table 4; Boyd 2017b).

The Observer Program achieved an estimated 9.7% overall anchored large mesh gill-net coverage for the spring 2017 season meeting the minimum requirement (7.0%) in all management units based on preliminary data (Table 5; Figures 2 - 7; Boyd 2017b).

The Observer Program achieved an estimated 2.2% overall anchored small mesh gill-net coverage for the spring 2017 season meeting the minimum requirement (1.0%) in all management units except management unit A (0.8%) based on preliminary data (Table 6; Figures 2 – 7; Boyd 2017b).

There were 37 observed Atlantic sturgeon interactions from anchored large mesh gill nets and two from anchored small mesh gill nets for the spring 2017 season. All 39 Atlantic sturgeon interactions were alive during this period (Table 7; Figures 2 – 7). There was one fisherman self-reported Atlantic sturgeon interaction during this period (Table 8; Boyd 2017b).

Summer 2017

The summer 2017 season for anchored large and small mesh gill nets in North Carolina is June 2017 through August 2017 for ITP Year 2017 (September 1, 2016 – August 31, 2017) as defined in ITP No. 18102. Management unit B opened to anchored large mesh gill nets except for the Inlet Corridors via proclamation M-11-2017 on June 19, 2017 (Table 4; Boyd 2017c).

Management unit C closed to anchored large and small mesh gill nets for the remainder of the summer 2017 season on July 28, 2017 due to sea turtle interactions via proclamation M-12-2017 (Table 4; Boyd 2017c).

Management unit D1 remained closed through the summer 2017 season to anchored large mesh gill nets as part of the annual closure outlined in the Sea Turtle ITP (Table 4; Boyd 2017c).

The Observer Program achieved an estimated 11.3% overall anchored large mesh gill-net coverage for the summer 2017 season meeting the minimum requirement (7.0%) in all management units except management unit A (4.9%) and C (6.9%) based on preliminary data (Table 5; Figures 2 – 7; Boyd 2017c).

The Observer Program achieved an estimated 1.6% overall anchored small mesh gill-net coverage for the summer 2017 season meeting the minimum requirement (1.0%) in all management units based on preliminary data (Table 6; Figures 2 – 7; Boyd 2017c).

There was one alive observed Atlantic sturgeon interaction from anchored large mesh gill nets for the summer 2017 season (Table 7; Figures 2 - 7). There were no reported Atlantic sturgeon interactions during this period (Table 8; Boyd 2017c).

Authorized Takes

There was a total of 101 observed Atlantic sturgeon interactions in anchored large mesh gill nets and three in anchored small mesh gill nets for ITP Year 2017 (Table 7; Figures 2 – 8; Boyd 2016b, 2017b, 2017c). Of the 104 interactions, 98.1% were alive. Observed interactions mostly occurred in management unit A (93.3%), with interactions in management unit B (1.0%), management unit C (3.9%), and management unit E (1.9%; Table 7; Figures 2 - 7). Of the four reported Atlantic sturgeon interactions for ITP Year 2017, three were fisherman self-reported and one was reported by Marine Patrol from illegally set gill nets (Table 8; Boyd 2016b, 2017b, 2017c).

The size distribution of Atlantic sturgeon (n = 98) ranged from a TL (n = 98) of 406 mm to 1,580 mm and a FL (n = 86) of 376 mm to 1,420 mm (Table 7; Figures 8 and 9; Boyd 2016b, 2017b, 2017c).

The cumulative total estimated and observed takes for anchored large and small mesh gill nets did not reach the threshold of allowed takes for any management unit for ITP Year 2017 except for alive takes in management unit A for the winter 2016-2017 season based on preliminary data (Table 1 and 2; Boyd 2016b, 2017b, 2017c). However, once finalized data were used to estimate takes, the total estimated takes for the winter 2016-2017 season in management unit A were below the allowed take level (Table 1).

The percentage of authorized takes that were used in ITP Year 2017 for anchored large mesh gill nets were calculated for estimated takes by season and disposition for management unit A (fall 27.3% alive, 32.8% dead; winter 45.9% alive, 0.0% dead; spring 68.1% alive, 0.0% dead; summer 7.2% alive, 0.0% dead). The percentage of authorized takes that were used in ITP Year 2017 for anchored small mesh gill nets were calculated for estimated takes by season and disposition for management unit A (fall 0.0% alive/dead; winter 5.3% alive, 0.0% dead; spring 0.0% alive/dead; summer 0.0% alive/dead (Boyd 2016b, 2017b, 2017c).

The percentage of authorized takes that were used in ITP Year 2017 were also calculated for anchored large mesh gill nets for observed takes by management unit, season, and disposition (management unit C fall 0.0% alive/dead; winter 33.3% alive, 0.0% dead; spring 60.0% alive, 0.0% dead; summer 0.0% alive/dead; Boyd 2016b, 2017b, 2017c). Management unit E, which are under annual allowed take allocations, had 10.0% alive, 0.0% dead. Management units B and D did not have any observed takes for ITP Year 2017 in anchored large mesh gill nets. The percentage of authorized takes that were used in ITP Year 2017 were also calculated for anchored small mesh gill nets for observed takes by management unit, season, and disposition (management unit B fall 0.0% alive/dead; winter 0.0% alive/dead; spring 11.1% alive, 0.0% dead; summer 0.0% alive/dead). Management unit E, which are under annual allowed take

allocations, had 10.0% alive, 0.0% dead. Management units C and D did not have any observed takes for ITP Year 2017 in anchored small mesh gill nets (Boyd 2016b, 2017b, 2017c).

Compliance

Marine Patrol made 366 gill-net checks during the fall 2016 season resulting in 44 citations being issued (Tables 9 and 10; Boyd 2016b, 2017b, 2017c). Marine Patrol made 274 gill-net checks during the winter 2016-2017 season resulting in 144 citations being issued. Marine Patrol made 395 gill-net checks for the spring 2017 season resulting in 10 citations being issued. Marine Patrol made 960 gill-net checks for the summer 2017 season with no citations being issued (Tables 9 and 10; Boyd 2016b, 2017b, 2017c).

For ITP Year 2017, phone calls (n = 9,132) were made with 56.3% (n = 5,144) being categorized as 1, 8, 11, 12, 13, and 14 which inclusively represents not being able to get in touch with fishermen or fishermen refusing trips (Table 11; Boyd 2016b, 2017b, 2017c). In the fall 2016 season (n = 2,660), phone calls were made with 49.4% (n = 1,313) being categorized as 1, 8, 11, 12, 13, and 14. In the winter 2016-2017 season (n = 1,356), phone calls were made with 52.7% (n = 714) being categorized as 1, 8, 11, 12, 13, and 14. In the spring 2017 season (n = 2,425), phone calls were made with 61.4% (n = 1,490) being categorized as 1, 8, 11, 12, 13, and 14. In the summer 2017 season (n = 2,691), phone calls were made with 60.5% (n = 1,627) being categorized as 1, 8, 11, 12, 13, and 14 (Table 11; Boyd 2016b, 2017b, 2017c).

Notices of Violations (NOV) were issued when fishermen were found to be out of compliance with the EGNP with eight NOVs issued during the fall 2016 season, 18 NOVs issued during the winter 2016-2017 season, six NOVs issued during the spring 2017 season, and three NOVs issued during the summer 2017 season (Table 12; Boyd 2016b, 2017b, 2017c).

Marine Mammals

There were no observed takes of marine mammals during ITP Year 2017.

DISCUSSION

Management history

Initial reviews of the Atlantic sturgeon status began in 1977, when the Research Management Division of the NMFS sponsored the preparation of a report on the biology and status of Atlantic sturgeon (Murawski and Pacheco 1977). In 1980 at the request of the NMFS, another document was prepared by Hoff (1980) to assist in making future Atlantic sturgeon fisheries decisions and to determine what action was required, if any, to conserve the species under the ESA. In 1988, the NMFS requested information regarding the status of Atlantic sturgeon. The NMFS added Atlantic sturgeon to its candidate species list published in the Federal Register (FR) in 1997 (62 FR 37560, 14 July 1997, NMFS 1997a). Prior to the federal listing, North Carolina had taken steps to protect Atlantic sturgeon. The NCDMF implemented a statewide moratorium on the possession of Atlantic sturgeon in 1991 (15A NCAC 03M.0508).

In April 2004, the NMFS published a subsequent notice announcing that the NMFS "candidate species list" was being changed to the "Species of Concern (SOC) list" to better reflect the ESA definition of candidate species while maintaining a separate list of species potentially at risk (69 FR 19975 -15 April 2004, NMFS 2004a; ASSRT 2007).

On June 2, 1997, a petition dated May 29, 1997 was received by the NMFS from the Biodiversity Legal Foundation. The petitioner requested that the NMFS list Atlantic sturgeon, where it continues to exist in the United States, as threatened or endangered and designate critical habitat. The NMFS reviewed the request and determined that the petition presented substantial information indicating that the petitioned action may be warranted and announced the initiation of a status review (62 FR 54018, 12 October 1997, NMFS 1997b; ASSRT 2007).

The NMFS and United States Fish and Wildlife Service (USFWS) completed their status review in 1998 and concluded at that time Atlantic sturgeon were not threatened or endangered based on any of the five factors (NMFS and USFWS 1998). Concurrently, the Atlantic States Marine Fisheries Commission (ASMFC) completed Amendment 1 to the 1990 Atlantic Sturgeon FMP in 1998 that imposed a 20–40-year moratorium on all Atlantic sturgeon fisheries until the Atlantic Coast spawning stocks could be restored to a level where 20 subsequent year-classes of adult females were protected (ASMFC 1998). The NMFS followed this action by closing the Exclusive Economic Zone (EEZ) to Atlantic sturgeon harvest in 1999. In 2003, a workshop on the "Status and Management of Atlantic Sturgeon" was held to discuss the current status of Atlantic sturgeon along the Atlantic Coast and determine what obstacles, if any, were impeding the recovery of Atlantic sturgeon (Kahnle et al. 2005; ASSRT 2007).

Based on the information gathered from the 2003 workshop on Atlantic sturgeon, the NMFS decided that a second review of Atlantic sturgeon status was needed to determine if listing as threatened or endangered under the ESA was warranted. The 2007 analysis from the Atlantic

Sturgeon Status Review Team (ASSRT) determined that at least three (New York Bight, Chesapeake Bay, and Carolina) of the five DPSs should be considered threatened under the ESA, as it was determined that they had a moderately high risk of becoming threatened in the foreseeable future (next 20 years). The ASSRT determined that the remaining two DPSs (Gulf of Maine, South Atlantic) had a moderate risk of becoming extinct, though there were insufficient data to allow for a full assessment of these subpopulations; thus, a listing recommendation was not provided (ASSRT 2007).

On October 6, 2009, the NMFS received a petition from the Natural Resources Defense Council to list Atlantic sturgeon throughout its range as endangered under the ESA. As an alternative, the petitioner requested that the species be listed as the five DPSs described in the 2007 Atlantic sturgeon status review (ASSRT 2007), with the Gulf of Maine and South Atlantic DPSs listed as threatened and the remaining three DPSs listed as endangered. The petitioner also requested that critical habitat be designated for Atlantic sturgeon under the ESA. The NMFS published a Notice of 90-Day Finding on January 6, 2010 (75 FR 838, 6 January 2010, NMFS 2010) stating that the petition presented substantial scientific or commercial information indicating that the petitioned actions may be warranted. The NMFS considered the information provided in the status review report, the petition, other new information available since completion of the status review report, and information submitted in response to the Federal Register announcement of the 90-day finding (75 FR 838, 6 January 2010, NMFS 2010). On October 6, 2010, the NMFS published a proposed rule to list the Carolina DPS of Atlantic sturgeon as endangered under the ESA (75 FR 61871, 6 January 2010, NMFS 2010). On February 6, 2012, the NMFS issued a final determination to list the Carolina DPS of Atlantic sturgeon as an endangered species under the ESA (77 FR 5914, 6 February 2012, NMFS 2012).

Prior to the listing of Atlantic sturgeon, NCDMF has addressed protected species issues in the coastal waters of North Carolina since the 1970s. The NCDMF applied for and received four ITPs for the Pamlico Sound Gill Net Restricted Area (PSGNRA) from 2000 to 2005 to address sea turtle takes in the anchored large and small mesh gill-net fisheries for the Pamlico Sound portion of the state during the fall months (Gearhart 2001, 2002, 2003; Price 2004, 2005, 2006, 2007, 2008, 2009, 2010; Murphey 2011; Boyd 2012, 2013). The NCDMF applied for and received a 10-year ITP addressing sea turtle takes in the anchored large and small mesh gill-net fisheries statewide on September 11, 2013. This ITP authorized the implementation of adaptive management measures to protect threatened and endangered sea turtles and other ESA listed species, while allowing the anchored gill-net fisheries prosecuted by license holders to occur in the estuarine waters of North Carolina. The Sea Turtle ITP No. 16230 defined an ITP Year as beginning on September 1 and running through August 31 of the following year.

Implementation of management actions such as gear restrictions, fishing seasons, soak times, area closures, mesh size restrictions, FMPs, and ITPs (Sea Turtle ITP No. 16230) for other

species have likely had a positive effect on reducing takes and minimizing the mortality associated with the incidental bycatch of Atlantic sturgeon. The North Carolina management system has shown the ability to effectively manage fisheries throughout the state and reduce incidental bycatch of finfish and protected species. Anchored gill-net restrictions implemented by the proclamations for the Sea Turtle ITP include: a range of 4 ISM to, and including, 6 ½ ISM for anchored large mesh gill nets; soak times limited to overnight soaks an hour before sunset to an hour after sunrise, Monday evenings through Friday mornings; anchored large mesh gill nets were restricted to a height of no more than 15 meshes, constructed with a lead core or leaded bottom line and without corks or floats other than needed for identification; a maximum of 2,000 yards of anchored large mesh gill nets allowed to be used per vessel; and maximum individual net (shot) length of 100 yards with a 25-yard break between shots. Fishermen in the southern portion of the state were allowed to set anchored large mesh gill nets an extra day (Sunday evenings through Friday mornings) and use floats on nets, but were restricted to the use of a maximum of 1,000 yards of anchored large mesh gill net per fishing operation.

The Annual Completion Report for ITP Year 2014 was submitted January 30, 2015 (Boyd 2015). During review of the 2014 Atlantic Sturgeon ITP Annual Completion Report, the NMFS requested modifications to certain tables and figures in the annual report. These modifications were addressed in the Annual Completion report for ITP Year 2015 (September 1, 2014 – August 31, 2015) which was submitted January 30, 2016 and included: maps for each management unit to include number of gill-net hauls and sea turtle interactions and tables which have all of the estimated/observed takes exactly as portrayed in the permit with 95% confidence intervals included (Boyd 2016a).

Outreach

Staff from the NCDMF met with commercial industry leaders on July 11, 2016 to discuss the current ITPs and options for moving forward with amendments. The North Carolina Fisheries Association (NCFA) requested the meeting in response to NCDMF staff asking industry for their thoughts on potential ITP amendments and ways to further minimize sea turtle takes (in order to keep management units open longer under the current ITPs). During the meeting, the NCFA discussed their interest in exploring gear modifications that are proven to reduce sea turtle interactions and would ultimately like to see the estuarine gill-net fishery managed under gear modifications (similar to the shrimp trawl fishery) without the constraints of the current ITPs. Staff from the NCDMF explained that while staff would be able to assist regarding the ITP permit process, the NCFA should work with researchers with expertise in gear development and apply for a research Section 10 permit. In order to reach their ultimate goal, the NCFA would like to work on minimizing takes and amending the current ITPs by soliciting feedback from commercial gill netters throughout the state.

The NCFA scheduled two meetings on August 30 and 31, 2016 that focused on potential ITP amendments and ways to further minimize sea turtle and sturgeon takes in the anchored gill-net fisheries. NCFA invited NCDMF staff to attend their meetings to hear the fishermen's feedback and to provide input on the feasibility of the fishermen's ideas. While discussing these meetings with the commercial industry leads, NCDMF staff raised the issue of the lack of fisherman compliance with the ITPs. NCFA fully agreed that it is a problem, and they plan on stressing the need for compliance at their meetings in order for the Observer Program to be successful. Another comment made by the NCFA was they felt that the onboard observations by the NCDMF are very important. They also mentioned that the onboard observations are needed to collect biological information from the catch as opposed to just monitoring protected species interactions.

Staff from the NCDMF attended both meetings NCFA held in Wanchese, NC on August 30, 2016 and in Morehead City, NC on August 31, 2016. While most of the meetings were discussions amongst fishermen or directed at NCFA members, NCDMF staff answered and/or clarified questions as needed. The questions and/or concerns from fishermen included: confusion that self-reporting sea turtle and sturgeon takes was a requirement of the ITPs, that the definition of a take includes live interactions, that the amount of restrictions already in place on the anchored gill-net fisheries were too great, and the belief that any further restrictions would lead to their inability to make a livelihood in the industry.

The North Carolina Watermen United (NCWU), which were in attendance at the August 30, 2016 meeting, sent NCDMF a letter on September 2, 2016 listing many modifications that were already in place in the gill-net fisheries, but suggests another "more-inclusive" meeting for further discussion (Appendix D). The NCFA sent NCDMF a follow-up email on September 19, 2016 with questions and concerns following the meetings (Appendix E). On November 30, 2016, the NCFA sent the NCDMF a commitment letter concerning their collaboration with Gettysburg College on a project titled, "Development of sensory-based bycatch reduction technologies to reduce sea turtle bycatch in North Carolina coastal gillnet and pound net fisheries" (Appendix F). The work on the project began in September 2017.

At the August 2016 NCMFC meeting, Chairman Sammy Corbett announced that he was disbanding the Sea Turtle Advisory Committee (STAC) because it is not statutorily required and the NCMFC committee system already has a multitude of committees which are statutorily mandated. Chairman Corbett sent a letter explaining his decision to the committee members on August 25, 2016 (Appendix G).

Observer Activity

There was turnover within the Observer Program with positions being filled as quickly as possible to maintain coverage. The Observer Program proportionally placed observers in areas with higher fishing effort. There were multiple closures of various management units throughout

the state during ITP Year 2017 (Table 4). Fishermen are more elusive to attempts by observers contacting them to schedule trips after proclamations enacting stricter regulations are implemented. Therefore, making it harder to obtain observer trips. When a management unit closes for a portion of time, the observers are shifted to the open management units. The contact log, which includes different categories to place each contact that was made to a fisherman, is beneficial for analyzing the type of contact that was being made and to see the number of observer trips that were obtained through the calling system.

During the fall 2016 season, attendance was required for anchored small mesh gill nets for the duration of the fall 2016 season in management unit A making it difficult to obtain observed trips (Boyd 2016b). In recent years, attendance requirements were lifted during the month of November allowing for observer trips to be obtained. Fishing practices for attended gill nets can be very different than other fishing practices, with fishing activity occurring throughout the night creating safety hazards for observers. Furthermore, fishing effort tends to be lower when attendance is required (Boyd 2016b).

During the winter 2016-2017 season, observer coverage for anchored large mesh gill nets in management unit B was 1.1% due to minimal fishing effort (n = 90 fishing trips) during the winter months.

During the spring 2017 season, observer coverage for anchored small mesh gill-nets in management unit A was 0.8% due to minimal fishing effort (n = 42 fishing trips; Boyd 2017b).

During the summer 2017 season, observer coverage for anchored large mesh gill-nets in management unit A was 4.9% and C was 6.9% (Boyd 2017c).

Compliance

Although ITP Year 2017 is the fourth year for the statewide ITP, fishermen in many portions of the state are not as familiar with the Observer Program and requirements of the ITP as desired, so more time is needed to educate the industry. Alternative platform trips were employed in all management units more frequently throughout ITP Year 2017 to maintain observer coverage due to compliance issues with fishermen (i.e., not answering phone calls, not calling back). The required minimum 7% observer coverage for anchored large mesh gill nets is very difficult to achieve when observers must rely on alternative platform trips, as it requires two observers to obtain a trip. The NCDMF discussed the situation with industry leaders in an attempt to improve awareness and increase compliance. However, fisherman non-compliance continues to be a hurdle for ensuring the requirements for both ITPs are met. Each ITP Year (2015-2017) had >50% of contacts made by observers not being able to get in touch with fishermen or fishermen refusing trips with a 7.6% increase in non-compliance over the last three years (Boyd 2016a, 2017a).

There were no fisherman self-reported Atlantic sturgeon takes during the winter 2016-2017 and summer 2017 seasons with only two fisherman self-reported takes during the fall 2016 season and one in the spring 2017 season (Table 8; Boyd 2016b, 2017b, 2017c). NCDMF has discussed this situation with industry leads numerous and has provided outreach to fishermen explaining the requirement in the ITP of self-reporting and further details on the subject to try and increase self-reporting throughout the industry as a whole with limited success.

Estuarine Gill Net Permit

As per the ITP, the NCDMF established an EGNP to register all fishermen participating in the anchored large and small mesh gill-net fisheries via proclamation M-24-2014 on September 1, 2014. The ITP's Implementing Agreement states that the NCDMF has two years to implement the EGNP to serve as a certificate of inclusion for fishermen. However, due to the compliance issues the NCDMF was facing during ITP Year 2014, the EGNP was developed and became effective September 1, 2014 (one year from ITP issuance; Boyd 2015). The multifaceted EGNP was enacted to attempt to allow the NCDMF to closely monitor compliance. The EGNP is also used as a tool to improve fishermen compliance by including Specific Permit Conditions requiring fishermen to allow the NCDMF observers aboard their vessels to monitor catches. Failure to comply with this permit provision can result in a permit suspension. There were 2,670 EGNPs issued for Fiscal Year 2017 (July 1, 2016 – June 30, 2017).

LITERATURE CITED

ASMFC. 1998. Amendment 1 to the Interstate Fishery Management Plan for Atlantic sturgeon. July 1998. Atlantic States Marine Fisheries Commission, Washington D.C. Fishery Management Report No. 31. 42 pp.

Atlantic Sturgeon Status Review Team (ASSRT). 2007. Status review of Atlantic sturgeon (*Acispenser oxyrinchus oxyrinchus*). Report to the National Marine Fisheries Service, Northeast Regional Office. February 23, 2007. 174 pp.

Boyd, J.B. 2012. North Carolina Division of Marine Fisheries Pamlico Sound Gill Net Restricted Area Report for 2011 Section 10 ITP # 1528 (September 19 – November 30, 2011). North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries Completion Report for Incidental Take Permit # 1528. 4pp.

Boyd, J.B. 2013. North Carolina Division of Marine Fisheries Pamlico Sound Gill Net Restricted Area Report for 2012 Section 10 ITP # 1528 (September 19 – November 30, 2011). North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries Completion Report for Incidental Take Permit # 1528. 4pp.

Boyd, J.B. 2015. North Carolina Division of Marine Fisheries Incidental Take Permit Annual Report for ITP Year 2014 Section 10 ITP # 18102 (September 1, 2013 – August 31, 2014). North Carolina Division of Marine Fisheries Annual Report for Incidental Take Permit # 16230. 21pp.

Boyd, J.B. 2016a. North Carolina Division of Marine Fisheries Incidental Take Permit Annual Report for ITP Year 2015 Section 10 ITP # 18102 (September 1, 2014 – August 31, 2015). North Carolina Division of Marine Fisheries Annual Report for Incidental Take Permit # 16230. 39pp.

Boyd, J.B. 2016b. North Carolina Division of Marine Fisheries Incidental Take Permit Seasonal Report for Spring 2016 Section 10 ITP # 16230 (March 1 – May 31, 2016). North Carolina Division of Marine Fisheries Seasonal Report for Incidental Take Permit # 16230. 15pp.

Boyd, J.B. 2017a. North Carolina Division of Marine Fisheries Incidental Take Permit Annual Report for ITP Year 2016 Section 10 ITP # 18102 (September 1, 2015 – August 31, 2016). North Carolina Division of Marine Fisheries Annual Report for Incidental Take Permit # 18102. 64pp.

Boyd, J.B. 2017b. North Carolina Division of Marine Fisheries Incidental Take Permit Seasonal Report for Spring 2017 Section 10 ITP # 16230 (March 1 – May 31, 2017). North Carolina Division of Marine Fisheries Seasonal Report for Incidental Take Permit # 16230. 13pp.

Boyd, J.B. 2017c. North Carolina Division of Marine Fisheries Incidental Take Permit Seasonal Report for Summer 2017 Section 10 ITP # 16230 (June 1 – August 31, 2017). North Carolina Division of Marine Fisheries Seasonal Report for Incidental Take Permit # 16230. 15pp.

Canty, A. and B. Ripley. 2015. boot: Bootstrap R (S-Plus) Functions. R package version 1.3-17.

Davison, A.C., and D.V. Hinkley. 1997. Bootstrap Methods and Their Applications. Cambridge University Press, Cambridge. ISBN 0-521-57391-2.

Efron, B., and R.J. Tibshirani. 1993. An introduction to the bootstrap. Chapman and Hall, New York. 436 pp.

ESA 1973. Endangered Species Act, 1973.

