FISHERY MANAGEMENT PLAN UPDATE
ATLANTIC STURGEON
AUGUST 2025

STATUS OF THE FISHERY MANAGEMENT PLAN

Fishery Management Plan History

FMP Documentation:	November 1990	
	Amendment 1	July 1998
	Technical Addendum #1	October 2000
	Addendum I	January 2001
	Addendum II	May 2005
	Addendum III	November 2006
	Addendum IV	September 2012
Comprehensive Review:	To Be Determined	

Amendment 1 to the Interstate Fishery Management Plan (FMP) for Atlantic sturgeon was developed by the Atlantic States Marine Fisheries Commission (ASMFC) with a goal to restore Atlantic sturgeon spawning stocks to population levels that will provide for sustainable fisheries and ensure viable spawning populations. Addendum I was completed to allow importation of non-indigenous Atlantic sturgeon and permit the development of private aquaculture facilities. Addendum II required compliance with ASMFC Terms, Limitations, Enforcement and Reporting Requirements for each exemption to the harvest and possession moratoria as outlined in Section 4 of the FMP. It also allowed LaPaz, Inc. to import Atlantic sturgeon fingerlings, produce fish, and sell the meat. Another exemption was provided to Acadian Sturgeon and Caviar to import Atlantic sturgeon from Canada to North Carolina. Addendum III complements Addendum II and provides authority for LaPaz Inc. to import Atlantic sturgeon from Supreme Sturgeon and Caviar for commercial aquaculture. Addendum IV is the Atlantic sturgeon Habitat Addendum.

To ensure compliance with interstate requirements, North Carolina also manages this species under the North Carolina Fishery Management Plan for Interjurisdictional Fisheries (IJ FMP). The goal of the IJ FMP is to adopt fishery management plans, consistent with N.C. law, approved by the Mid-Atlantic Fishery Management Council, South Atlantic Fishery Management Council, or the ASMFC by reference and implement corresponding fishery regulations in North Carolina to provide compliance or compatibility with approved fishery management plans and amendments, now and in the future. The goal of these Federal plans, established under the Magnuson-Stevens Fishery Conservation and Management Act (federal council plans) and the Atlantic Coastal Fisheries Cooperative Management Act (ASMFC plans) are like the goals of the Fisheries Reform Act of 1997 to "ensure long-term viability" of these fisheries (NCDMF 2015).

Management Unit

Atlantic sturgeon from Maine through Florida.

Goal and Objectives

The goal is to restore Atlantic sturgeon spawning stocks to population levels that will provide for sustainable fisheries and ensure viable spawning populations (ASMFC 1998). In order to achieve this goal, the plan sets forth the following objectives:

- Establish 20 protected year classes of females in each spawning stock.
- Close the fishery for a sufficient time period to reestablish spawning stocks and increase numbers in current spawning stocks.
- Reduce or eliminate bycatch mortality of Atlantic sturgeon.

- Determine the spawning sites and provide protection of spawning habitats for each spawning stock.
- Where feasible, re-establish access to historical spawning habitats for Atlantic sturgeon.
- Conduct appropriate research as needed.

DESCRIPTION OF THE STOCK

Biological Profile

Atlantic sturgeon (*Acipenser oxyrinchus*) is an anadromous species, which means once mature, adults reside primarily in oceans for most of the year and migrate up rivers to spawn. The species is found from Labrador, Canada, south to the St. Johns River, Florida. Atlantic sturgeon spend their first few years of life in their natal estuary before becoming highly migratory and travelling throughout coastal Atlantic waters and various estuaries to feed.

Once mature, Atlantic sturgeon exhibit natal homing, returning to the specific river where they were spawned to reproduce. Migratory patterns are seasonal, with northern migrations in spring as water temperatures rise and southern migrations in fall as water temperatures decrease. Some adult sturgeon will return to spawning grounds in consecutive years, but others may only spawn once every two or three years. In NC, adult fish that reproduce in the Roanoke River enter the Albemarle Sound basin during spring. They spend the summer in western Albemarle Sound and lower Roanoke River. Once temperatures begin to decrease around September, the fish ascend the Roanoke River to the rapids near Weldon to spawn. When spawning is complete and as water temperatures decrease further, sturgeon leave the river and proceed to the ocean through the Albemarle Sound.

