

Atlantic Coast Sturgeon Tagging Database

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Report Summary:

The Coast-Wide Sturgeon Tagging Program was started in 1992 by the U.S. Fish and Wildlife Service (USFWS) – Maryland Fishery Resources Office. The Program was designed to provide a central repository for sturgeon tagging information on the Atlantic Coast. The database contains information on more than 21,000 sturgeons (11,708 Atlantic and 9,376 shortnose), including recapture information on 2,131 fish. The report also provides a description of the two programs that have released hatchery-reared Atlantic sturgeon, tagged with Coded-Wire Tags. Capture and release information is summarized by state, species, and coordinating agency. Tagging programs range from Maine to Georgia for Atlantic sturgeon and Massachusetts to Georgia for shortnose sturgeon. The largest tagging programs for Atlantic sturgeon were in the Hudson River, Long Island Sound, Delaware River/Bay and the Chesapeake Bay. The largest tagging programs for shortnose sturgeon occurred in the Hudson River and the Connecticut River. Both sturgeons are migratory, but shortnose are rarely ever recaptured outside of the waterbody where they were tagged. Conversely, Atlantic sturgeons are more migratory. For fish tagged from South Carolina to Connecticut, recaptures varied greatly, but remained in the coastal range from South Carolina to New Hampshire. Although most of Atlantic sturgeon recaptures and nearly all of shortnose sturgeon recaptures were reported by researchers working with sturgeon, some fish with external tags were also recaptured by fishermen. Most fishermen that encountered tagged sturgeons were using gillnets and the most common target species was striped bass. The program continues to suggest that all sturgeon tagging consists of a PIT tag and a Carlin Dangler or Dorsal T-Bar tag to optimize the amount of data that can be collected by the program. All tags and associated tagging equipment are provided by the USFWS to sturgeon tagging agencies upon request. Recommendations on required and optional data fields to be collected have been provided, as well as sample datasheets for data collection.

Report Objectives:

This is an updated report from the original distributed in 2004. The purpose of these reports are to 1) provide information on the range and depth of data currently available in the database, 2) make cooperators aware of the types of sturgeon work that has been done and is ongoing in Coastal states and tributaries, 3) continue to promote standardized tagging methods between sturgeon programs, and 4) continue to promote standardized data collection formats for input into the central database.

Program Background and General Information:

Since 1992, the U.S. Fish and Wildlife Service – Maryland Fishery Resources Office (USFWS-MFRO) has been coordinating a coast-wide sturgeon tagging program as well as serving as a repository for sturgeon capture and tag information for Atlantic and shortnose sturgeon collected on the Atlantic coast and tributaries. The tagging program and database were designed to provide an efficient means of coordination between federal and state agencies and research institutions to ensure consistency between tagging programs and also serve as a central repository for both tagging and capture information for both sturgeon species along the Coast. The current database contains sturgeon capture information dating back to 1988, and tagging information using U.S. Fish and Wildlife Service tags since 1993. Thirty-one different agencies and research institutions have participated in the program, ranging on the Atlantic coast from Maine to Georgia.

The database contains capture information on more than 21,000 sturgeons. Nearly all (94%) of the fish were also tagged prior to release. Of the 10,672 Atlantic sturgeon tagged, 1,457 have been recaptured at least one time (14% recapture rate), with fish being caught up to four times after their original release. Twenty-one percent of the recaptures were reported by commercial fishermen and the remaining 79% of the recaptures were reported by researchers working with sturgeon. Of the 9,194 shortnose sturgeon tagged, 674 have been recaptured (7% recapture rate), with fish being caught up to four times after original release. Nearly all (97%) recaptures were reported by researchers with only 17 recaptures reported by fishermen. A general breakdown of agency tagging efforts (Table 1) and recapture range (Tables 2-4) have been provided for all recaptured sturgeon.

Potential Uses for Current Information:

The potential uses for the tagging information has not changed substantially since the last report five years ago. The database continues to maintain information on tag retention and movement, as well as target fisheries where sturgeons are incidentally caught. There is potential for mapping areas where sturgeon are frequently captured (i.e. Hudson River or Maryland portion of the Chesapeake Bay) that may also be used to determine habitat use by sturgeon, although seasonal and temporal fishing pressure must be considered in some of the tagging programs.

The database also has data that addresses can be used to address some of the management and research needs identified in the ASMFC Amendment 1 to the Fishery Management Plan for Atlantic Sturgeon (ASMFC, Report 31, 1998) including:

- 2. Develop long-term marking/tagging procedures to provide information on individual tagged Atlantic sturgeon for up to 20 years.*

The program currently supplies passive integrated transponder (PIT) tags to most cooperating agencies. These tags have the potential for high retention and long-term recapture information. However, cooperating agencies must consistently check for PIT tags while conducting research that encounters sturgeon in order to identify previously tagged fish.

- 5. Determine the extent to which Atlantic sturgeon are genetically differentiable among rivers.*

The USFWS-MFRO, as well as other agencies and research institutions, have collected tissue samples from sturgeon, and some genetic analysis has been completed. The USFWS-MFRO will coordinate future collection and analysis of tissue samples collected by research agencies.

- 8. Establish coastal tagging programs to delineate migratory patterns and stock composition and rates of loss to bycatch.*

The coast-wide database has been in place since the early 1990's. Migratory patterns can be evaluated through recaptures in the database (Table 2). Some information has also been collected on target species where tagged sturgeons have been captured as bycatch of other fisheries (see Migration Summary section and Bycatch and Target Species section).

9. *Establish tag recovery clearinghouse and database for consolidation and evaluation of tagging and tag return information, including associated biological, geographic, and hydrographic data.*

The database has been coordinated by the U.S. Fish & Wildlife Service, Maryland Fishery Resources Office since 1992.

13. *Encourage shortnose sturgeon researchers to include Atlantic sturgeon research in their projects.*

Many shortnose sturgeon researchers are coordinating with the coast-wide sturgeon tagging program and we can request that they collect information on Atlantic sturgeon while conducting shortnose sturgeon research and tagging.

16. *Establish methods for the recovery of tags and associated information.*

The database has been coordinated by the U.S. Fish & Wildlife Service, Maryland Fishery Resources Office since 1992. Tags can be reported by the toll-free number on the tag to the USFWS or by sending mailed or emailed information to USFWS staff in the Maryland Fishery Resources Office.

Unranked 1: Characterize size and condition of Atlantic sturgeon by gear and season taken as bycatch in various fisheries.

Some information is available from commercial fishery reported recaptures of tagged sturgeon, including size, condition, target species of the fishery, and number of untagged sturgeon captured on the same day that the tagged fish was captured (See Bycatch and Target Species section).

Unranked 2: Identify rates of tag loss and tag reporting.

Tag retention has been evaluated with the current data available in the database; however, no information is available on tag reporting rates at this time.

Atlantic Sturgeon Data Summary by State and Program

Maine

Maine Division of Marine Resources (MEDMR) – Contact Person: Tom Squires
MEDMR tagged Atlantic sturgeon in 1999 and 2000 in the Kennebec and Sasanoa Rivers. All fish were captured in drift gillnets with 6-12” stretch mesh. All fish were captured and tagged in September through November, with the exception of one day in

June. Most capture locations include latitude and longitude. 99 Atlantic sturgeons were tagged, nearly all were between 636 and 1184 mm Total Length (TL) at tagging. Only two fish were 1532 and 1819 mm TL. Weights were taken on 92% of the fish. No fish were checked for the presence of a coded-wire-tag (CWT). All fish were tagged with a Double Barb tag inserted into the dorsal musculature. To date, only one fish has been reported to have been recaptured. It was captured in the St. John River near New Brunswick, Canada during a spawning run by a gillnet.

University of Maine (UME) – Contact Person: Gayle Zydlewski

UME captured 49 and tagged 47 Atlantic sturgeons in the Penobscot River from 2006 through 2008 (tagging ongoing). All fish were captured using anchored gillnets, and capture coordinates, gear, soak time, mesh stretch, water temperature, and water depth are available for captures. Sturgeon ranged in size from 818 to 1964mm TL, with 82% being larger than 1000mm TL. Tissue samples were taken from most fish, and fork length and weight are also available. Fish were tagged with a dorsal Carlin tag, PIT tag and many also received sonic tags. To date, none of the fish have been reported to be recaptured.