Hoff, J.G. 1980. Review of the present status of the stocks of the Atlantic sturgeon *Acipenser oxyrhynchus*, Mitchill. Prepared for the National Marine Fisheries Service, Northeast Region, Gloucester, Massachusetts.

Gearhart J. 2001. Sea turtle bycatch monitoring of the 2000 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion Report for ITP 1259. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 26pp.

Gearhart J. 2002. Sea turtle bycatch monitoring of the 2001 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion Report for ITP 1348. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 44pp.

Gearhart J. 2003. Sea turtle bycatch monitoring of the 2002 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion Report for ITP 1398. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 39pp.

Kahnle, A.W. R.W. Laney, and B.J. Spear. 2005. Proceedings of the workshop on status and management of Atlantic sturgeon. 3-4 November 2003, Raleigh, NC. ASMFC Special Report No. 84, Washington, D.C.

Murawski, S.A., and A.L. Pacheco. 1977. Biological and fisheries data on Atlantic sturgeon, *Acipenser oxyrhynchus* (Mitchill). National Marine Fisheries Service Technical Series Report 10:1–69.

Murphey, T. 2011. Sea turtle bycatch monitoring of the 2010 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 4pp.

NMFS (National Marine Fisheries Service). 1997a. Notice of Modification of List of Candidate Species. Federal Register 97:18326 (14 July 1997):37560–37563.

NMFS (National Marine Fisheries Service). 1997b. 90-Day Finding for a Petition to List the Atlantic Sturgeon (*Acipenser oxyrhynchus oxyrhynchus*) in the United States as Endangered or Threatened. Federal Register 62:201 (17 October 1997):54018–54020.

NMFS (National Marine Fisheries Service). 2004a. Endangered and Threatened Species; Establishment of Species of Concern List, Addition of Species to Species of Concern List, description of Factors for Identifying Species of Concern, and Revision of Candidate Species List Under the Endangered Species Act. Federal Register 69:73 (15 April 2004):19975–19979.

NMFS (National Marine Fisheries Service). 2010. Endangered and Threatened Wildlife; Notice of 90-Day Finding on a Petition to List Atlantic Sturgeon as Threatened or Endangered under the Endangered Species Act (ESA). Federal Register 75:3 (6 January 2010): 838–841.

NMFS (National Marine Fisheries Service). 2012. Endangered and Threatened Wildlife and Plants; Final Listing Determinations for Two Distinct Population Segments of Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*). Federal Register 77:24 (6 February 2012):5914–5982.

NMFS and USFWS (National Marine Fisheries Service and United States Fish and Wildlife Service). 1998. Status review of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*). U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service and United States Fish and Wildlife Service. 126 pp.

Price B. 2004. Sea turtle bycatch monitoring of the 2003 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion Report for ITP 1398. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 26pp.

Price B. 2005. Sea turtle bycatch monitoring of the 2004 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1398. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 33 pp.

Price B. 2006. Sea turtle bycatch monitoring of the 2005 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 31 pp.

Price, B. 2007. Sea turtle bycatch monitoring of the 2006 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North

Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 21 pp.

Price B. 2008. Sea turtle bycatch monitoring of the 2007 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 25 pp.

Price, B. 2009. Sea turtle bycatch monitoring of the 2008 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment.

Price, B. 2010. Sea turtle bycatch monitoring of the 2009 fall flounder gill-net fishery of southeastern Pamlico Sound, North Carolina. Completion report for ITP 1528. North Carolina Department of Environment and Natural Resources. North Carolina Division of Marine Fisheries. 27pp.

R Core Team. 2015. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/.

SAS 1989. Institute. SAS version 9.1 Cary, NC.

TABLES

Table 1. Authorized and actual annual estimated incidental takes per fishing year (for a total of 10 years; the life of the permit) with confidence intervals (95%) using a bootstrap method based on observer data for coverage and Atlantic sturgeon interaction levels in North Carolina's anchored large mesh (≥5.0 ISM) inshore gill net fishery for ITP Year 2017 (September 1, 2016 - August 31, 2017).

		Total Interactions			
		Authorized (Mortality)		Actual All DPS [2]	
Management Unit	Season	Carolina DPS	Other DPS	Alive	Dead
A	Winter	149 (6)	50 (2)	91 [25,254]	0
	Spring	460 (19)	154 (6)	418 [221,790]	0
	Summer	157 (6)	52 (2)	15 [0,45]	0
	Fall	838 (34)	279 (11)	305 [174,538]	15 [0,45]
B	Winter	2 (1)[1]	n/a	0	0
	Spring	1 (1)[1]	1 (0)	0	0
	Summer	4 (2)[1]	2 (0)	0	0
	Fall	17 (2)[1]	6 (0)	0	0
C	Winter	2 (1)[1]	n/a	1	0
	Spring	3 (1)[1]	1 (0)	3	0
	Summer	2 (1)[1]	1 (0)	0	0
	Fall	4 (2)[1]	2 (0)	0	0
D	Annual	8 (2)[1]	n/a	0	0
E	Annual	8 (2)[1]	n/a	1	0
Total		1,655 (80)	548 (21)	834	15

[1] Total interaction number represents actual observed and not estimated based on observer coverage. Mortality estimates could not be completed for management units B-E due to low take; thus, if observed interactions were ≤ 5 mortality was one; if observed interactions were >5 mortality was two.

[2] Fin clip samples have been sent to the lab for genetic analysis

Table 2. Authorized and actual annual estimated incidental takes per fishing year (for a total of 10 years; the life of the permit) with confidence intervals (95%) using a bootstrap method based on observer data for coverage and Atlantic sturgeon interaction levels in North Carolina's anchored small mesh (<5.0 ISM) inshore gill net fishery for ITP Year 2017 (September 1, 2016 - August 31, 2017).

		Total Interactions			
		Authorized (Mortality)		Actual All DPS [2]	
Management Unit	Season	Carolina DPS	Other DPS	Alive	Dead
A	Winter	175 (14)	35 (3)	11 [0,33]	0
	Spring	219 (17)	44 (4)	0	0
	Summer	72 (6)	14 (1)	0	0
	Fall	103 (8)	21 (2)	0	0
B	Winter	2 (1)[1]	n/a	0	0
	Spring	6 (2)[1]	1 (0)	1	0
	Summer	3 (1)[1]	1 (0)	0	0
	Fall	3 (1)[1]	1 (0)	0	0
C	Winter	2 (1)[1]	n/a	0	0
	Spring	2 (1)[1]	n/a	0	0
	Summer	2 (1)[1]	n/a	0	0
	Fall	2 (1)[1]	n/a	0	0
D	Annual	8 (2)[1]	n/a	0	0
E	Annual	8 (2)[1]	n/a	1	0
Total		607 (58)	117 (10)	13	0

[1] Total interaction number represents actual observed and not estimated based on observer coverage. Mortality estimates could not be completed for management units B-E due to low take; thus, if observed interactions were $\leq$ 5 mortality was one; if observed interactions were >5 mortality was two.

[2] Fin clip samples have been sent to the lab for genetic analysis

Table 3. Categories and descriptions of fisherman responses for the Observer Program's contact logs used for analysis.

Categories	Category description
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

Table 4. Regulations for management units by date and regulation change for anchored large and small mesh gill nets for ITP Year 2017 (September 1, 2016 - August 31, 2017).

Year	Date(s)	Regulation change
2016	Sept 5	Management unit A open to large and small mesh gill nets for the new ITP Year 2017 for the western part of the sound, Currituck Sound, and the rivers. All the eastern/southern areas (Croatan and Roanoke Sounds) will remain closed until sea turtle abundance decreases to minimize interactions with sea turtles (M-15-2016).
2016	Sept 5	Portions of management unit B (subunits SGNRA2-4, MGNRA) open to large mesh gill nets for the new ITP Year 2017. Subunits SGNRA1 and CGNRA will remain closed until sea turtle abundance decreases to minimize interactions with sea turtles (M-16-2016).
2016	Sept 5	Management unit E open to small mesh gill nets (large mesh gill nets continually open through summer for the new ITP Year 2017. Portions of upper Cape Fear River and Northeast Cape Fear River remain closed to large mesh gill nets due to sturgeon interactions (M-16-2016).
2016	Oct 3	Remaining portions of management unit B (subunits SGNRA1 and CGNRA) open to large mesh gill nets for the new ITP Year 2017 (M-19-2016).
2016	Oct 1	Closed management unit C to large and small mesh gill nets due to sea turtle interactions (M-20-2016).
2016	Oct 15	Further portions of management unit A open to large and small mesh gill nets for the new ITP Year 2017 for the central part of the sound. All the eastern/southern areas (Croatan and Roanoke Sounds) will remain closed until sea turtle abundance decreases to minimize interactions with sea turtles (M-21-2016).
2016	Oct 17	Management unit D1 open to anchored large mesh gill nets (M-22-2016).
2016	Oct 31	Further portions of management unit A open to anchored large and small mesh gill nets for the new ITP Year 2017 for the central and eastern part of the sound. Croatan and Roanoke sounds will remain closed until sea turtle abundance decreases to minimize interactions with sea turtles (M-23-2016).
2016	Nov 2	Management unit B closed to anchored large mesh gill nets due to sea turtle interactions and the lack of fishermen compliance (M-24-2016).
2016	Dec 1	Management unit A small mesh anchored gill nets 3 though 3 3/4 ISM restrictions while removing attendance requirements for those small mesh anchored gill nets, and requiring small mesh anchored gill nets to be set so as to fish on the bottom and not exceed a vertical height of 48 inches (M-25-2016).
2016	Dec 5	Management unit C open to anchored large and small mesh gill nets (M-27-2016).
2016	Dec 13	Management unit A closed to anchored large mesh gill nets due to reaching allowable Atlantic sturgeon takes (M-32-2016).

Table 4. (cont.).

Year	Date(s)	Regulation change
2017	Jan 29	Portions of management unit A open to anchored large mesh gill nets (northern rivers) while maintaining closure of anchored large mesh gill nets in all other portions to allow directed gill net fisheries for catfish while minimizing interactions with Atlantic sturgeon (M-1-2017).
2017	Feb 6	Further portions of management unit A open to anchored large mesh gill nets (Alligator River/Currituck Sound) while maintaining closure of anchored large mesh gill nets in all other portions to allow directed gill net fisheries for catfish while minimizing interactions with Atlantic sturgeon (M-2-2017).
2017	Feb 15	Management units C, D1, D2, and E implements gear restrictions for the shad fishery (M-4-2017).
2017	Mar 3	Management Unit A open to the use of gill nets and allows gill net configurations for harvesting American shad by removing vertical height restrictions for up to 1,000 yards of gill net with stretched mesh lengths of 5 ¼ through 6 ½ inches while implementing additional gill net restrictions for management subunit A-South of US-64-BYP/US-64, in accordance with the Sea Turtle and Atlantic Sturgeon ITPs (M-5-2017).
2017	Mar 25	Removes management Unit A gill net configurations for harvesting American shad and maintains gill net restrictions for management subunit A-South of US-64-BYP/US-64, in accordance with the Sea Turtle and Atlantic Sturgeon ITPs (M-7-2017).
2017	Apr 3	Gill nets with mesh length greater than 5 inches must be equipped with tie downs 10 yards apart and cannot be within 50 yards of the shore in the Neuse, Pamlico, and Pungo Rivers through December 31, 2017. Use of gill nets 5 inches or greater is prohibited within 10 feet of any point on the shoreline while set or deployed unless the net is attended from June to October (proclamation M-8-2017)
2017	May 1	Management unit A small mesh anchored gill net attendance requirement (through November 30, 2017) and closes portions of management unit A (Subunit A-South of US-64-BYP/US-64) to the use of anchored large and small mesh gill nets (M-9-2017).
2017	May 8	Management unit D1 closed to large mesh gill nets and implements attendance requirements for gill nets with a stretched mesh length less than 4 inches in Management Subunit B. 1. (proclamation M-10-2017). **Annual ITP closure***
2017	Jun 19	Management unit B open to large mesh gill nets with a stretched mesh length of 4 inches through 6 1/2 inches. Portions of management unit B (Inlet Corridors) remain closed to the use of gill nets with a stretched mesh length of 4 inches through 6 1/2 inches to minimize interactions with threatened and/or endangered species (M-11-2017).
2017	Jul 28	Closed management unit C to large and small mesh gill nets due to sea turtle interactions for remainder of ITP Year 2017 (M-12-2017).

Table 5. Observer coverage calculated from previous years' trip ticket data and observer data for anchored large mesh gill nets by season and management unit through the NCDMF Observer Program for ITP Year 2017 (September 1, 2016 - August 31, 2017).

		Large Mesh		
Season [1]	Management Unit [2]	Fishing Trips	Observed Trips	Coverage [3]
Fall 2016	A	2,234	175	7.8
	B	950	131	13.8
	C	266	37	13.9
	D	344	48	14.0
	E	461	85	18.5
Winter 2016-2017	A	1,066	81	7.6
	B	90	1	1.1
	C	188	29	15.4
	D	5	1	20.0
	E	29	6	20.7
Spring 2017	A	2,277	181	7.9
	B	n/a	n/a	n/a
	C	878	96	10.9
	D	93	10	10.8
	E	279	55	19.7
Summer 2017	A	1,338	66	4.9
	B	812	128	15.8
	C	403	28	6.9
	D	123	24	19.6
	E	505	112	22.2
Total		12,340	1,294	10.5

[1] Final trip ticket data for 2016 (September - December) and preliminary trip ticket data for 2017 (January - August)

[2] Table 4 contains all the openings and closings for each management unit

[3] Based on final trips for 2016 (September - December) and estimated trips for 2017 (January - August) compared to observer large mesh trips

Table 6. Observer coverage calculated from previous years' trip ticket data and observer data for anchored small mesh gill nets by season and management unit through the NCDMF Observer Program for ITP Year 2017 (September 1, 2016 - August 31, 2017).

		Small Mesh		
Season [1]	Management Unit [2]	Fishing Trips	Observed Trips	Coverage [3]
Fall 2016	A	380	0	0.0
	B	1,058	18	1.7
	C	79	7	8.9
	D	300	25	8.3
	E	483	27	5.6
Winter 2016-2017	A	1,028	49	4.8
	B	406	9	2.2
	C	124	22	17.7
	D	63	8	12.7
	E	49	6	12.2
Spring 2017	A	1,311	10	0.8
	B	1,295	21	1.6
	C	263	16	6.1
	D	82	8	9.8
	E	201	14	7.0
Summer 2017	A	280	4	1.4
	B	1,048	10	1.0
	C	312	10	3.2
	D	64	4	6.3
	E	253	4	1.6
Total		9,077	272	3.0

[1] Final trip ticket data for 2016 (September - December) and preliminary trip ticket data for 2017 (January - August)

[2] Table 4 contains all the openings and closings for each management unit

[3] Based on final trips for 2016 (September - December) and estimated trips for 2017 (January - August) compared to observer small mesh trips

Table 7. Summary of observed Atlantic sturgeon interactions in anchored large and small mesh gill nets through the NCDMF Observer Program for ITP Year 2017 (September 1, 2016 - August 31, 2017).

						Tag	Length	
Date	Management Unit	Latitude	Longitude	Species	Disposition	PIT	Total	Fork
9/8/2016	A	36.03066	76.67515	Atlantic	alive	n/a	n/a	n/a
9/10/2016	A	36.41691	75.96635	Atlantic	alive	989.001001951870	880	810
9/13/2016	A	36.08490	76.35124	Atlantic	alive	982.000364295072	670	610
9/13/2016	A	35.99855	76.67548	Atlantic	alive	989.001001951959	860	755
9/13/2016	A	36.00041	76.67593	Atlantic	alive	989.001001951905	889	801
9/13/2016	A	36.00366	76.57590	Atlantic	alive	989.001001951876	1,580	1,420
9/13/2016	A	36.00841	76.67751	Atlantic	alive	989.001001951968	775	607
9/16/2016	A	36.05366	76.41378	Atlantic	alive	989.001001951957	524	450
9/16/2016	A	36.05366	76.41378	Atlantic	alive	989.001001951942	445	385
9/16/2016	A	36.04910	76.42170	Atlantic	alive	989.001001951899	750	670
9/16/2016	A	36.05366	76.41378	Atlantic	dead	n/a	431	376
9/19/2016	A	36.08719	76.31416	Atlantic	alive	982.000364296879	543	470
9/19/2016	A	36.00366	76.31114	Atlantic	alive	989.001001951960	439	395
9/22/2016	A	36.06849	76.38303	Atlantic	alive	989.001001951932	741	659
9/22/2016	A	36.06849	76.38303	Atlantic	alive	989.001001951903	494	439
9/22/2016	A	36.01826	76.68929	Atlantic	alive	n/a	n/a	n/a
9/22/2016	A	36.01826	76.68929	Atlantic	alive	989.001001951933	831	770
9/22/2016	A	36.01952	76.69128	Atlantic	alive	982.000362056039	1,160	1,025
9/22/2016	A	36.02375	76.69531	Atlantic	alive	384M 187	973	872
9/22/2016	A	36.02974	76.69764	Atlantic	alive	982.000364306544	700	655
9/22/2016	A	36.03482	76.69846	Atlantic	alive	982.000362056100	775	690
9/22/2016	A	36.03425	76.69804	Atlantic	dead	989.001001951964	1,020	910
9/29/2016	A	35.99757	76.39628	Atlantic	alive	n/a	812	n/a
9/29/2016	A	36.00136	76.39521	Atlantic	alive	n/a	406	n/a
9/29/2016	A	36.00226	76.39524	Atlantic	alive	n/a	1,016	n/a
10/4/2016	A	36.00159	76.68110	Atlantic	alive	982.000364296196	467	400
10/4/2016	A	36.00411	76.68220	Atlantic	alive	982.000364298284	445	382
10/4/2016	A	36.00430	76.68220	Atlantic	alive	982.000364306468	540	470
10/4/2016	A	36.00873	76.68284	Atlantic	alive	982.000364297640	482	405
10/4/2016	A	36.02487	76.70173	Atlantic	alive	982.000364297239	450	385
10/4/2016	A	36.02487	76.70173	Atlantic	alive	982.000364358743	455	388
10/4/2016	A	36.02487	76.70173	Atlantic	alive	982.0003364296489	420	380
10/14/2016	E	34.53754	77.37932	Atlantic	alive	982.000364301750	991	855
10/19/2016	A	35.99030	76.39303	Atlantic	alive	n/a	n/a	n/a
10/19/2016	A	35.99042	76.39438	Atlantic	alive	n/a	n/a	n/a
10/19/2016	A	35.99067	76.39503	Atlantic	alive	982.000362198455	496	438
10/19/2016	A	35.99036	76.39541	Atlantic	alive	982.000362056063	546	451

Table 7. (cont.).

Date	Management Unit	Latitude	Longitude	Species	Disposition	Tag	Length	
						PIT	Total	Fork
10/19/2016	A	35.99073	76.39649	Atlantic	alive	982.000362199051	495	451
10/19/2016	A	35.99127	76.39980	Atlantic	alive	982.000362190435	493	448
10/19/2016	A	35.99134	76.40063	Atlantic	alive	982.000362056540	415	394
10/20/2016	A	36.00214	76.23837	Atlantic	alive	n/a	1,219	n/a
10/20/2016	A	36.00292	76.23818	Atlantic	alive	n/a	914	n/a
11/1/2016	A	35.98326	76.65352	Atlantic	alive	982.000362199115	589	509
11/2/2016	A	35.98329	76.65231	Atlantic	alive	982.000362199115	589	506
11/3/2016	A	36.09223	76.27110	Atlantic	alive	982.000362191076	576	481
11/3/2016	A	36.09223	76.27110	Atlantic	alive	982.000362056370	827	730
11/3/2016	A	36.09223	76.27110	Atlantic	alive	982.000362056329	624	521
11/3/2016	A	36.09223	76.27110	Atlantic	alive	982.000362058462	618	521
11/3/2016	A	36.09223	76.27110	Atlantic	alive	982.000362049181	571	490
11/3/2016	A	35.98676	76.26745	Atlantic	alive	n/a	508	n/a
11/3/2016	A	36.00460	76.23548	Atlantic	alive	n/a	406	n/a
11/9/2016	A	35.98683	76.26207	Atlantic	alive	n/a	508	n/a
11/9/2016	A	35.98683	76.26207	Atlantic	alive	n/a	584	n/a
12/3/2016	A	36.06278	76.30528	Atlantic	alive	982.000362048651	620	525
12/3/2016	A	36.06278	76.30528	Atlantic	alive	982.000362055613	599	515
12/13/2016	A	35.99166	76.68108	Atlantic [1]	alive	982.000362055869	459	403
12/13/2016	A	36.02978	76.06973	Atlantic	alive	982.000362197191	472	413
12/13/2016	A	36.06193	76.17842	Atlantic	alive	982.000364358833	570	530
12/13/2016	A	36.06031	76.17773	Atlantic	alive	982.000364297501	705	630
12/13/2016	A	36.05937	76.17694	Atlantic	alive	982.000364298501	650	560
12/13/2016	A	36.05937	76.17694	Atlantic	alive	982.000364197049	700	620
12/13/2016	A	36.09528	76.12910	Atlantic	alive	982.000364301096	640	560
12/13/2016	A	35.99252	76.23865	Atlantic	alive	n/a	457	n/a
2/21/2017	C	35.00206	76.96243	Atlantic	alive	982.000364297051	530	n/a
3/6/2017	A	36.03043	76.42896	Atlantic	alive	n/a	623	530
3/6/2017	A	36.03043	76.42896	Atlantic	alive	n/a	453	431
3/6/2017	A	36.02819	76.42939	Atlantic	alive	n/a	654	573
3/7/2017	A	35.99262	76.50180	Atlantic	alive	982.000362196348	703	605
3/7/2017	A	35.99607	76.50367	Atlantic	alive	982.000362056085	704	604
3/7/2017	A	35.99667	76.50459	Atlantic	alive	982.000362319707	609	600
3/7/2017	A	35.99780	76.50442	Atlantic	alive	989.001000716254	605	506
3/7/2017	A	36.00143	76.50641	Atlantic	alive	982.000362191902	503	501
3/7/2017	A	36.00148	76.50633	Atlantic	alive	982.000362319737	607	599
3/7/2017	C	35.09871	77.01007	Atlantic	alive	n/a	n/a	n/a
3/11/2017	A	35.99684	76.50465	Atlantic	alive	982.000362320105	485	469

Table 7. (cont.).

Date	Management Unit	Latitude	Longitude	Species	Disposition	Tag	Length	
						PIT	Total	Fork
3/13/2017	A	36.08794	76.70763	Atlantic	alive	982.000362055657	624	526
3/17/2017	A	36.06431	76.38897	Atlantic	alive	982.000364297455	705	609
3/17/2017	A	36.03877	76.43262	Atlantic	alive	989.001001951888	560	480
3/17/2017	A	36.05758	76.40439	Atlantic	alive	982.000364296885	721	660
3/17/2017	A	36.05844	76.41477	Atlantic	alive	982.000362198352	546	471
3/17/2017	A	35.99195	76.50192	Atlantic	alive	982.000364298224	660	565
3/17/2017	A	35.99359	76.50179	Atlantic	alive	989.001003731500	610	530
3/17/2017	A	35.99652	76.50444	Atlantic	alive	982.000364216095	790	680
3/17/2017	A	35.99652	76.50444	Atlantic	alive	982.000364297516	690	590
3/17/2017	A	35.99773	76.50467	Atlantic	alive	982.000364300940	644	570
3/17/2017	A	35.99956	76.50495	Atlantic	alive	982.000364301817	676	562
3/20/2017	A	36.07744	76.72431	Atlantic	alive	982.000364295757	510	420
3/20/2017	A	36.05984	76.69924	Atlantic	alive	989.001001952757	640	560
3/21/2017	A	36.03965	76.43526	Atlantic	alive	982.000362055546	607	491
3/21/2017	A	36.03967	76.43527	Atlantic	alive	982.000362048379	608	501
3/21/2017	A	36.03968	76.43536	Atlantic	alive	982.000362320322	609	508
3/21/2017	A	35.91083	75.75950	Atlantic	alive	982.000364358515	665	578
3/21/2017	A	35.94988	75.75931	Atlantic	alive	982.000364297487	636	545
3/21/2017	A	35.91362	75.75830	Atlantic	alive	982.000364296912	649	562
3/22/2017	A	36.03951	76.43639	Atlantic	alive	982.000362055546	607	491
3/23/2017	C	35.00940	76.97876	Atlantic	alive	982.000364298492	895	785
3/24/2017	C	35.42296	76.84188	Atlantic	alive	982.000364296308	681	590
3/28/2017	A	35.97484	76.63765	Atlantic	alive	982.000362191535	608	509
3/29/2017	A	35.96500	76.56702	Atlantic [2]	alive	989.001006519318	674	582
3/29/2017	A	35.96684	76.56679	Atlantic	alive	982.000362048010	740	661
4/3/2017	E	33.99874	77.92047	Atlantic [1]	alive	982.000362191717	625	535
4/5/2017	B	35.16601	75.89088	Atlantic [1]	alive	n/a	n/a	n/a
4/21/2017	A	36.02403	75.72512	Atlantic	alive	982.000364297026	740	667
8/31/2017	A	36.00890	76.24223	Atlantic	alive	n/a	647	n/a

[1] Indicates small mesh gear

[2] Recaptured Atlantic sturgeon

Table 8. Summary of reported Atlantic sturgeon interactions in anchored large mesh gill nets through the NCDMF Observer Program for ITP Year 2017 (September 1, 2016 - August 31, 2017).