Atlantic sturgeon are thought to have historically spawned within the Roanoke, Tar-Pamlico, Neuse, and Cape Fear rivers. Currently, the Roanoke River is the only North Carolina river with a known spawning population. Evidence from the collection of young-of-year fish exists for other North Carolina rivers but collection of eggs has only been documented in the Roanoke River (Smith et al. 2015). Additionally, adult sturgeon fitted with radio-telemetry tags have been documented within the Cape Fear and Northeast Cape Fear rivers potentially making a spawning run.

Atlantic sturgeon at various life stages are found within most estuarine waters of North Carolina throughout the entire year. Due to their highly migratory behavior, Atlantic sturgeon spawned in other regions often enter North Carolina waters. Sturgeon from the Hudson, Chesapeake, Carolina, and South Atlantic Distinct Population Segments have been identified in North Carolina waters.

Atlantic sturgeon are opportunistic bottom feeders that prey on various types of worms, shrimps, crabs, snails, and small fishes. Atlantic sturgeon may live to a maximum age of 70 years; however, in more southern locations the maximum age may be only 30–40 years. Age at which Atlantic sturgeon reach sexual maturity is unknown for specimens in North Carolina, but other fish within the Carolina and South Atlantic Distinct Population Segments mature as early as 5–13 years for males and 7–19 years for females. In contrast, sturgeon in more northern latitudes (Hudson River) mature at 11–20 years for males and 20–30 years for females. Research conducted in South Carolina show spawning intervals of one to five years for males and three to five years for females.

Stock Status

Depleted.

Stock Assessment

The Atlantic States Marine Fisheries Commission completed a benchmark assessment on Atlantic sturgeon in July 2017. Due to limited data availability, this assessment employed a number of approaches including Mann-Kendall test, Autoregressive Integrated Moving Average (ARIMA) model, and power, cluster, dynamic factor, and population viability analyses for the coastwide stock and by Distinct Population Segment (DPS). The 2024 stock assessment update concluded that Atlantic sturgeon remain depleted

coastwide. The “depleted” status was used instead of “overfished” because many factors (such as bycatch, habitat loss, and ship strikes), not just directed historical fishing, have contributed to the continued low abundance of Atlantic sturgeon. While overall levels of Atlantic sturgeon remain low, the population has shown signs of improvement with a significant positive trend over the time series and a high probability that abundance in 2022 was greater than abundance in 1998 at the start of the 40-year moratorium on harvest. Additionally, total mortality was low and had a low probability of exceeding the reference point. While Atlantic sturgeon is still considered a “data-poor” species, a tremendous amount of information has been collected on the species since 1998 that improves the abilities of managers and scientists to manage the species.

DESCRIPTION OF THE FISHERY

Current Regulations

Coast-wide commercial and recreational harvest moratorium since 1998.

Commercial Fishery

No landings recorded in NC since 1991. Reported coastwide landings peaked in the 1890s at around 7,495,717 pounds, but by 1905 coastwide landings were below 550,000 pounds and remained below that level until the harvest moratorium was implemented in 1998.

Recreational Fishery

No recreational fishery.

MONITORING PROGRAM DATA

Fishery-Dependent Monitoring

The North Carolina Division of Marine Fisheries (DMF) provides at-sea observer coverage for the estuarine anchored gill-net fisheries throughout North Carolina.

In October 2024, the DMF received an Incidental Take Permit (ITP) to address incidental takes of Atlantic sturgeon (*Acipenser oxyrinchus*) in anchored gill-net fisheries operating in estuarine waters across the state (NMFS 2024). The permit application included analysis using a zero-inflated Poisson general linear model that estimated bycatch in the fisheries. This model divided the state estuarine waters into management units and estimated takes (live and dead) within each of these units, by season and mesh size (Rawls 2022).

During 2024, on-board and alternate platform observers documented one Atlantic sturgeon caught in anchored gill nets that measured 50 inches total length (TL) (Table 1).

Fishery-Independent Monitoring

The DMF currently has three independent gill-net surveys that encounter and tag Atlantic sturgeon. The Albemarle Sound Independent Gill Net Survey (IGNS) is a stratified random gill-net survey that employs gill nets with mesh sizes that range from 2.5-inch stretch mesh (ISM) through 7 ISM (at 0.5 ISM increments) and 8 ISM and 10 ISM of floating and sinking nets. A total of 24 gill nets is fished that are each 40-yards long totaling 960 yards per sampling event. Each set is fished for approximately 24 hours before retrieval. Nets were fished from January through May, November, and December each year from 1991 through February 2020.