University of New England (UNE) – Contact Person: James Sulikowski

UNE captured 17 Atlantic sturgeons in the Saco River in 2008 (tagging ongoing). Thirteen of those fish were tagged and released with a PIT tag and dorsal T-Bar tag. All fish were captured in anchored gillnets with 6” stretch mesh. All fish were captured and tagged from September through November. Atlantic sturgeon ranged in size from 1040 to 1460mm TL, and no weights were taken from those fish. To date, none of these fish have been reported to be recaptured.

New Hampshire

No participation in the program.

Massachusetts

United States Geological Survey, S.O. Conte Anadromous Fish Research Center (USGS-CAFRC) – Contact Person: Micah Kieffer

Eight Atlantic sturgeons have been captured by gillnet in June of 1990 in the Merrimack River and in July 1992 in the Taunton River. River mile information is available in the Merrimack River. No length or weight information was recorded for individual fish. All fish were tagged and released with PIT tags. To date, no fish have been reported to be recaptured.

National Marine Fisheries Service (NMFS) – Contact Person: Stacy Rowe

One Atlantic sturgeon was tagged by trawl in May 2008 in the Atlantic Ocean outside of Nantucket (tagging ongoing). Latitude and longitude and water quality were recorded for the capture. The fish had a total length of 1310 mm. Fork length, weight, and a tissue sample were also recorded. The fish was released with a PIT tag and a T-Bar tag. To date, the fish has not been reported to be recaptured.

Connecticut

Connecticut Dept. of Environmental Protection (CTDEP) – Contact Person: Tom Savoy
CTDEP tagged 841 Atlantic sturgeon from 1993-2008 (tagging ongoing). Most fish were captured in Long Island Sound, but some were also captured in the Connecticut River. Coordinates are associated with most capture data. Most fish were captured using a trawl before 2006, and later using anchored gillnets. Fish were captured and tagged in the summer and fall. Fish ranged in size from 608 to 2178 mm TL at tagging with 76% over 1000 mm. Weights were taken from many of the fish as well. No fish were checked for the presence of a CWT, but were examined for absence of left pelvic fin to determine hatchery or wild origin. Tissue samples were taken from 40% of tagged fish. Water and air temperature, salinity, and soak times for fishing gear were collected for most fish. Fish were tagged with T-Bar tags through the pectoral fin and the base of the dorsal fin, and recently. Since 2004, most fish have also received a passive integrated transponder (PIT) tag. To date, 31 sturgeons have been reported to have been recaptured (3.7% recapture rate), two recaptured twice, and one recaptured three times. Ten of the

recapture events were by commercial fishermen and 25 recaptures were by research projects. Recaptures ranged in the Atlantic Ocean from Rye, New Hampshire to Cape Charles, Virginia. Tributary recaptures occurred in the Connecticut, Delaware, and Hudson Rivers.

New York

Cornell University (CORNELL) – Contact Person: Mark Bain

Tagged 760 Atlantic Sturgeon from 1993-1998 in the Hudson River. All fish were captured using gillnets; the mesh size was recorded for some fish. Most of the sampling was conducted in the summer and fall. Capture locations do not have latitude and longitude, but do have river mile. Fork lengths (FL) of tagged fish ranged from 220 to 2240 mm. Total length and weight were also taken on many fish. 75% of the fish were below 1000 mm FL. Sex information was collected on some fish. Fish were evaluated to determine wild or hatchery origin (scanned for CWT tags and examination for missing left pelvic fin). From 1993 to 1995, sturgeons were tagged with a dorsal and pectoral T-Bar tag and some also had a PIT tag. In December of 1995, the tagging method was switched to consist of a Carlin tag and a PIT tag, with several fish only receiving a PIT tag. 47 fish have been recaptured (6.2% recapture rate) and 3 of those fish have been recaptured twice. Of the recapture events, 28 were collected in gillnets by Cornell, NYDEC, or NEFC during their research in the Hudson River. DEFW and CTDEP were other research agencies that encountered sturgeon in the Delaware River near Augustine Beach, near Guilford in Long Island Sound, and near White Sands Beach in Long Island Sound. One fish was collected by USFWS-MFRO in 2004 in an anchored gillnet in the Potomac River off Sandy Point, VA. Of the 16 recaptures reported by commercial fishermen, they ranged in the Atlantic Ocean from Marshfield, MA to Diamond Shoals (Hatteras), NC.

U.S. Fish and Wildlife Service, Northeast Fishery Center (NEFC) – Contact Person:

John Sweka

NEFC tagged 628 Atlantic sturgeon in 1996-1998 and 2003-2007 in the Hudson River. Fish were captured using anchored gillnets in the summer of 1996-1998 and 2006-2007,

in the fall of 2003-2004, and in the spring and fall of 2005. During the early sampling period fish were tagged with dorsal and pectoral T-Bar tags and also some with a dorsal Double Barb tag. Fish tagged from 2003 to 2007 received a PIT and Carlin tag. Fish ranged in size from 364 to 2311 mm TL, fork length was collected for nearly all fish and weight was collected for some fish. Fish were examined for presence of left pectoral fin for hatchery origin and some fish were also scanned for the presence of a CWT. Latitude and longitude were recorded for most of the fish during 1996 and 2003-2007, but not for any of the fish during 1997 and 1998. Water temperature and air temperature were collected in 1996 and in 2003-2007. Mesh size was collected in 2003-2007. 52 of the fish were recaptured (8.3% recapture rate), while two fish were recaptured twice. Of the recaptures, 45 were reported by sturgeon researchers in the Hudson River, the Atlantic Ocean off of New York and New Jersey, Long Island Sound, and the Potomac River. Of the 9 recaptures reported by a commercial fisherman, one was off Point Judith, RI, another in the James River, VA, and the remaining were reported from the Hudson River and the Atlantic Ocean off New York and New Jersey coasts.

National Marine Fisheries Service (NMFS) – Contact Person: Stacy Rowe

Twelve Atlantic sturgeons were tagged by NMFS in New York waters during trawl surveys. The fish were between 162-1840 mm TL. Fork length and weight were collected for all fish. The fish were tagged in the Atlantic Ocean off the New York coast from 2003 to 2008 (tagging ongoing). To date, none of the tagged fish have been reported as recaptured.

*New York Department of Environmental Conservation (NYDEC) – Contact Person:
Mark Dufour or Kathy Hattala (including contracted work by Normandeau)*

NYDEC captured 500 and tagged 466 Atlantic sturgeons from the Hudson River. Fish were tagged from 1992-2008 (tagging ongoing). All fish were tagged with dorsal and pectoral T-Bar tags in the 1990's and with Carlin and PIT tags after 2000. Fish ranged in size from 121 to 2500 mm TL. Fork length and weight were also collected. River mile was collected for capture location, and capture latitude and longitude was recorded for 2004-2008. Fifteen fish have been recaptured (3.2% recapture rate), one recaptured

twice. Ten fish were recaptured by sturgeon researchers working from the Hudson River, the New York Atlantic Coast and the Chesapeake Bay. The remaining six reports were by commercial fishermen ranging from Gilgo Beach, NY to Virginia Beach and James River, VA.

Stony Brook University (SBU-NY) – Contact Person: Keith Dunton

Stony Brook University captured 411 and tagged 384 wild Atlantic sturgeons in the coastal waters of New York from Breezy Point to Montauk. The fish were captured using a trawl between 2005 and 2008 (tagging ongoing). Water temperature, depth, and salinity and well as latitude and longitude were recorded for capture events. Fish ranged in size from 702 to 2150mm TL and 42% were less than 1000mm TL. Fork length and weight were also recorded for each fish. Fish were tagged with a dorsal Carlin tag and a PIT tag. Fourteen fish were recaptured one time. Six were reported by sturgeon researchers from the Atlantic Coast of New York and North Carolina. Eight reports were from commercial fishermen working off the Atlantic coast of New Jersey and Maryland.