Date	Management Unit	Latitude	Longitude	Species	Disposition	Length	
						Total	Fork
9/7/2016	A	n/a	n/a	Atlantic	alive	n/a	n/a
9/7/2016	A	n/a	n/a	Atlantic	alive	n/a	n/a
1/26/2017	A	36.03523	76.69909	Atlantic [1]	alive	635	438
4/18/2017	A	n/a	n/a	Atlantic	alive	n/a	n/a

[1] Sturgeon was encountered while Marine Patrol officers were retrieving illegally set gill net

Table 9. Number of gill-net checks made and citations issued by Marine Patrol for large and small mesh gill nets by season during ITP Year 2017 (September 1, 2016 - August 31, 2017).

Season	# Gill Net Checks	# Citations
Fall 2016	366	44
Winter 2016-17	274	144
Spring 2017	395	10
Summer 2017	960	0
Total	1,995	198

Table 10. Citations written by Marine Patrol for large and small mesh gill nets by season and violation code during ITP Year 2017 (September 1, 2015 - August 31, 2016).

	Violation		
Season [1]	Date	Code	Description
Fall 2016	9/1/2016	NETG04	Leave gill net in waters when could not be legally fished
	9/8/2016	NETG03	Using gill net with improper buoys or identification
	9/13/2016	NETG01	Leave gill net in coastal waters unattended
	9/14/2016	NETG03	Using gill net with improper buoys or identification
	9/15/2016	NETG03	Using gill net with improper buoys or identification
	9/15/2016	NETG03	Using gill net with improper buoys or identification
	9/17/2016	NETG04	Leave gill net in waters when could not be legally fished
	9/20/2016	NETG03	Using gill net with improper buoys or identification
	9/20/2016	NETG53	Use large mesh gill net with corks or floats on top line
	9/22/2016	NETG03	Using gill net with improper buoys or identification
	9/22/2016	NETG08	Gill net within 200 yards of pound net
	9/25/2016	NETG03	Using gill net with improper buoys or identification
	9/29/2016	NETG03	Using gill net with improper buoys or identification
	10/2/2016	NETG04	Leave gill net in waters when could not be legally fished
	10/3/2016	NETG04	Leave gill net in waters when could not be legally fished
	10/17/2016	NETG01	Leave gill net in coastal waters unattended
	10/17/2016	NETG03	Using gill net with improper buoys or identification
	10/18/2016	NETG03	Using gill net with improper buoys or identification
	10/20/2016	NETG03	Using gill net with improper buoys or identification
	10/20/2016	NETG33	Violate provisions of Proc M-19-09 setting gill net more than 15 meshes deep in Core Sound
	10/20/2016	NETG53	Use large mesh gill net with corks or floats on top line
	10/22/2016	NETG03	Using gill net with improper buoys or identification
	10/23/2016	NETG03	Using gill net with improper buoys or identification
	10/29/2016	NETG17	Sink net in Neuse River during closed season
	10/30/2016	NETG34	Use unattended gill net w/mesh less than 5" in commercial operation from May 1 through Nov 30

[1] There were no citations written during the Summer 2017 season

Table 10. (cont.).

Season [1]	Violation		
	Date	Code	Description
Fall 2016	10/31/2016	NETG04	Leave gill net in waters when could not be legally fished
	11/3/2016	NETG03	Using gill net with improper buoys or identification
	11/3/2016	NETG03	Using gill net with improper buoys or identification
	11/3/2016	NETG30	Leave RCGL gill net unattended
	11/5/2016	NETG03	Using gill net with improper buoys or identification
	11/5/2016	NETG16	Use an unattended gill net in a restricted area
	11/5/2016	NETG30	Leave RCGL gill net unattended
	11/6/2016	NETG01	Leave gill net in coastal waters unattended
	11/6/2016	NETG04	Leave gill net in waters when could not be legally fished
	11/17/2016	NETG37	Leave small mesh gill nets unattended
	11/17/2016	NETG37	Leave small mesh gill nets unattended
	11/17/2016	NETG37	Leave small mesh gill nets unattended
	11/19/2016	NETG02	Using gill net without buoys or identification
	11/19/2016	NETG03	Using gill net with improper buoys or identification
	11/22/2016	NETG01	Leave gill net in coastal waters unattended
	11/22/2016	NETG02	Using gill net without buoys or identification
	11/22/2016	NETG03	Using gill net with improper buoys or identification
	11/22/2016	NETG37	Leave small mesh gill nets unattended
	11/22/2016	NETG37	Leave small mesh gill nets unattended
Winter 2016-2017	12/2/2016	NETG02	Using gill net without buoys or identification
	12/2/2016	NETG02	Using gill net without buoys or identification
	1/1/2017	NETG01	Leave gill net in coastal waters unattended
	1/13/2017	NETG03	Using gill net with improper buoys or identification
	1/13/2017	NETG01	Leave gill net in coastal waters unattended
	1/20/2017	NETG10	Gill net with illegal mesh size

[1] There were no citations written during the Summer 2017 season

Table 10. (cont.).

Season [1]	Violation		
	Date	Code	Description
Winter 2016-2017	1/20/2017	NETG10	Gill net with illegal mesh size
	1/20/2017	NETG10	Gill net with illegal mesh size
	1/20/2017	NETG10	Gill net with illegal mesh size
	1/20/2017	NETG10	Gill net with illegal mesh size
	1/20/2017	NETG10	Gill net with illegal mesh size
	1/20/2017	NETG61	Gill net tie down violation
	1/20/2017	NETG10	Gill net with illegal mesh size
	1/24/2017	NETG10	Gill net with illegal mesh size
	1/25/2017	NETG10	Gill net with illegal mesh size
	1/25/2017	NETG10	Gill net with illegal mesh size
	2/3/2017	NETG02	Using gill net without buoys or identification
	2/15/2017	NETG04	Leave gill net in waters when could not be legally fished
	2/21/2017	NETG29	RCGL gear without proper buoys
Spring 2017	3/28/2017	NETG46	Set or retrieve large mesh gill nets later than one hour after sunrise on Tuesday through Friday
	3/28/2017	NETG53	Use large mesh gill net with corks or floats on top line
	4/10/2017	NETG22	Improperly set gill net
	4/15/2017	NETG03	Using gill net with improper buoys or identification
	4/15/2017	NETG60	Use gill nets with a mesh size of more than 6.5 inches (stretched mesh) in violation of proclamation
	4/20/2017	NETG03	Using gill net with improper buoys or identification
	4/20/2017	NETG29	RCGL gear without proper buoys
	4/21/2017	NETG22	Improperly set gill net
	5/7/2017	NETG29	RCGL gear without proper buoys
	5/17/2017	NETG45	Set or retrieve large mesh gill nets no sooner than one hour before sunset on Monday through Friday

[1] There were no citations written during the Summer 2017 season

Table 11. Contacts attempted (n = 9,132) by the observers trying to set up trips by season categorized by contact type (0-14) and by total number, percent for each season, and percent for the entire ITP Year 2017 for ITP Year 2017 (September 1, 2016 - August 31, 2017).

	Categories (%) [1]														
Season	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Fall 2016	63	514	181	66	47	34	160	5	284	61	53	11	296	885	2,660
	2.4%	19.3%	6.8%	2.5%	1.8%	1.3%	6.0%	0.2%	10.7%	2.3%	2.0%	0.4%	11.1%	33.3%	100.0%
	Categories (%) [1]														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Winter 2016-2017	34	356	52	24	7	22	54	12	114	13	35	10	159	464	1,356
	2.5%	26.3%	3.8%	1.8%	0.5%	1.6%	4.0%	0.9%	8.4%	1.0%	2.6%	0.7%	11.7%	34.2%	100.0%
	Categories (%) [1]														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Spring 2017	61	440	171	30	18	28	98	9	130	20	93	16	320	991	2,425
	2.5%	18.1%	7.1%	1.2%	0.7%	1.2%	4.0%	0.4%	5.4%	0.8%	3.8%	0.7%	13.2%	40.9%	100.0%
	Categories (%) [1]														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Summer 2017	64	482	161	24	26	37	104	4	177	53	107	17	385	1,050	2,691
	2.4%	17.9%	6.0%	0.9%	1.0%	1.4%	3.9%	0.1%	6.6%	2.0%	4.0%	0.6%	14.3%	39.0%	100.0%
	Categories (%) [1]														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Total	222	1,792	565	144	98	121	416	30	705	147	288	54	1,160	3,390	9,132
	2.4%	19.6%	6.2%	1.6%	1.1%	1.3%	4.6%	0.3%	7.7%	1.6%	3.2%	0.6%	12.7%	37.1%	100.0%

[1] Contact type categories: 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

Table 12. Notice of Violations issued by season, date and violation code for the Estuarine Gill Net Permit for ITP Year 2017 (September 1, 2016 - August 31, 2017).

Season	Date	Code	Description
Fall 2016	11/3/2016	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	11/3/2016	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	11/3/2016	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
	11/3/2016	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
	11/29/2016	EGNP11	Failure to attend nets
	11/29/2016	EGNP11	Failure to attend nets
	11/29/2016	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
	11/29/2016	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Winter 2016-2017	1/12/2017	EGNP11	Failure to attend nets
	1/12/2017	EGNP11	Failure to attend nets
	1/12/2017	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
	1/12/2017	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
	1/12/2017	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
	1/13/2017	EGNP11	Failure to attend nets
	1/26/2017	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	1/26/2017	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	1/26/2017	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	2/1/2017	EGNP14	Mislead observers to avoid fishing trip
	2/1/2017	EGNP25	Refuse to allow fisheries observers onboard or collect data
	2/1/2017	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	2/1/2017	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	2/1/2017	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	2/1/2017	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	2/1/2017	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	2/1/2017	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	2/1/2017	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Spring 2017	3/6/2017	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	4/24/2017	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	4/24/2017	EGNP30	Failure to comply with gill net configurations outlined in proclamation
	4/24/2017	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
	4/28/2017	EGNP10	Set more than the legal length of gill net
	4/28/2017	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
Summer 2017	6/28/2017	EGNP10	Set more than the legal length of gill net
	6/28/2017	EGNP99	Failure to comply with statutes(s), rules(s), and/or proclamation(s)
	8/24/2017	EGNP30	Failure to comply with gill net configurations outlined in proclamation

FIGURES

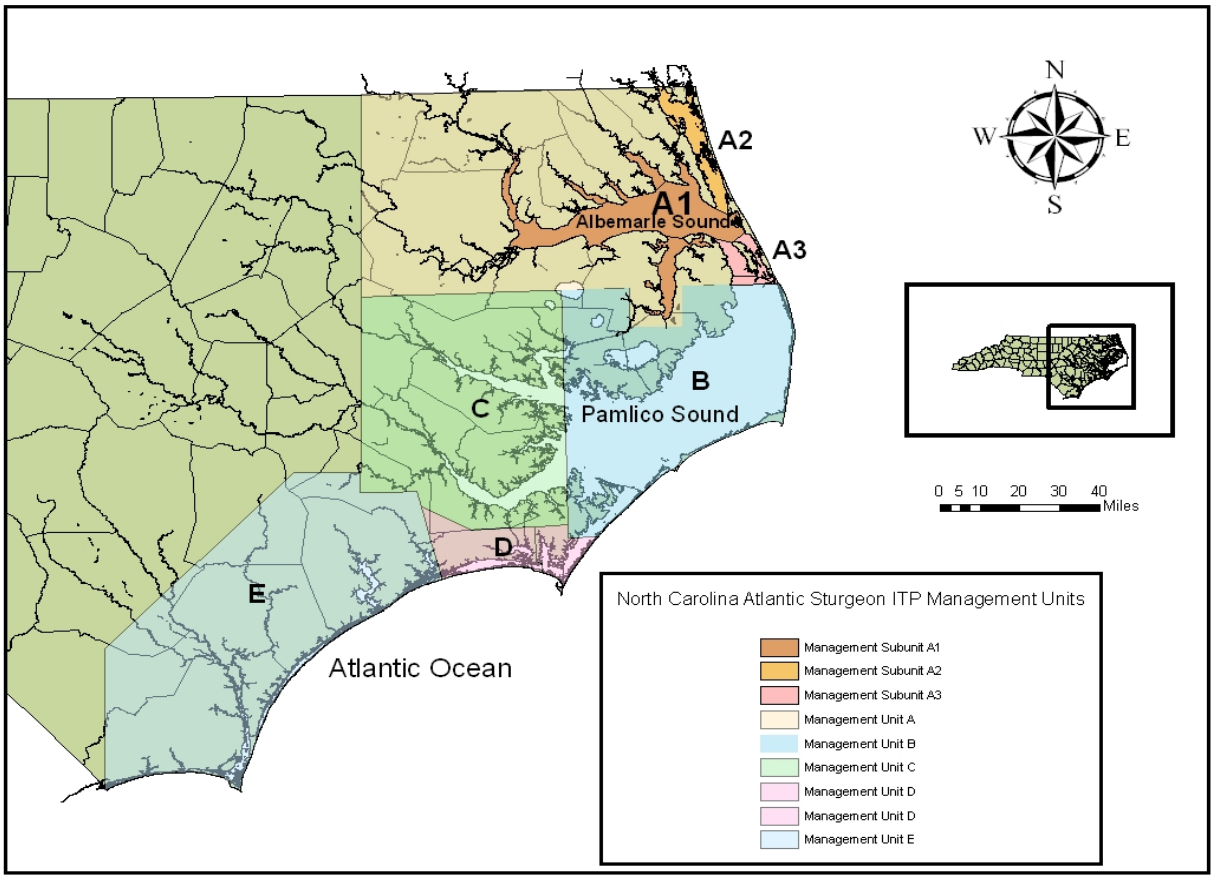


Figure 1. Management units (A1, A2, A3, B, C, D, and E) as outlined in the Conservation Plan and utilized by the Observer Program for ITP Year 2017 (September 1, 2016 – August 31, 2017).

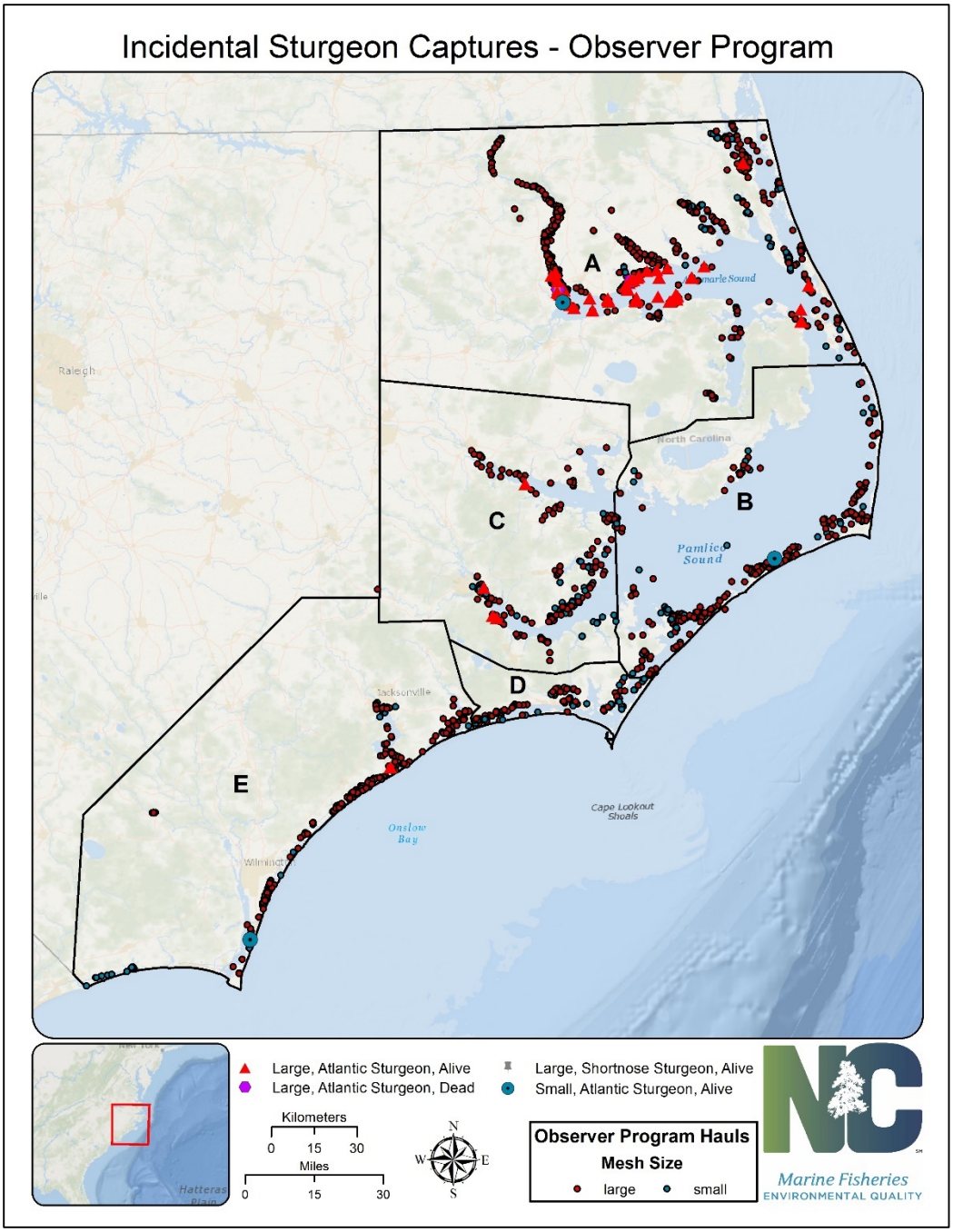


Figure 2. Atlantic sturgeon interaction locations by species, disposition, and gear and observer trips (hauls) by gear throughout all management units for ITP Year 2017 (September 1, 2016 – August 31, 2017).

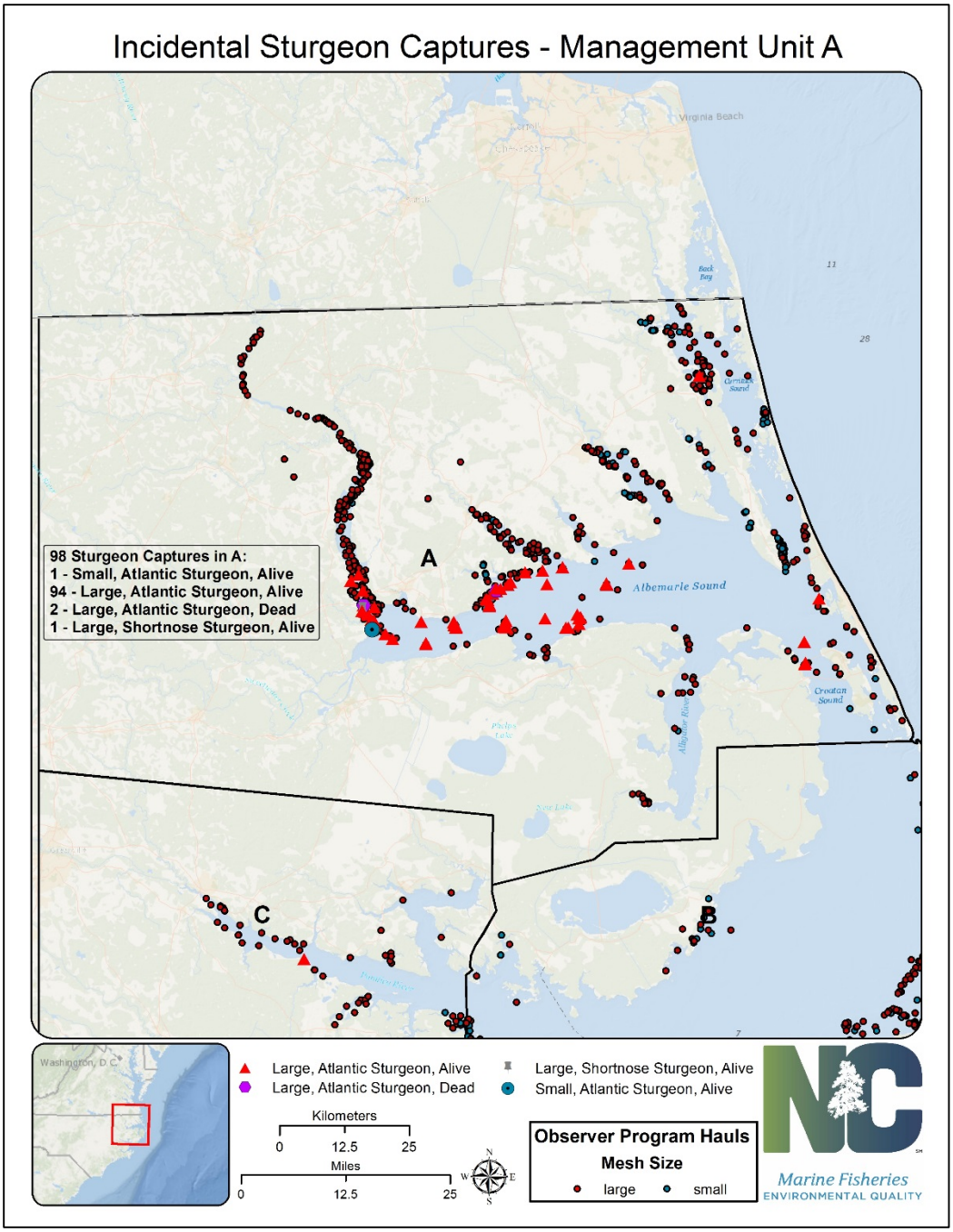


Figure 3. Atlantic sturgeon interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit A for ITP Year 2017 (September 1, 2016 – August 31, 2017).

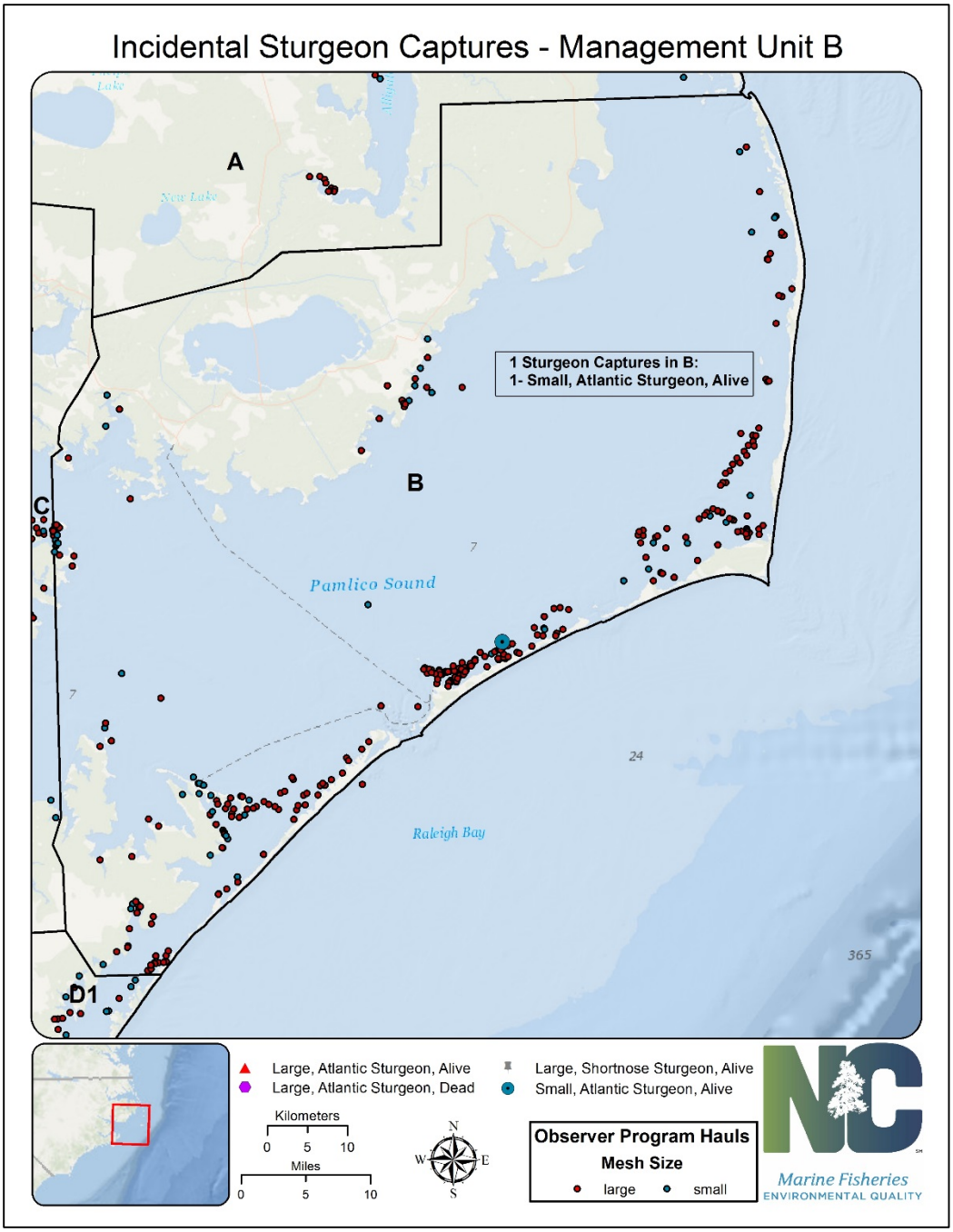


Figure 4. Atlantic sturgeon interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit B for ITP Year 2017 (September 1, 2016 – August 31, 2017).