Table 1. Atlantic sturgeon length data (total length, inches) collected from the North Carolina Division of Marine Fisheries Onboard Observer Program, 2003–2024, (includes data from Alternate Platform Observer Program 2013–2024).

Year	Mean Length	Minimum Length	Maximum Length	Total Number Measured	Total Number Caught
2003	-	-	-	0	1
2004	23	13	32	24	25
2005	25	18	32	27	28
2006	24	13	45	38	39
2007	-	-	-	0	0
2008	25	19	33	18	18
2009	-	-	-	0	0
2010	-	-	-	0	0
2011	30	18	55	4	4
2012	26	18	35	8	10
2013	26	19	36	28	30
2014	28	16	65	50	59
2015	28	18	40	61	73
2016	26	15	62	76	81
2017	26	17	41	45	53
2018	28	19	40	22	24
2019	35	21	72	5	6
2020	31	18	47	17	18
2021**	33	20	38	6	10
2022	31	21	47	32	39
2023	42	39	50	4	43
2024	50	50	50	1	1

**Based on alternate platform trips only

Major changes to the Albemarle Sound IGNS survey design were incorporated beginning in November 2021 with the objective of decreasing sturgeon interactions within the survey. The number of nets used in the survey initially remained the same, with the change being that nets were fished for a reduced 12-hours of soak time before retrieval. Nets were set at sunset and fished 12-hours later. Beginning in March 2022, the 12 sinking nets were removed from the survey to further decrease sturgeon interactions. The changes in the survey design have likely resulted in the survey no longer tracking the abundance of Atlantic sturgeon sub-adults in the Albemarle Sound as the majority of sturgeon were captured in the sink nets. Lengths of sturgeon collected in 2024 ranged from 13 to 41 inches Fork Length (FL) and averaged 29 inches FL (Table 2). The relative abundance index shows an increasing trend between 1991 and 2020, but annual values are variable (Figure 1). Following changes to reduce sturgeon interactions, CPUE decreased as expected beginning in 2021 and continuing through 2024. This result supports the success of sturgeon bycatch reduction methods.

The Fishery Independent Assessment Survey (FIAS) is conducted in Pamlico Sound, Neuse, Tar-Pamlico and Pungo rivers, and consists of gill-net sets, ranging in mesh size from 3.0 ISM through 6.5 ISM (0.5 ISM increments) and are fished for approximately 12 hours before retrieval. The Pamlico Sound surveys have been conducted since 2001 and the river surveys since 2003. Starting in 2018 sampling areas in West Bay, Core and Bogue sounds, and Newport and White Oak rivers were added to the FIAS.

Table 2. Atlantic sturgeon length data (fork length, inches) collected from the Albemarle Sound Independent Gill Net Survey, 1991–2024. Total sturgeon includes recaptures. Note: survey methodology changed in November 2021 to reduce sturgeon interactions.

Year	Mean Length	Minimum Length	Maximum Length	Total Number Measured	Total Number Caught
1991	20	10	28	26	26
1992	18	8	23	17	17
1993	18	9	37	13	13
1994	18	10	29	40	41
1995	19	10	30	21	21
1996	17	8	22	27	27
1997	17	9	27	60	61
1998	19	6	29	92	92
1999	21	11	28	55	55
2000	15	7	30	139	139
2001	19	12	27	132	132
2002	21	9	29	29	29
2003	20	10	39	22	22
2004	19	10	31	30	30
2005	20	9	33	48	48
2006	22	9	58	62	63
2007	21	9	30	66	71
2008	21	10	33	124	128
2009	25	15	31	55	56
2010	23	16	32	32	32
2011	24	15	59	47	47
2012	23	12	42	64	65
2013	22	11	55	139	140
2014	24	14	46	70	72
2015	23	14	39	86	86
2016	21	10	37	124	124
2017	22	14	40	173	173
2018	23	15	67	152	155
2019	21	8	52	212	212
2020	22	15	43	148	148
2021	22	13	52	107	107
2022	25	15	39	53	53
2023	31	18	52	47	47
2024	29	13	41	22	22