Virginia Institute of Marine Science (VIMS) – Contact Person: Chris Hager

Two Atlantic sturgeons were captured by trawl and tagged in the Atlantic Ocean off of Rockaway Point, New York during the fall of 2006 and 2007. Latitude and longitude was recorded for both captures. The fish had a fork length of 1370 and 1400 mm, but did not have a total length or weight recorded. A tissue sample was not taken. To date, neither fish have been recaptured.

New Jersey

American Littoral Society (ALS) – Contact Person: Dery Bennett

ALS tagged five Atlantic sturgeons in April 2007 in the lower portion of Delaware Bay. Fish were captured in an anchored gillnet, and latitude and longitude information is available for all fish. Water quality and mesh stretch was recorded for all fish, but tissue samples were not taken from any of the fish. Fish ranged in size from 739-1409 mm FL; total length is available for four of the fish, but weight was not recorded. Fish were tagged with Carlin and PIT tags and to date, no fish have been recaptured.

Army Corps of Engineers (ACEDE) – Contact Person: Unknown

ACEDE tagged seven Atlantic sturgeons in July and August 1994 in Delaware Bay. Fish were captured in a trawl, and latitude and longitude information is available. All fish were tagged with a dorsal and pectoral T-Bar tag. Water and air temperature was collected for all fish and water depth was collected for most fish. Fish ranged in size from 690-1250 mm TL; fork length and weight for all fish was recorded. To date, no fish has been recaptured.

National Marine Fisheries Service (NMFS) – Contact Person: Stacy Rowe

Four Atlantic sturgeons were tagged by NMFS in New Jersey waters during trawl surveys. The fish were between 790-1450 mm TL. Fork length and weight were collected for all fish. The fish were tagged in the Atlantic Ocean off the New Jersey coast from 2005 to 2008 (tagging ongoing). To date, none of the tagged fish have been reported as recaptured.

New Jersey Bureau of Marine Fisheries (NJDEP) – Contact Person: Heather Corbett or Russ Allen

NJDEP captured and tagged 390 Atlantic sturgeons from 1992 to 2001. All fish were captured off the Atlantic Coast of New Jersey except for two fish caught in Delaware Bay off Reeds Beach in 2000. Fish ranged in size from 559 to 2149 mm TL, with over half of the fish being larger than 1000mm TL. Fork length and weight information was also collected for many fish. Fish were captured using gillnets and trawls, and most fish have latitude and longitude information available. Water and air temperature, stretch mesh, and gear soak time are available for most fish. Fish were collected and tagged by commercial fishermen as bycatch of other fisheries for the New Jersey program. All fish were tagged using dorsal and pectoral T-Bar tags. 37 fish have been recaptured (9.5% recapture rate). Of the recapture events, eight were encountered by sturgeon researchers working in Long Island Sound, the New Jersey and Maryland coasts and Delaware Bay. The remaining 29 reports were from commercial fishermen. Commercial reports ranged from Rye, NH to Nags Head, NC.

Stony Brook University (SBU-NJ) – Contact Person: Keith Dunton

Stony Brook University captured 97 and tagged 73 wild Atlantic sturgeons in the coastal waters of New Jersey from Sandy Point to the mouth of Delaware Bay. The fish were captured using a trawl between 2005 and 2008 (tagging ongoing). Water temperature, depth, and salinity and well as latitude and longitude were recorded for capture events. Fish ranged in size from 665 to 2580mm TL and 57% were less than 1000mm TL. Fork length and weight were also recorded for each fish. Fish were tagged with a dorsal Carlin tag and a PIT tag. One fish was recaptured, reported by a commercial fisherman in the James River, VA.

Virginia Institute of Marine Science (VIMS) – Contact Person: Chris Hager

One Atlantic sturgeon has been captured by trawl and tagged in the Atlantic Ocean off of Sandy Hook, New Jersey during October 2007. Latitude and longitude was recorded for this capture. The fish had an 1100 mm FL, but did not have a total length or weight recorded. A tissue sample was not taken. To date, the fish has not been recaptured.

Delaware

Delaware Division of Fish and Wildlife (DEFW) – Contact Person: Matt Fisher

DEFW captured 2,001 Atlantic sturgeons and tagged 1,998 in the Delaware Bay, the Delaware River, and in the Atlantic Ocean off Fenwick Island and Bethany Beach. All tagging has occurred between 1991 and 2008 (tagging ongoing). Total length of captured fish ranged from 460 to 1770 mm TL. Fork length and weight are also available for most fish. Most fish were tagged with a DEFW agency tag (T-Bar or Dart) and some also received a dorsal (USFWS) T-Bar tag. One-hundred ninety-six fish have been recaptured (9.8% recapture rate), with 24 fish recaptured more than one time and two fish recaptured four times. Of the recapture events, 193 were reported by sturgeon research organizations, mostly by DEFW. Of the research reports, captures ranged from Cape Cod Bay, MA to south of Oregon Inlet, NC. Commercial fishermen reported 33 recapture events which ranged from Chatham, MA to Croatan Sound, NC.

Delaware State University (DESU) – Contact Person: Dewayne Fox

DESU caught 48 Atlantic sturgeons and tagged 46 from 2005 to 2007. All fish were captured using anchored gillnets in the Delaware River. Total lengths ranged from 650 to 1970 mm TL. Fork length, weight, and tissue samples were also taken from most fish. Fish were tagged with DEFW Agency Dart Tags and PIT tags. Fish were also tagged with sonic tags. Two fish were recaptured (4.3% recapture rate) by a research agency, in the Delaware River off of Marcus Hook, Delaware.

National Marine Fisheries Service (NMFS) – Contact Person: Stacy Rowe

Six Atlantic sturgeons have been captured in a trawl and tagged by NMFS between 1999 and 2004. Two of the captures occurred in Delaware Bay and three captures occurred on the Atlantic Coast. All fish have latitude and longitude information available. Fish ranged in size from 1570 to 2690 mm TL, with fork length and weight available also. The fish were tagged with Dorsal T-Bar or Double-Barb tags. To date, no fish has been recaptured.

Maryland

Maryland Department of Natural Resources (MDDNR) – Contact Person: Steve Doctor

Thirty-nine Atlantic sturgeons have been tagged by commercial fishermen working with Maryland Department of Natural Resources off Ocean City on the Atlantic Coast. Fish were captured in trawls in the spring and fall of 1998 and 1999. Fish ranged in size from 812 to 1524 mm TL. All fish were tagged with a Double-Barb tag inserted into the dorsal musculature. Four fish have been recaptured, all by commercial fishermen (10.2% recapture rate). Three were caught off the Atlantic Ocean of Virginia and the last was caught by a fisherman in the Chesapeake Bay of Maryland.

U.S. Fish and Wildlife Service – Maryland Fishery Resources Office (USFWS-MFRO) – Contact Person: Mike Mangold

The USFWS-Maryland FRO has collected data on 1,485 Atlantic sturgeon have tagged 1,466 of those fish. The Atlantic sturgeons have been caught and tagged between 1993 and 2008 (tagging ongoing) in the Maryland waters of the Chesapeake Bay and

tributaries. Of those fish, 11 fish were caught in directed research studies on sturgeons, and the remainder were collected by commercial fishermen participating in a Reward Program for sturgeon. In the Reward Program, fishermen are given a monetary incentive to transport and temporarily hold live sturgeon bycatch at a shore location so USFWS-MFRO staff can tag and release the fish. Fish are collected year-round, primarily in gillnets and pound nets. Capture and release latitude and longitude are available for most fish. Although most fish are tagged and released, in the past 5 years 109 fish have been kept by the Maryland Department of Natural Resources to conduct studies on sturgeon and initiate a brood stock program. Many fish were evaluated to determine hatchery or wild origin by scanning for CWT or external examination of left pelvic fin removal. Fish ranged in size from 210 to 2420 mm TL, but 90% were less than 1000mm TL. Fork length and weight are also available. Tissue samples were taken from many of the fish. From 1993 to 2003, fish were tagged with dorsal and pectoral T-Bar tags and some larger fish also received a Double-Barb tag in the dorsal musculature. Since 2003, fish are tagged with a dorsal T-Bar tag and a PIT tag. One-hundred fifty-seven fish have been recaptured (10.7% recapture rate), 21 of those were recaptured twice, and two of those were recaptured three times. Sturgeon research agencies reported 131 of the recaptures, with most coming through the Maryland Reward Program, but otherwise ranging Long Island Sound, CT to the Atlantic Coast of NC. Commercial fishermen reported 49 recapture events, most in the Chesapeake Bay and along the Atlantic coast of Virginia. Other commercial reports ranged from Fire Island, NY to the Albemarle, Pamlico and Roanoke Sounds in NC.

