

GARFO Master ESA Species Table - Shortnose Sturgeon

General distribution: Atlantic Ocean waters and associated bays, estuaries, and coastal river systems from Minas Basin, Nova Scotia, Canada, to the St. Johns River, Florida; only adults occur in marine waters, with some adults making coastal migrations between river systems (e.g., Penobscot River to Merrimack River via the Gulf of Maine, Merrimack River to Connecticut River via the Gulf of Maine and Long Island Sound, Connecticut River to Hudson River via Long Island Sound and the East River); typically, distribution in rivers and inshore bays occurs from the estuary or river mouth up to the first impassible barrier (e.g., a dam or falls); comprehensive information on species biology and distribution is available in the Shortnose Sturgeon Status Review Team's Biological Assessment (SSSRT 2010; available at: http://www.nmfs.noaa.gov/pr/pdfs/species/shortnosesturgeon_biological_assessment2010.pdf)

Disclaimer: the best available information on shortnose sturgeon presence within the Greater Atlantic Region is presented below; waterbodies included are ones where we have information specific to shortnose sturgeon use of the area that would be helpful for action agencies reviewing proposed actions and their potential effects on shortnose sturgeon; for waterbodies not listed below, we have no data on usage by shortnose sturgeon; however, we expect the species may be present in other coastal waters in the Gulf of Maine and along the U.S. Atlantic coast between the Merrimack and Hudson Rivers; a description of shortnose sturgeon life history stages are included at the end of the table below

Body of Water (State)	Distribution/Range in Watershed	Life Stages Present	Use of the Watershed	References
Narraguagus River (ME)	Up to Cherryfield Dam (RKM 10)	adults	Foraging - May be used for foraging; tag detections indicate that usage of the river is for short periods during coastal migrations	Zydlewski et al. 2011; Dionne et al. 2013
Penobscot River (ME)	Up to Milford Dam (RKM 62)	adults documented; other life stages assumed but unknown	Spawning - Not documented to date; suitable spawning habitat is accessible Foraging - Foraging concentrations from RKM 10-25 during the summer months as well as throughout the lower and middle estuary Overwintering - Aggregations located from RKM 37-42 from mid-Oct to mid-Apr	Fernandes 2008; Fernandes et al. 2010; Wegener 2012; Dionne et al. 2013; Dzaugis 2013; Lachapelle 2013; Wippelhauser et al. 2015
St. George River (ME)	Up to RKM 39 in lower estuary	adults	Foraging - May be used for foraging; tag detections indicate that usage of the river is for short periods during coastal migrations	Zydlewski et al. 2011; Dionne et al. 2013
Medomak River (ME)	Up to RKM 17.5	adults	Foraging - May be used for foraging; tag detections indicate that usage of the river is for short periods during coastal migrations	Zydlewski et al. 2011; Dionne et al. 2013
Damariscotta River (ME)	Up to RKM 30	adults	Foraging - May be used for foraging; tag detections indicate that usage of the river is for short periods during coastal migrations	Zydlewski et al. 2011; Dionne et al. 2013
Sheepscoot River (ME)	Up to Head Tide Dam (RKM 35)	adults	Foraging - Montsweag Bay during the summer Overwintering - Suspected to occur in the estuary	Fried and McCleave 1973; Squiers et al. 1982; NMFS 1996; Moore and Reblin 2010; SSSRT 2010