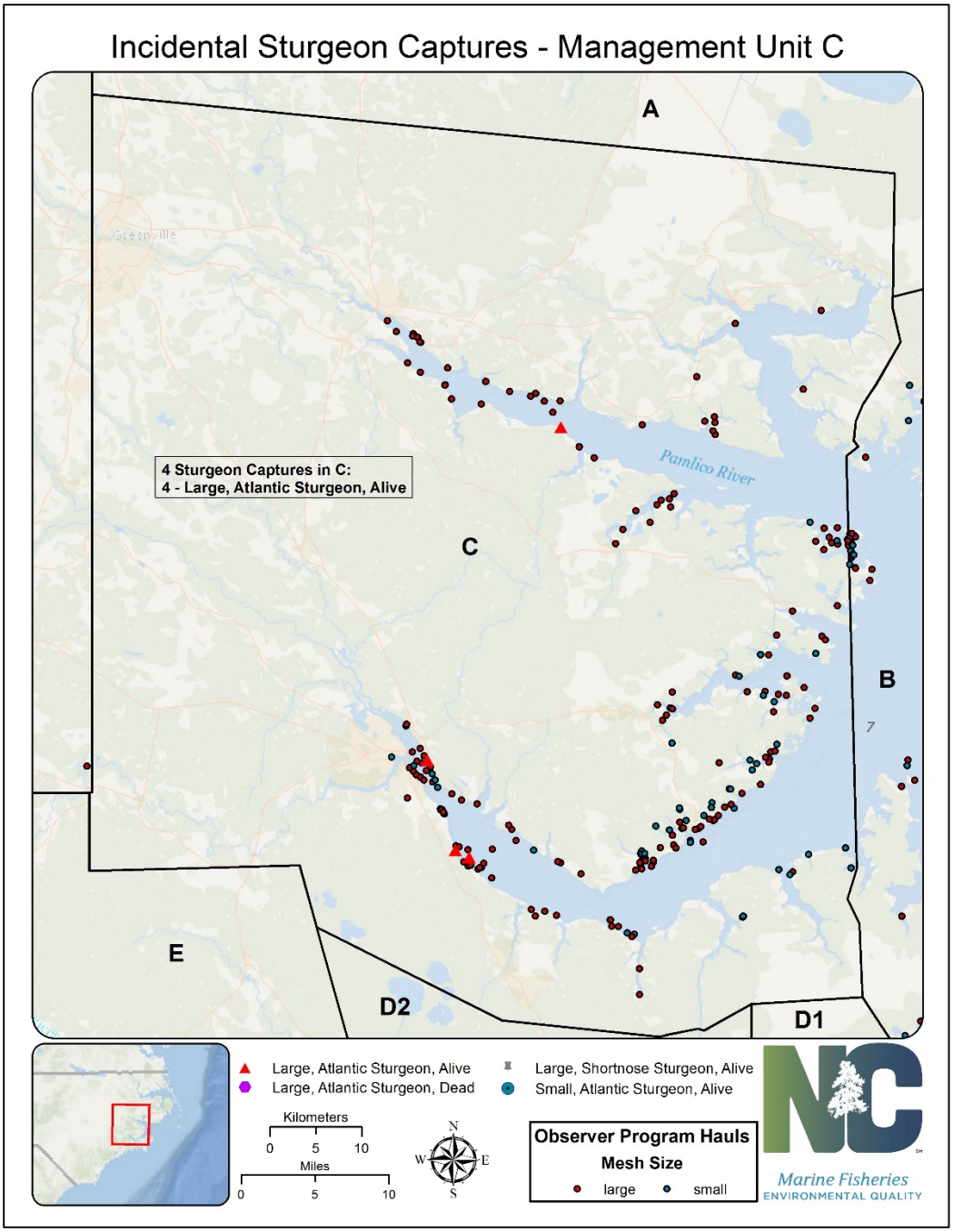


Figure 5. Atlantic sturgeon interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit C for ITP Year 2017 (September 1, 2016 – August 31, 2017).

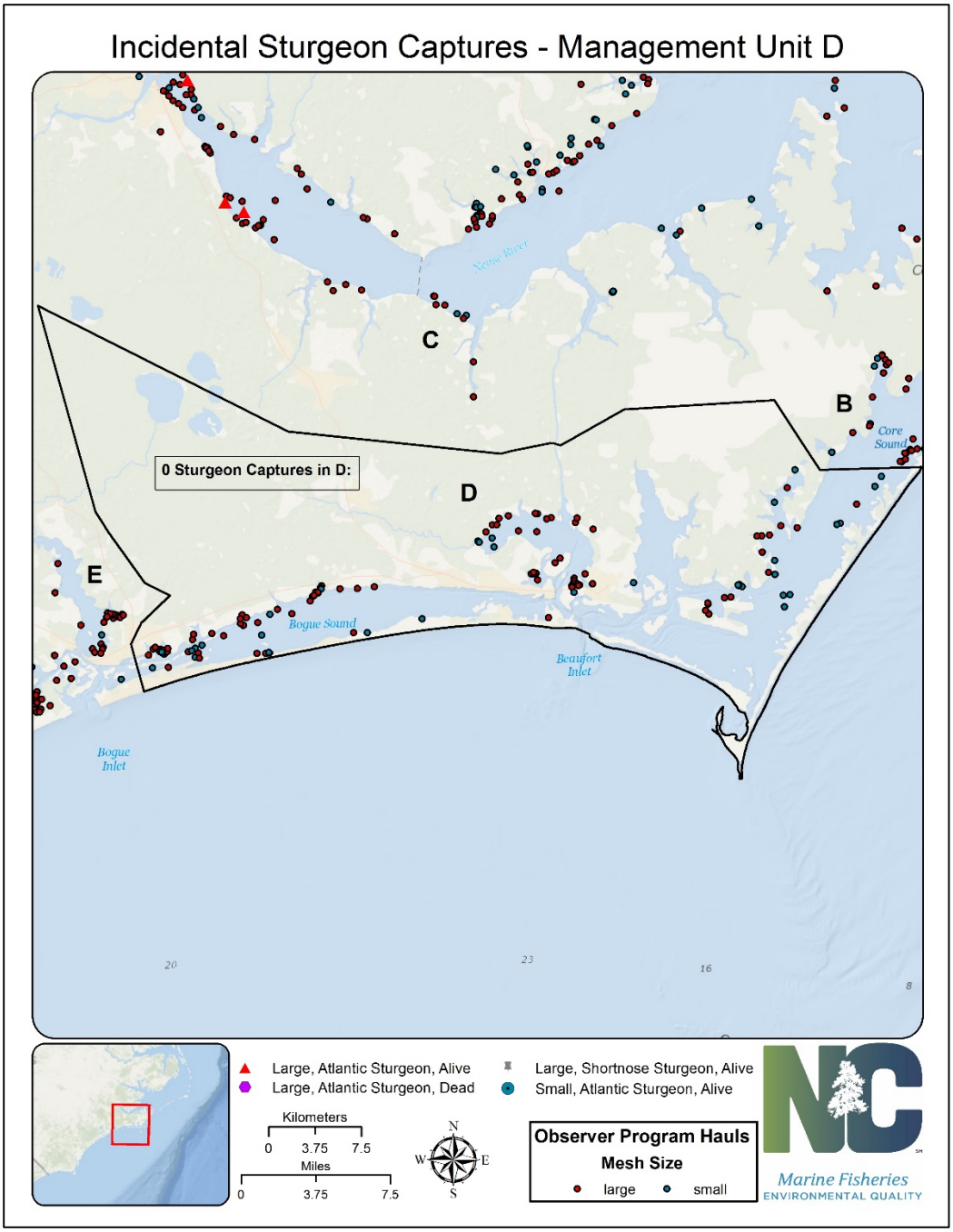


Figure 6. Atlantic sturgeon interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit D for ITP Year 2017 (September 1, 2016 – August 31, 2017).

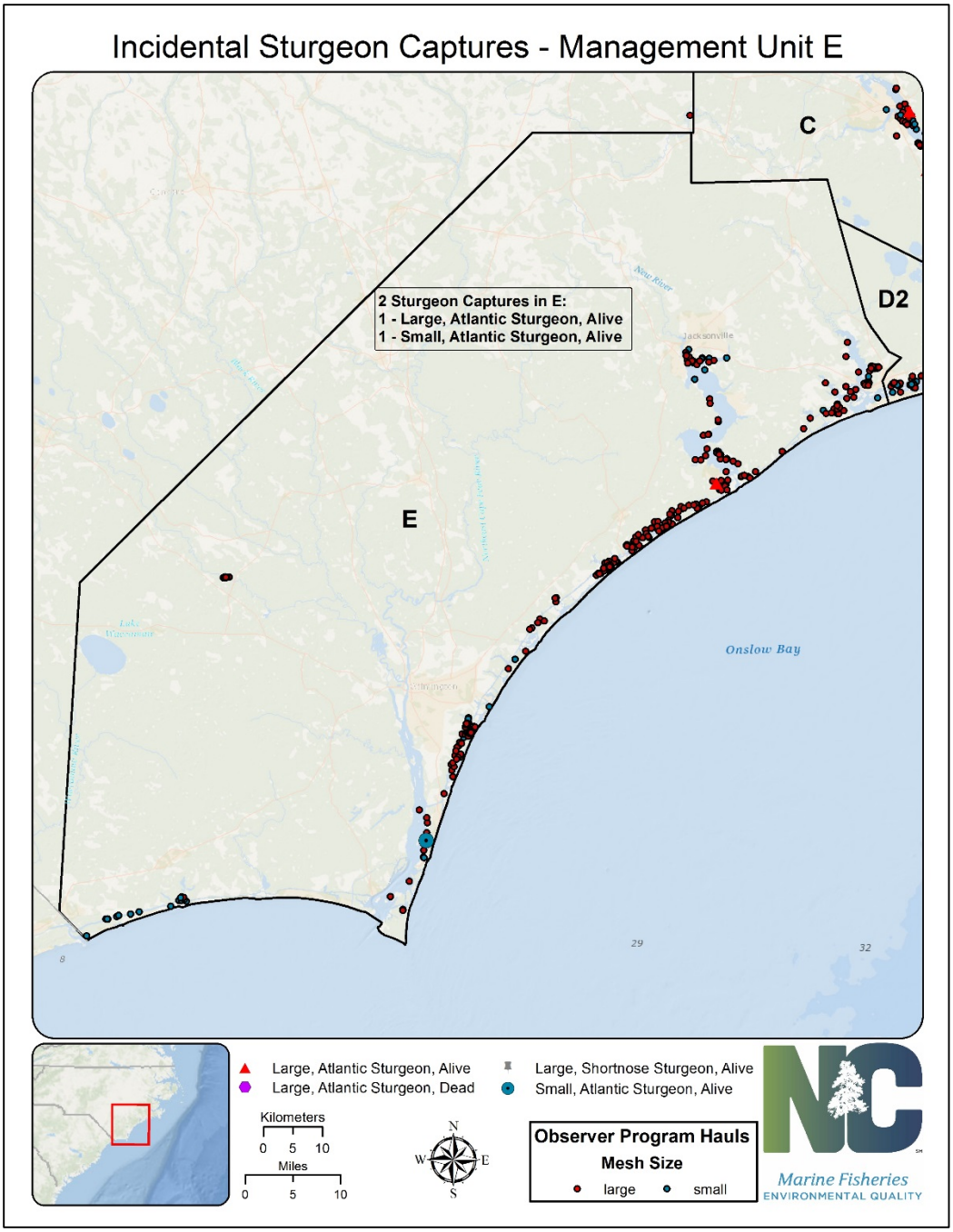


Figure 7. Atlantic sturgeon interaction locations by species, disposition, and gear and observer trips (hauls) by gear in management unit E for ITP Year 2017 (September 1, 2016 – August 31, 2017).

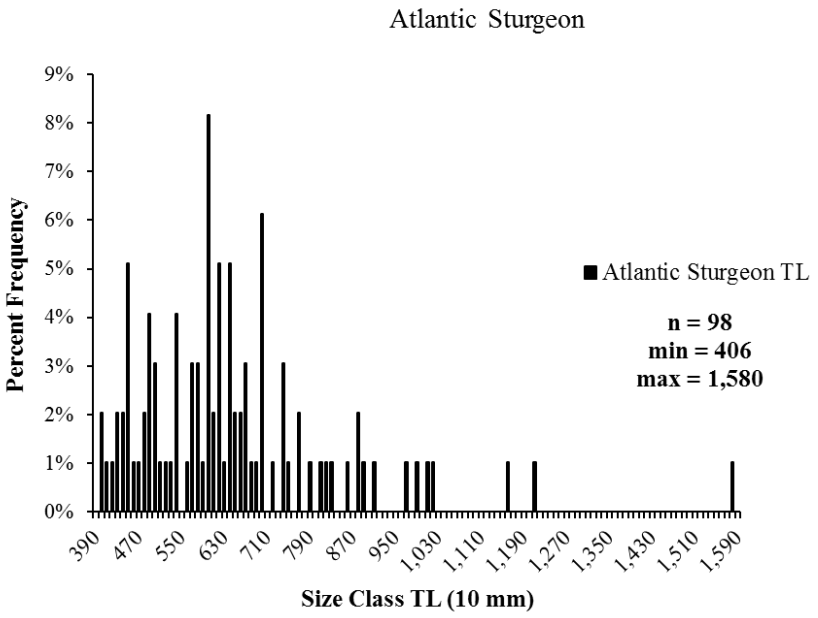


Figure 8. Length-frequency (total length) of observed incidental captures of Atlantic sturgeon where measurements were obtained (n = 98) by the Observer Program from onboard and alternative platform observations for ITP Year 2017 (September 1, 2016 – August 31, 2017).

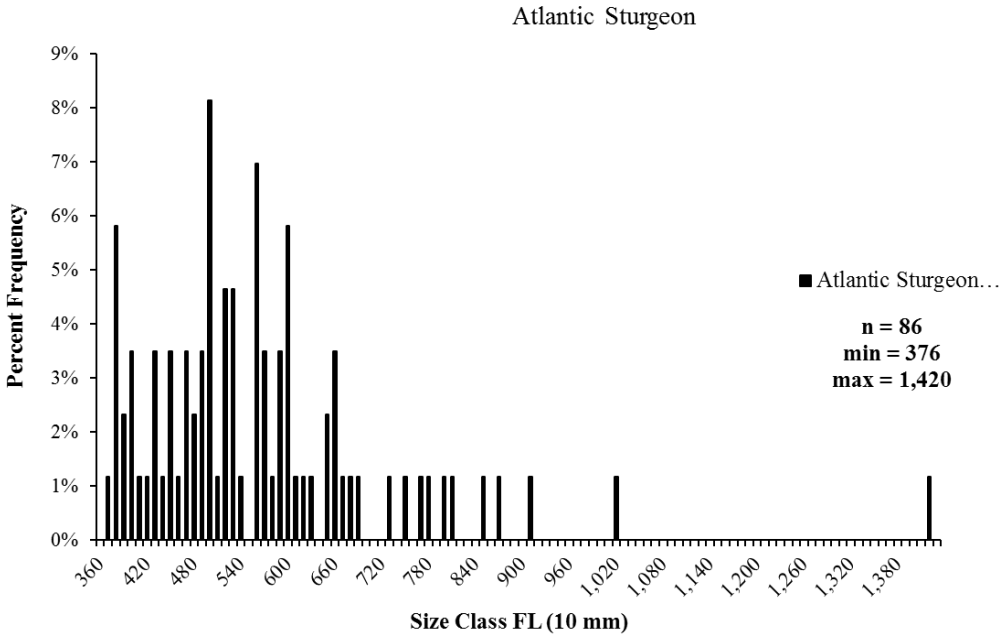


Figure 9. Length-frequency (fork length) of observed incidental captures of Atlantic sturgeon where measurements were obtained (n = 86) by the Observer Program from onboard and alternative platform observations for ITP Year 2017 (September 1, 2016 – August 31, 2017).

APPENDIX A

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

JAN 4 2017

Braxton C. Davis
Director, North Carolina Division of Marine Fisheries
3441 Arendell Street
P.O. Box 769
Morehead City, North Carolina 28557

Dear Mr. Davis:

On November 21, 2016, the North Carolina Division of Marine Fisheries (NCDMF) requested a minor modification to extend the future annual report deadlines for the Sea Turtle (No. 16230) and Atlantic Sturgeon (No. 18102) Incidental Take Permits from January 31 to the last day in February. You note that this extension would benefit your staff due to a lag time in data being uploaded and verified, the time of year, the deadline for the fall seasonal report, and staff availability.

We appreciate the challenges associated with staff availability and the data accessibility at this time of year, and this delay will not significantly impact our ability to review the annual report. National Marine Fisheries Service (NMFS) therefore concurs with your request for this minor modification. Please sign below to acknowledge that you will comply with the minor modifications specified in this letter and send a copy of the signed letter to Kristy Long on my staff at your earliest convenience.

We note that NCDMF has requested several modifications since the permit began and understand that you are in the process of developing an updated Incidental Take Permit application. We encourage you to incorporate any further anticipated minor modifications into that application process so we can more efficiently analyze these requests.

Please feel free to contact Ron Dean (ron.dean@noaa.gov) or Kristy Long (kristy.long@noaa.gov) with any questions about this minor modification request approval or your pending updated application.

We look forward to continuing to work with you on sea turtle conservation in North Carolina.

Sincerely,

Donna S. Wieting

Donna S. Wieting
Director, Office of Protected Resources

Printed on Recycled Paper

I acknowledge the minor modification specified above to Permit No. 16230 issued under Section 10 (a)(l)(B) of the Endangered Species Act to incidentally take threatened and endangered sea turtles in gillnet fisheries operating in inshore waters of North Carolina.

Braxton C. Davis
Director
N.C. Division of Marine Fisheries

1-5-17
Date

APPENDIX B

Marine Fisheries
ENVIRONMENTAL QUALITY

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
BRAXTON C. DAVIS
Director

Angela Somma
Office of Protected Resources (F/PR)
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910

Dear Angela:

The North Carolina Division of Marine Fisheries (NCDMF) Observer Program data have been updated using the finalized 2016 Trip Ticket Program (TTP) data. The Annual Completion Report for the Atlantic Sturgeon Incidental Take Permit (ITP) No. 18102 was completed for ITP Year 2016 and submitted in February 2017. Using the finalized 2016 data, Tables 1, 2, 5, and 6 from the Completion Report were updated to reflect the final estimates of observer coverage and Atlantic sturgeon takes (Tables 1 - 4). The fall 2015 season was based on finalized 2015 TTP data and did not deviate from the previous report for both anchored large and small mesh gill nets (Tables 1 and 2).

Anchored Large Mesh

The winter 2015 – 2016 season had an increase in fishing trips for anchored large mesh gill nets than previously estimated in management unit A, a decrease in fishing trips in management units B, C, and E, and fishing trips remaining constant in management unit D (Table 1). Observer coverage goals for anchored large mesh gill nets were met in management units C and E for the winter 2015 – 2016 season. Fishing activity was sparse in management unit B (n = 35 fishing trips) and management unit D (n = 1 fishing trip) during the winter 2015 – 2016 season. Observer coverage for management unit A during the same period totaled 3.0% with 52 observed anchored large mesh gill-net trips completed (Table 1).

The spring 2016 season had an increase in fishing trips for anchored large mesh gill nets than previously estimated in management units A, C, and D with all other management units having a decrease in fishing trips (Table 1). Observer coverage goals for anchored large mesh gill nets were met in all management units except management unit D for the spring 2016 season. Minimal trips (n = 4) were obtained in management unit D during the spring 2016 season due to portions (management unit D1) of the management unit being closed for the latter portion of the spring 2016 season and minimal fishing effort (n = 97 fishing trips) while open. While observer coverage goals were not met in management unit D, they were far exceeded in management units B (15.8%) and E (30.2%) for anchored large mesh gill nets (Table 1).

The summer 2016 season had an increase in fishing trips for anchored large mesh gill nets than previously estimated in all management unit except C (Table 1). Observer coverage goals for anchored large mesh gill nets were met in all management units except management units A and B for the summer 2016 season. Portions of management unit D (management unit D1) are closed annually from May 8 through October 14 as described in the ITP. Management unit A was open for only seven days before being closed to anchored large and small mesh gill nets for the remainder of the summer 2016 season allowing for only five trips to be obtained before the closure was implemented. Management unit B was open for only three days before being closed to anchored large mesh gill nets for the remainder of the summer 2016 season allowing for only three trips to be obtained before the closure was implemented. While observer coverage goals were not met in management units A and B, they were exceeded in management units C (11.0%), D (13.5%), and E (19.8%) for anchored large mesh gill nets (Table 1).

Anchored Small Mesh

The winter 2015 – 2016 season had an increase in fishing trips for anchored small mesh gill nets than previously estimated in management units A and E (Table 2). Observer coverage goals for anchored small mesh gill nets were met in all management units except management unit B for the winter 2015 – 2016 season. Observer coverage for management unit B during this period totaled 0.6% with three observed anchored small mesh gill-net trips completed (Table 2).

The spring 2016 season had an increase in fishing trips for anchored small mesh gill nets than previously estimated in management unit B (Table 2). Management unit E closed to anchored small mesh gill nets on May 4, 2016 for the remainder of ITP Year 2016 due to reaching allowable sea turtle takes. Observer coverage goals for anchored small mesh gill nets were met in all management units for the spring 2016 season. Furthermore, observer coverage goals were far exceeded in management units A (4.1%), C (7.4%), D (14.8%), and E (8.3%) for anchored small mesh gill nets (Table 2).

The summer 2016 season had an increase in fishing trips for anchored small mesh gill nets than previously estimated in management units A and B (Table 2). Management unit E remained closed to anchored small mesh gill nets for the duration of the summer 2016 season. Observer coverage goals for anchored small mesh gill nets were met in all management units except management units A and B. Management unit A was open for only seven days before being closed to anchored large and small mesh gill nets for the duration of the summer 2016 season. Therefore, no anchored small mesh gill-net trips were obtained during this short time frame. Attendance requirements for anchored small mesh gill nets during the summer season made it difficult to obtain trips in management unit B. While observer coverage goals were not met in management units A and B, they were far exceeded in management units C (4.5%) and D (20.0%) for anchored small mesh gill nets (Table 2).

Atlantic Sturgeon Takes

Annual estimated allowable Atlantic sturgeon takes were recalculated for anchored large and small mesh gill nets using the finalized 2016 TTP data (Tables 3 and 4). The estimates of Atlantic sturgeon takes in anchored large mesh gill nets differed slightly from previous estimates for all seasons in management unit A (Table 3). For management unit A, estimates increased in anchored large mesh gill nets for the winter and fall seasons while decreasing in the spring and summer seasons. For each season and management unit for anchored large mesh gill nets, except for the winter 2015 – 2016 season in management unit A, the fishery remained below the annual estimated allowable Atlantic sturgeon takes for all dispositions for ITP Year 2016 (Table 3).

The estimates of Atlantic sturgeon takes in anchored small mesh gill nets increased slightly or remained constant from previous estimates for all seasons in management unit A (Table 4). For management unit A, estimates increased in anchored small mesh gill nets for the winter season. The anchored small mesh gill-net fishery remained below the annual estimated allowable Atlantic sturgeon takes for all dispositions for ITP Year 2016 for each season and management unit (Table 4).

A memo was sent in May 2016 explaining the overage of allowed Atlantic sturgeon takes (n = 77) in the anchored large mesh gill-net fishery from the winter 2015 – 2016 season based on finalized December 2015 data and preliminary January/February 2016 data. Using the finalized 2015 and 2016 data, the anchored large mesh gill-net fishery for the winter 2015 – 2016 season in management unit A went over (n = 111) the allowed takes for Atlantic sturgeon (Table 3).

Table 1. Observer coverage calculated from finalized 2016 Trip Ticket data and observer data for anchored large mesh gill nets by season and management unit through the NCDMF Observer Program for ITP Year 2016 (September 1, 2015 - August 31, 2016).