United States Geological Survey (USGS-MD) – Contact Person: Mike Mangold

Three Atlantic sturgeons have been captured and two fish have been tagged by drift gillnet in the summer of 2006 in the Potomac River. Latitude and longitude were recorded for all three captures. Fish ranged in size from 690 to 810 mm TL. Fork length and weight are available for all three fish. Tissue samples were taken from the two fish that were released. Water depth, temperature, and salinity were recorded for all fish. Both fish were tagged with PIT tags prior to release, and to date, none have been recaptured.

Virginia

National Marine Fisheries Service (NMFS) – Contact Person: Stacy Rowe

Eight Atlantic sturgeons have been captured and tagged during a trawl survey off the Atlantic coast of Virginia between 2000 and 2008 (tagging ongoing). Water temperature and capture latitude and longitude are available. Fish ranged in size from 700 to 1710 mm TL, with fork length and weight also available. Fish were tagged with T-Bar or Double Barb tags and since 2008, fish have also been tagged with PIT tags. One fish was reported as a recapture by a commercial fisherman in Rhode Island Sound off Newport, Rhode Island.

U.S. Fish and Wildlife Service, Virginia Fisheries Coordinator (USFWS-VA) – Contact Person: Albert Spells

USFWS-VA captured 354 Atlantic sturgeons and 350 of those fish in 1997, 1998 and 2005 through 2007. They were caught primarily in the James River, but also in the York and Rappahannock Rivers. Fish were collected by commercial fishermen as part of a monetary Reward Program similar to the one conducted by USFWS-MFRO (see above). Latitude and longitude are available for most capture locations. Fish ranged in size from 152 to 1700 mm TL, with 97% of the fish being less than 1000 mm TL. Fork length and weight are also available for most of the fish and tissue samples were taken for one-third of the tagged fish. All fish were evaluated to determine hatchery or wild origin. In 1997 and 1998 fish were tagged with a dorsal and pectoral T-Bar tag and from 2005 through 2007, PIT tags were also applied to the fish. Forty fish were recaptured (11.4% recapture rate), four of those were recaptured twice, and two of those were recaptured three times. Sturgeon researchers reported 19 recapture events, all within the Chesapeake Bay and tributaries. The remaining 27 recapture events were reported by commercial fisherman. Most commercial reports were from the Chesapeake Bay and the Virginia Coast, but ranged from Hancock's Bridge in the Delaware River to Pamlico Sound and Cape Hatteras in NC.

Virginia Institute of Marine Science (VIMS) – Contact Person: Chris Hager

VIMS captured 821, and tagged 551 Atlantic sturgeons from 2005-2007 (tagging ongoing). Most of the fish were caught with the cooperation of commercial fisherman working in the lower Chesapeake Bay and tributaries and the lower Virginia Atlantic Coast. Captured fish ranged in size from 300 to 2009 mm TL, with 91% of the fish less than 1000mm TL. Most of the fish have fork length and tissue samples recorded and some fish have weight recorded. Fish were tagged with a dorsal T-Bar and PIT tag prior to release. There have been 35 fish recaptured (6.4% recapture rate), with three of those recaptured twice. Of the recapture reports, 30 were through sturgeon research programs in the Chesapeake Bay and the Atlantic Coast of VA and NC. The remaining 8 recaptures events were by commercial fishermen, all within the Chesapeake Bay and tributaries.

Virginia Marine Resources Commission (VMRC) – Contact Person: Unknown

Six Atlantic sturgeons were tagged and released in April 1996 off Wachapreague, Virginia on the Atlantic Coast. Fish were captured in an anchored gillnet, and latitude and longitude are available. Water and air temperature, water depth, and gear soak time are also available. Fish ranged in size from 786 to 965 mm TL. Fish were tagged with a dorsal T-Bar tag. To date, none have been recaptured.

North Carolina

North Carolina Cooperative Fish and Wildlife Research Unit (NCCOOP) – Contact Person: Joe Hightower

Collected and tagged 35 Atlantic sturgeons from Albemarle Sound in the summer of 1998 and two from the Neuse River in 2002. All fish had capture latitude and longitude, water depth, water temperature, salinity, and stretch mesh information available. Fish ranged in size from 286 to 585mm FL in Albemarle Sound, and 639 and 992 mm FL in the Neuse River. Interorbital width, outer mouth width, inner mouth width and snout length as well as weight were collected for each fish. Fish were tagged with a dorsal and pectoral T-Bar tag and many fish also received a PIT tag. Seven of those fish were recaptured (18.9% recapture rate), and one was recaptured twice. Four recaptures came

from the sampling conducted by NCCOOP in Albemarle Sound in the summer of 1998. The other four recaptures were by commercial fishermen in Albemarle Sound in the fall of 1998 and spring of 1999.

North Carolina Cooperative SEAMAP Tagging Cruise (NCCRUISE) – Contact Person: Mike Mangold or Wilson Laney

Collected 226 and tagged 220 Atlantic sturgeons off the Atlantic Coast of North Carolina and extreme southern Virginia. Fish were collected in a trawl survey in the winter from 1988 to 2008 (tagging ongoing). Latitude and longitude information as well as water and air temperature, water depth, and gear soak time is available for nearly all fish. Water depth and salinity are available for most fish. Fish ranged in size from 577 to 1770mm TL. Fork length is also available for most fish and tissue samples were taken from many of the fish. Prior to 1994, fish received a dorsal Monel Strap Tag. Since 1994, most fish received dorsal and pectoral T-Bar tags, and some fish only received a Double Barb tag. PIT tags were applied to all fish beginning in 2006. Nine of the tagged fish have been recaptured (4.1% recapture rate), and one of those recaptured three times. Six of the reports were from sturgeon researchers working from the Hudson River, Delaware Bay, Chesapeake Bay, and the Atlantic Coast of NC. The five remaining recapture events were reported by commercial fishermen ranging from Fire Island, NY to Cape Hatteras, NC.

North Carolina Division of Marine Fisheries (NCDMF) – Contact Person: Jennifer Lippincott

NCDMF captured 579 and tagged 553 Atlantic sturgeons from 1998 through 2008 (tagging ongoing). All captures occurred in anchored gillnets. All captures occurred in Albemarle Sound and Croatan Sound. Capture latitude and longitude are available for about half the fish. Total lengths ranged from 269 to 1638 mm TL, with all fish but one (1638mmTL) less than 1000mm TL. Fork length is also available for most of the fish and weight is available for a few fish. Water and air temperature, salinity, stretch mesh, and gear soak time are available for some fish. Fish were tagged with dorsal and pectoral T-Bar tags and PIT tags were inserted beginning in 2008. Sixty-six of these fish have

been recaptured (11.9% recapture rate), 4 have been recaptured twice. Sturgeon researchers reported 17 of the recapture events with all by NCDMF in Albemarle Sound except for two in the Chesapeake Bay. The remaining 53 recapture reports were from commercial fishermen, all from within Albemarle Sound and surrounding bodies of water.

North Carolina Division of Marine Fisheries - Wilmington (NCDMF-W) – Contact Person: Chip Collier

NCDMF-W captured 49 and tagged 46 Atlantic sturgeons in the Cape Fear River System from 2002 through 2008. Fish were collected in anchored gillnets and gear soak time, water temperature, depth, and salinity are available for many of the captures. Fish ranged in size from 500 to 1162mm TL, with 90% of fish less than 1000mm TL. Fork length and weight were also recorded for each fish. Fish were tagged with dorsal T-Bar tags prior to release. Three fish were recaptured (6.5% recapture rate). One recapture was by NCDMF-W near the release location, one by a commercial fisherman off Holden Beach, NC and the last fish by sturgeon researchers in the James River, VA.

