

Environmental Sensitivity Index Maps

A Guide to Coastal Resources at Risk to Spilled Oil

North Carolina: Volume 3



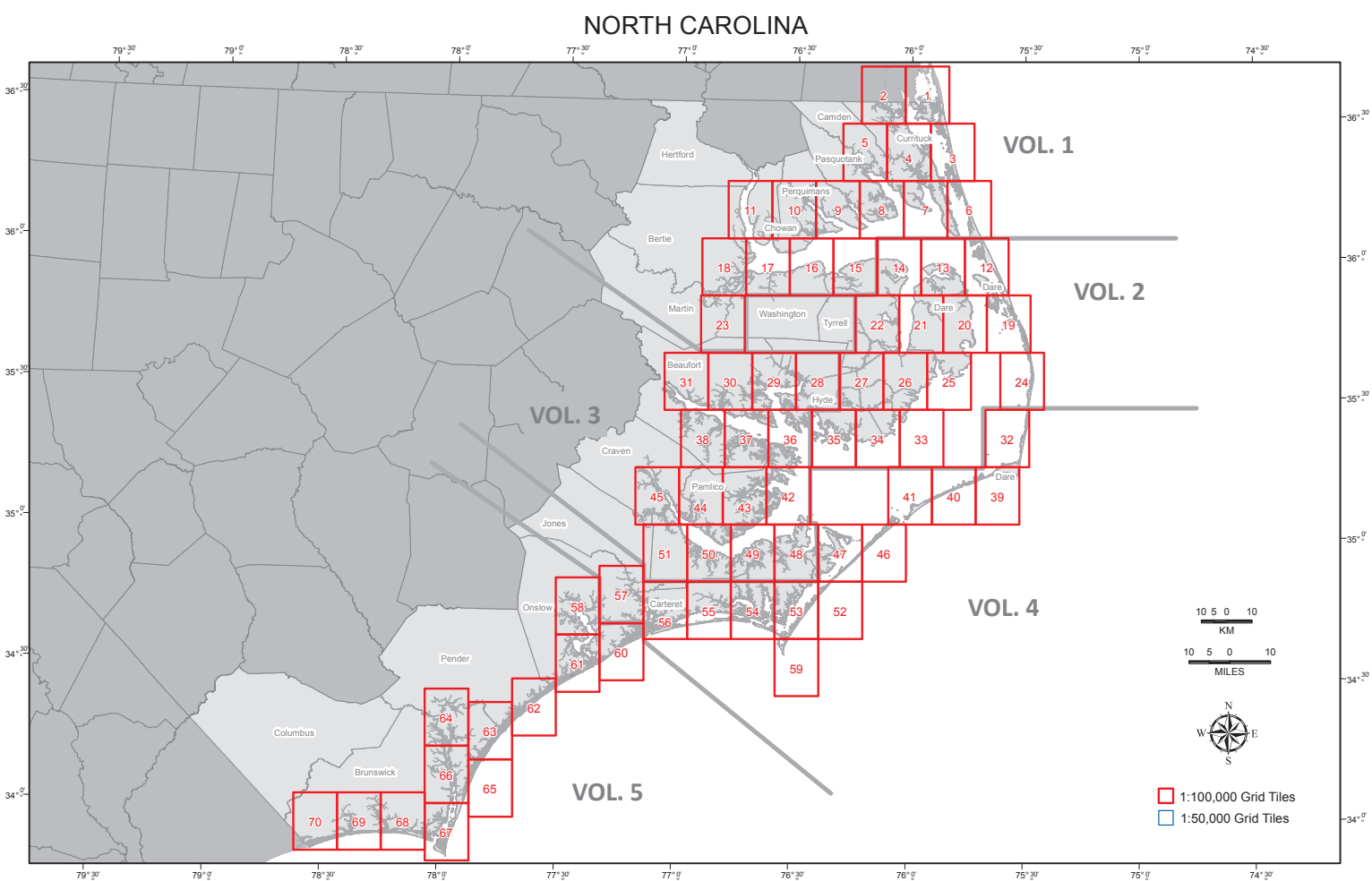
Office of Response and Restoration

November 2016

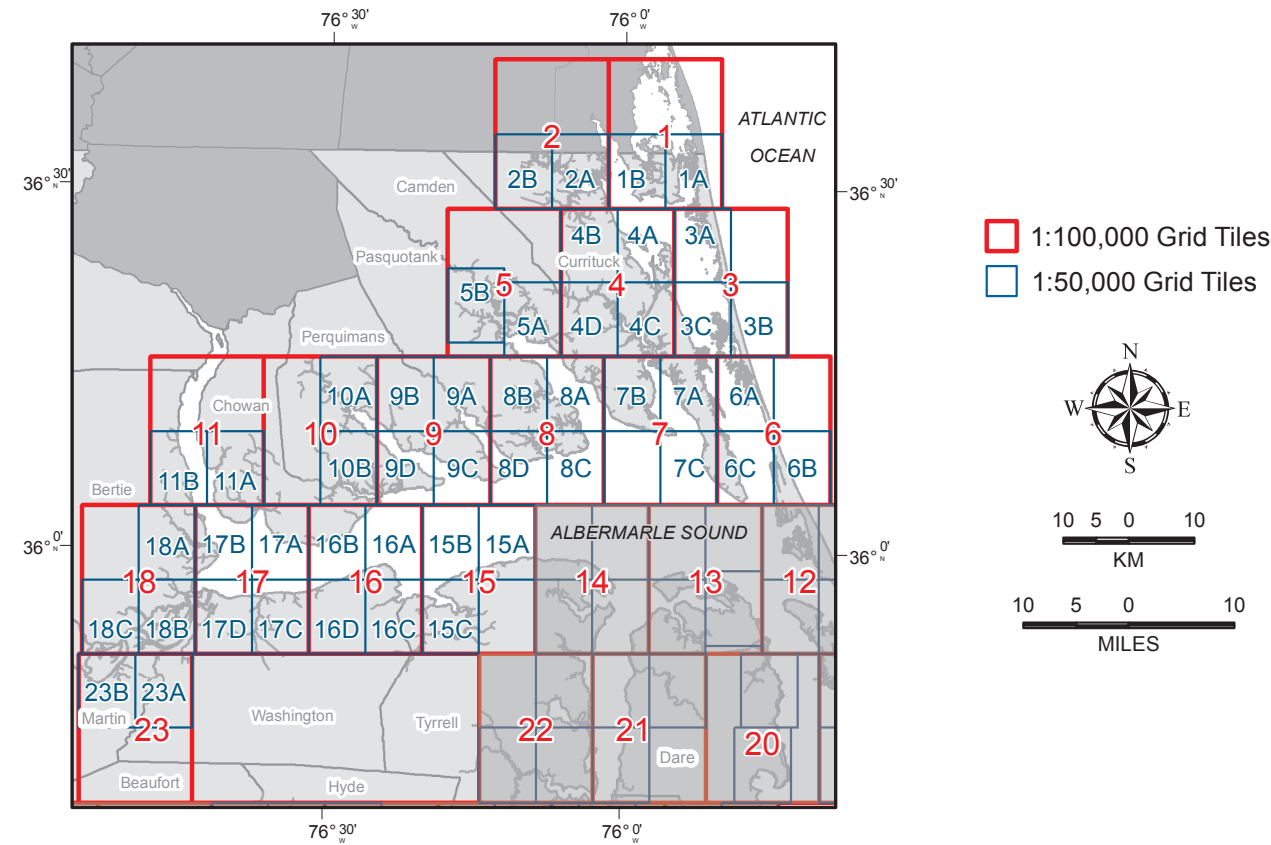
NOAA Environmental Sensitivity Index Maps