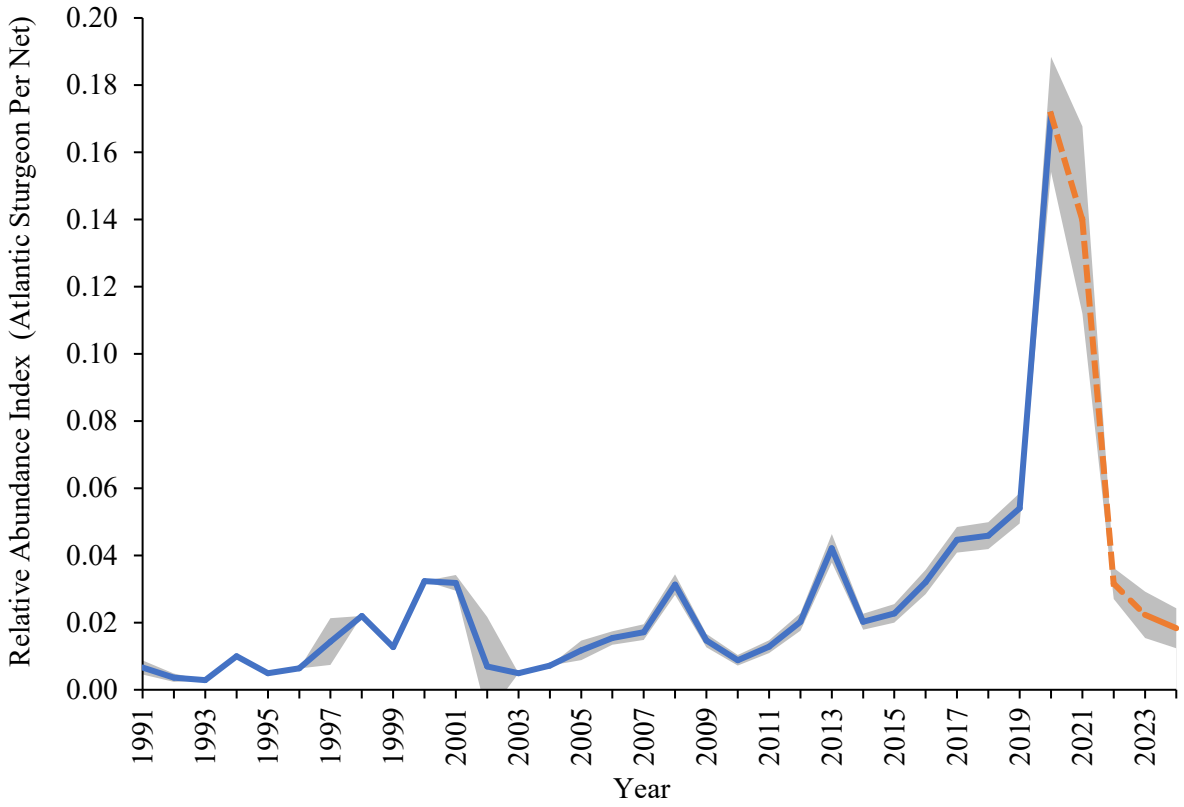

Figure 1. Annual nominal relative abundance index with standard error shaded in gray for Atlantic sturgeon collected from the Albemarle Sound Independent Gill Net Survey, 1991–2024. Note: survey methodology changed in November 2021 to reduce sturgeon interactions.

In 2024, three sturgeon ranging from 31 to 38 inches FL with an average FL of 34 inches were caught in Pamlico Sound area of the survey (Table 3). In the Tar-Pamlico, Neuse, and Pungo rivers area in 2024, five sturgeon were captured that had an average FL of 34 inches and ranged 25 to 39 inches FL (Table 4). And in the West Bay, Core and Bogue sounds, and Newport and White Oak regions area of the survey, no sturgeon were caught in 2024 (Table 5).

The Southern Independent Gill Net Survey is modeled after the (FIAS) but with periods of reduced soak times. The areas fished include the New and Cape Fear rivers. Two-hundred forty yards were fished per sample and 120 samples were completed per year. Effort has been ongoing since 2008. Additional sampling occurred in the coastal ocean waters off the New and Cape Fear rivers. Two-hundred and seventy yards were fished per sample in these ocean waters. However, sampling in the coastal ocean waters was discontinued on July 1, 2015. During 2024, three fish were collected in the Cape Fear River IGNS that ranged from 21 to 30 inches FL and averaged 24 inches FL (Table 6).