National Marine Fisheries Service (NMFS) – Contact Person: Stacy Rowe

Five Atlantic sturgeons were captured and tagged in a trawl survey in March of 1999 and 2008 off the coast of North Carolina. One fish was tagged near Hatteras and four were tagged near Bodie Island. The sturgeons were between 1160 and 1900mm TL and were tagged with a dorsal and pectoral T-Bar tag and a PIT tag. To date, no fish have been recaptured.

University of North Carolina – Wilmington (UNC) – Contact Person: Mary Moser

84 Atlantic sturgeons were caught and 62 of those fish were tagged between 1996 and 2005 off the Atlantic Coast, mostly in the vicinity of Holden Beach and the Cape Fear watershed. Nearly all fish were caught in anchored gillnets, and latitude and longitude information is available for many fish. Water and air temperature and gear soak time are available for most of the fish. Fish ranged in size from 546 to 1453mm TL, with 88% of fish less than 1000mm TL. Fork length is also available and tissue samples were taken

from some fish. Most fish were tagged with dorsal and pectoral T-Bar tags, although some fish only had a dorsal T-Bar tag, and others only had a Double-Barb tag inserted through the dorsal musculature. Many of the fish also received a UNC green T-Bar tag. Two of the fish have been recaptured (3.2% recapture rate), one by NCDMF in the Cape Fear River during their sturgeon study. The second fish was captured by a commercial fisherman in the New River, North Carolina.

South Carolina

South Carolina Department of Natural Resources (SCDNR) – Contact Person: Bill Post
SCDNR have released 3 Atlantic sturgeons that have been recaptured by program cooperators. Although SCDNR does not provide all release data to the program, information is shared between this program and their program for fish that travel between systems. All three fish were tagged in the Edisto River in 2003 and 2004. They were between 301 and 692mm TL at release. The fish were recaptured by cooperating sturgeon researchers in Delaware Bay, and off the Atlantic Coasts of North Carolina and New York.

Georgia

U.S. Army – Fort Stewart (GAFS) – Contact Person: Joel Flemming
GAFS captured 303 and tagged 280 Atlantic sturgeons in the Ogeechee and Canoochee Rivers from 1999 through 2005. All fish were captured using anchored gillnets and river mile was recorded for each capture. Fish ranged in size from 149 to 1905mm TL, with 85% being less than 1000mm TL. Fork length and weight were also recorded for most fish. Fish were tagged with PIT tags and some had T-Bar tags as well. Thirty-six fish were recaptured (12.9% recapture rate), with 10 recaptured twice and four recaptured three times. Sturgeon researchers reported 52 of the 54 recapture reports. Most of the reports were by GAFS near the original release location, but reports also came from the Savannah River, SC, Cape Fear River, NC and off the North Carolina coast. The other two reports were from fishermen in the Edisto River, SC and off the North Carolina coast.

Florida

No participation in the program.

Shortnose Sturgeon Data Summary by State

Maine

University of Maine (UME) – Contact Person: Gayle Zydlewski

UME captured 299 and tagged 295 shortnose sturgeons in the Penobscot River from 2006 through 2008 (tagging ongoing). All fish were captured using anchored gillnets, and capture coordinates, gear, soak time, mesh stretch, water temperature, and water depth are available for captures. Sturgeon ranged in size from 704 to 1300mm TL, with 65% being less than 1000mm TL. Tissue samples were taken from most fish, and fork length and weight are also available. Fish were tagged with a dorsal Carlin tag, PIT tag and many also received sonic tags. Forty-two of the fish have been recaptured, with 4 fish recaptured twice. All the recaptures were by the tagging agency within the Penobscot River.

Massachusetts

United States Geological Survey, S.O. Conte Anadromous Fish Research Center (USGS-CAFRC) – Contact Person: Micah Kieffer

Sixteen-hundred sixty-one shortnose sturgeons were captured and tagged from 1990 through 2007 in the Connecticut River. No length or weight information is available for the fish. All fish were tagged with PIT tags prior to release. The tagging agency recaptured 201 fish (12% recapture rate), with 19 fish being recaptured two times. All of the reported recaptures were in the Connecticut River.

New York

Cornell University (CORNELL) – Contact Person: Mark Bain

Tagged from 1993-1998 in the Hudson River. All fish were captured using gillnets. Most of the sampling was conducted in the summer and fall. Capture locations do not have latitude and longitude, but do have river mile. 6,297 shortnose sturgeons were tagged. Fish ranged in size from 370 to 990 mm FL. Total lengths and weights were also

taken on many fish. Tissue samples were taken from some fish. Shortnose sturgeons were tagged with a dorsal and pectoral T-bar in 1993. In 1994, a PIT tag was also added to the combination, with some fish only receiving a PIT tag. Fish tagged from late March 1995 to 1997 received only a PIT tag and no external tags. Forty-one fish that were considered a first time capture in the database had Dovel tags present upon initial capture. Besides the Dovel recaptures, 377 of the fish were recaptured (5.9%), 24 of those were recaptured twice, and two of those were recaptured three times. Sturgeon researchers reported 390 recapture events, all within the Hudson River except for two in the Connecticut River. Twelve fish were reported by fishermen in the Hudson River, and one fish was found dead.

*U.S. Fish and Wildlife Service, Northeast Fishery Center (NEFC) – Contact Person:
John Sweka*

NEFC captured 213 shortnose sturgeons from 2003 through 2005 in the Hudson River. All fish were captured using anchored gillnet. Latitude and longitude were taken for all fish in except for two. Gillnet mesh size was recorded for all captures. Fish ranged in size from 451 to 955 mm TL. Fork length and weight were also collected for most fish. A total of 194 fish were tagged with a PIT and Carlin tag. To date, four fish have been recaptured (2.1% recapture rate). All fish were recaptured in the Hudson River, three by researchers working with sturgeon, and one by a recreational fisherman.

*New York Department of Environmental Conservation (NYDEC) – Contact Person:
Mark Dufour or Kathy Hattala (including contracted work by Normandeau)*

NYDEC captured 597 and tagged 470 shortnose sturgeons in the Hudson River in 1994, 1998, and 2004 through 2008 (tagging ongoing). Fish ranged in size from 75 to 1035 mm TL. Fork length and weight were collected for many of the fish. Fish were collected using trawls, gillnets, and sleds. Capture location includes latitude and longitude for most fish. All fish released in 1994 and 1998 were tagged with dorsal and pectoral T-Bar tags. Fish tagged beginning in 2004 received a dorsal Carlin tag and a PIT tag. Two fish have been recaptured, and one recaptured twice. All recaptures were by sturgeon researchers working in the Hudson River.

New Jersey

U.S. Fish and Wildlife Service – Maryland Fishery Resources Office (USFWS-MFRO-D)
– *Contact Person: Mike Mangold*

USFWS-MFRO captured and tagged 64 shortnose sturgeon in the Delaware River near Scudder's Falls and Bordentown in 1998 and 2000. All fish were captured using anchored gillnets, and latitude and longitude data are available for most fish. Fish ranged in size from 675 to 975 mm TL; with fork length and weight also available for all fish. Water temperature, water depth, salinity, conductivity, stretch mesh and gear soak time were recorded for all fish. Tissue samples were also collected from all fish. Four of the fish had existing Rutgers tags on them at first capture, and three fish had an existing ERC tag at first capture. USFWS-MFRO applied a Carlin tag through the base of the dorsal fin, a T-bar tag through the pectoral fin, and a PIT tag. Six of the USFWS-MFRO tagged fish have been recaptured (9.3% recapture rate). All fish were recaptured in the Delaware River, five by sturgeon researchers and one reported by a fisherman.

Delaware

Delaware Division of Fish and Wildlife (DEFW) – Contact Person: Matt Fisher

DEFW captured 13 and tagged 11 shortnose sturgeons in the Delaware River. Fish were captured in 1992, 1993, 1998 and 2001. Total lengths of fish ranged from 760 to 1050 mm TL. Fork length and weight are also available for fish captured. Fish were tagged with a dorsal T-Bar tag and two were released with PIT tags. One fish (9.0%) was recaptured by a sturgeon researcher in the Delaware River.

Delaware State University (DESU) – Contact Person: Dewayne Fox

DESU tagged one shortnose sturgeon on the Delaware River, west of Alloway Creek in September of 2005. An anchored gillnets was used for the capture. Total length was 653 mm. Fork length, weight, tissue samples, and water quality was recorded. To date, the fish has not been caught.