A Guide to Coastal Resources at Risk to Spilled Oil

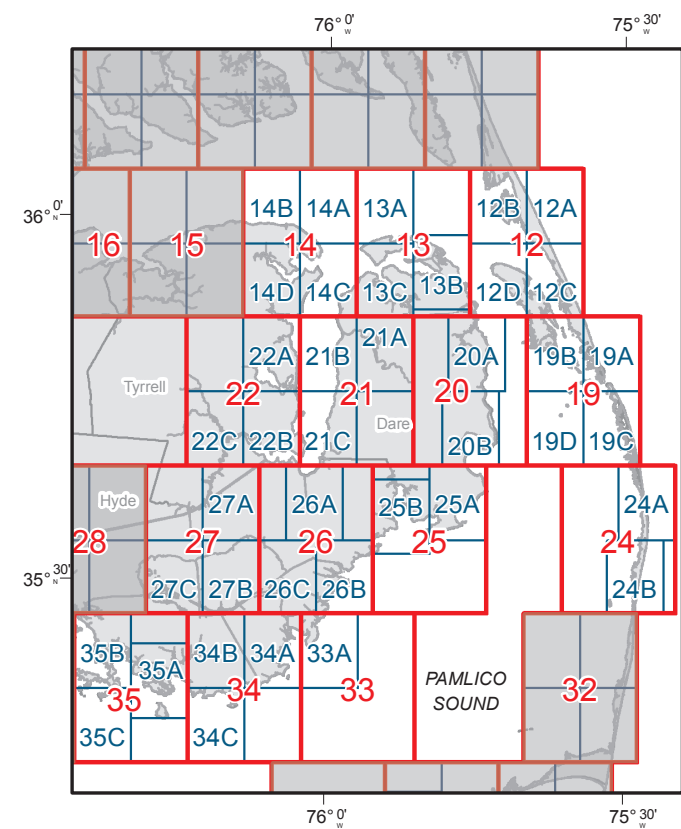
North Carolina



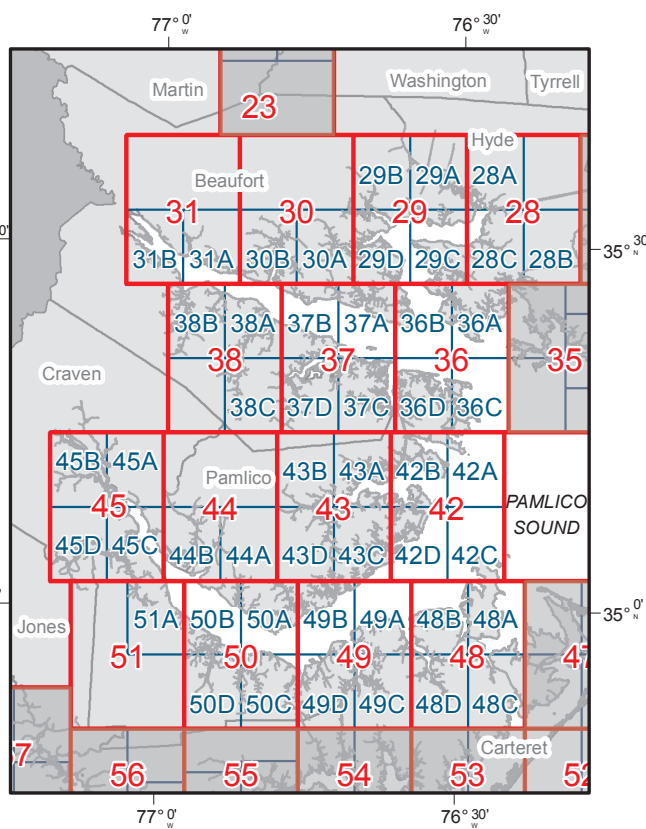
NORTH CAROLINA: VOLUME 1



NORTH CAROLINA: VOLUME 2



NORTH CAROLINA: VOLUME 3



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ENVIRONMENTAL SENSITIVITY INDEX: NORTH CAROLINA

INTRODUCTION

This Environmental Sensitivity Index (ESI) atlas was developed for the marine and coastal areas of North Carolina. The atlas covers the coastal regions, sounds and major tidal rivers of North Carolina from the Virginia state line to the South Carolina state line. The major waterbodies include the Atlantic Ocean as well as the Currituck, Albermarle, Pamlico, Croatan, Roanoke, and Core sounds. Major tidal tributaries include the Chowan, Perquimans, Pasquotank, North, Alligator, Pungo, Pamlico, Neuse, New, and Cape Fear rivers. The inland extent reaches three to five miles inland surrounding these major water bodies and includes large land locked lakes and reservoirs when applicable. The ESI represents a compilation of information about three main categories: shoreline habitats, sensitive biological resources, and human-use resources. Though the data will be useful for many shoreline applications, the goal of the ESI data is to present a concise summary of resources that may be particularly vulnerable to spilled oil. The intent of the data should caveat other uses. As an example, the ESI is not intended to present a catalog or comprehensive listing of species present in an area, rather the focus is on species particularly sensitive to oiling and life stages where vulnerability may increase.

SHORELINE HABITAT MAPPING

The shoreline and classifications were fully updated using the following sources and methods. The North Carolina shoreline was derived from the integration of the National Oceanic and Atmospheric Administration (NOAA) Continually Updated Shoreline Product (CUSP, 2014); NOAA Shoreline Mapping Program NC1401A / NC0801A / NC0801D / NC0902 / NC0503 / NC0501 datasets (2014); the North Carolina Division of Coastal Management (DCM) Estuarine Shoreline (2012) dataset; the U.S. Geological Survey (USGS) National Hydrography Dataset (NHD, 2014); the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) dataset (2010); the NOAA, National Ocean Service (NOS), Office of Response and Restoration (OR&R), Emergency Response Division(ERD) and U.S. EPA, Department of Homeland Security (DHS), U.S. Coast Guard (USCG) Sensitivity of Coastal Environments and Wildlife to Spilled Oil - North Carolina, 2011 dataset; and manual digitization /photo-interpretation at approximately 1:1,000 scale using ortho-rectified aerial imagery resources from the North Carolina Center for Geographic Information and Analysis (2012), Environmental System Research Institute (ESRI) World Imagery (2014), and the NOAA Ortho-rectified Mosaic of Eastern Coastline - Hurricane Sandy Impact Area (2014). The most recent shoreline was used where available. Intertidal habitat classifications were assigned to shoreline features of 10 meters (m) or greater in length. Where necessary, multiple types were described for each shoreline segment. Additionally, wetland and tidal flat polygon datasets originally created by the USFWS NWI were modified and updated in conjunction with the ESI shoreline. The ESI shoreline classification and ranking scale has been used to assess vulnerability of shoreline to spilled oil since the mid-1970s. Rankings range from 1 – least vulnerable, to 10 – most vulnerable, with a variety of qualifiers unique to the geographic region. The scale incorporates the following considerations:

- 1) Shoreline type (substrate, grain size, tidal elevation, origin)
- 2) Exposure to wave and tidal energy
- 3) Biological productivity and sensitivity
- 4) Ease of cleanup

Prediction of the behavior and persistence of oil in intertidal habitats is based on an understanding of the dynamics of the coastal environments, not just the substrate type and grain size. The intensity of energy expended upon a shoreline by wave action, tidal currents, and river currents directly affects the persistence of stranded oil. The need for shoreline cleanup activities is determined, in part, by the slowness of natural processes in removal of oil stranded on the shoreline. The potential for biological injury and ease of cleanup of spilled oil are also important factors in the ESI shoreline ranking. Thus, shorelines exposed to high levels of physical energy, such as wave action and tidal currents, and low biological activity rank low on the scale, whereas sheltered shorelines with associated high biological activity have the highest ranking. The shoreline types delineated for North Carolina presented in order of increasing sensitivity to spilled oil, are listed below.

- | | |
|--|---------------------------------------|
| 1B) Exposed, Solid Man-made Structures | 8C) Sheltered Riprap |
| 3A) Fine- to Medium-grained Sand Beaches | 9A) Sheltered Tidal Flats |
| 3B) Scarps and Steep Slopes in Sand | 9B) Vegetated Low Banks |
| 4) Coarse-grained Sand Beaches | 10A) Salt- and Brackish-water Marshes |
| 6B) Riprap | 10B) Freshwater Marshes |
| 7) Exposed Tidal Flats | 10C) Swamps |
| 8B) Sheltered, Solid Man-made Structures | 10D) Scrub-Shrub Wetlands |

For each of these shoreline types, a photo and description of the physical attributes, predicted oil behavior, and response considerations are included at the end of the introductory pages.

SENSITIVE BIOLOGICAL RESOURCES

Biological information presented in this atlas was collected, compiled, and reviewed with the assistance of biologists and resource managers from the following agencies/organizations:

- North Carolina Department of Environmental Quality (NCDEQ)
 - Division of Marine Fisheries (NCDMF)
 - Wildlife Resources Commission (NCWRC)
 - Department of Natural and Cultural Resources – Natural Heritage Program (NC NHP or NCDCR)
 - Division of Coastal Management
 - NC Coastal Reserve and National Estuarine Research Reserve
- North Carolina Audubon Society
- North Carolina Maritime Museum
- North Carolina State University
- University of North Carolina Wilmington
- National Oceanic and Atmospheric Administration
 - National Centers for Coastal Ocean Science
- National Marine Fisheries Service
- U.S. Fish and Wildlife Service (USFWS)
 - Ecological Services
 - North Carolina Wildlife Refuges
- National Park Service (NPS)
 - Cape Hatteras National Seashore
 - Cape Lookout National Seashore

The above agencies provided the majority of information included in the atlas. Other participating agencies will be cited throughout the atlas and in the metadata accompanying the digital product.

The biological resources shown in this atlas were extracted from the ESI GIS data compiled for this region. The extracted features were mapped at scale of 1:50,000 and appear on the maps referenced by a combination of number and letter. For example, Map 1B will show the biological features in conjunction with the ESI shoreline. The biology maps on these maps is “layered” in the PDF maps. This allows the user to turn off the biological features to more clearly see the underlying shoreline and habitat polygons.

The data published date appearing at the bottom of the maps and on the cover page reflect when the data collection and compilation was completed. This atlas represents those data and was published November 2016.

KEY BIOLOGICAL FEATURES ON ESI MAPS

- 1) Occurrences of animal and plant species that are at risk to spilled oil or may be impacted during a spill response are represented in the database by polygons, points, and lines.
- 2) To avoid clutter, the front of the map features occurrences that cover less than 10 kilometers of the map extent. A Map ID is associated with each of these polygonal, linear or point features.
- 3) Each map includes a tabular report summarizing the species found in the area. Features that are shown on the map are referenced by their Map ID. Features that cover more than 10 kilometers are presented in the report as Widespread in Mapped Area. Species occurrences that appear in the database as General Distribution are listed in a third category, Also Present in Mapped Area. To fully understand the diversity of species present, ALL sections of the map report should be reviewed.
- 4) Associated with each species in the table is the state (S) and federal (F) protected status as threatened (T) or endangered (E), as well as concentration, seasonality, and life-history information. Federal listings were provided by USFWS. State listings were provided by North Carolina Wildlife Resources Commission.
- 5) The table includes a Mapping Qualifier with each species record (see table of mapping qualifiers and guidelines below). The mapping qualifier should help users understand particular vulnerabilities associated with the map data.
- 6) Feature level source information is included in the GIS database used to create these maps. The GIS data also provides the extent polygons for all mapped features; it can be queried, filtered, and used with other GIS datasets.
- 7) Species have been divided into groups and subgroups based on their behavior, morphology, taxonomic classification, and spill vulnerability and sensitivity. The icons below reflect this grouping scheme.
- 8) Colors depicting monthly seasonality roughly reflect Winter/Spring/Summer/Fall, but are primarily intended to ease readability.

MARINE MAMMAL



Dolphin



Manatee



Pinniped



Whale

TERRESTRIAL MAMMAL



Small Mammal



Ungulate

HERPETOFAUNA



Alligator



Amphibian/Frog/Snake



Turtle

BIRD



Alcid/Pelagic



Diving



Gull/Tern



Passerine



Raptor



Shorebird



Wading



Waterfowl

HABITAT



Upland/Wetland/Plant

INVERTEBRATE



Bivalve



Crab/Invertebrate/
Shellfish



Crayfish



Insect



Shrimp

FISH



Fish



Nursery

Mapping Qualifiers and Guidelines

Element	Qualifier	Guidelines
All	Concentration Area	Areas where concentrations are considerably higher than other records of the same species in the area of interest.
All	General Distribution	Used for broad, general distributions of species that are often mapped to landscape- or habitat-scale features.
All	Vulnerable Occurrence	Intended for records of rare species with discrete occurrences, where the conservation value of the species should be highlighted for spill response.
Birds, Herpetofauna, Marine Mammals, Fish, Invertebrates	Migration	Used when an area is a known staging area of high importance to the species for birds; and/or areas are potential or known migration corridors in the marine environment for other elements.
Birds, Herpetofauna	Nesting	Applicable to all nesting birds and herps. Should represent known nesting areas rather than all potential nesting habitat.
Birds	Rafting	Similar to 'Concentration Area' qualifier, but specific to large on-water concentrations.
Birds	Wintering	Designates known areas of importance to wintering birds.