		Anchored Large Mesh		
Season	Management Unit	Fishing Trips	Observed Trips	Coverage
Fall 2015	A	2,258	205	9.1
	B	424	63	14.9
	C	366	58	15.8
	D	327	34	10.4
	E	518	36	6.9
Winter 2015-2016	A	1,724	52	3.0
	B	35	0	0.0
	C	30	13	43.3
	D	1	0	0.0
	E	41	12	29.3
Spring 2016	A	1,510	138	9.1
	B	273	43	15.8
	C	996	73	7.3
	D	97	4	4.1
	E	179	54	30.2
Summer 2016	A	148	5	3.4
	B	159	3	1.9
	C	528	58	11.0
	D	163	22	13.5
	E	500	99	19.8
Total		10,277	972	9.5

Table 2. Observer coverage calculated from finalized 2016 Trip Ticket data and observer data for anchored small mesh gill nets by season and management unit through the NCDMF Observer Program for ITP Year 2016 (September 1, 2015 - August 31, 2016).

		Anchored Small Mesh		
Season	Management Unit	Fishing Trips	Observed Trips	Coverage
Fall 2015	A	358	10	2.8
	B	706	9	1.3
	C	95	7	7.4
	D	221	23	10.4
	E	547	29	5.3
Winter 2015-2016	A	1,392	50	3.6
	B	470	3	0.6
	C	119	9	7.6
	D	24	1	4.2
	E	147	9	6.1
Spring 2016	A	675	28	4.1
	B	1,478	29	2.0
	C	95	7	7.4
	D	54	8	14.8
	E	133	11	8.3
Summer 2016	A	51	0	0.0
	B	1,084	7	0.6
	C	157	7	4.5
	D	20	4	20.0
	E [1]	n/a	n/a	n/a
Total		7,826	251	3.2

[1] Management unit E closed to anchored small mesh gill nets for the duration of the summer 2016 season

Table 3. Authorized and actual annual estimated incidental takes per fishing year (for a total of 10 years; the life of the permit) with confidence intervals (95%) using a bootstrap method based on observer data for coverage and Atlantic sturgeon interaction levels in North Carolina's anchored large mesh (≥5.0 ISM) inshore gill-net fishery for ITP Year 2016 (September 1, 2015 - August 31, 2016).

		Total Interactions			
		Authorized (Mortality)		Actual All DPS [2]	
Management Unit	Season	Carolina DPS	Other DPS	Alive	Dead
A	Winter	149 (6)	50 (2)	310 [115,566]	0
	Spring	460 (19)	154 (6)	37 [10,96]	19 [0,109]
	Summer	157 (6)	52 (2)	5 [0,34]	0
	Fall	838 (34)	279 (11)	285 [151,415]	13 [0,54]
B	Winter	2 (1)[1]	n/a	0	0
	Spring	1 (1)[1]	1 (0)	0	0
	Summer	4 (2)[1]	2 (0)	0	0
	Fall	17 (2)[1]	6 (0)	0	0
C	Winter	2 (1)[1]	n/a	0	0
	Spring	3 (1)[1]	1 (0)	0	0
	Summer	2 (1)[1]	1 (0)	0	0
	Fall	4 (2)[1]	2 (0)	4	1
D	Annual	8 (2)[1]	n/a	1	0
E	Annual	8 (2)[1]	n/a	2	1
Total		1,655 (80)	548 (21)	644	34

[1] Total interaction number represents actual observed and not estimated based on observer coverage. Mortality estimates could not be completed for management units B-E due to low take; thus, if observed interactions were ≤ 5 mortality was one; if observed interactions were >5 mortality was two.

[2] Fin clip samples have been sent to the lab for genetic analysis

Table 4. Authorized and actual annual estimated incidental takes per fishing year (for a total of 10 years; the life of the permit) with confidence intervals (95%) using a bootstrap method based on observer data for coverage and Atlantic sturgeon interaction levels in North Carolina's anchored small mesh (<5.0 ISM) inshore gill-net fishery for ITP Year 2016 (September 1, 2015 - August 31, 2016).

		Total Interactions			
		Authorized (Mortality)		Actual All DPS [2]	
Management Unit	Season	Carolina DPS	Other DPS	Alive	Dead
A	Winter	175 (14)	35 (3)	119 [29,283]	0
	Spring	219 (17)	44 (4)	0	0
	Summer	72 (6)	14 (1)	0	0
	Fall	103 (8)	21 (2)	0	0
B	Winter	2 (1)[1]	n/a	0	0
	Spring	6 (2)[1]	1 (0)	1	0
	Summer	3 (1)[1]	1 (0)	0	0
	Fall	3 (1)[1]	1 (0)	0	0
C	Winter	2 (1)[1]	n/a	0	0
	Spring	2 (1)[1]	n/a	0	0
	Summer	2 (1)[1]	n/a	0	0
	Fall	2 (1)[1]	n/a	0	0
D	Annual	8 (2)[1]	n/a	0	0
E	Annual	8 (2)[1]	n/a	0	0
Total		607 (58)	117 (10)	120	0

[1] Total interaction number represents actual observed and not estimated based on observer coverage. Mortality estimates could not be completed for management units B-E due to low take; thus, if observed interactions were ≤ 5 mortality was one; if observed interactions were >5 mortality was two.

[2] Fin clip samples have been sent to the lab for genetic analysis

Sincerely,

Jacob Boyd, Protected Species Biologist
Division of Marine Fisheries, NCDEQ

cc: Chris Batsavage
Braxton Davis
Dee Lupton
John McConnaughey

APPENDIX C

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

JUL 19 2017

Braxton C. Davis
Director, North Carolina Division of Marine Fisheries
3441 Arendell Street
P.O. Box 769
Morehead City, NC 28557

Dear Mr. Davis:

On July 13, 2017, the N.C. Division of Marine Fisheries (NCDMF) requested a minor modification to the Atlantic Sturgeon Incidental Take Permit (ITP) no. 18102 to allocate the takes in management units A – C as annual takes rather than seasonal takes. You note in your request that the number of allowed seasonal takes is very low in some cases, and the seasonal takes have been reached on a few occasions and have resulted in seasonal closures.

In your request, you also address the concern of takes occurring in warmer waters (20°C – 30°C) being correlated with more mortalities by noting that lower fishing effort in the summer season due to increasing water temperatures and fish availability should prevent sturgeon mortalities from exceeding the take limit. In our discussions, your staff also noted that the flexibility gained from this minor modification will allow you to adaptively manage fishing effort for times when the fishery is most productive from the fall through the spring, and that fishing effort in the summer decreases as productivity wanes. You also note that you actively monitor the fisheries and take levels daily to ensure take levels, including mortality levels, are not exceeded.

We have considered this minor modification request and determined it to be reasonable. NMFS therefore concurs with your request for this minor modification.

I appreciate you proactively requesting minor modifications to maximize permit implementation as you identify them. Also, as we have discussed with you previously, we understand that you are in the process of developing an updated ITP application and we look forward to analyzing all aspects of that updated application. I encourage you to incorporate any further anticipated minor modifications into that application process so my staff can more efficiently analyze these requests. Please sign below to acknowledge that you will comply with the minor modifications specified in this letter and send a copy of the signed letter to Ron Dean on my staff at your earliest convenience.

We look forward to continuing to work with you on Endangered Species conservation in North Carolina.

Sincerely,

for

Donna S. Wieting
Director, Office of Protected Resources

I acknowledge the minor modification specified above to Permit No. 18102 issued under Section 10 (a)(1)(B) of the Endangered Species Act to incidentally take endangered Atlantic Sturgeon in gillnet fisheries operating in inshore waters of North Carolina.

Braxton C. Davis
Director
N.C. Division of Marine Fisheries

7/21/17
Date

APPENDIX D

September 2, 2016

David,

The North Carolina Watermen United (NCWU) would like to thank you setting up the meeting with gill- and pound- netters. We appreciate your efforts to help re-open closed areas and keep others from being closed.

However, as many of the attendees at the meeting in Wanchese on Tuesday, August 30, 2016 mentioned, every possible action has been in effect for years to reduce interactions with endangered sea turtles under the regulations of the Sea Turtle ITPs since 2002. We already have many gear modifications, closures in high turtle interaction areas, a reduction in fishing times and a reduction in fishing efforts that include -

- 1. The state is divided into 6 Unit Areas and 4 of those 6 units have 4 days a week fishing only; night-time soaks only; 15-mesh deep nets and no floats. These are year-round restrictions in the 4 areas.

- 2. The southern portion of Unit A is also under these same restrictions. The entire deep-water area of Pamlico Sound is closed to the use of large mesh gillnet from September 1 until January of the next year.

- 3. All inlet corridors are closed to large mesh gillnets after September 1 each year.

- 4. Unit E is closed to the use of large mesh gillnets every May until October.

- 5. In all internal waters, the only areas that do not have gear modifications and further restrictions under the ITP are the northern parts of Unit A and Unit C – both of which have minimal interactions with sea turtles, and still only 4 interactions per unit per year are authorized.

At this time, NCWU would like to ask again that a meeting be set up with NCWU and NCFA fishermen, especially gill- and pound- netters, with representatives from the NC Division of Marine Fisheries and with Jean Beasley from the Karen Beasley Sea Turtle Foundation. Jean Beasley and NCWU asked the previous DMF Director for this meeting many times, but he never acted on our request. It is the perfect time to listen to her ideas and experiment with the devices that she has been advocating for years that she believes would help lessen the number of turtle interactions. I am a gillnetter and very willing to help test and monitor these devices.

We are hopeful that the cooperation between NCWU, NCFA and the NCDMF with Jean Beasley may help us all to solve some of the problems that our state's gillnet fishermen are experiencing.

Thank you.

Yours truly,

Andrew Berry

Andrew Berry
NCWU Board Member
252-722-4293
bowhunterab14@gmail.com

AB: mm
cc: NCDMF Director Braxton Davis, Chris Batsavage; Jacob Berg
NCDEQ Secretary van der Vaart
NCFA Director Jerry Schill, Chairman Brent Fulcher

APPENDIX E

Chris,

I am following up on the Protected Species Workgroup meetings. As was discussed at both meetings, there have been more than substantial measures directly, and indirectly, reducing mitigation of turtle interactions, but those measures need quantified.

I am requesting per the direction of the fishermen, that NCDFM quantify the total sea turtle mitigation reduction that has taken place from prior to the sea turtle lawsuit to present. It should also include impacts by other regulations such as fishery effort/harvest reductions. For the information to be useful, it may be necessary to separate reductions based on ITP closures from other reductions, so that we can determine how effective all of the other measures have been without closures. You may even include one total with, and one without closures.

It is also requested that a biological opinion be completed relating to those measures, once quantified, addressing the successful mitigation of sea turtles. It should include any potential measures that might be necessary, and only if necessary, to reduce interactions sufficiently, without relying on a set number to base closures on. This opinion should address both large and small mesh fisheries that have substantial interaction with turtles.

These items are being requested to work towards an ITP that sufficiently protects the species, while preventing unnecessary closures to the fishery.

I was just directed to make this request and wanted to get it to you as soon as possible. If in my haste I was unclear and need to clarify anything, please contact me anytime.

Take care,

David Bush
Fisheries Biologist,
NC Fisheries Association
(910)777-1605

APPENDIX F

November 23, 2016

Laura Runyan, Director
Foundation, Government and Faculty Grants Gettysburg College
300 North Washington Street
Gettysburg, PA 17325

Subj: Saltonstall-Kennedy Competitive Research Program Grant Proposal

Title: Development of sensory-based bycatch reduction technologies to reduce sea turtle bycatch in North Carolina coastal gillnet and pound net fisheries.

North Carolina Fisheries Association (NCFA) is excited at the opportunity to collaborate with Gettysburg College on the above referenced project. As a primary goal of our organization, we attempt to support all possible efforts to solidify the future of one of the oldest and proudest of professions, the commercial fishing industry. NCFA understands that to accomplish this, sustainable fishing efforts to harvest public trust resources is an absolute requirement.

The goal of this research, sea turtle bycatch reduction, is an important yet very complicated issue. It is one that NC fishermen understand, supporting substantial research efforts and enduring the subsequent changes to their fisheries to accomplish. The Turtle Excluder Device, or TED, is a prime example of successful collaboration between fishermen, academia, government scientists and management. The positive results of these efforts compound the issue within our internal water fisheries where the ever-increasing numbers of these animals are now encountered. This research is vital in finding ways to coexist with these endangered species, and it is hopeful that technology derived from this research will also be applicable to other industries and projects that affect them.

NCFA is experienced and knowledgeable in supporting research to develop bycatch reduction methods for finfish and sea turtles, and is eager to contribute to this project's successful implementation. We are currently in our second of three years of research concerning finfish bycatch reduction in the shrimp trawl industry. In collaboration with our state management agency, our preliminary results surpass all state and federal requirements. We support this proposed research methodology, and will also support the project to completion if awarded the requested grant.

We (NCFA) agree to act as subcontractor with Gettysburg College to complete the work plan as outlined in the proposal. It is understood that general concept of this work will involve coordination of the appropriate industry and state management personnel, facilitate workshops

as required, train and supervise independent observer efforts, directly contribute to this research utilizing accepted scientific methodology, and travel as required in performance of these duties.

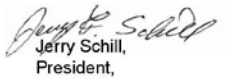
NCFA Fisheries Biologist David Bush will perform that work. He will coordinate with his Co-PI Wendy Piniak of Gettysburg College and report to his board of directors with work results and updates as outlined in the scope of work enclosed within the application.

It is our understanding that, in the event this proposal is awarded, a subcontract will be issued in the estimated amount of $12,505 for the period covering 9/1/2017 through 8/31/2019. While this amount and dates appear in the application, the actual amount and project dates awarded to NCFA will be determined based on Gettysburg College's executed award.

The appropriate programmatic and administrative personnel of each institution involved in this grant application are aware of the sponsor's guidelines and pertinent regulations and policies and are prepared to establish the necessary inter-institutional agreement(s) consistent with all such policies. NCFA hereby certifies that neither it nor its principles nor those performing services under this application are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency from participation in this transaction.

Thank you for the opportunity to contribute to this project and we look forward to working with Dr. Piniak and Gettysburg College.

Respectfully,



Jerry Schill,
President,
NC Fisheries Association
2807 Neuse Blvd Suite 11
New Bern, NC 28562
252-633-6232 Ext. 100

cc: NCDMF - Director Braxton Davis, Biologists: Chris Batsavage, Jacob Boyd
NCFA - Board and Director

APPENDIX G

NORTH CAROLINA MARINE FISHERIES COMMISSION
DEPARTMENT OF ENVIRONMENTAL QUALITY

Aug. 25, 2016

Mr. Bob Lorenz
P.O. Box 10512
Wilmington, NC 28404

Dear Bob:

I wanted to let you know at last week's Marine Fisheries Commission meeting I announced the Sea Turtle Advisory Committee was being disbanded. I wanted to contact you directly and let you know I had taken this action and the reason why.

The commission has a multitude of committees, many of which are statutorily mandated, such as the Northern and Southern regional advisory committees and the Finfish, Shellfish/Crustacean and Habitat and Water Quality advisory committees. These committees require a great deal of attention, both in staff time and in resources. In looking for efficiencies in our committee system, I felt our regional and pertinent standing advisory committees could serve as venues to review and provide the needed input on sea turtle issues. So, after much consideration, I decided to disband the Sea Turtle Advisory Committee, because it is not statutorily required. This was a difficult decision, especially since I served on the Sea Turtle Advisory Committee prior to being appointed to the Marine Fisheries Commission.

Later this fall we will be doing our annual solicitation for advisers. If any of you are interested in serving on other committees, please let me know and I will make every effort to place you on one of these committees as openings become available.

In closing, please know how much I appreciate your dedication and service to the state. I encourage you to please stay involved in fisheries issues and I hope to see you or hear from you in the future.

Sincerely,

Sammy Corbett, Chairman
N.C. Marine Fisheries Commission

cc: Chris Batsavage, Division of Marine Fisheries

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

STEPHEN W. MURPHEY
Director

March 7, 2018

MEMORANDUM

TO: Marine Fisheries Commission

FROM: Chris Batsavage, Protected Resources Section Chief/Special Assistant for Councils

SUBJECT: Mid-Atlantic Fishery Management Council Meeting Summary— Feb. 13-15, 201

The Mid-Atlantic Fishery Management Council met on Feb. 13-15 in Raleigh, NC. Highlights of the management actions taken by the council are discussed below:

2018 Recreational Black Sea Bass Management Measures
The council took action on 2018 recreational black sea bass regulations in federal waters after deferring action at their December meeting to wait until the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup and Black Sea Bass Board (board) approved new management approaches for state water measures in 2018. The state waters measures were approved by the board at its February meeting through the adoption of Addendum XXX to the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup and Black Sea Bass Fishery Management Plan. The council recommended an open season from May 15-Dec. 31 with a 12.5-inch minimum size limit and a 15-fish possession limit. The recommended measures eliminate the closure from late September to late October, which has been in place for several years. The combination of both state and federal water recreational management measures is meant to achieve, but not exceed, the 2018 recreational harvest limit of 3.66 million pounds.

Recreational Black Sea Bass Wave 1 Fishery and Letter of Authorization Framework
The council discussed the current and future implementation of a recreational black sea bass fishery during Wave 1 (January-February). The fishery was open from Feb. 1-28, 2018 with a 12.5-inch minimum size limit and a 15-fish possession limit, but only Virginia and North Carolina chose to participate. The council considered a Letter of Authorization program for the Wave 1 fishery in 2019, but ultimately decided to implement a Wave 1 fishery through the normal specifications process, if the council thinks it is prudent to open the fishery during Wave 1 next year. The council thought it was a better use of staff time to focus on other recreational black sea bass priorities in 2018 instead of developing a Letter of Authorization program in 2019. However, the development of a Letter of Authorization program will continue for potential implementation in 2020.

Summer Flounder, Scup, and Black Sea Bass Commercial Accountability Measures Framework
The council took final action on a framework to modify the commercial accountability measures for summer flounder, scup, and black sea bass. The current accountability measures require a pound-for-

pound payback if the annual catch limit is exceeded due to dead discards. This framework provides flexibility for commercial accountability measures based on the stock status of these species. A payback is not required if the current biomass is above the biomass target. Paybacks are required when the current biomass is either between the biomass target and threshold or if the current biomass is below the threshold; the degree of payback depends on the stock status (higher paybacks are required when the current biomass is lower).

North Atlantic Right Whales Status Review

The council received information on the latest 5-Year Review for North Atlantic Right Whales, which showed a low rate of reproduction, longer calving intervals, declining population abundance, continued mortality from vessel strikes and fishing gear interactions, changes in prey availability, and increased transboundary movement and risk. This substantial change in the right whale's status resulted in the re-initiation of the Endangered Species Act Section 7 Fishery Biological Opinion for five of the council's seven fishery management plans. The council also received information on a range of gear modifications and technology developments that could potentially reduce whale entanglements.

Upcoming Meeting

The next regularly scheduled meeting of the Mid-Atlantic Fishery Management Council will be April 10-12, 2018 at the Montauk Yacht Club in Montauk, NY.

February 2018 Council Meeting Report

February 13-15, 2018
Raleigh, NC

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

Black Sea Bass Recreational Management Measures

2018 Recreational Management Measures

The Council took final action on 2018 recreational black sea bass federal water measures. The Council initially considered these measures at the December 2017 meeting but delayed action to wait until the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup and Black Sea Bass Board (Board) approved new management approaches for state water measures in 2018. At their February meeting, the Board approved regionally allocating the coastwide Recreational Harvest Limit (RHL) based on a combination of exploitable biomass information from the latest stock assessment and historical harvest. Three regions were established (MA-NY; NJ; DE-NC), and each region will develop recreational management measures to achieve their respective regional allocations. The combination of both state and federal water recreational management measures is meant to achieve, but not exceed, the 2018 RHL of 3.66 million pounds. The Council recommended the removal of the current fall closure which would result in the following 2018 federal water measures: a season from May 15 – December 31, a 15-fish possession limit and 12.5-inch TL minimum size.

Wave 1 Fishery and LOA Framework

The Council discussed the direction and future implementation of a recreational black sea bass Wave 1 (January-February) fishery. For 2018, the Council had previously approved a February 1-28 fishery through the recreational specification-setting process. Only the states of Virginia and North Carolina ultimately participated in the 2018 fishery. For future years, the Council is considering opening the Wave 1 fishery under a Letter of Authorization (LOA) program which would allow any vessel owner to participate in the Wave 1 fishery provided they obtain and abide by all requirements contained within an LOA. After a lengthy discussion regarding recreational black sea bass management priorities the Council agreed to consider a Wave 1 fishery in 2019 through the recreational specification process, as occurred in 2018. Staff resources will prioritize other recreational management initiatives while the development of an LOA program will continue for potential implementation in 2020.

Summer Flounder, Scup, and Black Sea Bass Commercial Accountability Measures Framework

The Council took final action on a framework to modify the commercial accountability measures (AMs) for summer flounder, scup, and black sea bass. The AMs currently in place require a pound-for-pound payback if the ACL is exceeded due to higher-than-projected discards. This framework is intended to add flexibility in the commercial AMs for these species based on stock status. The framework considered alternatives to the existing AMs, with a focus on evaluating and accounting for commercial discards with options for both (1) evaluation of Annual Catch Limit (ACL) overages and (2) responses to non-landing overages to account for the latest information and current stock status.

After considering a range of options, the Council selected a preferred alternative which would not require a payback if current stock biomass is above the target biomass and would implement more aggressive paybacks when stock conditions warrant additional protection and management response. The Council also decided to

retain the existing ACL evaluation process which utilizes a single year of commercial catch (both landings and discards) to evaluate the commercial sector ACL instead of the alternative that would have used a 3-year average discard calculation. If this action is approved by NOAA Fisheries, it is anticipated that these changes will be implemented later in 2018.

Risk Policy Framework and Management Strategy Evaluation (MSE)

In December 2017 the Council discussed possible changes to its Acceptable Biological Catch (ABC) control rule and risk policy. The Council considered seven alternatives that were evaluated via management strategy evaluation (MSE) by Dr. John Wiedenmann (Rutgers University) and agreed to postpone final action until after the completion of additional MSE analyses which would more comprehensively account for social and economic impacts of alternative ABC control rules and risk tolerance levels.

During this meeting, the Council received presentations from Dr. Wiedenmann and Dr. Doug Lipton (NOAA Fisheries) on current model development and research that would integrate more comprehensive social and economic analyses into an MSE model. The Council provided feedback on the ongoing work and agreed to continue MSE model development with a focus on incorporating social and economic factors in a more comprehensive manner, with an initial focus on summer flounder. Based on some of the initial MSE results, the Council may also explore different risk policy approaches depending on species life history.

Council Habitat Update

Council staff provided an update on the development of a Northeast regional habitat assessment, including a summary of recommendations from the first meeting of the regional habitat steering committee. The Northeast regional habitat assessment is a collaborative effort to describe the quantity and quality of key marine fish habitats in the Northeast region. This project will involve compiling new and existing habitat information and identifying habitat information gaps. Three key areas have been identified to support the integrated habitat assessment: (1) an inshore assessment, (2) an offshore assessment, and (3) an evaluation of the "fish habitat footprint" for key fish species and species groups. Project teams will be formed to develop work plans for each component of the assessment, and work is expected to begin in July 2018.

Staff provided an update on offshore wind development in the region and discussed options for Council engagement in offshore wind issues. The Council voted to support the collaborative approach described in the staff memo, that will involve working with both the New England Council and the NOAA Fisheries "Wind Team" to examine the social, economic, and ecological impacts of wind energy facilities in the region, commenting on specific upcoming BOEM projects, and developing a web-based "living report" with analyses, maps, and products to enable more effective engagement on offshore wind issues. The Council also passed a motion to submit a letter to the Secretaries of Interior and Commerce requesting that: (1) no new wind energy areas be sited, nor project designs finalized, until the study (collaborative work) is complete and fisheries impacts can be properly evaluated, and (2) request that NOAA adopt a more active role in working with BOEM to effectively site future wind energy projects.

The Council also received an overview of fish habitat projects of interest occurring in the region that were highlighted by the NOAA Fisheries Habitat Conservation Division in a written update.

North Atlantic Right Whales

Dr. Michael Asaro, from NOAA Fisheries Greater Atlantic Regional Office, presented on the North Atlantic Right Whale Five-Year Review, the re-initiation of Endangered Species Act Section 7 Fishery Biological Opinion, and the formal consultation process. In October 2017 NOAA Fisheries released the results of a five-year review of North Atlantic right whales, conducted as a requirement of the Endangered Species Act. The review indicated that the population has been in decline since 2010 and that the status of North Atlantic right whale recovery has not improved since the last 5-Year Review was conducted in 2012. Specifically, the report found that North Atlantic right whales are experiencing a low rate of reproduction, longer calving intervals, declining population

abundance, continued mortality from vessel and fishing gear interactions, changes in prey availability, and increased transboundary movement and risk. Because of the significant change in the status of the species, NOAA Fisheries has reinitiated formal consultation on a number of federal fishery management plans (FMPs), including 5 of the Council's 7 FMPs. Dr. Asaro provided an overview of the formal consultation process and discussed a range of gear modifications and technology developments that could potentially reduce whale entanglements.