U.S. Fish and Wildlife Service – Maryland Fishery Resources Office (USFWS-MFRO-D)
– *Contact Person: Mike Mangold*

Nine shortnose sturgeon were captured in gillnets in 1998 and 2002 in the Delaware River around Scudder's Falls. Fish ranged in size from 649 to 901 mm TL. Fork length and weight are also available for all fish. All fish were tagged with a dorsal Carlin tag, pectoral T-Bar tag and a PIT tag. No fish have been recaptured to date.

Maryland

U.S. Fish and Wildlife Service – Maryland Fishery Resources Office (USFWS-MFRO) –
Contact Person: Mike Mangold

Seventy-two shortnose sturgeon were captured and 42 were tagged between 1996 and 2008 (tagging ongoing) in the Maryland waters of the Chesapeake Bay and tributaries. Fish were collected by commercial fishermen participating in a Reward Program for sturgeon. Fishermen are given a monetary incentive to transport and temporarily hold live sturgeon bycatch at a shore location so USFWS-MFRO staff could tag and release the fish. Capture and release latitude and longitude are available for all fish. Water depth was also recorded for many of the captures. Fish ranged in size from 384 to 1030mm TL. Fork length and weight are also available. Tissue samples were taken from many of the fish. Most fish were with a pectoral T-Bar tag, dorsal Carlin tag, and an internal PIT tag. Fish captured after 2003 were not tagged. Three of the fish were recaptured (7.1% recapture rate), one of those recaptured twice. Three reports occurred in the USFWS-MFRO reward program, and one was by a commercial fisherman. All fish were recaptured in the Chesapeake Bay or tributaries.

United States Geological Survey (USGS-MD) – Contact Person: Mike Mangold

One shortnose sturgeon has been captured in September 2005 in the Potomac River. Latitude and longitude was recorded for the capture. The fish had a total length 700 mm. Fork length and weight is available for the fish and a tissue sample was taken from the fish. Water depth and temperature was recorded for the fish. To date, the fish has not been recaptured.

Virginia

U.S. Fish and Wildlife Service, Virginia Fisheries Coordinator (USFWS-VA) – Contact Person: Albert Spells

One shortnose sturgeon was tagged and released in May 1997 in the Rappahannock River. The fish was collected by a commercial fisherman as part of a monetary Reward Program similar to the one conducted by USFWS-MFRO (see above). Latitude and longitude are available for the capture location. The fish was 708 mm TL, with fork length and weight also available. It was tagged with a dorsal and pectoral T-Bar tag. A tissue sample was taken from the fish. To date, it has not been recaptured.

Georgia

U.S. Army – Fort Stewart (GAFS) – Contact Person: Joel Flemming

GAFS tagged and released 145 shortnose sturgeons in the Ogeechee and Canoochee Rivers from 1999 through 2005. Fish were captured using anchored gillnets and river mile information was collected for each capture. Fish ranged in size from 357 to 1306mm TL with fork length and weight also available. All fish were tagged with PIT tags and some fish received a pectoral T-Bar tag. Thirty-nine fish have been recaptured; several were recaptured multiple times, including two fish recaptured four times. Forty-seven of the recapture events were in the tagging rivers by GAFS. One report was from a fisherman within the tagging river and one report was by a sturgeon researcher in the Edisto River, SC.

Atlantic Sturgeon Hatchery Releases

New York

U.S. Fish and Wildlife Service, Northeast Fishery Center (NEFC) – Contact Person: Jerre Mohler

Two releases of hatchery reared Atlantic sturgeon have occurred in the Hudson River.

1. About 5,000 fish were released into the Hudson River near Newburg in October 1994. All fish were tagged with a CWT under the first dorsal scute and had the left pelvic fin removed before release. Fish were about 4 months

2. A total of 210 hatchery reared Atlantic sturgeon were released into the Hudson River 2004. Fish had a PIT and Carlin tag at release, and 15 of those fish were also released with a Sonic tag. All fish were from 1994, 1995, and 1998 year classes. Twenty-two of those fish have been recaptured, with one recaptured twice and one recaptured three times. Thirteen recapture events were by sturgeon researchers working in Long Island Sound, the Hudson River, Delaware Bay and Chesapeake Bay. Four fish were reported to be found dead in the Hudson River, Delaware Bay and Chesapeake Bay. The remaining 8 reports were from commercial fishermen encountering fish from Albemarle Sound, Chesapeake Bay, Delaware Bay, and the Hudson River.

Maryland

Maryland Department of Natural Resources (MDDNR) – Contact Person: Brian Richardson

About 3,200 Age 1 Atlantic sturgeons were released into the Nanticoke River in July of 1996. All fish were released with a CWT under the third left dorsal scute, and 920 of the larger fish were also released with a dorsal T-bar tag. A total of 456 fish were recaptured at least one time (14.3% recapture rate), with many fish being recaptured multiple times (maximum of four recapture events). Most recapture events (506) occurred in the Reward Programs with commercial fishermen in the Chesapeake Bay of Maryland and Virginia. The remainders of the recapture events (71) have occurred by commercial fishermen outside of the Reward Programs. Most of the commercial recaptures were in

the Chesapeake Bay. The remainder ranged from the Atlantic coast and Croatan Sound in NC to the Atlantic Coast of RI.

Migration Summary:

Both sturgeons are migratory, with Atlantic sturgeon undergoing much more extensive coastal movements than the shortnose. Of the shortnose sturgeon, 99% of the recaptures occurred in the same river where the fish was originally tagged (Table 2). Only two recaptured fish were reported from the rivers different from where they originally tagged. Both of the migrating fish were originally tagged in the Hudson River and were recaptured in the Connecticut River.

Atlantic sturgeons are more migratory than shortnose, and are known to make extensive coastal migrations between tributaries. Recaptures have been reported ranging from the same day of original capture (0 days at large (DAL)) to over 15 years after original capture (5,515 DAL). An important note to keep in mind is that in more intensive sampling programs (Hudson River or Chesapeake Bay), sturgeon will generally be recaptured in a shorter amount of time after release and have higher recapture rates than in programs that encounter fewer fish. Sturgeon recaptures also rely heavily on the visibility and retention of the tag type used (See Tag Retention Section). Although recapture rates varied between programs, all data are lumped here for the summary of migratory movements. Since there is the potential that hatchery reared fish and wild fish may behave differently in regards to migration, they are evaluated separately in this section.

Wild Atlantic Sturgeon

A total of 850 recapture events were reported with wild Atlantic sturgeon (Table 3). 432 of the recapture events (51%) occurred within the first 6 months after release, 165 recapture events (19%) occurred between 6 and 12 months post release, 161 recapture events (19%) occurred between 1 and 2 years at large, 82 recapture events (10%) occurred between 2 and 5 years at large, and 10 fish (1%) were captured at more than 5 years at large. Fish tended to move away from their tagging waterbodies more frequently as time passed. Nine percent of fish left within the first 6 months after release, 30% left between 6 and 12 months after release, 35% left between 1 and 2 years after

release, 60% left between 2 and 5 years after release, and 80% of fish recaptured more than 5 years at large were recaptured in a different waterbody from where they were originally released.

Hatchery Atlantic Sturgeon

A total of 828 recapture events were reported with hatchery Atlantic sturgeon (Table 4). Twenty-one of the recapture events (3%) occurred within the first 6 months after release, 260 recapture events (31%) occurred between 6 and 12 months post release, 293 recapture events (35%) occurred between 1 and 2 years at large, 238 recapture events (28%) occurred between 2 and 5 years at large, no fish were captured at more than 5 years at large. Unlike wild fish, hatchery fish did not show as strong a tendency to move away from the release region as time passed. Five percent of fish left within the first 6 months after release, 5% left between 6 and 12 months after release, 3% left between 1 and 2 years after release, 11% left between 2 and 5 years after release were recaptured in a different waterbody from where they were originally released.