Element	Qualifier	Guidelines
Benthic	High Ecological Value	For use in areas where benthic organisms provide high ecological services, high quality habitat, or known areas of high biodiversity.
Fish and Invertebrates	Harvest Area	May be used as a qualifier for distributions in special cases, where the general distribution was not mapped and/or widespread and the distribution of the harvested resources is used to depict important areas.
Fish and Invertebrates	Nursery Area	Refers to specific areas of known importance to early life history stages (e.g., larvae, juveniles) of a species.
Fish and Invertebrates	Spawning Area	Areas where animals are spawning. Spawning is loosely defined as the release of gametes or eggs from the adult.

MARINE MAMMALS

Marine mammals depicted in the North Carolina atlas include cetaceans (whales, porpoise, and dolphins), pinnipeds, and the West Indian manatee. Marine mammals displayed in inland waters (sounds, rivers, and bays) are restricted to the bottlenose dolphin and West Indian manatee, although whales, spotted dolphins, and seals may occur in inland waters on occasion. The location of the faunal transition zone near Cape Hatteras results in a high biodiversity of marine mammals that could potentially be found in the atlas area (Byrd et. al. 2014). However, many of these species typically occur farther offshore and were not mapped due to their rarity in the AOI.

The general distribution of marine mammals along the outer coast of North Carolina was mapped using large polygons delineated by 10-m and 20-m isobaths and further divided at the capes (Cape Fear, Cape Lookout, and Cape Hatteras). Concentration values of “High”, “Med”, and “Low” were determined using habitat-based cetacean density maps (Roberts et al. 2016) and reflect the concentration of each species relative to its East coast-wide abundance. For seasonally present species that had monthly abundance estimates, the month of peak abundance in North Carolina was used to determine concentration values, otherwise year-round mean density maps were used.

Cetaceans - Biologically Important Areas (BIAs; LaBrecque et al. 2015) for the bottlenose dolphin and North Atlantic right whale were used to map the distributions of these species. In North Carolina, two small, estuarine stocks of bottlenose dolphin occur: the Northern North Carolina Estuarine Stock (NNCES) and the Southern North Carolina Estuarine (SNCES) Stock. These populations occupy sounds, rivers, and bays, and nearshore waters in warmer months and move into nearshore waters in late fall through winter where they likely overlap with the Northern Migratory Stock of bottlenose dolphins. The North Atlantic right whale, a state and federally endangered species, has both calving and migration BIAs in the North Carolina atlas area. The North Atlantic right whale calving BIA expands on the federally designated Critical Habitat calving grounds for this species, and the migratory corridor BIA encompasses the entire offshore area.

Manatees - The distribution of the West Indian manatee (state and federally endangered) was mapped using published data and expert knowledge in addition to North Carolina Natural Heritage Program vector data. The West Indian manatee is found in sounds, rivers, and bays during the warmer months from March to November. It also uses nearshore areas up to a quarter mile from the outer coast (Cummings, pers. comm.).

Pinnipeds - Seals occur annually in low numbers in North Carolina in colder months through the spring. Harbor seals, and rarely, gray, harp, and hooded seals, use the inlets and adjacent sandbars and sandy beaches as feeding and haul-out sites. Oregon Inlet supports the highest number of seals, but they can also be found on Cape Point at Cape Hatteras (LeGrand and Howard 2013). Seals may be found throughout the outer coast of North Carolina, but are more common north of Cape Lookout. A seal haul-out area was mapped at Oregon Inlet using a 100 m onshore/offshore buffer.

Expert contacts for North Carolina marine mammals*:

Name	Agency	City	Phone	Species
Erin Cummings	UNCW	Wilmington, NC	910-233-3453	Manatees
Keith Rittmaster	NC Maritime Museum	Beaufort, NC	252-504-2452	Marine mammals, Bottlenose dolphins
Vicky Thayer	NC DMF	Morehead City, NC	252-222-6371	Marine mammals

***Note: this list is not meant to represent all marine mammal experts for the region.**

Major Data Sources Used: Marine Mammals

Byrd, B.L., A.A. Hohn, G.N. Lovewell, K.M. Altman, S.G. Barco, A. Friedlaender, C.A. Harms, W.A.

McLellan, K.T. Moore, P.E. Rosel, V.G. Thayer. 2014. Strandings as indicators of marine mammal biodiversity and human interactions off the coast of North Carolina. *Fishery Bulletin* 112:1-23.

Cummings, E.W. D.A. Pabst, J.E. Blum, S.G. Barco, S.J. Davis, B.G. Thayer, N. Adimey, W.A. McLellan.

2014. Spatial and temporal patterns of habitat use and mortality of the Florida manatee (*Trichechus manatus latirostris*) in the mid-Atlantic states of North Carolina and Virginia from 1991 to 2012. *Aquatic Mammals* 40:126-138.

LaBrecque, E., C. Curtice, J. Harrison, S.M. Van Parijs, P.N. Halpin. 2015. Biologically Important Areas for cetaceans within U.S. waters – East Coast Region. *Aquatic Mammals* 41:17-29.

LaBrecque, E., C. Curtice, J. Harrison, S.M. Van Parijs, P.N. Halpin. 2014. Biologically Important Areas for cetaceans within the U.S. Exclusive Economic Zone – East Coast Region. Vector Digital Data.

LeGrand, Jr., H.E. and T.E. Howard, Jr. 2013 *The Mammals of North Carolina: First Approximation*.

Downloaded March 8, 2015 from http://nature123.net/pdf/nc_mammal_apx_1.pdf.

North Carolina Natural Heritage Program. 2016. Biotics Database. Division of Land and Water Stewardship. Department of Natural and Cultural Resources, Raleigh, North Carolina.

Roberts, J.J, B.D. Best, L. Mannocci, E. Fujioka, P.N. Halpin, D.L. Palka, L.P. Garrison, K.D. Mullin, T.V.N. Cole, C.B. Khan, W.M. McLellan, D.A. Pabst, G.G. Lockhart. 2016. Habitat-based cetacean density models for the U.S. Atlantic and Gulf of Mexico. Scientific Reports 6:22615.

BIRDS

Bird species are included in this atlas either because of their likelihood of direct or indirect impact by an oil spill or similar incident, their general rarity or imperilment, or their special protection status as threatened or endangered. Migratory or wintering concentration areas, nesting sites and colonies, and protected species are especially emphasized. Bird concentration areas depicted in this atlas are described for various groups of birds below.

Colonial waterbirds, shorebirds, and wading birds – Nesting locations for terns, gulls, shorebirds, egrets, and herons were mapped using digital polygon data obtained from NC NHP and NC WRC. Concentration values were generalized when presented for a range of dates (10-25, or 100s, 1000s, etc.) or left blank when not available. Migratory and overwintering hotspot locations of terns and shorebirds (specifically piping plover – federally and state endangered, and red knots – federally threatened and Wilson’s plover – state conservation concern) were mapped using survey data provided by NC Audubon, NC NHP, NC WRC, USFWS, and expert opinion. Concentration values, when presented, represent ranges or generalized values.

Marsh obligate species – Salt and freshwater marshes are ranked as highly sensitive to oiling due to their biological productivity and the tendency for oil to persist based on low relative expose to wind/wave energy and the difficulties associated with human cleanup activities. Marshes are extremely valuable for a suite of bird species in the region including rails, bitterns, and marsh obligate passerines, and should be prioritized for protection wherever they exist. Due to the difficulties of surveying in these areas, and in an effort to highlight specific known nesting occurrences, we only mapped nesting locations from NC NHP and NC WRC nesting survey data. General distributions based on habitat associations were not mapped as they have been in the past. Therefore, an absence of a polygon in a region does not mean a species will not be present in the event of a spill.

Waterfowl – The large bays, estuaries and fringing wetland habitat that characterize coastal North Carolina support large numbers of wintering and migrating waterfowl. Similar to most states along the Atlantic Flyway, North Carolina collects yearly aerial survey data in mid-winter to identify the habitats needed to support these large influxes of waterfowl. Mid-winter aerial survey data from 2011-2015 was provided by NC WRC and used in this atlas update. Based on consultation with resource experts, winter waterfowl distributions were mapped to the predefined unit boundaries themselves rather than interpolating species/unit counts to suitable habitat within each unit. In an effort to reduce complexity and place an emphasis on the overall number of individuals utilizing a particular region, we chose to

only map species that contained 100 or more individuals per survey area. Counts of species that did not meet this threshold within a surveyed area were aggregated together and displayed as wintering “waterfowl”. This method reduces clutter on the map while still placing an emphasis on the regions providing critical over-wintering waterfowl habitat. Concentration values, when populated, indicate a generalized maximum yearly count for that species and unit (100s, 1,000s, 10,000s, etc.). Additional areas providing critical foraging habitat and refuge areas for migrating and wintering waterfowl were mapped using data from the Atlantic Coast Joint Venture – Waterfowl Implementation Plan, North Carolina Game and Inland designations, and expert knowledge.

Generalized nesting locations for resident waterfowl species were obtained from expert knowledge. Similar to other marsh obligate nesting birds, the difficult nature of surveying in marsh habitat resulted in nesting waterfowl distributions in the area to be underrepresented within the atlas. Resident populations of waterfowl depend heavily on salt and freshwater marshes (American black duck, blue-winged teal and gadwall) and freshwater swamps and surrounding upland forests (wood duck) for breeding and therefore could be present within this habitat during the spring and summer breeding months. For the purposes of this atlas, typical nesting habitat within survey units expected to hold the largest aggregations of nesting waterfowl were selected and mapped as “GENERAL DISTRIBUTION” polygons with the breeding months indicated in the seasonal presence attributes.

Raptors – Nesting locations for bald eagles (state threatened), osprey, and northern harriers were mapped using data from the NC NHP. Wintering locations and migratory stopover concentrations for the aforementioned species as well as peregrine falcons and short-eared owls were also mapped using data from NC NHP.

Seabirds – No pelagic seabirds nest within the AOI but certain species use the offshore region depicted within the atlas. The Gulf Stream waters travel close to the coast of North Carolina off the tip of Cape Hatteras. As stated in the North Carolina Important Bird Area report, this area “has the greatest diversity of seabirds and marine mammals in the southeastern United States”. In addition to the diversity supported in the offshore regions of North Carolina, the NC IBA report also stresses that this region may support a globally significant proportion of black-capped and Bermuda petrels. High use seabird areas depicted in this atlas were mapped primarily using data from these NC IBA designations. Although a few areas are depicted as having higher than average densities of seabirds, all offshore waters in North Carolina will support some level of seabirds and sea ducks in all months of the year and should be considered highly sensitive to oil spills.