During 2010, the DMF joined a multi-state grant entitled “Research and Management of Endangered and Threatened Species in the Southeast: Riverine Movements of shortnose and Atlantic sturgeon” cooperating with South Carolina Department of Natural Resources, The University of Georgia, and North Carolina State University. Funding was provided through NOAA Fisheries, Section 6. Ninety-four Atlantic sturgeon were tagged with acoustic transmitters from 2011 through 2013 in the Cape Fear River and Albemarle Sound. These fish ranged from 24 to 69 inches FL and averaged 37 inches FL (Table 7).

Table 3. Atlantic sturgeon length data (fork length, inches) collected from the Pamlico Sound Independent Gill Net Survey, 2001–2024.

Year	Mean Length	Minimum Length	Maximum Length	Total Number Measured	Total Number Caught
2001	-	-	-	0	0
2002	26	26	26	1	1
2003	-	-	-	0	0
2004	20	18	21	5	5
2005	26	23	31	18	18
2006	27	21	31	12	13
2007	33	26	59	5	5
2008	31	25	37	2	2
2009	38	38	38	1	1
2010	24	20	27	2	2
2011	-	-	-	0	0
2012	56	56	56	1	1
2013	-	-	-	0	0
2014	-	-	-	0	0
2015	*	*	*	0	1
2016	30	29	30	2	2
2017	61	61	61	1	1
2018	24	21	27	3	3
2019	38	38	38	1	1
2020**	-	-	-	0	0
2021***	-	-	-	0	0
2022	30	19	42	7	8
2023	36	21	54	10	10
2024	34	31	38	3	3

*Length not recorded
**No sampling occurred
***Limited sampling occurred (July–December)

Table 4. Atlantic sturgeon length data (fork length, inches) collected from the Pamlico, Pungo, and Neuse rivers Independent Gill Net Survey, 2003–2024.

Year	Mean Length	Minimum Length	Maximum Length	Total Number Measured	Total Number Caught
2003	-	-	-	0	0
2004	24	19	32	9	9
2005	18	14	31	29	29
2006	25	19	29	4	4
2007	20	16	28	3	3
2008	21	21	21	1	1
2009	28	28	28	1	1
2010	-	-	-	0	0
2011	-	-	-	0	0
2012	25	25	25	1	1
2013	-	-	-	0	0
2014	*	*	*	0	1
2015	24	14	56	23	23
2016	28	18	38	8	8
2017	45	45	45	1	1
2018	34	22	56	5	5
2019	19	13	25	2	2
2020**	-	-	-		
2021***	22	14	38	43	44
2022	27	22	34	7	8
2023	26	15	37	10	10
2024	34	25	39	4	5

*Length not recorded
**No sampling occurred
***Limited sampling occurred (July–December)

Table 5. Atlantic sturgeon length data (fork length, inches) collected from the West Bay, Core and Bogue sounds, and White Oak and Newport rivers Independent Gill Net Survey, 2018–2024.

Year	Mean Length	Minimum Length	Maximum Length	Total Number Measured	Total Number Caught
2018	-	-	-	0	0
2019	-	-	-	0	0
2020	-	-	-	0	0
2021	-	-	-	0	0
2022	22	19	25	2	2
2023	31	31	31	1	1
2024	-	-	-	0	0

Table 6. Atlantic sturgeon length data (fork length, inches) collected from the Cape Fear and New rivers Independent Gill Net Survey, 2008–2024.

Year	Mean Length	Minimum Length	Maximum Length	Total Number Measured	Total Number Caught
2008	28	28	28	1	1
2009	22	22	22	1	1
2010	34	34	34	1	1
2011	30	30	30	1	1
2012	-	-	-	0	0
2013	-	-	-	0	0
2014	-	-	-	0	0
2015	26	26	26	1	1
2016	29	25	37	5	5
2017	30	27	37	3	3
2018	25	21	28	3	3
2019	29	25	33	2	2
2020*	-	-	-	0	0
2021**	-	-	-	0	0
2022	-	-	-	0	0
2023	26	21	36	8	8
2024	24	21	30	3	3

*No sampling occurred
**Limited sampling occurred (July–December)

Table 7. Atlantic sturgeon length data (fork length, inches) collected through Section 6 funding in the Cape Fear River and Albemarle Sound, North Carolina, 2011–2013.