Bycatch and Target Species:

When tagged fish are reported to the USFWS via the toll-free phone number, most are being reported by fishermen. To understand more about target fisheries where sturgeons are captured as bycatch, many fishermen are asked information about gear and target species. Through tag return phone calls, 377 fishermen were interviewed regarding capture gear, target species (commercial fishermen) and number of sturgeon they had encountered at the time they captured the tagged sturgeon. Most of the reports were from Atlantic sturgeon, but 16 (4%) were from tagged shortnose sturgeon.

Overall, the main gear that sturgeon are collected in as bycatch are gillnets (80%), with anchored gillnets being the most popular (Table 5). Target species varied, but the most common reported was striped bass (38%) followed by flounder (16%) (Table 6). Although sturgeon are migratory, recaptures generally occur within a short amount of time after release and therefore, recaptures may be more common in the vicinity of tagging programs that have marked large numbers of fish. Most of the tagged sturgeons taken as bycatch were caught in the Chesapeake Bay and surrounding coastal region (49%) (Figure 1 and Table 7). Of the fishermen reports,

40% encountered other untagged sturgeon when they recaptured the tagged fish. The number of untagged sturgeon reported ranged from one to 75, with 78% of the reporters catching 10 or less untagged sturgeon.

Tagging Recommendations:

All internal and external tags, as well as specialized tag related equipment, will be provided to tagging organizations by the U.S. Fish and Wildlife Service – Maryland Fishery Resources Office.

Internal:

All fish should be checked for existing PIT tags under the third dorsal scute and in the dorsal musculature between the base of the dorsal fin and the row of lateral scutes on the left side of the fish. PIT tag readers will be furnished to agencies by the USFWS upon request. If possible, Atlantic sturgeon should be checked for the presence of a CWT under the first and third dorsal scutes to determine hatchery or wild origin. All fish should have a PIT tag placed into the musculature below the base of the dorsal fin and above the row of lateral scutes on the left side of the fish. Biomark TX1411SST 134.2kHz PIT tags are the recommended tag type, and will be provided agencies that are tagging sturgeon.

External:

All fish should be examined for the presence of external tags. Each fish should have either a Carlin or T-Bar tag placed through the base of the dorsal fin. The Dart tag is an accepted alternative to the Carlin or T-Bar tags, and should be inserted through the base of the dorsal fin as well.

Data Collection Recommendations:

The current tagging database is in Microsoft Access 2003 format. Data can be accepted and exported in MSAccess or MSEXcel format. Existing data are available upon request. Many different data fields can be imported into the sturgeon tagging database. Below are two lists of data fields, one list that is required to be reported, and one list is optional to be reported. Please ensure all required fields are collected while tagging sturgeon. The USFWS-Maryland Fishery

Resources Office will enter tagging data into the database for up to 25 sturgeons per year from tagging agencies. Agencies tagging more than 25 sturgeons per year will be required to provide their data electronically to the USFWS-MFRO for importation into the database.

Required Data Fields

FishID (9 digit assigned number)
Event Number
Species
Total Length (*mm*)
Capture Agency
Capture Date (*mm/dd/yyyy*)
Capture Gear
Mesh Size (*in*)
Water Depth (*m*)
Capture Waterbody
Capture Site
Capture State (*2-digit*)
Capture Latitude (*decimal degrees*)
Capture Longitude (*decimal degrees*)
Was the Fish Released (*yes/no*)
Fish Released Without Tags? (*yes/no*)
Release Date (*mm/dd/yyyy*)
Release Waterbody
Release Site
Release State (*2-digit*)
Release Latitude (*decimal degrees*)
Release Longitude (*decimal degrees*)
USFWS Tag Number
USFWS Tag Placement (*dorsal, pectoral*)
USFWS Tag Type (*Carlin, T-Bar, PIT*)
Capture Tag? (*yes/no*)
Release Tag? (*yes/no*)

Optional Data Fields

Fork Length (*mm*)
Weight (*g*)
Hatchery or Wild Origin
Fin Clip? (*yes/no*)
Biological Remarks
Tissue Sample Number
Barbel Sample Number
Spine Sample Number
Sex (*M/F*)
Inter-orbital Width (*mm*)
Outer Mouth Width (*mm*)
Inner Mouth Width (*mm*)
Snout Length (*mm*)
River Mile
Capture Remarks
Water Temperature (*C*)
Air Temperature (*C*)
Salinity
Conductivity (*umhom*)
Gear Soak Time (*hr*)
Non-USFWS Tag Numbers
Sonic Tag Frequency
Tag Remarks

Figure 1. Number and locations of recaptured tagged Atlantic sturgeon as reported by fishermen.

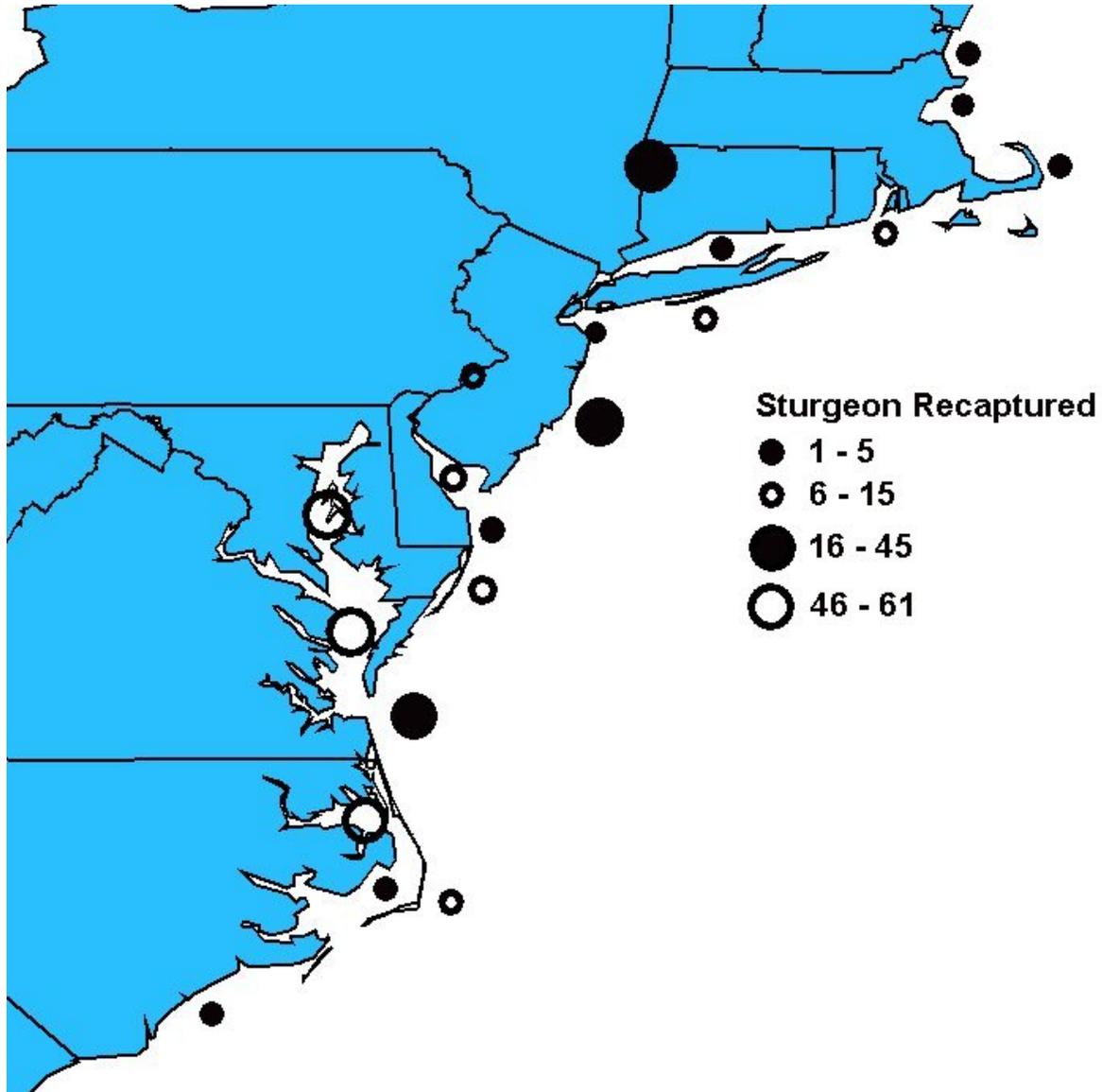


Table 1. Tagging efforts by agency and location for both Atlantic (ATS) and shortnose (SNS) sturgeon.