Rare, threatened and endangered passerines – Nesting locations of rare, threatened or endangered passerines were included as polygons in this atlas even when hydrographically removed from large waterbodies in an effort to make this regional update more usable in an all hazards context. These data were obtained from the NC NHP database. These species are not generally thought of as at risk from an oil spill itself but their listing status should be taken into consideration when conducting cleanup operations in the vicinity of known nesting locations.

Expert contacts for North Carolina birds*:

Name	Agency	City	Phone	Species
Doug Howell	NCWRC	Edenton, NC	252-482-5943	Waterfowl
Joseph Fuller	NCWRC	Edenton, NC	252-482-5223	Waterfowl
John Finnegan	NCDCR NHP	Raleigh, NC	919-707-8630	Rare/T&E
Lindsay Addison	NC Audubon	Wilmington, NC	910-686-7527	Shorebirds, Terns/gulls, Wading birds
Sara Schweitzer	NCWRC	New Bern, NC	252-639-8435	Shorebirds, Terns/gulls, Wading birds
John Hammond	USFWS	Raleigh, NC	919-856-4520	Red-cockaded woodpecker

***Note: this list is not meant to represent all bird experts for the region.**

Major Data Sources Used: Birds

Atlantic Coast Joint Venture. 2015. Waterfowl Focus Areas and Focus Area Report (2005). Vector Digital Data.

Audubon North Carolina. 2011. Important Bird Areas, North Carolina. Vector Data.

Carolina Bird Club. 2016. Birds of North Carolina; Their Distribution and Abundance. Website.

North Carolina Natural Heritage Program. 2016. Biotics Database. Division of Land and Water Stewardship. Department of Natural and Cultural Resources, Raleigh, North Carolina. Vector Digital Data.

North Carolina Wildlife Resources Commission. 2014. North Carolina Game Lands. Vector Digital Data.

North Carolina Wildlife Resources Commission. 2016. North Carolina Mid-Winter Waterfowl Survey Data (2011-2015). Vector Digital Data, Spreadsheet.

North Carolina Wildlife Resources Commission; Portal Access To Wildlife Systems (PAWS). 2016. Colonial Waterbird Database Query. Spreadsheet.

North Carolina Wildlife Resources Commission; Portal Access To Wildlife Systems (PAWS). 2016. Shorebird Database Query. Spreadsheet.

Schulte S., Brown S., Reynolds D., and The American Oystercatcher Working Group. A Conservation Plan for the American Oystercatcher (*Haematopus palliatus*) for the Atlantic and Gulf Coasts of the United States; Version 2. Document.

United States Fish and Wildlife Service. 2001. Final Determination of Critical Habitat for Wintering Piping Plovers. Vector Data.

United States Fish and Wildlife Service – North Florida Ecological Services Office. 2016. Wood Stork Nesting Core Foraging Areas, 2006-2015. Vector Digital Data.

HERPETOFAUNA

Sea Turtles – Five species of sea turtles use North Carolina beaches for nesting during the spring and summer months. The loggerhead sea turtle (state and federally threatened) is the most numerous accounting for over 1,500 nests each year. Green sea turtles (state and federally threatened) and Kemp’s ridley sea turtles are far less common only averaging 5-20 nests annually. Recently both leatherback and hawksbill sea turtles (both federally and state endangered) have been documented nesting in North Carolina, although numbers remain low. Nesting locations (2006-2015) were received from the North Carolina Wildlife Resource Commission as point locations but were converted to polygons stretching along the beaches on which the nest was laid. Concentration values were converted to nest per square kilometer of beach (loggerheads) or the total number of nests (all other sea turtles) per beach. The high count per survey year per beach was used when calculating concentration values.

High use migration, wintering, and interesting areas were mapped as polygons for loggerhead sea turtles using information from the USFWS Critical Habitat designation. Additional high use areas in the bays and estuaries were identified for juvenile sea turtles using information from the North Carolina Division of Marine Fisheries.

Threatened, endangered and other rare reptiles and amphibians – Other reptile and amphibian species were added to the atlas based on their conservation status, their dependence on the aquatic environment during sensitive life stages (breeding in particular), their rarity in the region, or based on expert input. The bulk of the data was obtained from NC NHP and from interviews with resource experts.

Expert contacts for North Carolina herpetofauna*:

Name	Agency	City	Phone	Species
Jeffrey Hall	NCWRC	Greenville, NC	252-917-1683	Rare, T&E species
Judith Ratcliffe	NCDCCR NHP	Raleigh, NC	919-707-8628	Rare, T&E species
Matt Godfrey	NCWRC	Beaufort, NC	252-728-1528	Sea turtles

***Note: this list is not meant to represent all herpetofauna experts for the region.**

Major Data Sources Used: Herpetofauna

North Carolina Natural Heritage Program. 2016. Biotics Database. Division of Land and Water Stewardship. Department of Natural and Cultural Resources, Raleigh, North Carolina. Vector Digital Data.

North Carolina Wildlife Resources Commission. 2016. Sea Turtle Nesting Data; 2006-2015. Spreadsheet.

National Marine Fisheries Service. 2013. Endangered and Threatened Species: Designation of Critical Habitat for the Northwest Atlantic Ocean Loggerhead Sea Turtle Distinct Population Segment (DPS) and Determination Regarding Critical Habitat for the North Pacific Ocean Loggerhead DPS. Vector Digital Data.

North Carolina Division of Marine Fisheries. 2012. Application for an Individual Incidental Take Permit Under the Endangered Species Act of 1973 (Sea Turtles). Document.

NOAA Fisheries Service. 2014. Constricted Migratory, Nearshore Reproductive and Winter Critical Habitat, for the Northwest Atlantic Ocean Distinct Population Segment of Loggerhead Sea Turtle (*Caretta caretta*). Vector Digital Data.

TERRESTRIAL MAMMALS

The terrestrial mammals depicted in this atlas are limited to rare coastal and special status species. These are: Buxton Woods white-footed deer mouse (state special concern, federal species of concern), Florida eastern woodrat (state threatened), Pungo white-footed deer mouse (state special concern), star-nosed mole (state special concern), and Dismal Swamp southern bog lemming (state significantly rare). The deer mice are localized subspecies that live in dunes along North Carolina's barrier islands. The woodrat uses moist hardwood forests in the southeastern Coastal Plain. The bog lemming can be found in open wetland habitat such as damp fields and marsh edges. The star-nosed mole is semi-aquatic and is found in wetland habitats such as swamps, bogs, and marshes. Digital polygon data from NC NHP were used to map rare and special status terrestrial mammals. Historical and very low accuracy locations were not mapped.

Non-native, feral horses known as Banker ponies or horses occur along the barrier islands of North Carolina. The largest of these herds is found on Shackleford Banks (SB), the southern-most barrier island in Cape Lookout National Seashore, and a smaller herd occurs nearby on the Rachel Carson Reserve (RCR). These herds are managed as part of the cultural landscape, having descended from colonial Spanish horses brought to the islands centuries ago (SB) as well as more recent releases (RCR). They are protected by federal (SB) and state and local (RCR) laws. The general distributions of these herds were reviewed by NPS and NC Coastal Reserve personnel.

There are several rare and listed bat species that are present within the atlas area. These species are; northern long-eared bat (state significantly rare, federally threatened), Rafinesque's big-eared bat (state special concern and federal species of concern), southeastern bat (state special concern and federal species of concern), northern yellow bat (state special concern), little brown bat (state significantly rare), tricolored bat (state significantly rare). Bats in North Carolina have been devastated by white-nose syndrome, the primary threat to bats in this area. While these species may not be directly impacted by an oil spill, human disturbance to roosts and hibernation areas is considered a secondary threat. There was not enough data to adequately map the distribution of rare bats in the North Carolina coastal plain.

Known roosts and hibernacula occur predominantly in the mountains and none are shown in this AOI. The contact information for the regional bat expert has been included in the table below.

Semi-aquatic furbearing mammals live in coastal wetland habitats vulnerable to oil spills. Mink and northern river otter are broadly distributed in the Coastal Plain of North Carolina. Beaver and muskrat are also widespread throughout the river systems, although muskrats are rare in southeastern North Carolina coastal areas. Due to their broad distribution and lack of specific concentration areas, these species were not mapped in this atlas.

Expert contacts for North Carolina terrestrial mammals*:

Name	Agency	City	Phone	Species
Colleen Olfenbuttel	NCWRC	Raleigh, NC	919-920-6302	Mink, River otter, Beaver
Katherine Caldwell	NCWRC	Asheville, NC	828-545-8328	Bats

***Note: this list is not meant to represent all terrestrial mammal experts for the region.**

Major Data Sources Used: Terrestrial Mammals

North Carolina Natural Heritage Program. 2016. Biotics Database. Division of Land and Water Stewardship. Department of Natural and Cultural Resources, Raleigh, North Carolina.

FISH

Finfish depicted in this atlas include selected marine, estuarine, and freshwater species. Species of conservation interest, commercial or recreational importance, or ecological importance are emphasized. Fish polygons were created based on survey information, digital data, and expert opinion provided primarily by resource experts at NCDMF, NCWRC, and NOAA.

FISH – ANADROMOUS AND CATADROMOUS SPECIES

Atlantic and shortnose sturgeon – Atlantic (federally and state endangered) and shortnose sturgeon (federally and state endangered) were mapped to areas where they are known to occur. Data and expert knowledge were provided by Lisa Wickliffe of NOAA, Mike Loeffler of the NCDMF, Liza Hoos of North Carolina State University, Debra J. Gauthier of the Virginia Institute of Marine Science, Jeanne Boylan of the SCDNR, and Wilson Laney of the USFWS.

River herring and shad - Alewife and blueback herring, collectively known as river herring, and American shad are anadromous fish that once supported the largest commercial and recreational fisheries on the Atlantic Coast but have become severely depleted due to human impediments to inland spawning runs, habitat loss, and overfishing. Spawning runs were mapped using data and expert knowledge provided by NCDMR and NOAA. Additional shad species included in this atlas are gizzard shad, hickory shad, and threadfin shad. The aforementioned reduction in available spawning habitat for river herring and shad occurred outside of the area of interest. If a spawning run went beyond the water features in the ESI hydrographic layer, then it was mapped using stream line features. These areas are designated with

"Spawning Area" and "Nursery Area" mapping qualifiers to emphasize these important life history stages. River herring pre-spawning concentrations at the mouths of certain rivers were mapped as migration areas. Timing of migration and spawning was provided primarily by Able and Fahay 2010 and resource experts.