Climate Change and Fisheries

Bradford Dubik, a PhD candidate at Duke University, presented on his research examining long-term trends in average commercial fishing location for summer flounder since 1996. Vessel Trip Report data indicate that many states have seen a Northward shift in their permitted vessels' average fishing location, likely due in part to changes in the range and center of biomass of summer flounder.

Dr. Jim Morley presented the results of his research with colleagues at Rutgers University to predict geographic range shifts for hundreds of marine species in the Atlantic and Pacific. Using long-term ecological data, the researchers developed thermal habitat models which were coupled with various future greenhouse gas emission scenarios to produce a range of possible future outcomes for each species. Dr. Morley provided an overview of the projected shifts in distribution for Mid-Atlantic species. These projections offer fishery managers a tool for identifying species, fisheries, and management efforts that are particularly vulnerable to climate change impacts.

Other Business

Ricks E Savage Award

Former Council member Howard King was named this year's recipient of the Ricks E Savage award. The award is given each year to a person who has added value to the MAFMC process and management goals through significant scientific, legislative, enforcement, or management activities. In 2017, Mr. King completed a 9-year term on the Council. Mr. King retired in 2007 as Director of Fisheries Service for the Maryland Department of Natural Resources following a 41-year career in fisheries science and management. "Howard King has served this Council with tremendous leadership both on the Council and as our liaison at the New England Council," said Council Chairman Mike Luisi.

From Left: Council Executive Director Chris Moore, Vice-Chairman Warren Elliott, Howard King, and Chairman Mike Luisi

Next Meeting

April 10-12, 2018
Montauk Yacht Club
32 Star Island Road Montauk, NY 11954
Telephone: 631-668-3100

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

April 20, 2018

MEMORANDUM

TO: Marine Fisheries Commission

FROM: Chris Batsavage, Protected Resources Section Chief/Special Assistant for Councils

SUBJECT: Mid-Atlantic Fishery Management Council Meeting Summary— April 10-12, 2018

The Mid-Atlantic Fishery Management Council met on April 10-12 in Montauk, NY. Highlights of the management actions taken by the council are discussed below:

Atlantic Mackerel Benchmark Stock Assessment and Stock Rebuilding
The council received a report on the benchmark stock assessment for Atlantic mackerel, which determined that the stock is overfished and overfishing is occurring. Fishing mortality in 2016 was estimated at 0.47, which is above the overfishing threshold of 0.26 and the 2016 spawning stock biomass was estimated at 43,419 metric tons, which is below the overfished threshold of 98,447 metric tons. The Magnuson-Stevens Conservation Act requires rebuilding plans for overfished stocks, so the council reviewed potential options for rebuilding the stock. Current projections suggest that due to a strong incoming year class, Atlantic mackerel can rebuild as soon as 2021, though recruitment at the end of a time series is typically one of the most uncertain outputs of assessments. The council will take final action on a rebuilding plan later this year.

River Herring and Shad Bycatch in the Atlantic Mackerel Fishery
The 82-metric ton river herring and shad catch cap for the directed Atlantic mackerel fishery was surpassed in February, which prohibited vessels from possessing more than 20,000 pounds of Atlantic mackerel per trip for the remainder of the year. This is the first time the cap has been exceeded since the catch cap was implemented in 2015. The cap is designed to create an incentive for Atlantic mackerel fishermen to avoid river herring and shad because the entire mackerel quota cannot be landed if the catch cap is reached. However, the river herring and shad catch cap is not based on stock abundance for these species, so there is overall concern that the impact of river and herring catch from this fishery is unknown. The council will develop river herring and catch caps for the Atlantic mackerel fishery in 2019-2021 later this year.

Blueline Tilefish Specifications
The council recommended an annual recreational blueline tilefish quota of 71,912 pounds and an annual commercial quota of 27,140 pounds for the commercial fishery for 2019, 2020, and 2021. The recreational management measures remain the same: May 1 – Oct. 31 season with bag limits set at 7 fish for U.S. Coast Guard inspected vessels (head boats), 5 fish for uninspected vessels (charter boats), and 3 fish for private vessels. The commercial trip limit increased to 500 pounds

per trip until 70 percent of the quota is reached; the trip limit decreases to 300 pounds per trip for the remaining 30 percent of the quota. The quota and management measures account for the management unit north of the North Carolina/Virginia border. The South Atlantic Fishery Management Council manages blueline tilefish from North Carolina through the east coast of Florida.

Upcoming Meeting

The council will meet jointly with the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Management Board on April 30 in Arlington, VA. The next regularly scheduled meeting of the Mid-Atlantic Fishery Management Council will be June 5-7, 2018 at The Doubletree by Hilton in Philadelphia, PA.

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

STEPHEN W. MURPHEY
Director

April 6, 2018

MEMORANDUM

TO: Marine Fisheries Commission

FROM: Michelle Duval

SUBJECT: South Atlantic Fishery Management Council Meeting Summary (March 5-9, 2018)

The South Atlantic Fishery Management Council (council) met March 5-9, 2018 in Jekyll Island, Georgia. The attached meeting report compiled by council staff contains a summary of the major issues addressed and actions taken. The report includes links to the post-meeting news release, briefing materials, and the graphical and more detailed summary of the meeting via the March 2018 Council Meeting Round-up Story Map (https://arcg.is/0H55O1). Links to summary motions, public comments, the meeting report, as well as the above items for any council meeting can be found on the main Council Meetings webpage (http://safmc.net/safmc-meetings/council-meetings/). Items that may be of interest to the commission are highlighted below:

- Cobia: The council reviewed public comment on Coastal Migratory Pelagics Amendment 31, which considers either transferring management authority to the Atlantic States Marine Fisheries Commission, or continuing complementary management of cobia. The council's preferred alternative is to remove Atlantic cobia from the federal fishery management plan, and the clear majority of public comment supported this option. The council was scheduled to take final action on this amendment in March; however, most members voted to postpone final action until the June council meeting. This was done so that concerns from NOAA Fisheries General Counsel regarding timing of regulatory requests from the Atlantic States Marine Fisheries Commission to complement the state-specific plans could be addressed.

- For-Hire Electronic Reporting Amendment: The proposed rule for this amendment published on April 3, 2018; comments on both the proposed rule and amendment will be accepted through May 13, 2018. The amendment would require weekly electronic reporting by federally-permitted charter vessels, and would modify the existing electronic reporting timeframe for headboats. Please see the following NOAA Fishery Bulletin for more information: http://sero.nmfs.noaa.gov/fishery_bulletins/2018/024/index.html).

- For-Hire Permit Moratorium Amendment: The council reviewed a simplified scoping document and requested several modifications to the questions and issues presented. The revised document will be reviewed in June and considered for approval for August scoping hearings.

- Commercial and Recreational Vision Blueprint Amendments: The council approved both draft amendments for public comment, which will be solicited both online and in person via webinar listening stations. The amendments contain actions to address input received during development of the Snapper Grouper Vision Blueprint and pertain to geographic access, retention and minimizing discards. Actions contained in the commercial amendment address split seasons and/or trip limits for a number of foundational species in the fishery, while actions in the recreational amendment address reorganization of the existing bag limit aggregates to better reflect how anglers fish and the characteristics of a recreational trip. Listening stations will be held in North Carolina at 6pm on the following dates: May 8 (Wilmington Regional Office), May 9 (Central District Office), May 10 (Hatteras Community Building).

- Commercial Snapper Grouper Fishery Social and Economic Profile: The council received a presentation on the draft social and economic profile of the commercial snapper grouper fishery. This report was requested by the council as a result of input received during the development of the Snapper Grouper Vision Blueprint. Information contained in the report highlights the regional and seasonal differences in trip types, commercial permit porfolios, and community differences. The current draft of the report can be found here: http://safmc.net/download/Briefing%20Book%20March%202018/06%20-%20Snapper%20Grouper%20Committee/TAB06_A05b_SGProfileReport_021318_ForSAFMCMarch2018.pdf. The presentation on the report can be found here: http://safmc.net/download/Briefing%20Book%20March%202018/06%20-%20Snapper%20Grouper%20Committee/TAB06_A05a_SGProfilePresentation_March2018.pdf.

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

4055 Faber Place Drive, Suite 201, North Charleston SC 29405
Call: (843) 571-4366 | Toll-Free: (866) SAFMC-10 | Fax: (843) 769-4520 | Connect: www.safmc.net

Charlie Phillips, Chair | Captain Mark Brown, Vice Chair
Gregg T. Waugh, Executive Director

REVISED*
MARCH 5-9, 2017 COUNCIL MEETING REPORT
JEKYLL ISLAND, GEORGIA

The following summary highlights the major issues discussed and actions taken at the South Atlantic Fishery Management Council's March 2018 meeting in Jekyll Island, Georgia.

Briefing materials, presentations, and public comments are available on the Council's website at: http://safmc.net/safmc-meetings/council-meetings/

Final Committee Reports contain more details of what was accomplished for each committee and are located on the March 2018 briefing book page. In addition, the Summary of Motions on the Council's website includes all motions from the meeting. Read further details and see images and other links at the March 2018 Council Meeting Round-up Story Map: https://arcg.is/0H55O1. The Meeting News Release is available at: http://safmc.net/news-releases/03-09-18-safmc-news-release-council-delays-changes-to-atlantic-cobia-management-at-march-council-meeting/

*Revised to correct timing on visioning amendments to show final approval in September not December.

Issue:	Action Taken:	Schedule:
Red Snapper	Amendment 43 is currently under review by NMFS. The amendment was sent to NMFS on November 20, 2017.	If approved, the recreational season would begin on July 13, 2018 (2nd Friday) and the commercial season on July 9, 2018. Recreational bag = 1 with no size limit. Commercial trip limit = 75 pounds gutted weight with no size limit.
	The Council provided guidance on actions to include in Amendment 46: • Private Recreational Permit • Private Recreational Electronic Reporting	Review actions in Amendment 46 at the June 2018 meeting.
	The following items were split into a framework amendment to move faster: • Require use of Best Fishing Practices (e.g., descending devices, venting, hook type) • Adjust Powerhead Prohibitions in the South Atlantic (allow in the EEZ off SC or prohibit use of powerheads in entire EEZ)	Review actions at the June 2018 meeting. The Framework Amendment would move faster than Amendment 46 during 2018.

Issue:	Action Taken:	Schedule:
Recreational Visioning Amendment	Regulatory Amendment 26: Provided guidance and revised Actions & Alternatives. Alternatives include options for modifications to bag limits, seasons for deep-water species and shallow-water groupers, and size limits for deep-water species and triggerfish that would help streamline the regulations for anglers, law enforcement, and managers. Approved for public hearings.	Public hearings in Spring. Review public comments, modify document, and approve all actions in June 2018. Review and approve for formal review in September 2018.
Commercial Visioning Amendment	Regulatory Amendment 27: Provided guidance and revised Actions & Alternatives for trip limits, size limits, split seasons, seasons, and other measures. Approved for public hearings.	Public hearings in Spring. Review public comments, modify document, and approve all actions in June 2018. Review and approve for formal review in September 2018.
For-Hire Moratorium Amendment	The Council provided guidance on what to include in the scoping document.	Review draft scoping document and consider approving for scoping at the June 2018 meeting.
Golden Tilefish	The Council provided guidance on alternatives to include in the amendment. The Council requested the SSC to revisit the ABC recommendation indicating the Council is willing to accept the risk of overfishing associated with an ABC of 362,000 pounds whole weight for 2019 and 2020. The Council's rationale is included in the Snapper Grouper Committee Report.	Conduct a public hearing at the June 2018 meeting. The Council will then review and approve the amendment for formal review with the intent to have regulations in place prior to January 1, 2019 when the season opens.
Red Grouper	The Council directed staff to begin an amendment to revise the rebuilding plan for red grouper.	Review the draft amendment in June 2018.
Yellowtail Snapper	The Council directed staff to work on an amendment to revise the accountability measures to remove in-season closures for either sector until the total ACL is met.	Review the draft amendment and provide guidance to staff in June 2018. The intent is to have changes in place for the 2019 season.
Modifications to Sea Turtle Release Gear	The Council directed staff to continue working on the framework amendment and conduct scoping.	Review scoping comments, provide guidance, and approve actions/alternatives in June 2018.

Issue:	Action Taken:	Schedule:
Mackerel Cobia	State implementation plans, under the approved ASMFC Cobia Plan, are scheduled to become effective April 1, 2018. The Council revised the Actions and Alternatives in CMP Amendment 31 (Atlantic Cobia) and retained Alternative 2 as preferred: Remove Atlantic cobia from the CMP Fishery Management Plan. The Council directed staff to make the requested revisions, address the NOAA GC concerns, and bring the document back to the Council in June 2018 for final action. The Council selected Preferred Alternative 3 in the framework amendment to change the Atlantic king mackerel commercial trip limit.	State regulations effective April 1, 2018. The Council will help get the word out to the public. The Council will review the revised amendment and take final action at the June 2018 meeting. Council staff will work on this framework and bring it back at a future meeting.
Spiny Lobster	The Council reviewed scoping comments and provided guidance on Actions & Alternatives to be analyzed in Spiny Lobster Amendment 13 (Modifications to Gear Requirements & Cooperative Management Procedure).	This is a joint Amendment with the Gulf Council. Review the amendment and approve for public hearings at the June 2018 meeting. Public hearings are expected in July with final approval by the Gulf in August and the South Atlantic in September.
Habitat and Ecosystem Based Management	The Council approved the Fishery Ecosystem Plan II, the FEP II Dashboard, the Implementation Plan, and the 2-Year Roadmap.	Prepare materials for posting to the Council's website and begin work on the items identified.
Citizen Science Program	The Council received recommendations from the five Action Teams busy developing the program.	The Council agreed that the recommendations were on track and that they would now be put into motion by the Action Teams for the scamp pilot project during 2018.
For-Hire Recreational Reporting	The Council received an update on the amendment: the Notice of Availability of the Amendment and the Proposed Rule are under review in headquarters and are expected to publish soon. Council staff briefed the Council on the For-Hire Outreach efforts.	The proposed rule and notice of availability of the amendment are expected to publish in the federal register soon. The goal is to have regulations effective this summer. For-Hire reporting training and outreach will continue in 2018.

Issue:	Action Taken:	Schedule:
SEDAR	Dr. Cisco Werner, acting SEFSC Director, outlined approaches to get more assessments sooner. This includes a Research/Operational Assessment framework and providing interim analyses of assessed stocks. The Council provided the following guidance for the SEDAR Steering Committee: 1. Requested red grouper as the first MRIP revision assessment. 2. Recommend the next king mackerel assessment be a standard assessment. 3. Requested the SEFSC provide guidance on stocks to consider for a 1st benchmark assessment in 2023 and 2024, considering the prioritization tool and the need for a wreckfish assessment.	The Council supported the efforts to get more stock assessments. The South Atlantic Council representatives will raise these issues at the next SEDAR Steering Committee meeting.
ABC Control Rule	Directed staff to work on an amendment to the Snapper Grouper, Dolphin Wahoo, Golden Crab, Sargassum, and Coral FMPs to make changes to the ABC control rule. Directed staff to work on an amendment to change the in-season closure for the recreational sector.	Review a revised options paper at the June 2018 meeting. Review an options paper at the June 2018 meeting.

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

STEPHEN W. MURPHEY
Director

May 16, 2018

MEMORANDUM

TO: Marine Fisheries Commission

FROM: Randy Gregory, Fishery Management Section

SUBJECT: Highly Migratory Species Update

The Highly Migratory Species Advisory Panel met March 7-9, 2018 in Silver Spring, Maryland. The advisory panel discussed the results of the 2017 International Commission for the Conservation of Atlantic Tunas annual meeting, shortfin mako shark emergency interim final rule, draft Amendment 11 scoping review for shortfin mako shark, Amendment 7 bluefin tuna management three-year review, January/December General Category bluefin tuna fishery, and modifications to shark commercial fishery closure criteria.

Bluefin Tuna

The National Marine Fisheries Service closed the January sub-quota (January through March) for the Atlantic bluefin tuna General category fishery for large medium and giant bluefin tuna on March 2, 2018. Prior to the closing, a transfer of 10 metric ton from the 24.8 metric ton Reserve category quota to the General category quota for the January sub-quota resulted in an adjusted sub-quota of 49 metric tons. Fish were landed mainly in Dare County from mid-February until the closing and landings totaled 59.2 metric tons (121 percent of the adjusted January sub-quota). An International Commission for the Conservation of Atlantic Tunas recommendation adopted at the annual meeting in November 2017 for western Atlantic bluefin tuna management will result in an increase to the baseline U.S. bluefin tuna quota from 1,058.79 metric tons to 1,247.86 metric tons. National Marine Fisheries Service also anticipates that some under harvest of the 2017 adjusted U.S. bluefin tuna quota will be carried forward to 2018 and placed in the Reserve category in mid-2018 (when complete 2017 catch information is available and finalized). The General category fishery will reopen on June 1, 2018, with a quota of 233.3 metric tons available for the June through August sub-quota.

The National Marine Fisheries Service closed the Atlantic bluefin tuna (BFT) Angling (recreational) category fishery for large medium and giant "trophy" BFT (measuring 73" or greater) in the southern area effective on March 17, 2018 and the fishery will remain closed through December 31, 2018. The southern area is the area south of 39°18'N (off Great Egg Inlet, NJ), outside the Gulf of Mexico. Just before the fishery closed, retired Army General Scott Chambers of Townsend, Delaware, caught a new state record 877-pound bluefin tuna off Oregon Inlet. It measured 113 inches fork length (curved lower jaw fork length, tip of the nose to the fork

in the tail) and had a girth of 79 inches. Chambers' fish broke the former state record bluefin tuna by 72 pounds. That fish was caught off Oregon Inlet, as well, in 2011.

Sharks

On March 1, 2018, the National Marine Fisheries Service announced an emergency rule to implement management measures to address overfishing of North Atlantic shortfin mako sharks. The measures are based on the International Commission for the Conservation of Atlantic Tuna's Standing Committee for Research and Statistics 2017 benchmark stock assessment for North Atlantic shortfin mako sharks, which found the stock to be overfished* with overfishing* occurring. Commercial measures require the live release of shortfin mako sharks in the commercial pelagic longline fishery (retention is only allowed if a shortfin mako shark is dead at haul back) and no landings of shortfin mako sharks by commercial fishermen using other commercial gear types. Recreational measures require a minimum size limit of 83 inches fork length for shortfin mako sharks.

***Definitions**

Overfished: 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.

Overfishing: Fishing that causes a level of mortality that prevents a fishery from producing a sustainable harvest.

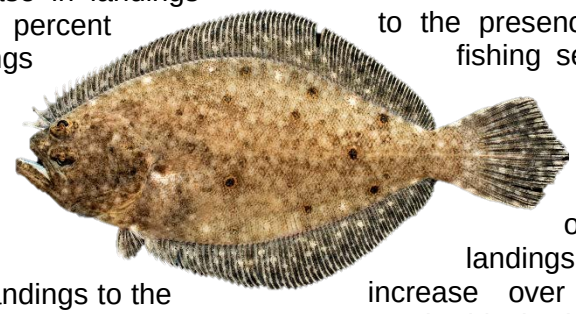
NORTH CAROLINA DIVISION OF MARINE FISHERIES

Fish Dealer Report

License & Statistics Section, PO Box 769, Morehead City, NC 28557 May 2018

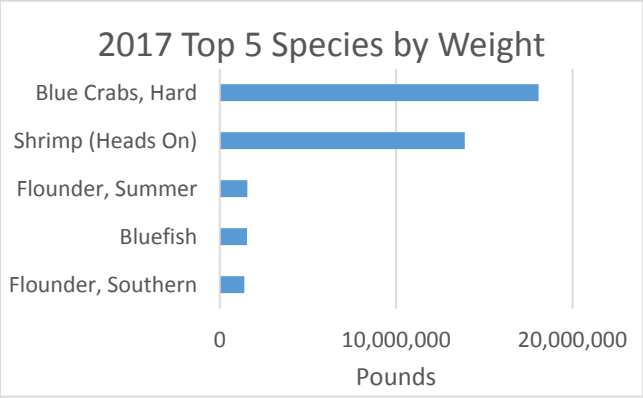
2017 COMMERCIAL LANDINGS REVIEW

Commercial fishermen landed 54.3 million pounds of finfish and shellfish in 2017, with an estimated dockside value of $96.5 million dollars, based on data collected through the North Carolina Division of Marine Fisheries Trip Ticket Program. This represents a 9.3 percent decrease in landings compared to 2016, and a 2.6 percent increase in value. The 2017 landings were lower than the five-year average of 58 million pounds, and higher than the five-year average value of $92 million dollars.



Dealers in 33 counties reported landings to the Trip Ticket Program in 2017. Dare county had the highest landings (13.8 million pounds), followed by Carteret (8.4 million pounds), Hyde (6.1 million pounds) Pamlico (3.9 million pounds), and Tyrrell (3.4 million pounds). These five counties accounted for 68.6 percent of the statewide landings.

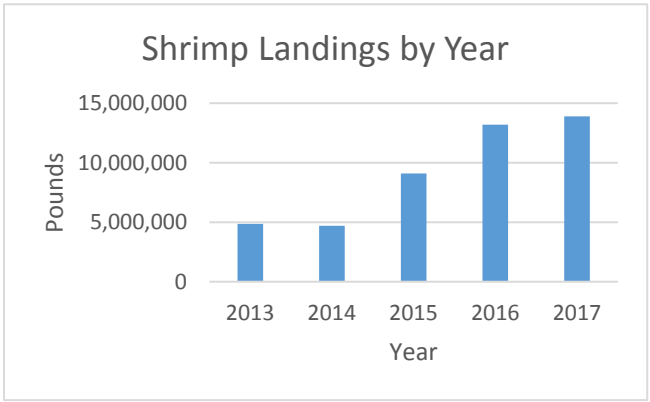
The top five species landed were hard blue crabs (18.1 million pounds), followed by shrimp (13.9 million pounds), summer flounder (1.6 million pounds), bluefish (1.5 million pounds), and southern flounder (1.4 million pounds).



The top five species with landings increases from 2016 to 2017 were red drum (142 percent), bluefin tuna (107 percent), black drum (103 percent), Atlantic menhaden (89 percent), and skates (78 percent).

The increase in bluefin tuna was, in part, due to the presence of the fish during the fishing season, favorable weather, and the availability of quota. Although menhaden experienced an 89 percent increase over the previous year's landings, it was only a 10 percent increase over the five-year average. Increases in black drum and red drum were attributed to strong year classes in previous years.

Shrimp landings were also notable in 2017. Although the landings were only up 5 percent from 2016, they remained at an all-time high and are 34 percent higher than the five-year average.



The top five species landed by value were shrimp ($29.6 million), hard blue crabs ($17.8 million), summer flounder ($6.3 million), southern flounder ($5.7 million), and oysters ($5.6 million).

Other landings increases included spot (76 percent), yellowfin tuna (61 percent), soft blue crabs (50 percent), and king mackerel (50 percent).

Blue peeler crab landings, interestingly, experienced a 74 percent increase from 2016, with an increase in value of 25 percent, even with a 30 percent drop in peeler pot trips over the same period.

Noteworthy decreases in landings included spiny dogfish (83 percent), cobia (57 percent), Atlantic croaker (52 percent), American eel (49 percent), and harvestfish (49 percent).

The number of trips by major gear experienced some notable changes from 2016 to 2017. These changes included increases in beach seine (182 percent), drift gill nets (111 percent), trotline (98 percent) and decreases in crab dredges (83 percent), skimmer trawl (47 percent), oyster dredge (43 percent), and peeler pots (30 percent).

BLUE CATFISH LANDINGS

Catfish have seen an overall increase in landings in the past few years, based on data collected through the North Carolina Trip Ticket Program. The 2015 (917,965 pounds), and 2016 (992,439 pounds) landings were nearly double those of previous years. Landings in 2017 (1,165,136 pounds), were the highest in the state since 1994 (1,276,359). The estimated five-year average dockside value since 2013 is $230,391.

Major gears used to land catfish were gill nets, pound nets and fyke nets. The areas with the highest landings were in the western Albemarle Sound and Chowan River.

At fish houses across coastal North Carolina, it is important to identify catfish to the exact species whenever possible. While the Trip Ticket Program has the ability to record white, channel, blue, and bullhead catfishes, most landings are reported as unclassified catfish. Fish house sampling from division Fisheries Management staff indicates that most of these unclassified catfish are blue catfish. Blue catfish are native to the Mississippi River Basin, and considered an invasive species in river basins that drain into the Atlantic Ocean.

Blue catfish were introduced into North Carolina and Virginia coastal rivers in the 1960s and 1970s. Although they have been in North Carolina coastal waters for many years, in recent years the population has increased significantly, and blue catfish are now the dominant catfish in the Albemarle Sound and its tributaries, especially the Chowan and Roanoke rivers.

Blue catfish have a long-life span, can exceed 120 pounds, and have an expansive diet that includes many native species that play an important role in North Carolina's ecosystem and economy, such as blue crab, striped bass, Atlantic menhaden, river herring, and American shad. Once an invasive species like blue catfish has established a population it can be impossible to eradicate. Instead, managers must focus on keeping their overall numbers as low as possible and containing their expansion to minimize adverse impacts on native species. For this reason, the division encourages dealers to report landings to the area as close as possible, and not just the general "Albemarle Sound".