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Kennebec River (ME)	Up to Lockwood Dam (RKM 103)	eggs, larvae, YOY, juveniles, and adults	<p>Spawning - Occurs at two sites: below the former Edwards Dam (RKM 59) and downstream of the Lockwood Dam (RKM 102)</p> <p>Rearing - Eggs and larvae occur in freshwater reaches below the spawning sites</p> <p>Foraging - Throughout the lower estuary to the mouth of the river (below RKM 70) with concentration areas near Bath (RKM 16-29) including the Sasanoa River</p> <p>Overwintering - Majority in Merrymeeting Bay, also near Bluff Head (RKM 15), and in the lower portions of the Eastern and Cathance Rivers (tributaries to Merrymeeting Bay)</p>	McCleave et al. 1977; Dovel 1981; Squiers et al. 1982; Buckley and Kynard 1985; Crance 1986; Kieffer and Kynard 1993; Squiers and Robillard 1997; Squiers 2003; Zydlewski et al. 2011; Wippelhauser and Squiers 2015; Wippelhauser et al. 2015
Androscoggin River (ME)	Up to Brunswick Dam (RKM 8.4)	eggs, larvae, YOY, juveniles, and adults	<p>Spawning - Below Brunswick Dam to the Rt. 201 Bridge (RKM 7.7-8.4)</p> <p>Rearing - YOY move downstream in fall and winter as water temperatures decline and salt wedge recedes and move upstream in the spring; also move downstream after hatching, but remain in freshwater habitat</p> <p>Foraging - Montsweag Bay during the summer</p>	McCleave et al. 1977; Dovel 1981; Squiers et al. 1981, 1982; Squiers 1983; Dadswell et al. 1984; Buckley and Kynard 1985; O'Herron et al. 1993; Squiers et al. 1993; Zydlewski et al. 2011; Fire et al. 2012; Wippelhauser and Squiers 2015
Presumpscot River (ME)	Up to Presumpscot Falls (RKM 3)	adults	Foraging - May be used for foraging	Yoder et al. 2009
Saco River (ME)	Up to Cataract Dam (RKM 10)	adults	Foraging - Used seasonally (May-Oct)	Little et al. 2013; Wippelhauser et al. 2015
Piscataqua River (NH)	Entirety of Piscataqua River including Coheco River from its confluence with Piscataqua River upstream to Coheco Falls Dam and waters of Salmon Falls River from its confluence with Piscataqua River upstream to the Route 4 Dam	adults	Foraging - Used seasonally for foraging and resting during spring and fall migrations; tagging data indicates that use by individual sturgeon is limited to days or weeks	SSSRT 2010
Merrimack River (MA)	Up to Lowell Dam (RKM 70)	eggs, larvae, YOY, juveniles, and adults	<p>Spawning - Near Haverhill (RKM 30-32)</p> <p>Rearing - Eggs and larvae present in spawning grounds four weeks after spawning occurs, following which they would begin to move downstream continuing their development in the freshwater reach of the river; RKM 16-32</p> <p>Foraging - Lower river with concentrations near Amesbury and the lower islands (RKM 7-12)</p> <p>Overwintering - Late fall - early spring; multiple overwintering sites between RKM 15 and 29 in freshwater reaches beyond the maximum salt penetration</p>	Kieffer and Kynard 1993, 1996; Kynard 1997; Kynard et al. 2000; Little et al. 2013; Wippelhauser et al. 2015

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Narragansett Bay (RI)	Throughout the bay	adults	Foraging - Potentially occurs where suitable forage is present	Dadswell et al. 1984; NMFS 1998
Connecticut River (CT/MA)	Up to Turners Falls Dam (RKM 198)	eggs, larvae, YOY, juveniles, and adults	<p>Spawning - Below Turners Falls Dam/Cabot Station at two locations depending on river conditions (RKM 193-194); limited spawning may occasionally occur below Holyoke Dam</p> <p>Rearing - Eggs and larvae spawned upstream documented at least 3-15 km downstream of the spawning site; if spawning is successful downstream of Holyoke, early life stages would be present in downstream freshwater reaches</p> <p>Foraging - Concentrations above the Holyoke Dam in the Deerfield Confluence Area (RKM 144-192); below Holyoke, foraging throughout river extending to lower river (RKM 0-140) with concentrations near Holyoke (RKM 137-139), Agawam (RKM 112-120), and the lower river (RKM 0-100)</p> <p>Overwintering - Concentrations above the Holyoke Dam in the Deerfield Confluence Area (RKM 144-192); below the Holyoke Dam concentrations near Holyoke (RKM 140), Agawam (RKM 117), Hartford (RKM 82-86), Portland, CT (~RKM 50), and the lower river (RKM 0-25)</p>	Dadswell et al. 1984; Buckley and Kynard 1985; Kieffer and Kynard 1996; Vinogradov 1997; Kynard 1998; Kynard et al. 1999; Savoy 2004 in SSSRT 2010
Deerfield River (MA), tributary of the Connecticut River	Up to Deerfield No. 2 at Shelburne Falls (RKM 21)	adults documented in lower 3 km; larvae spawned in Connecticut River may be present during certain flow conditions	<p>Rearing - Water flow could potentially draw migrating larvae into unfavorable habitat in the Deerfield River; potential refuge area during high flows</p> <p>Foraging - Spring through fall in lower river (RKM 0-3)</p> <p>Overwintering - May be used as an overwintering area potential pre-spawning staging area for adults</p>	Kieffer and Kynard 1992; Kynard et al. 2012
Westfield River (MA), tributary of the Connecticut River	Up to DSI Dam (RKM 9.5)	adults	Foraging - Assumed to occur where suitable forage is present	USFWS 2007 in SSSRT 2010
Quinnipiac River (CT)	Up to Wallace Dam (RKM 27)	adults undocumented, but assumed based on documented occurrences of Atlantic sturgeon in the river	Foraging - Assumed to occur where suitable forage is present	Courant September 30, 1994 (http://articles.courant.com/1994-09-30/news/9409300111_1_sturgeon-fish-story-giant-fish)
Housatonic River (CT)	Up to Derby Dam (RKM 24)	adults	<p>Spawning - Historical spawning occurred above the Derby Dam, none known to occur currently</p> <p>Foraging - Potentially occurs where suitable forage is present</p>	Savoy 2004 in SSSRT 2010