Other anadromous and catadromous species – Striped bass, an anadromous species, and American eel, a catadromous species, are included in this atlas. Adult striped bass participate in migrations in waters offshore of North Carolina. Juvenile striped bass may overwinter in estuarine waters for several years before joining the migratory population offshore. American eels go through a "yellow eel" stage lasting approximately 9 – 19 years in estuaries and inshore waters before migrating offshore to spawn in the Sargasso Sea (Able and Fahay 2010).

FISH – ESTUARINE AND BRACKISH WATER SPECIES

Fish that occur primarily in estuarine and brackish waters were mapped using a variety of sources. Fisheries independent data from NCDMF program 120 and 195 data were used to map southern and summer flounder. Program 120 is a statewide estuarine trawl survey and that primarily aims to sample juvenile fish. This sampling program is conducted yearly from May to June beginning in 1971. A subset of the Program 120 data (1990 – 2014) was used to map fish in this atlas. Program 195, also known as the Pamlico Sound Survey, was initiated in 1987 and includes trawl surveys which have been used to calculate juvenile abundance indices and estimate population parameters. Sampling for Program 195 is typically in summer and fall (June and September). Data from 1987 – 2014 were used to map fish species for this atlas.

Recreational and commercial landings data provided by the NCDMF were used to determine presence/absence of adults and/or juveniles in some estuarine and brackish water systems. These data sets included month, year, waterbody, and abundance of for landings from 2006 – 2015 (abundance for recreational landings included count, while abundance for commercial landings included number of dealers as well as pounds of catch. These indices were used to supplement concentration values when other more robust data was unavailable.

Thirty (30) meter gridded bathymetry data for major estuarine systems created by the Special Projects office at NOAA were retrieved from the NOS Data Explorer Service (<http://nosdataexplorer.noaa.gov>) and used as a guide for mapping some species.

FISH – ATLANTIC OCEAN

The ocean distribution of fish was mapped primarily using two fisheries independent trawl survey datasets; VIMS Northeast Area Monitoring and Assessment Program (NEAMAP) and SEAMAP. Sampling for the NEAMAP program occurs in the spring and fall (typically May and October) and data used for this effort were collected from 2007 to 2013. Sampling for the SEAMAP program occurs in spring (April – May), summer (July – August), and fall (October – November) and includes data from 1986 to 2014. Offshore bathymetric contour data generated by NOAA's Office for Coastal Management were used in conjunction with NEAMAP/SEAMAP data to map offshore fish distributions for some species.

Additional ocean distributions of fish were mapped using fisheries dependent data in the form of recreational and commercial landings spreadsheets from the NCDMF. Offshore fish landings from these data were divided into 4 zones: 0-3 mi North of Cape Hatteras, > 3 mi North of Cape Hatteras, 0-3 mi South of Cape Hatteras, and > 3 mi South of Cape Hatteras. Zones with 10 or fewer species occurrences in either of the fisheries dependent datasets that did not have further evidence of species presence in other sources were not mapped. Seasonality was determined primarily using Able and Fahay 2010 and expert knowledge.

FISH – FRESHWATER FISH

Recreationally important freshwater fish were mapped using species life history information from the NCWRC website (<http://www.ncwildlife.org/Learning/Species#5528105-fish>), recreational and commercial fisheries data from the NCDMF, and sportfish survey data from the NCWRC. Species included in Lake Mattamuskeet were compiled based on Potoka et al. 2014 and a species list for Lake Mattamuskeet provided by the NCWRC (Dockendorf 2009). The species list for Lake Mattamuskeet from the NCWRC includes species collected during various surveys in the lake and surrounding canals between 1949 and 2007. For the purposes of mapping fish in this atlas only data from 1990 through 2007 from this data set were used to determine species presence or absence.

NOTE: After a review of current literature and consultation with experts at the NCDMF, it was determined that common carp, a species mapped in the 2011 North Carolina ESI Atlas, have the potential to be present year round in all waterbodies in the area of interest. Common carp were introduced to North America in the 1800s from Eurasia. This species is mentioned here in lieu of mapping their distribution.

Expert contacts for North Carolina fish*:

Name	Agency	City	Phone	Species
Alan Bianchi	NCDMF	Morehead City, NC	252-808-8092	Commercial fisheries statistics
Anne Markwith	NCDMF	Wilmington, NC	910-796-7292	Black sea bass, Sheepshead
Holly White	NCDMF	Elizabeth City, NC	252-264-3911	American shad, Black sea bass, Hickory shad, River herring, Scup, Summer flounder
Kevin Dockendorf	NCWRC	Elizabeth City, NC	252-335-9898	Inland/freshwater fishes
Lee Paramore	NCDMF	Manteo, NC	252-473-5734	Red drum
Lisa Wickliffe	NOAA	Beaufort, NC	252-838-0802	Anadromous fish, Red drum, Southern flounder, Summer flounder
Mike Loeffler	NCDMF	Elizabeth City, NC	252-264-3911	Atlantic sturgeon, Southern flounder

***Note: this list is not meant to represent all fish experts for the region.**

Major Data Sources Used: Fish

- Able, K.W. and M.P. Fahay. 2010. Ecology of Estuarine Fishes: Temperate Waters of the Western North Atlantic. The Johns Hopkins University Press, Baltimore, MD.
- Dockendorf, K. 2009. Species List for Lake Mattamuskeet. North Carolina Wildlife Resources Commission. Document.
- North Carolina Department of Environmental Quality, North Carolina Division of Marine Fisheries. 2015. North Carolina Monthly Commercial Fisheries Landings by Species and Waterbody 2006 – 2015. Spreadsheet.
- North Carolina Department of Environmental Quality, North Carolina Division of Marine Fisheries. 2015. North Carolina Recreational Catch Estimates and Sampling Totals 2006 – 2015. Spreadsheet.
- North Carolina Department of Environmental Quality, North Carolina Division of Marine Fisheries. 2016. Program 120 Data for Summer Flounder and Southern Flounder 1990 - 2014. Spreadsheet.
- North Carolina Department of Environmental Quality, North Carolina Division of Marine Fisheries. 2016. Program 195 Data for Summer Flounder and Southern Flounder 1987 – 2014. Spreadsheet.
- North Carolina Department of Environmental Quality, North Carolina Division of Marine Fisheries. 2016. Stock Status Report 2016. <http://portal.ncdenr.org/web/mf/2016-stock-status-report>
- North Carolina Wildlife Resources Commission. 2016. North Carolina Species. <http://www.ncwildlife.org/Learning/Species#5528105-fish>
- Potoka, K. M., McCargo, J.W. and Thomas, C.D. 2014. Sportfish Population Dynamics in Lake Mattamuskeet, 2013, and Discussion of an Active Lake Level Management Plan to Enhance these Fisheries. North Carolina Wildlife Resources Commission. Federal Aid in Sport Fish Restoration Project F-108 Final Report. Raleigh, NC.
- Rachels, K.T. and Ricks, B. R. 2016. Characteristics of Recreationally Important Fish Populations of the White Oak River. North Carolina Wildlife Resources Commission. Federal Aid in Sport Fish Restoration Project F-108 Final Report. Raleigh, NC.
- SEAMAP-SA Data Management Work Group. January 11, 2016. SEAMAP-SA online database. Retrieved from: <http://www.dnr.sc.gov/SEAMAP/data.html> by: Jennifer Bohannon.
- Virginia Institute of Marine Science Multispecies Research Group. June 2016. Northeast Area Monitoring and Assessment Program (NEAMAP) Survey Data for North Carolina 2007-2015. Gloucester Pt., VA. Spreadsheet.
- Wickliffe, L.C. et al. 2016. A Biogeographical Assessment of Thirteen Key Species to Inform Coastal Management in North Carolina and South Carolina. NOAA Technical Memorandum NOS NCCOS. Beaufort, NC.

INVERTEBRATES

Invertebrates depicted in this atlas include selected marine and estuarine species of commercial, recreational, ecological, and/or conservation interest. Several known invertebrate concentrations, as well as larger, more general areas where invertebrate habitat exists, were mapped.

Most rare and endangered invertebrates included in this atlas were mapped using NCNHP data. These species include freshwater bivalves, insects, and one crayfish species. One of these insects is a recently-discovered butterfly, the crystal skipper (federal species of concern), that is restricted to 30 miles of barrier island habitat in North Carolina. Crystal skipper locations were clipped to land. The monarch butterfly, a federal candidate species, also occurs along the North Carolina coast, particularly during the fall migration, but has not been observed roosting in predictable locations or in large concentrations and thus was not mapped.

Freshwater bivalves included in the atlas consist of the alewife floater (state threatened), barrel floater (state endangered), Cape Fear spike (state species of concern), eastern lampmussel (state threatened), eastern pondmussel (state threatened), tidewater mucket (state threatened/federal species of concern), and Waccamaw spike (state endangered/federal species of concern). The NHP locations of these aquatic species, along with the Chowanoke crayfish (state species of concern) and giant swallowtail were modified to be congruent with ESI water polygon and line features and wetland polygons.

Marine invertebrates mapped in this atlas include blue crab, florida stone crab, white shrimp, brown shrimp, pink shrimp, bay scallop, hard clam, and eastern oyster. Blue crab, white shrimp, brown shrimp, pink shrimp, and eastern oyster are of high commercial value in North Carolina. According to the NCDMF, combined landings of these species in 2015 was approximately 42 million lbs. Bay scallop abundance in North Carolina is considered low and the current NCDMF stock status is 'concern'. Harvest of this species was not allowed 2006 through 2008 and in 2016, the main harvest season was not opened in many regions of the state (NCDMF). Florida stone crabs are associated with shell bottom in North Carolina and thus were mapped using the 'Estuarine Benthic Habitat Mapping' dataset (North Carolina Division of Marine Fisheries 2013).

Expert contacts for North Carolina invertebrates*:

Name	Agency	City	Phone	Species
Judith Ratcliffe	NCDNR NHP	Raleigh, NC	919-707-8628	Freshwater invertebrates
Tina Moore	NCDMF	Morehead City, NC	252-726-7021	Shellfish
Lisa Wickliffe	NOAA	Beaufort, NC	252-838-0802	Blue Crab, Penaeid Shrimp

***Note: this list is not meant to represent all invertebrate experts for the region.**

Major Data Sources Used: Invertebrates

- Burns, J.M. 2015. Speciation in an insular sand dune habitat: *Atrytonopsis* (Hesperiidae: Hesperinae)-mainly from the southwestern United States and Mexico- off the North Carolina coast. *Journal of the Lepidopterists' Society*: 69:275-292.
- Jensen, C. 2014. North Carolina's Fishery Nursery Areas. North Carolina Division of Marine Fisheries. Vector digital data.
- North Carolina Department of Environmental Quality, North Carolina Division of Marine Fisheries. 2016. Stock Status Report 2016. <http://portal.ncdenr.org/web/mf/2016-stock-status-report>
- North Carolina Division of Marine Fisheries. 2013. Estuarine Benthic Habitat Mapping. Vector digital data.
- North Carolina Division of Marine Fisheries. 2012. Shellfish Densities. Vector digital data.
- North Carolina Natural Heritage Program. 2016. Biotics Database. Division of Land and Water Stewardship. Department of Natural and Cultural Resources, Raleigh, North Carolina.
- Theuerkauf, S. 2014. Pamlico Sound Oyster Reef Inventory. Clutch-planting sites, intertidal/subtidal reef, sanctuaries. Vector digital datasets.
- Wickliffe, L.C. et al. 2016. A Biogeographical Assessment of Thirteen Key Species to Inform Coastal Management in North Carolina and South Carolina. NOAA Technical Memorandum NOS NCCOS. Beaufort, NC.