Year	Mean Length	Minimum Length	Maximum Length	Number Collected
2011	38	25	64	45
2012	37	30	69	21
2013	34	24	46	28

RESEARCH NEEDS

Biological/Captive Propagation

- Standardize and obtain baseline data on population status for important sturgeon rivers. Data should include assessment of stock status in various rivers, size and composition of the spawning population, reproductive success and juvenile production.
- Develop long-term marking/tagging procedures to provide information on individual tagged Atlantic sturgeon for up to 20 years.
- Establish success criteria in order to evaluate the effectiveness of stocking programs.
- Determine size at maturity for North, Mid- and South Atlantic sturgeon.
- Monitor catch/effort and size/age composition of landings of any future authorized directed fisheries.
- Determine length at age by sex for North, Mid- and South Atlantic stocks.
- Determine maturity at age by sex for North, Mid- and South Atlantic stocks.
- Determine fecundity at age, length, and weight for North, Mid-, and South Atlantic stocks.

- Characterize size and condition of Atlantic sturgeon by gear and season taken as bycatch in various fisheries.
- Establish environmental tolerance levels (dissolved oxygen, pH, temperature, etc.) for different life stages.
- Establish coastal tagging projects to delineate migratory patterns (this measure is being implemented by the USFWS and member states).
- Expand tagging of juveniles in major spawning rivers to allow estimates of rates of loss to bycatch.
- Establish a tag recovery clearinghouse and database for consolidation and evaluation of tagging and tag return information including associated biological, geographic, and hydrographic data (this measure is being implemented by the USFWS through the Maryland Fisheries Resources Office located in Annapolis, Maryland).
- Encourage shortnose sturgeon researchers to include Atlantic sturgeon research in their projects.
- Establish methods for the recovery of tags and associated information (this measure is being implemented through ASMFC/USFWS cooperative efforts).
- Evaluate existing groundfish survey data to determine what can be learned about at-sea migratory behavior.
- Conduct basic culture experiments to provide information on: (a) efficacy of alternative spawning techniques, (b) egg incubation and fry production techniques, (c) holding and rearing densities, (d) prophylactic treatments, (e) nutritional requirements and feeding techniques, and (f) optimal environmental rearing conditions and systems.
- Determine the extent to which Atlantic sturgeon are genetically differentiable among rivers.
- Conduct research to identify suitable fish sizes, and time of year for stocking cultured fish.
- Conduct and monitor pilot-scale stocking programs before conducting large-scale efforts over broad geographic areas.
- Determine effects of contaminants on early life stages.
- Develop methods to determine sex and maturity of captured sturgeon.
- Develop sperm cryopreservation techniques and refine to assure availability of male gametes.
- Refine induced spawning procedures.
- Develop the capability to capture wild broodstock and develop adequate holding and transport techniques for large broodstock.
- Conduct studies to identify tissue(s) suitable for genetic analyses and the techniques for their collection and storage. In those states which permit future harvest of Atlantic sturgeon, material for genetic analysis should be collected from up to 50% of the fish landed in the commercial fisheries. In states with no future directed fisheries, federal and state programs which encounter sturgeon should be encouraged to collect specified tissues for genetic analysis.
- Standardize collection procedures to obtain biological tissues and identify a suitable repository to archive all materials.
- Conduct research to determine the susceptibility of Atlantic sturgeon to sturgeon adenovirus and white sturgeon iridovirus. Methods should be developed to isolate the sturgeon adenovirus and an Atlantic sturgeon cell line should be established for infection trials.
- Conduct research to identify the major pathogens of Atlantic sturgeon and a cell line for this species should be developed,

Social

- To evaluate the social impacts the needed data might include the following for consumptive and non-consumptive users: demographic information (e.g., age, gender, ethnicity/race, etc.), social structure information (e.g., historical participation, affiliation with NGOs, perceived conflicts, etc.), other cultural information (e.g., occupational motivation, cultural traditions related to resource's use), and community information.
- A cost and benefit analysis of possible stocking protocols is needed.