The trip ticket codes for blue catfish are as follows:

182 Catfish, Blue - whole	183 Catfish, Blue - dressed
1820 Mixed	1830 Mixed
1822 Small	1832 Small
1823 Medium	1833 Medium
1824 Large	1834 Large
1825 Jumbo	1835 Jumbo

VESSEL UPDATE

The North Carolina Trip Ticket Program is working with Bluefin Data, the developer of the current trip ticket software, on a web-based application that will allow trip ticket reporting via your web browser.

Entering tickets through your web browser will allow dealers to use smart phones, computers, or tablets. With the help of North Carolina fish dealers, the Trip Ticket Program has undergone preliminary user testing, and forwarded participants' comments to the developer. The program continues to work with the developer to ensure state requirements are met and the application functions in a user-friendly manner.

DISPOSITION CODE UPDATES

The North Carolina Marine Fisheries Commission has instructed the North Carolina Division of Marine Fisheries to add a place to record catch disposition on commercial trip tickets. The intent is to capture commercial harvest that is not being sold to the dealer. This could include situations where a fisherman has kept some of the landed species for personal consumption, or if part of the harvest was kept for bait. The Trip Ticket Program has begun phasing in these new tickets. Examples of them, and how to fill them out, are attached to this report. The electronic reporting software can also record this data, and the division strongly encourages all dealers to use it.

NEW DIRECTOR

Steve Murphey assumed the role of director of the Division of Marine Fisheries in January. Murphey began his career in the division in 1987 as a biologist. He worked for the Shellfish Sanitation and Recreational Water Quality Section of the Division of Environmental Health from 1999 to 2010 when the section moved under the Division of Marine Fisheries. He became section chief for Habitat and Enhancement in the summer of 2015, where he was responsible for coordinating large-scale marine and estuarine habitat restoration and other programs including shellfish leasing and the Coastal Habitat Protection Plan.

LICENSE SALES

Below are sales as of April 11, by license type for the 2018 (July 1, 2017-June 30, 2018) license year. The values below include active licenses only. Totals do not include transfers, replacements, or voids.

Standard Commercial Fishing License	4,968
Retired Standard Commercial Fishing License	1,328
Commercial Fishing Vessel Registration	7,270
Land or Sell License	109
NC Resident Shellfish License Without SCFL	988
Fish Dealer License	694
Ocean Pier License	20
Recreational Fishing Tournament License	20
Recreational Commercial Gear License	1,733
Total Licenses for All License Types	17,130

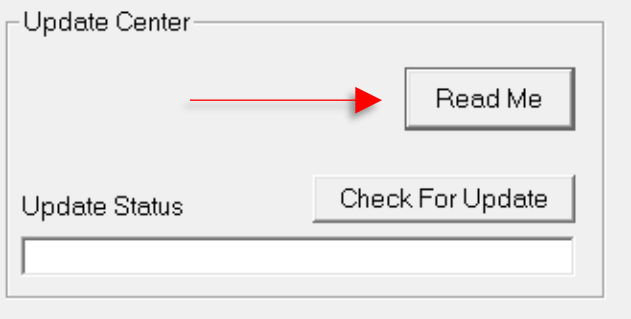
TRIP TICKET CODE ADDITIONS

The Trip Ticket Program recently added new species codes. These codes were developed in response to dealer requests and new fishing practices. They are: Caribbean Red Snapper (6420), Frigate Mackerel (7260), Bullet Mackerel (7280), and Chub Mackerel (4110). New gear codes were also implemented to reflect changes in gear use and to help align with federal logbook reporting. These codes include: buoy gear (614), trolling with bandit gear (661), bottom fishing with bandit gear (613), and bottom fishing with rod and electromate reel (616). Dealers should update their software to the latest version (7.0.2) to begin using these codes.

TECH TIPS

The following are tips designed to help electronic dealers enter data on their trip tickets faster and with less hassle.

Did you know that the electronic trip ticket software gets regular updates? The software is updated to fix bugs, add new and updated species codes, and to update the user manual. You can find a list of changes by clicking on the "Read Me" button on the bottom right of the main screen, under the "Update Center" section.



From this screen, you can also find the user manual, by clicking on the menu option on the top right labeled "User's Manual". The latest update is version 7.0.2, which incorporated the following changes:

```
7.0.2

1. Added Mackerel.  Frigate, Bullet, and Chub.
```

If you have any questions regarding use of the Trip Ticket software, please contact Grace Kemp at Grace.Kemp@ncdenr.gov or call (252) 808-8101.

PORT AGENT CONTACTS

The Trip Ticket Program's commercial port agents act as liaisons between the division and the fishing public. If you have any questions regarding rules, procedures, or requirements, please contact your nearest agent. If they are unable to answer your questions directly, they will put you in contact with someone who can.

Wilmington Tyler McGuire (910) 796-7216 Tyler.mcguire@ncdenr.gov	**Morehead City** Chuck Davis (252) 808-8029 Chuck.davis@ncdenr.gov
Washington Jon Anglemyer (252) 948-3881 Jon.anglemyer@ncdenr.gov	**Manteo** Marty Brill (252) 473-2158 Martin.brill@ncdenr.gov
Elizabeth City Chris Kelly (252) 264-3911 Chris.kelly@ncdenr.gov	

STRIPED BASS DEALER TAGS

The division is reminding fish dealers that they must pick up striped bass tags from a Division of Marine Fisheries office. Tags will no longer be delivered to dealers. Fish dealers with a Striped Bass Dealer Permit for quota monitoring must contact Kim Hewitt at the Division of Marine Fisheries' Elizabeth City office (252-264-3911 or 1-800-338-7805) to obtain or return harvest tags. Tags will be signed for and given out in numerical sequences for tracking purposes. Tags are marked with the harvest season year, harvest area, minimum size limit for that area, and a unique tag number. The Atlantic States Marine Fisheries Commission requires each state to keep detailed records of how many striped bass tags each dealer receives, uses, and returns to the division annually. It is critical that each dealer save all unused, broken, or defective tags and return them to the division at the end of each calendar year or harvest season. Dealers in the Albemarle Sound Management Area can pick up their tags at the Elizabeth City or Manteo offices while dealers in the Central Southern Management Area can pick up their tags from the Washington office.

1 -

NORTH CAROLINA TRIP TICKET (FINFISH)

FISHERMAN NAME:	John Smith	FISH DEALER #	123456
FISHERMAN LICENSE #	1158995	CHECK BOX IF **NO** VESSEL USED → →	
TRIP START DATE:	02 | 23 | 2018	CFVR #	P 698516
UNLOADING DATE:	02 | 23 | 2018	NO. OF CREW:	2

TRANSACTION #

EXAMPLE

CIRCLE ALL GEARS USED

020	Beach Seine	**345**	Fish Pot	**610**	Rod-n-Reel
030	Haul Seine	**426**	Sm Msh Set Gill Net (<5 in.)	**660**	Trolling
025	Swipe Net	**427**	Lg Msh Set Gill Net (>=5 in.)	**735**	Cast Net
275	Pound Net	**470**	Drift Gill Net	**760**	Gigs
340	Eel Pot	**475**	Runaround Net		

CIRCLE ONE WATERBODY WHERE MOST OF CATCH WAS MADE

01	Albemarle Sound	**10**	Currituck Sound	**33**	Pamlico River
02	Alligator River	**11**	Lockwood Folly	**34**	Pamlico Sound
03	Bay River	**12**	Masonboro Sd.	**45**	Roanoke Sound
05	Bogue Sound	**29**	Neuse River	**38**	Shallotte River
06	Cape Fea			**39**	Stump Sound
08	Core Sou			**41**	Topsail Sound
09	Croatan S			**42**	White Oak River
53	Inland Wa			aterway - Onslow	
20	Ocean 0- (North of			3 miles Cape Hatteras)	
22	Ocean greater than 3 miles (North of Cape Hatteras)	**23**	Ocean greater than 3 miles (South of Cape Hatteras)		

If the catch has a disposition other than Food or Bait, fill out the 'DSP' column with the appropriate disposition code.

KIND	CODE	POUNDS	DSP	UNIT PRICE	TOTAL PRICE
Black Drum	2100	52	2		
Bluefish Small	1352				
Med.	1353				
Lg.	1354				
Mixed	1350				
Butterfish	1550				
Catfish Mixed	1700				
Croaker Small	1952				
Med	1953				
Lg.					
Dogfish-Smooth C					
Dogfish-Smooth F					
Dogfish-Spiny Wh					
Eels, American	2200				
Flounder Mixed	2300				
Med.	2303				
Lg.	2304				
Jumbo	2305				
TripleTail / Strawberry Bass	7250				

Use a blank line to write in any catch with a disposition not available from the list.

KIND	CODE	POUNDS	DSP	UNIT PRICE	TOTAL PRICE
Gars/Skippers	6100				
Gra Trout Pan	5352				
Med.	5353				
Lg.	5354				
Hogfish/Pigfish	4500				
Jumping Mullet	4350				
Mullet Red Roe	4357				
White Roe	4358				
Little Tunny Whole (False Alb.)	7300				
Pompano Small	4652				
Lg.	4654				
Puffers Whole (Sea Chickens)	6850				
Puppy/ Red Drum/ Redfish	2150				
Sea Mullet / Kingfish / Whiting	4000	28			
Roe Shad (Am. Shad)	5356				
Buck Shad (Am. Shad)	5359				
Jacks (Hickory Shad)	3800				
Sheepshead	6000				
Spadefish	6650				
Spanish Mackerel Small	6702				
Med.	6703				
Lg.	6704				
Speckled Trout Pan	5302				
S					
S					
S					
White Perch	7650				
Menhaden Bait (lb)	4200				
Mixed Bait	7900				
Ladyfish	7000	10	1		
Ladyfish		22	9		

Leaving 'DSP' blank will default it to 'food'.

If the catch is split between two separate dispositions, please write in the second portion in the blank lines provided at the bottom.

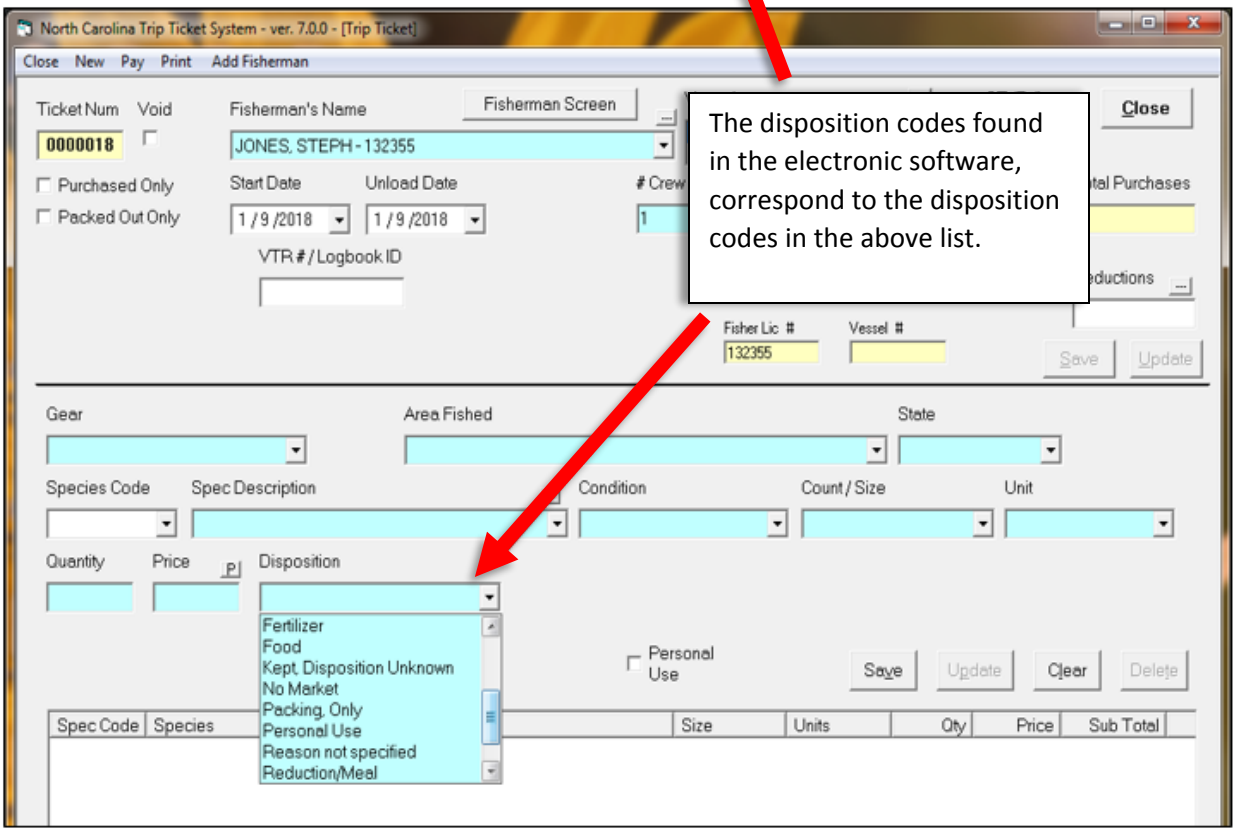
Flounder - 10lbs - Kept for grow out

Dealer/Fisherman Use

Table 1. North Carolina Trip Ticket Program disposition codes.

Disposition Code	Description
0	No Disposition
1	Food
2	Personal Use
5	Aquaculture
6	Canned Pet Food
7	Animal Food
8	Bait
9	Reduction/Meal
10	Aquarium
11	Kept, Disposition Unknown
12	Biomedical Use
13	Packing, Only
14	Fertilizer
15	Research
100	Reason not specified
101	No Market
602	Seized by Law Enforcement

Disposition Codes for use on paper trip tickets.



The disposition codes found in the electronic software, correspond to the disposition codes in the above list.

NORTH CAROLINA DIVISION OF MARINE FISHERIES

Annual Fisheries Bulletin

2017 Commercial and Recreational Statistics

License and Statistics Section, PO Box 769, Morehead City, NC 28557 May 2018

Included in this bulletin are the finalized 2017 landings and harvest information from the commercial and recreational fisheries programs, along with the 2013 to 2016 landings for comparison. The bulletin also contains a summary of commercial fishing trips by major gear.

The North Carolina Trip Ticket Program collects commercial fishery landings and effort statistics. This program collects trip level fish dealer reports for all finfish and shellfish landed in the state. Recreational fishery harvest and effort statistics are derived from the Marine Recreational Information Program (MRIP) that conducts recreational angler interviews at public access points and telephone/mail surveys.

Total Pounds Harvested in 2017

Commercial	Recreational
54,364,185 pounds	11,024,294 pounds

Top Five Species Caught in Each Fishery

Commercial	
Species	**Pounds**
Blue Crabs, Hard	18,069,170
Shrimp (Heads On)	13,892,730
Flounder, Summer	1,563,045
Bluefish	1,544,014
Flounder, Southern	1,394,552

Recreational	
Species	**Pounds**
Tuna, Yellowfin	2,980,821
Dolphin	1,486,909
Bluefish	690,018
Seatrout, Spotted	580,849
Wahoo	497,341

Issued by the North Carolina Division of Marine Fisheries, Department of Environmental Quality

For additional information regarding Commercial and Recreational Statistics, please contact:

Alan Bianchi, Commercial Statistics
(252) 726-7021 or (800) 682-2632
alan.bianchi@ncdenr.gov

Chris Wilson, Recreational Statistics
(252) 948-3876 or (800) 338-7804
chris.wilson@ncdenr.gov

2017 North Carolina Commercial Landings 2017

Issued: May 2018

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Amberjacks[1]	127,574	$162,196
Anglerfish (Monkfish Including Monklivers)	66,225	$60,045
Bluefish	1,544,014	$999,629
Bonito, Atlantic	11,342	$20,256
Butterfish	76,097	$38,791
Carp	18,346	$2,101
Catfishes	1,165,136	$399,413
Cobia	20,842	$50,003
Croaker,Atlantic	1,007,963	$1,133,533
Cutlassfish, Atlantic	49,975	$86,733
Dogfish, Smooth	154,440	$72,966
Dogfish, Spiny	393,085	$39,346
Dolphinfish	197,999	$719,321
Drum, Black	182,876	$185,198
Drum, Red	186,463	$496,725
Eel, American	20,211	$11,839
Flounder, Southern	1,394,552	$5,655,489
Flounder, Summer	1,563,045	$6,315,997
Flounders, Other	*	*
Garfish	22,719	$3,924
Grouper, Gag	97,702	$456,023
Grouper, Red	18,250	$78,146
Grouper, Scamp	34,106	$164,006
Grouper, Snowy	65,044	$280,161
Groupers, Other	8,373	$35,093
Grunts	42,192	$45,428
Hakes	2,946	$1,987
Harvestfish (Starbutters)	62,528	$96,177
Herring, River (Alewife and Blueback)	0	$0
Hogfish (Hog Snapper)	15,776	$70,760
Jacks (Crevalle, Bluerunner, Rainbowrunner)	5,293	$3,715
Mackerel, Atlantic (Boston)	992	$470
Mackerel, King	629,374	$1,266,308
Mackerel, Spanish	815,972	$1,384,479
Menhaden,Atlantic	752,277	$157,180
Mullet, Sea (Kingfishes)	942,291	$1,095,851
Mullet, Striped	1,362,073	$1,033,450
Perch, White	171,756	$125,448
Perch, Yellow	16,131	$21,621
Pigfish	9,203	$4,530
Pinfish	520	$145
Pompano	21,545	$49,419
Porgies	64,964	$108,395
Pufferfish	4,481	$1,782
Scup	188,852	$107,355
Sea Basses	631,879	$1,860,934
Seatrout, Spotted	299,874	$779,758

2017 North Carolina Commercial Landings

(continued)

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Shad, American	92,525	$111,819
Shad, Gizzard	165,553	$8,278
Shad, Hickory	73,675	$20,201
Sharks[2]	862,171	$424,465
Sheepshead	128,275	$154,923
Skates	45,467	$9,007
Skippers	10,505	$3,483
Snapper, Red[3]	9,542	$47,810
Snapper, Vermilion (Beeliner)	263,877	$924,225
Snappers, Other	7,422	$26,840
Spadefish	18,833	$13,414
Spot	413,995	$521,975
Striped Bass	99,009	$288,888
Swordfish	458,361	$1,138,260
Tilefish, Blueline	46,431	$154,761
Tilefishes, Other	42,258	$181,179
Triggerfishes	148,166	$403,689
Tuna, Bigeye	380,039	$1,350,709
Tuna, Bluefin	323,251	$1,212,083
Tuna, Yellowfin	1,079,709	$2,325,468
Tunas, Other	72,220	$70,813
Tunny, Little (False Albacore)	216,424	$112,405
Unclassified Fish for Food	94,659	$130,869
Unclassified Fish for Industrial/Bait	95,161	$41,114
Wahoo	28,929	$110,448
Weakfish (Grey Trout)	85,440	$129,131
TOTAL FINFISH	19,729,195	$35,598,383
SHELLFISH		
Blue Crabs, Hard	18,069,170	$17,776,188
Blue Crabs, Peeler	776,234	$1,649,626
Blue Crabs, Soft	427,753	$2,792,000
Clams, Hard (Meats)	273,280 *(14,417,980 Numbers)*	$2,174,491
Oysters (Meats)	836,791 *(158,184 Bushels)*	$5,571,391
Octopus	330	$692
Scallop, Sea (Meats)	104,181	$913,116
Shrimp (Heads On)[4]	13,892,730	$29,597,826
Squid	41,071	$35,418
Stone Crabs	7,181	$20,762
Unclassified Shellfish	150,329	$217,696
Whelks/Conchs (Meats)	55,939	$161,199
TOTAL SHELLFISH	34,634,989	$60,910,405
GRAND TOTAL	54,364,185	$96,508,788

[1] Includes species from the genus *Seriola* (amberjacks, almaco jacks, and banded rudderfish)
[2] Includes shark fins and the following sharks: blacknose, blacktip, bonnethead, bull, finetooth, hammerhead, shortfin mako, spinner, thresher, tiger, and Atlantic sharpnose
[3] The red snapper fishery closed on January 4, 2010 with restricted openings occurring in some years.
[4] Includes brown, pink, and white shrimp
* Units and value not shown to avoid disclosure of private enterprise

2016 North Carolina Commercial Landings 2016

Updated: April 2018

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Amberjacks[1]	132,496	$147,331
Anglerfish (Monkfish Including Monklivers)	50,883	$47,173
Bluefish	1,148,126	$599,918
Bonito, Atlantic	14,838	$26,780
Butterfish	63,542	$31,387
Carp	27,688	$3,453
Catfishes	992,439	$238,725
Cobia	48,244	$107,952
Croaker, Atlantic	2,092,135	$2,216,106
Cutlassfish, Atlantic	56,723	$103,316
Dogfish, Smooth	178,694	$73,243
Dogfish, Spiny	2,271,201	$235,069
Dolphinfish	356,053	$1,271,271
Drum, Black	90,012	$82,200
Drum, Red	77,017	$202,785
Eel, American	39,911	$88,195
Flounder, Southern	897,765	$3,610,533
Flounder, Summer	2,071,089	$8,238,703
Flounders, Other	1,209	$3,478
Garfish	16,424	$4,982
Grouper, Gag	114,902	$511,245
Grouper, Red	21,011	$84,600
Grouper, Scamp	41,056	$190,160
Grouper, Snowy	70,403	$282,182
Groupers, Other	10,357	$41,102
Grunts	39,843	$42,17
Hakes	42,967	$44,411
Harvestfish (Starbutters)	123,266	$211,512
Herring, River (Alewife and Blueback)	0	$0
Hogfish (Hog Snapper)	9,195	$39,452
Jacks (Crevalle, Bluerunner, Rainbowrunner)	9,455	$5,924
Mackerel, Atlantic (Boston)	663	$305
Mackerel, King	420,088	$868,542
Mackerel, Spanish	601,615	$1,068,237
Menhaden, Atlantic	397,725	$75,167
Mullet, Sea (Kingfishes)	831,974	$1,004,314
Mullet, Striped	965,198	$669,760
Perch, White	242,106	$166,889
Perch, Yellow	29,404	$41,609
Pigfish	15,331	$7,556
Pinfish	404	$138
Pompano	18,601	$44,092
Porgies	45,918	$80,872
Pufferfish	4,567	$2,109
Scup	111,908	$72,871
Sea Basses	422,720	$1,342,582
Seatrout, Spotted	253,991	$661,107

2016 North Carolina Commercial Landings

(continued)

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Shad, American	63,286	$89,335
Shad, Gizzard	173,155	$30,302
Shad, Hickory	96,543	$29,418
Sharks[2]	951,814	$403,736
Sheepshead	93,506	$116,501
Skates	25,488	$4,905
Skippers	12,861	$4,030
Snapper, Red[3]	0	$0
Snapper, Vermilion (Beeliner)	266,150	$909,274
Snappers, Other	9,278	$32,681
Spadefish	15,231	$9,189
Spot	235,670	$295,019
Striped Bass	146,189	$432,127
Swordfish	445,415	$1,202,276
Tilefish, Blueline	75,536	$242,806
Tilefish, Other	36,252	$153,007
Triggerfishes	131,626	$345,575
Tuna, Bigeye	287,442	$1,037,207
Tuna, Bluefin	156,198	$517,114
Tuna, Yellowfin	668,360	$1,410,177
Tunas, Other	102,854	$119,272
Tunny, Little (False Albacore)	233,501	$110,271
Unclassified Fish for Industrial/Bait	43,142	$30,344
Unclassified Fish for Food	97,325	$108,618
Wahoo	25,307	$93,707
Weakfish (Grey Trout)	79,640	$120,548
TOTAL FINFISH	19,903,083	$32,696,777
SHELLFISH		
Blue Crabs, Hard	24,732,127	$20,738,465
Blue Crabs, Peeler	445,844	$1,314,879
Blue Crabs, Soft	284,769	$2,063,004
Clams, Hard (Meats)	331,215	$2,578,120
	(17,384,413 Numbers)	
Oysters (Meats)	653,889	$4,045,574
	(123,609 Bushels)	
Octopus	230	$477
Scallop, Sea (Meats)	171,159	$1,995,270
Shrimp (Heads On)[4]	13,191,267	$28,241,463
Squid	45,841	$40,683
Stone Crabs	7,908	$21,594
Unclassified Shellfish	83,923	$89,390
Whelks/Conchs (Meats)	76,249	$191,124
TOTAL SHELLFISH	40,037,421	$61,350,268
GRAND TOTAL	59,940,504	$94,047,045

[1] Includes species from the genus *Seriola* (amberjacks, almaco jacks, and banded rudderfish)
[2] Includes shark fins and the following sharks: blacknose, blacktip, bonnethead, bull, finetooth, hammerhead, shortfin mako, spinner, thresher, tiger, and Atlantic sharpnose
[3] The red snapper fishery closed on January 4, 2010 with restricted openings occurring in some years.
[4] Includes brown, pink, and white shrimp
* Units and value not shown to avoid disclosure of private enterprise