BENTHIC HABITATS

Benthic habitats mapped in this atlas consist of submerged aquatic vegetation (SAV) and rock reefs. SAV species in moderate to high salinity estuarine areas include eelgrass (*Zostera marina*), shoalgrass (*Halodule wrightii*), and widgeon grass (*Ruppia maritima*). The best available SAV data at the time of mapping was the NCDENR/APNEP SAV data from a 2007-2008 aerial survey. These areas of SAV were mapped as having "High Ecological Value" for the spawning, nursery, and foraging habitat they provide, with a concentration value of "Present." The NCDMF also maintains a mosaic of SAV data that represents all potential SAV habitat mapped from 1981-2011. SAV from the mosaic that did not overlap the NCDENR/APNEP SAV distribution was mapped as "General Distribution" with a concentration of "Potential." A rare freshwater plant, loose watermilfoil (*Myriophyllum laxum*; state endangered/federal species of concern), was also mapped as SAV with a mapping qualifier of "Vulnerable Occurrence" and a concentration of "Current" or "Historical" using data from the NCNHP database.

In addition to SAV, several marine and intertidal limestone outcrops in Onslow Bay were mapped as rock reefs with a mapping qualifier of "High Ecological Value." These outcrops support reef communities of

subtropical fish, corals, algae, mollusks, sponges, and crustaceans. These locations were taken from the NCNHP database.

Expert contacts for North Carolina benthic*:

Name	Agency	City	Phone	Species
Anne Deaton	NCDMF	Morehead City, NC	252-726-7021	SAV

***Note: this list is not meant to represent all invertebrate experts for the region.**

Major Data Sources Used: Benthic

North Carolina Department of Environment and Natural Resources and Albermarle-Pamlico National Estuary Partnership. 2008. Submerged Aquatic Vegetation – SAV. Vector Digital Data.

North Carolina Division of Marine Fisheries Habitat Section. 2008. Mosaic of SAV mapped from 1981 to 2011. Vector Digital Data.

North Carolina Natural Heritage Program. 2016. Biotics Database. Division of Land and Water Stewardship. Department of Natural and Cultural Resources, Raleigh, North Carolina.

HABITATS

Threatened, endangered, and rare plants and rare plant communities were mapped primarily with data from NCNHP and were given the mapping qualifier of “Vulnerable Occurrence.” Critically imperiled, imperiled, and vulnerable wetland and upland plant community types were generalized as “Rare Upland Community” or “Rare Wetland Community.” Wetland habitats with a high degree (> 60%) of overlap with the ESI wetland polygons were not included to reduce redundancy in the atlas. Plant and natural community records mapped with low or very low accuracy, as well as historical and obscure records, were also excluded. The only exception to this was that all seabeach amaranth and Virginia jointvetch (both species are state/federally threatened) were mapped regardless of location accuracy or historical status. These annual species have seedbanks and could become reestablished in historical areas under certain environmental conditions. The concentration field indicates whether the location is “Current” or “Historical.” Plants with data sensitivities were masked as “Endangered Plant” and locations were buffered. Small, isolated plant polygons (< 500 m²) were converted to points so that they would be more visible in the atlas. All plant and natural community features were clipped to land except for aquatic plants blue waterhyssop and Carolina grasswort. Shoreline seapurslane, narrowleaf evening-primrose, and seabeach amaranth distributions that closely followed the shoreline were modified to correspond with the ESI shoreline. Common names for plants may differ between the ESI standard and the NCNHP name; a table for cross-referencing names is provided below (Table 1).

Table 1. Rare plant ESI common name and NCNHP common name.

ESI Common Name	NCNHP Common Name
Bearded sprangletop	Salt-meadow grass
Chapman's tridens	Chapman's redtop
Cypress panicgrass	Blue witch grass
Dixie sandmat	Southern seaside spurge
Georgia frostweed	Georgia sunrose
Globe beaksedge	Small's beaksedge
Glowing nightshade	Graceful nightshade
Hairy-seed goldenrod	Coastal goldenrod
Lanceleaf primrose-willow	Lanceleaf seedbox
Low nutrush	Savanna nutrush
Narrowleaf evening primrose	Riverbank evening-primrose
Pine barren frostweed	Pinebarren sunrose
Redcardinal	Coralbean
Reticulated nutrush	Netted nutrush
Seashore paspalum	Seashore crown grass
Slim spikerush	Florida spikerush
Small's bogbutton	Brown bogbutton
Tiny leaved buckthorn	Small-flowered buckthorn
Tough bully	Tough bumelia
Virginia jointvetch	Sensitive jointvetch
Virginia pinweed	Maritime pinweed
Virginia wildrye	Terrell grass
Weatherby's arrowhead	Grassleaf arrowhead
Winged primrose-willow	Winged seedbox
Woolly beachheather	Sand heather

Expert contacts for North Carolina habitats and rare plants*:

Name	Agency	City	Phone	Species
Anne Deaton	NCDMF	Morehead City, NC	252-726-7021	Coastal habitats
Laura Robinson	NCDEQ	Raleigh, NC	919-707-8647	Rare plants and natural communities

***Note: this list is not meant to represent all habitat and rare plant experts for the region.**

Major Data Sources Used: Habitats

North Carolina Natural Heritage Program. 2016. Biotics Database. Division of Land and Water Stewardship. Department of Natural and Cultural Resources, Raleigh, North Carolina.

INVASIVE SPECIES

The spread of invasive or non-native species can degrade habitat, increase the potential for crop damage and diseases in humans, livestock and natural resources, reduce biodiversity through competition and limit recreational opportunities. Invasive species often opportunistically spread after disturbance events alter the natural landscape. Oil spill response and clean up often alters the landscape in a manner conducive to the spread of invasive species as crews often mobilize from all over the U.S. in response to large scale spill events. Boats, trailers, waders and clean up equipment can spread invasive species from waterbody to waterbody unless properly cleaned after use. Invasive species that were mapped are shown on the HUMAN-USE RESOURCE maps.

Invasive Species Contacts:

Dale Suiter, USFWS – 919-856-4520

WILDLIFE REHABILITATION

The following contact provides veterinary care and/or retrieval of wildlife adversely affected by an event:

Tri-State Bird Rescue & Research. 170 Possum Hollow Road, Newark, DE 19711. (302)-737-9543.

HUMAN-USE RESOURCES

Management areas such as wildlife refuges and state parks are mapped as polygons. Where the feature is a known point location (e.g., marinas, airports, water intakes), the specific location is displayed.

Map IDs can be found in the accompanying data tables for point and polygon features mapped. The Map ID may provide more information (i.e., name, contact) for that particular resource. The types of human use resources mapped in this atlas are depicted below.

	Abandoned Vessel		Marina
	Access		Military Installation
	Airport		National Estuarine Research Reserve
	Anchorage		National Forest
	Archaeological Sites		National Park
	Army Corps of Engineers		Nature Conservancy
	Artificial Reef		Oil Facility
	Beach		Park
	Boat Ramp		Port
	Campground		Recreational Fishing
	Critical Habitat		Renewable Energy
	EPA Facility		Repeated Measurement Site
	Ferry		Staging
	Heliport		State Protected Area
	Historical Site		Waste Disposal
	Landfill		Water Intake
	Management Area		Wildlife Refuge

Abandoned Vessel: Data on locations of abandoned and derelict vessels comes from NOAA's Office of Coast Survey spreadsheet of ENC wreck features.

Access Site: Locations where it is possible to gain vehicular access to the shoreline were mapped from data provided by the N.C. Division of Coastal Management (NCDCM) and from the N.C. Geographic Response Plan.

Airport/Heliport: Locations of airports, airfields, landing strips, heliports, etc. were downloaded from the National Transportation Atlas Databases maintained by the Federal Aviation Administration. A few additional heliport locations were added based on inclusion in the N.C. Geographic Response Plan.

Anchorage: Locations where commercial vessels can be anchored offshore were provided by the NOAA Office for Coastal Management.

Archaeological Site: Grids were provided by the North Carolina Office of State Archaeology. The grids are attributed to show relative abundance of archaeological sites within. Low incidence grids contain less than 5 sites. Moderate incidence grids contain 6-20 sites. High incidence grids contain more than 20 sites. In the event of an oil spill or clean up activity please contact the State Archaeologist who can provide precise locational information of all sites.

Steve Claggett, State Archaeologist
North Carolina Office of State Archaeology
Department of Natural and Cultural Resources
Mailing Address: 4601 Mail Service Center
Raleigh, North Carolina 27699-4619
Phone: 919-807-6551

Army Corps of Engineers: U.S. Army Corps of Engineers (USACE) districts and divisions data were provided from the U.S. Army Engineer Research and Development Center.

Artificial Reef: Artificial reef data were provided by N.C. Division of Natural Resources (NCDNR).

Beach: Locations of recreational beaches used for activities such as swimming, sun-bathing, fishing, etc. were provided by NCDCM.

Boat Ramp: Boat ramp location data were provided by the N.C. Wildlife Resources Commission (NCWRC) and the North Carolina Geographic Response Plan.

Camp Ground: Locations of campgrounds were obtained from UScampgrounds.info, poi-factory.com and the N.C. Geographic Response Plan.

Coast Guard: U.S. Coast Guard (USCG) stations were provided by the USCG and USACE. USCG district boundaries were provided by the USCG.

County Boundary: Boundaries for counties were downloaded from the N.C. Department of Transportation (NCDOT).

Critical Habitat: Designated Critical Habitat was mapped for the piping plover, North Atlantic right whale, and loggerhead sea turtle. Data were provided by the USFWS and NOAA NMFS.

Environmental Protection Agency: Jurisdictional region boundaries were provided by the U.S. Environmental Protection Agency (EPA).