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East River (NY)	Full length of the East River	transient adults undocumented, but assumed based on detections of Atlantic sturgeon and occasional movements of shortnose sturgeon from Hudson River to Connecticut River	Foraging - Potentially occurs where suitable forage is present	Savoy 2004 in SSSRT 2010
Hudson River (NY/NJ)	Up to Troy Dam (approximately RKM 249)	eggs, larvae, YOY, juveniles, and adults	<p>Spawning - Documented from late Apr to early May when water temperatures reach 10°-18°C from Coeymans to below the Federal Dam at Troy (RKM 212-245)</p> <p>Rearing - Eggs on the spawning grounds; larvae downstream to at least RKM 188; YOY to least RKM 106</p> <p>Foraging - Throughout the Hudson River with concentrations in Haverstraw Bay (RKM 55-64)</p> <p>Overwintering - Late fall to early spring; largest area (mainly spawning adults) near Kingston (RKM 139-152); smaller overwintering areas are located from Saugertiesto Hyde Park (RKM 33.5-38) and in the Croton-Haverstraw Bay area (RKM 54-61); as well as lower river (RKM 3); many juveniles overwinter near Haverstraw Bay (RKM 55-64)</p>	Dovel et al. 1992; Geoghegan et al. 1992; Bain 1997; SSSRT 2010
Delaware River (NJ/DE/PA)	Up to Lambertville, PA (RKM 238)	eggs, larvae, YOY, juveniles, and adults	<p>Spawning - Documented from late Mar through early May; water temperatures 8-15°C; between Lambertville Rapids and Trenton Rapids (RKM 214-238);</p> <p>Rearing - Eggs and larvae confirmed between Trenton and Scudders Falls (RKM 214-223); juveniles located upstream of the salt wedge (RKM 87-148)</p> <p>Foraging - Throughout the river, primarily upstream of Artificial Island (RKM 89)</p> <p>Overwintering - Mid-Nov to Mar; overwinter when waters reach 10°C (typically mid-Nov); many adults concentrate from RKM 201-238 but occur downstream to at least Marcus Hook (RKM 127); juveniles overwinter as far downstream as Wilmington, DE; variety of behaviors from sedentary to active</p>	Dadswell et al. 1984; O'Herron 1993; O'Herron et al. 1993; ERC 2004, 2006, 2007; Brundage and O'Herron 2009; SSSRT 2010
C&D Canal (DE/MD)	Used at least occasionally to move from Chesapeake Bay to the Delaware River	adults	Foraging - assumed in areas with benthic and epibenthic invertebrates including mollusks, crustaceans, and oligochaete worms	Welsh et al. 2002; SSSRT 2010

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Chesapeake Bay (MD/VA)	Maryland waters of mainstem bay and tidal tributaries listed below; documented modern use of Virginia waters limited to one individual captured in 2016	adults documented; other life stages assumed but unknown	Foraging, Resting, and Overwintering - assumed to occur in areas of suitable habitat	USFWS 2007; Brundage and O'Herron 2009; SSSRT 2010
Susquehanna River (MD)	Up to Conowingo Dam (RKM 16)	adults documnted; other life stages assumed but unknown	Spawning - Historically occurred; currently unknown as suitability of habitat is likely impacted by dam operations Foraging - Assumed to occur in areas with suitable forage Overwintering - Not documented bur assumed based on anecdotal reports of aggregations of sturgeon in deep holes near Lapidum and Perrysville	Skjeveland et al. 2000; Litwiler 2001; Welsh et al. 2002; USFWS 2007; SSSRT 2010
Potomac River (MD/VA)	Up to Little Falls Dam (RKM 189)	adults documented; other life stages assumed but unknown	Spawning - Historically occurred; current spawning not documented but assumed based on presence of pre-spawning females and suitable habitat at RKM 185-187 Rearing - Eggs expected at RKM 185-187, larvae would be present downstream in freshwater Foraging - Mainly in the deepwater channel from RKM 63-141; bivalve molluscs, annelid worms Overwintering - Near Mattawoman Creek; saltwater/freshwater reach near Craney Island (RKM 63-141)	Kynard et al. 2007, 2009; USFWS 2007; SSSRT 2010

Listing rule: 32 FR 4001, March 11, 1967; **Recovery plan:** NMFS 1998. Available online: http://www.nmfs.noaa.gov/pr/pdfs/recovery/sturgeon_shortnose.pdf

Descriptions of shortnose sturgeon life history stages

Stage	Size (mm)	Duration	Behaviors/Habitat Used
Eggs	3-4	13 days post spawn	Stationary on bottom; cobble and rock, fast flowing freshwater
Yolk Sac Larvae	7-15	8-12 days post hatch	Photonegative; swim up and drift behavior; form aggregations with other yolk sac larvae; cobble and rock, stay at bottom near spawning site
Post Yolk Sac Larvae	15-57	12-40 days post hatch	Free swimming; feeding; silt bottom, deep channel; freshwater
Young of Year (YOY)	57-140 (north); 57-300 (south)	From 40 days post-hatch to one year	Deep, muddy areas upstream of the salt wedge
Juveniles	140 to 450-550 (north); 300 to 450-550 (south)	One year to maturation	Increasing salinity tolerance with age; same habitat patterns as adults
Adults	450-1,100 average; (max recorded 1,400)	Post-maturation	Freshwater to estuary with some individuals making nearshore coastal migrations