Agency	Species	Number Tagged	Tagging Years	Release Waterbody	Dorsal T-Bar	Pectoral T-Bar	Double-Barb	Carlin Dangler	PIT	Agency Tag
ACEDE	ATS	7	1994	Delaware Bay	X	X				
ALS	ATS	5	2007	Delaware River				X	X	
CORNELL	ATS	760	1993-1998	Hudson River	X	X		X	X	
CORNELL	SNS	6,297	1993-1998	Hudson River	X	X			X	
CTDEP	ATS	841	1993-2008	CT R. & L.I. Sound	X	X			X	
DEFW	ATS	1998	1991-2008	DE R. & Bay, Atlan. O.	X	X			X	Red Dart
DEFW	SNS	11	1993-2001	Delaware River	X	X			X	Red Dart
DESU	ATS	46	2005-2007	Delaware River					X	Red Dart
DESU	SNS	1	2005	Delaware River					X	
GAFS	ATS	280	1999-2005	Ogeechee / Canochee R	X				X	
GAFS	SNS	145	1999-2005	Ogeechee / Canochee R		X			X	
MDDNR-HATCH	ATS	920	1996	Nanticoke River	X					
MDDNR-A	ATS	39	1998-1999	Atlantic Ocean			X			
MEDMR	ATS	99	1999-2000	Kennebec & Sasanoa R.			X			
NCCOOP	ATS	35	1998, 2002	Albemarle S., Neuse R.	X	X			X	
NCCRUISE	ATS	220	1988-2008	Atlantic Ocean	X	X	X		X	Monel Strap
NCDMF	ATS	553	'98, '03-'08	Albemarle Sound	X	X			X	Unknown
NCDMF-W	ATS	46	2002-2008	Cape Fear River	X					
NEFC	ATS	628	96-98, 03-07	Hudson River	X	X	X	X	X	Orange T-Bar
NEFC-HATCH	ATS	423	1994, 2004	Hudson River				X	X	CWT
NEFC	SNS	213	2003-2005	Hudson River				X	X	
NJDEP	ATS	390	1992-2001	Atlantic Ocean	X	X				
NMFS	ATS	36	1999-2008	Atlantic Coast, MA-NC	X	X	X		X	
NYDEC	ATS	466	1992-2008	Hudson River	X	X		X	X	
NYDEC	SNS	470	94-98, 04-08	Hudson River	X	X		X	X	
SBU	ATS	469	2005-2008	Atlantic Ocean, NY-NJ				X	X	
UME	ATS	47	2005-2008	Penobscot River				X	X	
UME	SNS	295	2006-2008	Penobscot River				X	X	
UNC	ATS	62	1996-2005	Atlantic Ocean	X	X	X			Green T-Bar
UNE	ATS	13	2008	Saco River	X				X	
USGS-CAFRC	ATS	8	1990, 1992	Merrimack / Taunton R.					X	
USGS-CAFRC	SNS	661	1990-2007	Connecticut River					X	
USGS-MD	ATS	2	2006	Potomac River					X	
USGS-MD	SNS	1	2005	Potomac River					X	
USFWS-MFRO	ATS	1446	1993-2008	Chesapeake Bay	X	X	X		X	
USFWS-MFRO	SNS	116	1996-2003	Ches. Bay & Del. R.		X		X	X	
USFWS-VA	ATS	350	97-98, 05-07	James, Rapp., York R.	X	X			X	
USFWS-VA	SNS	1	1997	Rappahannock River	X	X				
VIMS	ATS	557	2005-2007	Ches. Bay, Atl. NY-VA	X				X	
VMRC	ATS	6	1996	Atlantic Ocean	X					

Table 2. Number of shortnose sturgeon tagged and recaptured by region. Regions are described as Northeast (Massachusetts and north), LIS (Long Island Sound and Rhode Island), Hudson (Hudson River), Coast NJ-NY (Atlantic Coast and embayments of New York and New Jersey), Delaware Bay (Delaware Bay and Delaware River), Coast NC-DE (Atlantic Coast and embayments and small embayments of Delaware through North Carolina), Chesapeake Bay (Chesapeake Bay and tributaries), Inland NC (inland waterbodies associated with Pamlico and Albemarle Sounds), Southeast (Cape Fear River system of North Carolina and south).

Release Region	Total Number Marked	Recapture Region								
		Northeast	LIS	Hudson	Coast NJ-NY	Delaware Bay	Coast NC-DE	Chesapeake	Inland NC	Southeast
Northeast	295	46	-	-	-	-	-	-	-	-
LIS	1,661	-	220	-	-	-	-	-	-	-
Hudson	7,106	-	2	408	-	-	-	-	-	-
Coast NJ-NY	0	-	-	-	-	-	-	-	-	-
Delaware Bay	88	-	-	-	-	7	-	-	-	-
Coast NC-DE	0	-	-	-	-	-	-	-	-	-
Chesapeake	74	-	-	-	-	-	-	4	-	-
Inland NC	0	-	-	-	-	-	-	-	-	-
Southeast	145	-	-	-	-	-	-	-	-	49

Table 3. Number of wild caught Atlantic sturgeon tagged and recaptured by region. (See regional descriptions in Table 2.)

Release Region	Total Number Marked	Recapture Region								
		Northeast	LIS	Hudson	Coast NJ-NY	Delaware Bay	Coast NC-DE	Chesapeake	Inland NC	Southeast
Northeast	117	1	-	-	-	-	-	-	-	-
LIS	884	2	25	1	2	1	2	2	-	-
Hudson	1,887	1	13	70	23	2	5	6	-	-
Coast NJ-NY	926	3	8	1	25	4	9	2	-	-
Delaware Bay	2,024	1	10	1	16	179	18	2	-	-
Coast NC-DE	455	-	1	1	2	3	10	5	-	2
Chesapeake	2,426	-	2	-	9	7	20	217	4	-
Inland NC	613	-	-	-	-	-	1	3	75	-
Southeast	364	-	1	-	1	1	3	-	1	53

Table 4. Number of hatchery reared Atlantic sturgeon tagged and recaptured by region. (See regional descriptions in Table 2.)

Region	Number Marked	Northeast	LIS	Hudson	Coast NJ-NY	Delaware Bay	Coast NC-DE	Chesapeake	Inland NC	Southeast
Hudson	5,210	-	12	208	2	10	2	17	1	-
Chesapeake	3,200	-	1	-	4	1	12	558	1	-

Table 5. Gear types reported by fishermen who captured a tagged Atlantic and shortnose sturgeon.

Gear	Number of Reports	Percent of Reports
Anchored Gillnet	183	52%
Drift Gillnet	54	15%
Gillnet	38	11%
Fyke Net	2	<1%
Haul Seine	2	<1%
Hook & Line	16	5%
Pound Net	23	7%
Trawl	30	9%

Table 6. Target species reported by fishermen who captured a tagged Atlantic and shortnose sturgeon.

Target Species	Number of Reports	Percent of Reports
Baitfish	4	2%
Bluefish	6	2%
Catfish	2	1%
Croaker	4	2%
Dogfish	15	6%
Flounder	40	16%
Horseshoe Crab	3	1%
Menhaden	5	2%
Monkfish	7	3%
Mullett	5	2%
Sand Shark	1	<1%
Seabass	1	<1%
Seatrout	4	2%
Shad	22	9%
Shad and Trout	1	<1%
Skate	2	1%
Spot	2	1%
Squid	2	1%
Striped Bass	95	38%
Sturgeon	13	5%
Various	4	2%
Weakfish	6	2%
White Perch	7	3%

Table 7. Region of recapture by fishermen who captured a tagged Atlantic and shortnose sturgeon. (See regional descriptions in Table 2.)

Recapture Region	Number of Reports	Percent of Reports
Northeast	7	2%
LIS	16	4%
Hudson	26	7%
Coast NJ-NY	54	14%
Delaware Bay	23	6%
Coast NC-DE	64	17%
Chesapeake	119	32%
Inland NC	64	17%
Southeast	4	1%