Environmental Protection Agency Facility: Represents facilities required to file a Risk Management Plan (RMP) due to the presence of extremely hazardous substances that may result in a chemical accident. This data comes from the USEPA.

Essential Habitat: Habitat Areas of Particular Concern (HAPCs) and/or Essential Fish Habitat (EFH) necessary to support the key life stages of snapper/grouper, dolphin/wahoo, coastal migratory pelagic, shrimp, spiny lobster and coral. These boundaries were provided as part of a collaborative effort of the Florida Fish and Wildlife Commission, the Florida Fish and Wildlife Research Institute, and the South Atlantic Fisheries Management Council.

Federal Emergency Management Agency Region: Jurisdictional region boundaries were provided by the Federal Emergency Management Agency (FEMA) Mapping and Analysis Center.

Ferry: Ferry terminal locations were obtained from NCDOT.

Ferry Route: Ferry routes were digitized by Quantum Spatial Inc. using the ESRI World Street Map.

Fishery Area: Fishery area locations represent oyster sanctuaries in which fishing methods are regulated. Locational information was obtained from the N.C. Division of Marine Fisheries (NCDMF).

Historical Site: Historical sites were provided by the National Park Service's (NPS) National Register of Historic Places (2014). Additional sites were provided by the N.C. Natural Heritage Program (NCNHP) as part of their Managed Areas Database.

Landfill: Permanent waste and debris disposal locations were mapped with data obtained from NCDENRs Division of Waste management.

Management Area: Management areas in this ESI atlas include coastal reserves and National Audubon Sanctuaries. These data were provided by NCNHP as part of their Managed Areas Database.

Marina: Marina location data were obtained from the N.C. Department of Natural Resources, Division of Environmental Health, Shellfish Sanitation and Recreational Water Quality Section. Supplemental attribute information was obtained from Salty Southeast Cruisers' Net and Marinas.com.

Military Installation: Military installation data were provided by NCNHP as part of their Managed Areas Database.

National Estuarine Research Reserve (NERR): NERR boundary data were provided by the North Carolina Department of Environmental Quality (NCDEQ), Division of Coastal Management.

National Forest: The boundary of the Croatan National Forest was obtained from NCNHP as part of their Federal Lands Database.

National Guard: Army National Guard Units were provided by Environmental Systems Research Institute (ESRI).

National Landmark: National landmark locations were obtained from NCNHP as part of their Federal Lands and Managed Areas Databases.

National Park: National park boundaries were obtained from NCNHP as part of their Federal Lands Database.

Nature Conservancy: Boundaries of The Nature Conservancy (TNC) properties were obtained from NCNHP as part of their Managed Areas Database.

Oil Facility: Petroleum product terminal locations were obtained from the U.S. Energy Information Administration.

Park: State park boundaries were obtained from NCNHP as part of their Managed Areas Database.

Port: Major port location data were compiled from the National Atlas of the United States.

Rail Route: Locations of railways were obtained from the NCDOT Rail Division.

Recreational Fishing: Locations of recreational fishing piers were mapped using information found at Fishing-NC.com and from the N.C. Geographical Response Plan.

Renewable Energy: Renewable energy locations were obtained from the EPA's Office of Atmospheric Programs, Clean Air Markets Division and include solar and nuclear facilities.

Repeated Measurement Site: Repeated measurement sites represent NOAA national data buoy locations (DB), NOAA Mussel Watch monitoring sites (MWS) and NOAA National Water Level Observation Network (NWLON).

Shipping Lane: Shipping lanes in N.C. Waters were obtained from the National Waterway Network served by the Vanderbilt Engineering Center for Transportation Operations and Research, Vanderbilt University.

Staging: Oil spill response staging areas were obtained from the N.C. Geographic Response Plan.

State Protected Areas: State protected areas presented in this atlas represent protected Game Lands and Preserves. These boundaries were obtained from NCWRC.

State Waters: The N.C. state waters boundary was obtained from the Bureau of Ocean Management, Regulation and Enforcement, Mapping and Boundary Branch.

Waste Disposal: Locations represent transfer stations and were obtained from the N.C. Division of Waste Management.

Water Intake: Locations of water intakes were obtained from the N.C. Department of Environmental and Natural Resources (NCDENR) – Division of Water Quality.

Wildlife Refuge: Nine National Wildlife Refuges (NWR) fall within the ESI atlas area: Alligator River NWR, Cedar Island NWR, Currituck NWR, Mackay Island NWR, Mattamuskeet NWR, Pea Island NWR, Pocosin Lakes NWR, Roanoke River NWR and Swanquarter NWR. Land boundaries of NWRs were obtained from NCNHP as part of their Federal Lands Database.

GEOGRAPHIC INFORMATION SYSTEM

The entire atlas product is stored in digital form in a Geographic Information System (GIS) as spatial data layers and associated databases. The format for the data varies depending on the type of information or features for which the data are being stored.

Under separate cover is a metadata document that details the data dictionary, processing techniques, data lineage, and other descriptive information for the digital datasets and maps that were used to create this atlas. Below is a brief synopsis of the information contained in the digital version. Refer to the metadata file for a full explanation of the data and its structure.

MAJOR ROADS

The major roads polyline layer represents major thoroughfares within the United States (ArcGIS Content Team (ESRI) and Tele Atlas North America Inc., U.S. Major Roads, ed. 10, published June 30, 2010, ESRI® Data & Maps series, Redlands, CA, USA). These roads are shown on the maps, but are not part of the underlying ESI GIS data.

SHORELINE CLASSIFICATIONS

The ESI shoreline habitat classification is stored as lines and polygons with associated attributes. In many cases, a shoreline may have two or three different classifications or colored lines on the shoreline. These multiple classifications are represented in the database by ESI#1/ESI#2, where ESI#1 is the landward-most classification and ESI#2 is the seaward-most classification. In addition to the line features, marshes (ESI=10A, ESI=10B), swamps (ESI=10C), and scrub-shrub wetlands (ESI=10D) are also stored as polygons.

SENSITIVE BIOLOGICAL RESOURCES

Biological resources are stored as points and polygons. Associated with each feature is a unique identification number that is linked to a series of data tables that further identify the resources. The main biological resource table consists of a list of species identification numbers for each site, the concentration of each species at each site, a mapping qualifier, and identification codes for seasonality and source information. This data table is linked to other tables that describe the seasonality and life-history time periods for each species (at month resolution) for the specified map feature. Other data tables linked to the first table include: the species identification table, which includes common and scientific names; the species status table, which gives information for state and/or federal threatened or endangered listings; and the source database, which provides source metadata at the feature-species level (specific sources are listed for each species occurring at each mapped feature in the biology feature classes).

HUMAN-USE FEATURES

Human-use features are represented as polygons, points or lines. Management areas such as wildlife refuges, national parks and state parks are mapped as polygons. Known locations such as marinas, high use beaches, airports and water intakes are displayed as points when security risks allow. Bridges and railroads are mapped as line features.

ACKNOWLEDGMENTS

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The biological and human-use data included on the maps were provided by numerous individuals and agencies. Staff at NOAA's National Centers for Coastal Ocean Science, the North Carolina Department of Marine Fisheries, North Carolina Wildlife Resources Commission, and North Carolina Audubon contributed a vast amount of information to this effort, including first-hand expertise, publications, maps, and digital data. Other agencies and organizations contributing to data development and review included: U.S. Fish and Wildlife Service and the North Carolina Coastal Reserve and National Estuarine Research Reserve. This work was profoundly enhanced by the collaboration and guidance offered by the staff at the North Carolina Natural Heritage Program, specifically John Finnegan, Judith Ratcliffe, Misty Buchanan and Scott Pohlman.

At Quantum Spatial (QSI), numerous scientific, GIS, and graphic staff were involved with different phases of the project. Jennifer Halleran and Lisa Misenheimer were Project Managers. The biological and human-use data were collected, compiled, and produced into the geodatabase by Audrey Killoran, Elizabeth Rogers, Jennifer Bohannon, and Tim Marcella. Elizabeth Rogers, Jennifer Bohannon, and Tim Marcella prepared the final text documents and metadata. The basemap, shoreline and wetland habitat collection and classification was completed by Alex Burr, Bryan Deslauriers, Emily Foster and Raymond Bower. Cover photo courtesy of Bryan Deslauriers, Quantum Spatial, Inc.

APPROPRIATE USE OF ATLAS AND DATA

This atlas and the associated database were developed to provide summary information on sensitive natural and human-use resources for the purposes of oil and chemical spill planning and response. Although the atlas and database should be very useful for other environmental and natural resource planning purposes, it should not be used in place of data held by the North Carolina Department of Environmental Quality, North Carolina Audubon, the North Carolina State Natural Heritage Program, the U.S. Fish and Wildlife Service, or other agencies. Likewise, information contained in the atlas and database cannot be used in place of consultations with natural and cultural resource agencies, or in place of field surveys. This atlas should not be used for navigation.