Assessment

- Identify spawning units along the Atlantic coast at river or tributary and coastwide level.
- **Expand and improve the genetic stock definitions of Atlantic sturgeon, including developing and updated genetic baseline sample collection at the coastwide, DPS, and river-specific level for Atlantic sturgeon, with the consideration of spawning season-specific data collection.
- Determine habitat use by life history stage including adult staging, spawning, and early juvenile residency.
- Expand the understanding of migratory ingress of spawning adults and egress of adults and juveniles along the coast.
- Identify Atlantic sturgeon spawning habitat through the collection of eggs or larvae.
- Investigate the influence of warming water temperatures on Atlantic sturgeon, including the effects on movement, spawning, and survival.
- Evaluate the effects of predation on Atlantic sturgeon by invasive species (e.g., blue and flathead catfish).
- **Establish regional (river or DPS-specific) fishery-independent surveys to monitor Atlantic sturgeon abundance or expand existing regional surveys to include annual Atlantic sturgeon monitoring. Estimates of abundance should be for both spawning adults and early juveniles at age.
- **Establish coastwide fishery-independent surveys to monitor mixed stock abundance or expand existing surveys to include annual Atlantic sturgeon monitoring.
- **Continue to collect biological data, PIT tag information, and genetic samples from Atlantic sturgeon encountered in surveys that require it (e.g., NEAPMAP). Consider including this level of data collection from surveys that do not require it.
- **Encourage data sharing of acoustic tagged fish, particularly in underrepresented DPSs, and support program that provide a data sharing platform such as The Atlantic Cooperative Telemetry Network. Data sharing should be accelerated if it was required or encouraged by funding agencies.
- **Maintain and support current networks of acoustic receivers and acoustic tagging programs to improve the estimates of total mortality.
- **Collect DPS-specific age, growth, fecundity, and maturity information.
- **Collect more information on regional vessel strike occurrences, including mortality estimates. Identify hot spots for vessel strikes and develop strategies to minimize impacts on Atlantic sturgeon.
- **Monitor bycatch and bycatch mortality at the coastwide level, including international fisheries where appropriate (i.e., the Canadian weir fishery). Include data on size, health condition at capture, and number of fish captured.
- **Establish recovery goals for Atlantic sturgeon to measure progress of and improvement in the population since the moratorium and ESA listing.
- **Expand the acoustic tagging model to obtain abundance estimates and incorporate movement.

- Evaluate methods of imputation to extend time series with missing values.

Recommendations with asterisks (**) indicate improvements that should be made before initiating another benchmark stock assessment.

Monitoring population trends through juvenile abundance indices, characterizing the incidence of bycatch and mortalities in various fisheries, and conducting tag/recapture studies for estimates of bycatch loss are being addressed through current sampling. It should be noted that any sampling or research that encounters Atlantic sturgeon whether incidental or targeted now require Section 10 permits through NOAA Fisheries or a Section 7 consultation if funded through a federal grant program. These permit requirements directly influence the data collection abilities of the DMF, potentially impacting the completion of research recommendations.

MANAGEMENT

Atlantic coastal states implemented a moratorium on harvest and possession of Atlantic sturgeon in coastal waters (0–3 miles) in 1998, while NOAA Fisheries banned harvest in the exclusive economic zone. The best available data indicate that river-specific populations are appropriate management units. It is recommended that the moratorium remain in place for each population until it can be documented that the spawning population includes at least 20-year classes of mature females (half the number of year classes that probably existed in unfished populations). Given that female Atlantic sturgeon do not mature until about 20 years of age, the moratorium can be expected to remain in place for several decades from when harvest of a given population ended. As populations increase during restoration, bycatch of sturgeon will increase; hence, managers should ensure that mechanisms are in place to monitor the level of bycatch and make reductions where necessary.

In 2012, NOAA Fisheries listed the Carolina DPS of Atlantic sturgeon as an endangered species under the 1973 Endangered Species Act (ESA). This listing determination drastically influenced the management strategy in North Carolina. The largest influence was the requirement of the DMF to obtain a Section 10 Incidental Take Permit to allow the estuarine anchored gill-net fisheries to continue. Without the Section 10 Permit, interactions in the fishery would have been illegal. In 2016, NOAA Fisheries published a proposed rule to designate Atlantic sturgeon critical habitat (specific areas that are considered essential to the conservation of the species) in each of the DPSs. The final rule to designate critical habitat was published in September 2017. This rule designated approximately 1,939 km (1,205 miles) of aquatic habitat for the Carolina DPS, including the following rivers in North Carolina: Roanoke, Tar-Pamlico, Neuse, Cape Fear, Northeast Cape Fear, and Pee Dee. Any future fishery for Atlantic sturgeon without Federal Permits will only be possible when NOAA Fisheries removes Atlantic sturgeon from the ESA. However, additional protections provided through the ESA listing should increase the potential for stock recovery.

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