2015 North Carolina Commercial Landings 2015

Updated: April 2018

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Amberjacks[1]	146,498	$161,768
Anglerfish (Monkfish Including Monklivers)	112,863	$106,081
Bluefish	804,336	$445,293
Bonito, Atlantic	20,989	$32,905
Butterfish	62,658	$28,237
Carp	37,791	$3,071
Catfishes	917,965	$262,840
Cobia	52,684	$113,176
Croaker, Atlantic	1,819,070	$1,646,377
Cutlassfish, Atlantic	178,077	$309,752
Dogfish, Smooth	268,429	$98,113
Dogfish, Spiny	4,247,213	$532,180
Dolphinfish	320,961	$973,324
Drum, Black	51,103	$43,158
Drum, Red	80,393	$196,144
Eel, American	57,791	$142,826
Flounder, Southern	1,202,930	$3,823,707
Flounder, Summer	2,878,753	$9,092,527
Flounders, Other	7,638	$26,179
Garfish	37,651	$5,648
Grouper, Gag	127,194	$580,929
Grouper, Red	35,258	$138,669
Grouper, Scamp	36,390	$161,478
Grouper, Snowy	47,121	$184,206
Groupers, Other	15,234	$57,065
Grunts	32,684	$33,221
Hakes	1,407	$685
Harvestfish (Starbutters)	164,046	$221,595
Herring, River (Alewife and Blueback)	0	$0
Hogfish (Hog Snapper)	8,238	$33,500
Jacks (Crevalle, Bluerunner, Rainbowrunner)	7,607	$4,692
Mackerel, Atlantic (Boston)	1,861	$796
Mackerel, King	391,315	$800,688
Mackerel, Spanish	561,409	$1,034,231
Menhaden, Atlantic	896,918	$152,241
Mullet, Sea (Kingfishes)	786,515	$860,461
Mullet, Striped	1,247,044	$804,675
Perch, White	161,596	$124,499
Perch, Yellow	41,654	$54,013
Pigfish	20,763	$7,507
Pinfish	845	$304
Pompano	22,085	$39,973
Porgies	54,464	$92,779
Pufferfish	9,578	$5,861
Scup	229,696	$130,029
Sea Basses	467,953	$1,366,822
Seatrout, Spotted	128,762	$318,307

2015 North Carolina Commercial Landings

(continued)

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Shad, American	98,118	$93,657
Shad, Gizzard	97,970	$4,898
Shad, Hickory	148,714	$42,916
Sharks[2]	795,831	$338,283
Sheepshead	124,836	$139,237
Skates	44,848	$8,349
Skippers	16,736	$4,636
Snapper, Red[3]	0	$0
Snapper, Vermilion (Beeliner)	225,481	$781,211
Snappers, Other	6,549	$22,776
Spadefish	15,996	$8,177
Spot	377,358	$322,198
Striped Bass	141,824	$450,208
Swordfish	593,258	$1,277,355
Tilefish, Blueline	27,181	$69,502
Tilefishes, Other	18,173	$65,726
Triggerfishes	131,536	$331,805
Tuna, Bigeye	369,347	$1,277,767
Tuna, Bluefin	118,159	$200,380
Tuna, Yellowfin	515,014	$1,191,039
Tunas, Other	152,716	$128,529
Tunny, Little (False Albacore)	164,852	$85,437
Unclassified Fish for Industrial/Bait	67,995	$8,066
Unclassified Fish for Food	138,824	$108,871
Wahoo	18,380	$65,475
Weakfish (Grey Trout)	80,235	$115,834
TOTAL FINFISH	23,293,361	$32,394,864
SHELLFISH		
Blue Crabs, Hard	31,040,008	$29,626,984
Blue Crabs, Peeler	706,660	$2,106,108
Blue Crabs, Soft	380,375	$2,247,306
Clams, Hard (Meats)	415,027 *(21,126,582 Numbers)*	$5,038,973
Oysters (Meats)	631,050 *(*119,291 *Bushels)*	$3,898,079
Octopus	209	$388
Scallop, Sea (Meats)	198,393	$2,213,074
Shrimp (Heads On)[4]	9,090,560	$16,824,594
Squid	25,516	$22,212
Stone Crabs	8,158	$22,925
Unclassified Shellfish	91,124	$177,869
Whelks/Conchs (Meats)	65,221	$137,526
TOTAL SHELLFISH	42,652,301	$62,316,038
GRAND TOTAL	65,945,662	$94,710,902

[1] Includes species from the genus *Seriola* (amberjacks, almaco jacks, and banded rudderfish)
[2] Includes shark fins and the following sharks: blacknose, blacktip, bonnethead, bull, finetooth, hammerhead, shortfin mako, spinner, thresher, tiger, and Atlantic sharpnose
[3] The red snapper fishery closed on January 4, 2010 with restricted openings occurring in some years.
[4] Includes brown, pink, and white shrimp
* Units and value not shown to avoid disclosure of private enterprise

2014 North Carolina Commercial Landings 2014

Updated: April 2018

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Amberjacks[1]	193,001	$198,899
Anglerfish (Monkfish Including Monklivers)	76,392	$85,364
Bluefish	2,019,279	$889,710
Bonito, Atlantic	9,081	$14,386
Butterfish	53,606	$27,287
Carp	16,456	$1,557
Catfishes	521,540	$158,480
Cobia	41,798	$87,931
Croaker, Atlantic	2,629,908	$1,865,595
Cutlassfish, Atlantic	165,375	$221,870
Dogfish, Smooth	498,904	$213,763
Dogfish, Spiny	5,650,285	$566,615
Dolphinfish	422,496	$1,237,458
Drum, Black	51,217	$32,298
Drum, Red	90,647	$208,288
Eel, American	60,754	$164,797
Flounder, Southern	1,673,511	$4,839,672
Flounder, Summer	2,911,750	$8,225,282
Flounders, Other	4,412	$8,926
Garfish	10,803	$3,673
Grouper, Gag	168,036	$739,793
Grouper, Red	53,096	$202,112
Grouper, Scamp	42,206	$187,776
Grouper, Snowy	27,553	$102,830
Groupers, Other	9,125	$33,799
Grunts	39,312	$40,117
Hakes	652	$293
Harvestfish (Starbutters)	155,356	$187,901
Herring, River (Alewife and Blueback)	1,139	$1,519
Hogfish (Hog Snapper)	9,767	$37,920
Jacks (Crevalle, Bluerunner, Rainbowrunner)	9,151	$6,220
Mackerel, Atlantic (Boston)	1,761	$658
Mackerel, King	549,981	$1,203,503
Mackerel, Spanish	673,974	$1,230,410
Menhaden, Atlantic	917,375	$145,587
Mullet, Sea (Kingfishes)	955,071	$1,007,496
Mullet, Striped	1,828,351	$1,112,465
Perch, White	172,486	$148,698
Perch, Yellow	67,454	$82,336
Pigfish	38,572	$15,334
Pinfish	1,431	$561
Pompano	12,923	$31,176
Porgies	82,809	$145,061
Pufferfish	1,611	$886
Scup	160,508	$110,203
Sea Basses	529,075	$1,413,708
Seatrout, Spotted	242,245	$579,343

2014 North Carolina Commercial Landings

(continued)

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Shad, American	193,117	$160,969
Shad, Gizzard	114,594	$5,730
Shad, Hickory	109,420	$27,397
Sharks[2]	1,005,858	$473,375
Sheepshead	173,376	$159,274
Skates	18,907	$6,137
Skippers	19,884	$5,207
Snapper, Red[3]	4,826	$23,007
Snapper, Vermilion (Beeliner)	242,259	$829,916
Snappers, Other	4,002	$11,695
Spadefish	22,761	$10,652
Spot	766,224	$619,643
Striped Bass	96,233	$283,241
Swordfish	694,911	$2,109,549
Tilefish, Blueline	71,768	$176,807
Tilefishes, Other	19,306	$62,001
Triggerfishes	116,782	$262,199
Tuna, Bigeye	337,269	$1,222,610
Tuna, Bluefin	114,037	$375,975
Tuna, Yellowfin	821,520	$1,811,675
Tunas, Other	155,033	$115,186
Tunny, Little (False Albacore)	225,797	$107,605
Unclassified Fish for Industrial/Bait	24,635	$4,196
Unclassified Fish for Food	123,386	$138,185
Wahoo	22,783	$71,829
Weakfish (Grey Trout)	105,246	$140,573
TOTAL FINFISH	29,456,169	$37,034,189
SHELLFISH		
Blue Crabs, Hard	25,242,795	$29,954,723
Blue Crabs, Peeler	621,040	$1,935,462
Blue Crabs, Soft	367,277	$2,137,335
Clams, Hard (Meats)	430,816	$2,866,096
	(22,440,617 Numbers)	
Oysters (Meats)	727,775	$4,544,236
	(137,576 Bushels)	
Octopus	217	$276
Scallop, Sea (Meats)	92,976	$1,011,221
Shrimp (Heads On)[4]	4,690,933	$14,145,407
Squid	16,156	$13,493
Stone Crabs	7,451	$19,882
Unclassified Shellfish	84,167	$152,710
Whelks/Conchs (Meats)	53,627	$112,275
TOTAL SHELLFISH	32,519,243	$57,077,129
GRAND TOTAL	61,975,412	$94,111,318

[1] Includes species from the genus *Seriola* (amberjacks, almaco jacks, and banded rudderfish)
[2] Includes shark fins and the following sharks: blacknose, blacktip, bonnethead, bull, finetooth, hammerhead, shortfin mako, spinner, thresher, tiger, and Atlantic sharpnose
[3] The red snapper fishery closed on January 4, 2010 with restricted openings occurring in some years.
[4] Includes brown, pink, and white shrimp
* Units and value not shown to avoid disclosure of private enterprise

2013 North Carolina Commercial Landings 2013

Updated April 2018

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Amberjacks[1]	90,180	$90,035
Anglerfish (Monkfish Including Monklivers)	10,566	$9,053
Bluefish	1,159,580	$564,377
Bonito, Atlantic	10,506	$15,460
Butterfish	93,146	$53,369
Carp	14,132	$1,360
Catfishes	548,913	$92,497
Cobia	35,456	$73,142
Croaker, Atlantic	1,927,938	$1,723,578
Cutlassfish, Atlantic	145,362	$204,869
Dogfish, Smooth	783,053	$344,182
Dogfish, Spiny	3,010,958	$302,248
Dolphinfish	178,035	$529,916
Drum, Black	127,170	$79,480
Drum, Red	371,949	$715,685
Eel, American	33,980	$88,649
Flounder, Southern	2,186,391	$5,673,190
Flounder, Summer	541,542	$1,386,338
Flounders, Other	*	*
Garfish	5,893	$1,208
Grouper, Gag	167,334	$704,382
Grouper, Red	72,034	$259,053
Grouper, Scamp	42,711	$180,679
Grouper, Snowy	20,274	$72,067
Groupers, Other	8,856	$31,637
Grunts	44,702	$47,062
Hakes	614	$231
Harvestfish (Starbutters)	221,168	$253,604
Herring, River (Alewife and Blueback)	743	$743
Hogfish (Hog Snapper)	7,847	$30,640
Jacks (Crevalle, Bluerunner, Rainbowrunner)	14,492	$10,639
Mackerel, Atlantic (Boston)	154	$61
Mackerel, King	345,177	$877,497
Mackerel, Spanish	620,752	$1,015,965
Menhaden, Atlantic	454,206	$73,494
Mullet, Sea (Kingfishes)	603,186	$668,480
Mullet, Striped	1,549,157	$1,402,914
Perch, White	275,652	$255,633
Perch, Yellow	31,480	$40,546
Pigfish	62,099	$28,093
Pinfish	1,536	$463
Pompano	15,423	$41,351
Porgies	72,669	$116,776
Pufferfish	5,846	$2,858
Scup	28,691	$13,323
Sea Basses	329,691	$868,811
Seatrout, Spotted	367,648	$818,159

2013 North Carolina Commercial Landings

(continued)

	POUNDS (Whole/Round Weight)	VALUE
FINFISH		
Shad, American	257,348	$306,885
Shad, Gizzard	112,295	$4,492
Shad, Hickory	71,772	$29,324
Sharks[2]	553,665	$282,318
Sheepshead	180,225	$145,794
Skates	2,286	$429
Skippers	15,780	$4,652
Snapper, Red[3]	2,686	$11,942
Snapper, Vermilion (Beeliner)	267,260	$886,596
Snappers, Other	6,587	$19,449
Spadefish	20,368	$9,246
Spot	768,592	$690,035
Striped Bass	96,935	$303,486
Swordfish	1,058,089	$2,935,940
Tilefish, Blueline	214,153	$517,882
Tilefishes, Other	2,926	$4,770
Triggerfishes	160,861	$342,228
Tuna, Bigeye	243,637	$939,909
Tuna, Bluefin	106,197	$608,952
Tuna, Yellowfin	648,039	$1,434,318
Tunas, Other	96,937	$113,429
Tunny, Little (False Albacore)	189,746	$114,416
Unclassified Fish for Industrial/Bait	24,389	$2,565
Unclassified Fish for Food	119,914	$120,455
Wahoo	23,380	$75,577
Weakfish (Grey Trout)	120,191	$150,730
TOTAL FINFISH	22,003,150	$29,819,911
SHELLFISH		
Blue Crabs, Hard	21,438,077	$26,465,523
Blue Crabs, Peeler	447,120	$1,449,542
Blue Crabs, Soft	317,426	$2,091,382
Clams, Hard (Meats)	347,073	$2,295,366
	(17,855,759 Numbers)	
Oysters (Meats)	586,625	$3,353,126
	(110,893 Bushels)	
Octopus	1,205	$2,069
Scallop, Sea (Meats)	36,445	$402,717
Shrimp (Heads On)[4]	4,858,885	$12,944,880
Squid	12,090	$10,703
Stone Crabs	6,839	$18,479
Unclassified Shellfish	90,886	$117,361
Whelks/Conchs (Meats)	50,079	$123,236
TOTAL SHELLFISH	28,194,087	$49,283,890
GRAND TOTAL	50,197,237	$79,103,801

[1] Includes species from the genus *Seriola* (amberjacks, almaco jacks, and banded rudderfish)
[2] Includes shark fins and the following sharks: blacknose, blacktip, bonnethead, bull, finetooth, hammerhead, shortfin mako, spinner, thresher, tiger, and Atlantic sharpnose
[3] The red snapper fishery closed on January 4, 2010 with restricted openings occurring in some years.
[4] Includes brown, pink, and white shrimp
* Units and value not shown to avoid disclosure of private enterprise

North Carolina Commercial Fishing Trips by Major Gears

(2013 – 2017)

	Trips				
Gear	**2013**	**2014**	**2015**	**2016**	**2017**
Beach Seine	57	21	23	11	31
By Hand	16,446	18,019	17,170	18,778	20,892
Cast Net	703	627	690	666	663
Channel Net	1,626	1,078	968	761	776
Clam Dredges	344	388	251	213	189
Clam Trawl Kicking	180	155	77	39	31
Crab Dredge	1	3	14	6	1
Crab Pot	48,122	50,527	51,758	46,281	37,210
Crab Trawl	85	197	470	461	356
Eel Pot	70	143	97	63	78
Fish Pot	623	678	583	471	577
Flounder Trawl	71	257	276	266	199
Flynet	4	40	11	19	16
Fyke Net	428	404	639	628	546
Gigs	2,585	2,804	2,739	2,795	2,892
Gill Net – Anchored	36,712	27,862	23,437	22,758	25,338
Gill Net – Drift	236	296	401	278	586
Gill Net – Runaround	3,780	3,377	3,252	3,294	4,112
Haul Seines[1]	273	204	45	93	68
Longlines	719	634	519	598	433
Oyster Dredge	3,763	5,705	4,031	2,684	1,540
Peeler Pot	3,334	4,006	4,743	4,957	3,462
Peeler Trawl[2]	29	26	21	14	15
Pound Nets	2,859	2,444	2,856	2,557	2,918
Rakes	9,988	11,779	12,489	11,220	9,293
Rod-n-Reel	2,068	2,272	1,991	2,278	2,274
Shrimp Trawl	5,650	4,598	6,052	7,468	7,766
Skimmer Trawl	1,194	711	1,035	1,273	676
Spears (Diving)	159	195	168	186	168
Tongs	4,092	3,896	3,688	3,152	3,578
Trolling	2,195	2,247	1,950	1,874	2,521
Trotline	38	49	39	86	170
Other Gears[3]	231	168	117	106	112
Total trips [4]	148,665	145,810	142,600	136,334	129,487

A **trip** is defined as the time period beginning when a vessel or fisherman leaves port to conduct fishing activities and ending when that vessel or fisherman returns to land the catch. The duration of a trip can vary from a few hours, as in hand clamming, to several days, as in ocean flounder trawling. An assessment of the number of trips gives an indication of the amount of effort conducted by commercial fishermen within that fishery.

[1] Includes long hauls, common seines, and swipe nets
[2] A new code to distinguish peeler trawl gear was put into effect in 2010.
[3] Includes greenstick trolling, butterfly nets, conch pots, dip nets, purse seines, bay scallop dredges, scallop scoops and trawls, shrimp pots and turtle pots
[4] Total trips are not equal to the sum of trips by gear due to multi-gear trips.

Source: North Carolina Division of Marine Fisheries Trip Ticket Program (April 2018).

North Carolina Marine Recreational Finfish Harvest

(2016 – 2017)

SPECIES	NUMBER 2016	NUMBER 2017	POUNDS 2016	POUNDS 2017
Amberjacks	10,051	5,313	168,563	124,382
Barracudas	961	2,281	7,283	28,245
Bluefish	1,178,529	524,072	855,631	690,018
Bonito	1,599	1,368	9,115	5,801
Cobia	9,293	7,308	298,090	259,737
Croaker, Atlantic	368,203	243,199	141,571	85,473
Dolphin	261,553	184,928	2,706,002	1,486,909
Drum, Black	71,708	65,455	238,012	164,295
Drum, Red	62,105	101,473	230,473	402,390
Flounders, Southern	118,267	99,399	267,811	211,241
Flounders, Summer	17,887	26,136	30,355	41,996
Groupers	2,573	1,034	36,248	13,262
Grunts	20,753	14,588	30,861	13,807
Jacks	46,206	12,217	24,718	23,398
Kingfishes	869,958	551,861	270,380	140,599
Mackerel, King	54,891	39,140	465,195	325,846
Mackerel, Spanish	424,341	439,654	411,353	459,982
Perch, Silver	10,991	23,386	1,991	4,308
Pigfish	463,160	150,540	153,036	53,584
Pinfish	336,380	214,635	69,513	62,352
Pompano	60,015	67,241	24,603	26,845
Porgies	4,067	8,873	7,120	17,376
Puffers	218,549	103,535	90,778	40,510
Sea basses	57,822	71,281	87,596	113,641
Seatrout, Spotted	388,544	339,523	691,277	580,849
Sharks	1,669	3,878	3,921	39,887
Dogfish Sharks	3,167	227	14,373	1,739
Sheepshead	42,137	128,083	116,683	371,503
Snappers	37,092	11,117	49,828	17,362
Spot	513,320	469,462	151,352	174,224
Striped Bass[1]	379	0	1,449	0
Tuna, Bluefin[2]	74	39	13,576	9,130
Tuna, Yellowfin	59,777	85,064	2,254,234	2,980,821
Wahoo	23,771	16,730	635,244	497,341
Weakfish	33,585	16,320	34,860	18,708

[1] Striped bass landings reflect Atlantic Ocean catches only.
[2] Landings for Atlantic Bluefin Tuna shown by Highly Migratory Species fishing year January 1 through December 31.

NOTE: The number and pounds of finfish listed represent estimated harvest; finfish released alive are not included. Headboat landings are not included but are available upon request from the NOAA Beaufort Lab's Southeast Region Headboat Survey.

North Carolina Marine Recreational Finfish Harvest

(2013 – 2015)

SPECIES	NUMBER 2013	NUMBER 2014	NUMBER 2015	POUNDS 2013	POUNDS 2014	POUNDS 2015
Amberjacks	10,078	3,098	9,934	172,647	60,260	244,797
Barracudas	224	852	2,065	1,276	10,737	17,394
Bluefish	1,183,627	1,084,292	977,599	988,664	966,003	868,867
Bonito	9,219	6,700	5,619	133,163	30,988	37,263
Cobia	19,224	9,804	16,166	506,067	247,386	695,842
Croaker, Atlantic	411,882	541,657	471,869	141,880	227,949	190,808
Dolphin	212,388	185,077	434,454	1,562,755	1,329,353	3,170,590
Drum, Black	363,466	24,058	35,529	713,047	60,406	115,609
Drum, Red	164,218	116,601	36,704	676,050	596,447	154,496
Flounder, Southern	178,178	69,956	108,369	409,086	149,723	254,132
Flounder, Summer	44,941	45,708	40,561	70,874	67,791	64,065
Groupers	5,390	1,729	1,776	54,418	18,973	21,125
Grunts	16,374	26,257	24,278	26,769	39,265	32,120
Jacks	25,164	8,871	20,635	24,835	28,167	27,254
Kingfishes	1,377,835	1,143,212	1,556,068	343,454	451,073	493,506
Mackerel, King	22,613	23,374	34,330	235,436	366,128	320,388
Mackerel, Spanish	497,329	398,398	388,157	625,035	449,709	431,082
Perch, Silver	13,345	11,519	4,849	2,366	2,519	1,161
Pigfish	299,065	293,523	508,767	101,014	83,741	177,093
Pinfish	355,871	332,185	333,330	61,148	74,085	115,132
Pompano	471,156	166,888	142,927	171,860	83,190	64,763
Porgies	8,460	7,812	7,020	16,720	15,657	9,421
Puffers	209,770	49,269	860,154	126,039	25,416	397,472
Sea basses	49,258	74,648	69,270	68,225	132,351	100,146
Seatrout, Spotted	369,265	234,045	87,396	649,158	433,978	148,926
Sharks	13,426	3,340	5,599	20,386	23,102	78,482
Sharks, Dogfish	4,986	853	9,101	10,143	4,296	45,596
Sheepshead	273,211	61,379	76,496	500,096	143,782	217,148
Snappers	9,852	9,110	12,965	14,013	15,017	15,147
Spot	1,464,592	2,111,880	1,081,083	460,928	704,445	395,268
Striped Bass[1]	0	0	0	0	0	0
Tuna, Bluefin[2]	201	69	44	40,979	14,492	7,747
Tuna, Yellowfin	44,688	27,248	24,459	1,441,122	873,536	723,874
Wahoo	9,370	11,639	19,561	255,306	322,468	584,670
Weakfish	33,851	26,308	39,842	34,731	25,957	50,903

[1] Striped bass landings reflect Atlantic Ocean catches only.
[2] Landings for Atlantic Bluefin Tuna shown by Highly Migratory Species fishing year January 1 through December 31.

NOTE: The number and pounds of finfish listed represent estimated harvest; finfish released alive are not included. Headboat landings are not included but are available upon request from NOAA Beaufort Lab's Southeast Region Headboat Survey.

North Carolina Coastal Angling Program

North Carolina Marine Recreational Finfish Harvest and Release Catch Estimates, 2013 – 2017.

Year	Number Harvested	Pounds Harvested	Number Released
2013	11,479,525	11,968,710	20,963,650
2014	9,572,612	8,788,702	19,765,129
2015	10,363,367	11,917,061	21,137,129
2016	8,618,071	11,993,540	21,784,450
2017	5,541,629	11,024,294	15,392,295

North Carolina Marine Recreational Fishing Trip Estimates (number), 2013 – 2017.

Year	Beach/Bank	Charter Boat	Manmade	Private Boat	Total
2013	1,212,558	111,366	1,543,314	2,100,515	4,967,753
2014	1,665,273	96,620	1,484,850	1,707,330	4,954,073
2015	1,205,413	114,061	1,285,166	2,041,020	4,645,659
2016	2,042,417	141,374	1,435,463	1,792,075	5,411,329
2017	1,243,564	149,468	1,381,398	1,764,427	4,538,858

Coastal Recreational Fishing License (CRFL) Sales by Residency, 2013 – 2017.

Year	In-State	Out-of-State	Total
2013	317,649	162,351	480,000
2014	320,663	165,624	486,287
2015	316,376	164,470	480,846
2016	308,879	158,827	467,706
2017	308,220	161,354	469,574

Survey Methods

The survey consists of telephone/mail and on-site angler interviews. Telephone/mail interviews are used to collect data on number of trips, fishing location, and when these trips were made. Information on actual catch (species, number, weight, and length) is collected through on-site angler interviews. Information from both types of interviews is combined to produce estimates of total number and pounds of finfish caught.

Precision of Estimates

Numbers and pounds presented are estimates, not actual counts; therefore have varying levels of precision.

Coastal recreational fishery statistics are provided through participation in the Marine Recreational Information Program. In North Carolina, this project is supported in part by the U.S. Fish and Wildlife Service through the Sport Fish Restoration Program, Grant F-31.