SPECIES LIST

Common Name*	Scientific Name*	Common Name*	Scientific Name*
BENTHIC		Marsh wren	<i>Cistothorus palustris</i>
HARDBOTTOM		Nelson's sparrow	<i>Ammodramus nelsoni</i>
Rock reef	-	Painted bunting	<i>Passerina ciris</i>
SAV		<u>Red-cockaded woodpecker</u>	<u><i>Picoides borealis</i></u>
Submersed aquatic vegetation	-	Saltmarsh sparrow	<i>Ammodramus caudacutus</i>
Loose watermilfoil	<i>Myriophyllum laxum</i>	Seaside sparrow	<i>Ammodramus maritimus</i>
BIRDS		PELAGIC	
ALCID		Audubon's shearwater	<i>Puffinus lherminieri</i>
Atlantic puffin	<i>Fratercula arctica</i>	Black-capped petrel	<i>Pterodroma hasitata</i>
Dovekie	<i>Alle alle</i>	Cory's shearwater	<i>Calonectris diomedea</i>
Razorbill	<i>Alca torda</i>	Great shearwater	<i>Puffinus gravis</i>
DIVING		Leach's storm-petrel	<i>Oceanodroma leucorhoa</i>
Anhinga	<i>Anhinga anhinga</i>	Long-tailed jaeger	<i>Stercorarius longicaudus</i>
Brown pelican	<i>Pelecanus occidentalis</i>	Manx shearwater	<i>Puffinus puffinus</i>
Common loon	<i>Gavia immer</i>	Northern fulmar	<i>Fulmarus glacialis</i>
Double-crested cormorant	<i>Phalacrocorax auritus</i>	Northern gannet	<i>Morus bassanus</i>
Horned grebe	<i>Podiceps auritus</i>	Parasitic jaeger	<i>Stercorarius parasiticus</i>
Loons	<i>Gavia spp.</i>	Pelagic birds	-
Red-throated loon	<i>Gavia stellata</i>	Pomarine jaeger	<i>Stercorarius pomarinus</i>
GULL/TERN		Red-billed tropicbird	<i>Phaethon aethereus</i>
Arctic tern	<i>Sterna paradisaea</i>	Sooty shearwater	<i>Puffinus griseus</i>
Black skimmer	<i>Rynchops niger</i>	South polar skua	<i>Catharacta maccormicki</i>
Bonaparte's gull	<i>Larus philadelphia</i>	White-tailed tropicbird	<i>Phaethon lepturus</i>
Bridled tern	<i>Onychoprion anaethetus</i>	Wilson's storm-petrel	<i>Oceanites oceanicus</i>
Caspian tern	<i>Hydroprogne caspia</i>	RAPTOR	
Common tern	<i>Sterna hirundo</i>	American kestrel	<i>Falco sparverius</i>
Forster's tern	<i>Sterna forsteri</i>	<u>Bald eagle</u>	<u><i>Haliaeetus leucocephalus</i></u>
Great black-backed gull	<i>Larus marinus</i>	Golden eagle	<i>Aquila chrysaetos</i>
Gull-billed tern	<i>Gelochelidon nilotica</i>	Northern harrier	<i>Circus cyaneus</i>
Gulls	-	Osprey	<i>Pandion haliaetus</i>
Herring gull	<i>Larus argentatus</i>	<u>Peregrine falcon</u>	<u><i>Falco peregrinus</i></u>
Laughing gull	<i>Larus atricilla</i>	Short-eared owl	<i>Asio flammeus</i>
<u>Least tern</u>	<u><i>Sternula antillarum</i></u>	SHOREBIRD	
Ring-billed gull	<i>Larus delawarensis</i>	American avocet	<i>Recurvirostra americana</i>
Royal tern	<i>Thalasseus maximus</i>	American oystercatcher	<i>Haematopus palliatus</i>
Sandwich tern	<i>Thalasseus sandwicensis</i>	Black-bellied plover	<i>Pluvialis squatarola</i>
Sooty tern	<i>Onychoprion fuscatus</i>	Black-necked stilt	<i>Himantopus mexicanus</i>
Terns	-	Marbled godwit	<i>Limosa fedoa</i>
PASSERINE		<u>Piping plover</u>	<u><i>Charadrius melodus</i></u>
Bachman's sparrow	<i>Peucaea aestivalis</i>	<u>Red knot</u>	<u><i>Calidris canutus</i></u>
Black-throated green warbler	<i>Setophaga virens waynei</i>	Red phalarope	<i>Phalaropus fulicarius</i>
		Red-necked phalarope	<i>Phalaropus lobatus</i>
		Sanderling	<i>Calidris alba</i>

SPECIES LIST

Common Name*	Scientific Name*	Common Name*	Scientific Name*
BIRDS cont.		Hooded merganser	<i>Lophodytes cucullatus</i>
Semipalmated plover	<i>Charadrius semipalmatus</i>	Lesser scaup	<i>Aythya affinis</i>
Shorebirds	-	Long-tailed duck	<i>Clangula hyemalis</i>
Short-billed dowitcher	<i>Limnodromus griseus</i>	Mallard	<i>Anas platyrhynchos</i>
Willet	<i>Tringa semipalmata</i>	Mergansers	-
Wilson's plover	<i>Charadrius wilsonia</i>	Northern pintail	<i>Anas acuta</i>
WADING		Northern shoveler	<i>Anas clypeata</i>
American bittern	<i>Botaurus lentiginosus</i>	Red-breasted merganser	<i>Mergus serrator</i>
American woodcock	<i>Scolopax minor</i>	Redhead	<i>Aythya americana</i>
Black rail	<i>Laterallus jamaicensis</i>	Ring-necked duck	<i>Aythya collaris</i>
Black-crowned night-heron	<i>Nycticorax nycticorax</i>	Ruddy duck	<i>Oxyura jamaicensis</i>
Cattle egret	<i>Bubulcus ibis</i>	Scaup	<i>Aythya spp.</i>
Clapper rail	<i>Rallus longirostris</i>	Scoters	<i>Melanitta spp.</i>
Glossy ibis	<i>Plegadis falcinellus</i>	Sea ducks	-
Great blue heron	<i>Ardea herodias</i>	Snow goose	<i>Chen caerulescens</i>
Great egret	<i>Ardea alba</i>	Surf scoter	<i>Melanitta perspicillata</i>
Green heron	<i>Butorides virescens</i>	Tundra swan	<i>Cygnus columbianus</i>
King rail	<i>Rallus elegans</i>	Waterfowl	-
Least bittern	<i>Ixobrychus exilis</i>	White-winged scoter	<i>Melanitta fusca</i>
Little blue heron	<i>Egretta caerulea</i>	Wood duck	<i>Aix sponsa</i>
Snowy egret	<i>Egretta thula</i>	FISH	
Sora	<i>Porzana carolina</i>	DIADROMOUS	
Tricolored heron	<i>Egretta tricolor</i>	Alewife	<i>Alosa pseudoharengus</i>
Virginia rail	<i>Rallus limicola</i>	American eel	<i>Anguilla rostrata</i>
Wading birds	-	American shad	<i>Alosa sapidissima</i>
White ibis	<i>Eudocimus albus</i>	Atlantic sturgeon	<i>Acipenser oxyrinchus</i>
<u>Wood stork</u>	<u><i>Mycteria americana</i></u>	Blueback herring	<i>Alosa aestivalis</i>
Yellow-crowned night-heron	<i>Nyctanassa violacea</i>	Gizzard shad	<i>Dorosoma cepedianum</i>
WATERFOWL		Hickory shad	<i>Alosa mediocris</i>
American black duck	<i>Anas rubripes</i>	<u>Shortnose sturgeon</u>	<u><i>Acipenser brevirostrum</i></u>
American coot	<i>Fulica americana</i>	Striped bass	<i>Morone saxatilis</i>
American wigeon	<i>Anas americana</i>	ESTUARINE NURSERY	
Black scoter	<i>Melanitta americana</i>	Atlantic croaker	<i>Micropogonias undulatus</i>
Blue-winged teal	<i>Anas discors</i>	Atlantic cutlassfish	<i>Trichiurus lepturus</i>
Brant	<i>Branta bernicla</i>	Atlantic menhaden	<i>Brevoortia tyrannus</i>
Bufflehead	<i>Bucephala albeola</i>	Bay anchovy	<i>Anchoa mitchilli</i>
Canada goose	<i>Branta canadensis</i>	Black drum	<i>Pogonias cromis</i>
Canvasback	<i>Aythya valisineria</i>	Black sea bass	<i>Centropristis striata</i>
Common merganser	<i>Mergus merganser</i>	Bluefish	<i>Pomatomus saltatrix</i>
Gadwall	<i>Anas strepera</i>	Gulf flounder	<i>Paralichthys albigutta</i>
Greater scaup	<i>Aythya marila</i>	Hogchoker	<i>Trinectes maculatus</i>
Green-winged teal	<i>Anas crecca</i>	Ladyfish	<i>Elops saurus</i>

SPECIES LIST

Common Name*	Scientific Name*	Common Name*	Scientific Name*
FISH cont.		Warmouth	<i>Lepomis gulosus</i>
Northern kingfish	<i>Menticirrhus saxatilis</i>	Western mosquitofish	<i>Gambusia affinis</i>
Northern puffer	<i>Sphoeroides maculatus</i>	Yellow perch	<i>Perca flavescens</i>
Pinfish	<i>Lagodon rhomboides</i>	MARINE BENTHIC	
Red drum	<i>Sciaenops ocellatus</i>	Atlantic spadefish	<i>Chaetodipterus faber</i>
Scup	<i>Stenotomus chrysops</i>	Bank sea bass	<i>Centropristis ocyurus</i>
Sheepshead	<i>Archosargus</i>	Florida pompano	<i>Trachinotus carolinus</i>
Southern flounder	<i>Paralichthys lethostigma</i>	Goosefish	<i>Lophius americanus</i>
Southern kingfish	<i>Menticirrhus americanus</i>	Little tunny	<i>Euthynnus alletteratus</i>
Spot	<i>Leiostomus xanthurus</i>	Spotted hake	<i>Urophycis regia</i>
Spotted seatrout	<i>Cynoscion nebulosus</i>	Tautog	<i>Tautoga onitis</i>
Striped mullet	<i>Mugil cephalus</i>	MARINE PELAGIC	
Summer flounder	<i>Paralichthys dentatus</i>	Atlantic bonito	<i>Sarda sarda</i>
Tarpon	<i>Megalops atlanticus</i>	Atlantic needlefish	<i>Strongylura marina</i>
Weakfish	<i>Cynoscion regalis</i>	Blacknose shark	<i>Carcharhinus acronotus</i>
White mullet	<i>Mugil curema</i>	Bluefin tuna	<i>Thunnus thynnus</i>
White perch	<i>Morone americana</i>	Butterfish	<i>Peprilus triacanthus</i>
Windowpane	<i>Scophthalmus aquosus</i>	Cobia	<i>Rachycentron canadum</i>
ESTUARINE RESIDENT		Dolphinfish	<i>Coryphaena hippurus</i>
Inland silverside	<i>Menidia beryllina</i>	Dusky shark	<i>Carcharhinus obscurus</i>
Silver perch	<i>Bairdiella chrysoura</i>	Greater amberjack	<i>Seriola dumerili</i>
Striped killifish	<i>Fundulus majalis</i>	Harvestfish	<i>Peprilus alepidotus</i>
FISH		King mackerel	<i>Scomberomorus cavalla</i>
<u>Hammerhead shark</u>	<u><i>Sphyrna spp.</i></u>	Sailfish	<i>Istiophorus platypterus</i>
Triggerfish	<i>Balistes spp.</i>	Sandbar shark	<i>Carcharhinus plumbeus</i>
FRESHWATER		Sharks	-
Black crappie	<i>Pomoxis nigromaculatus</i>	Spanish mackerel	<i>Scomberomorus</i>
Bluegill	<i>Lepomis macrochirus</i>	Thresher shark	<i>Alopias vulpinus</i>
Bluespotted sunfish	<i>Enneacanthus gloriosus</i>	HABITATS	
Bowfin	<i>Amia calva</i>	PLANT	
<u>Bridle shiner</u>	<u><i>Notropis bifrenatus</i></u>	Basketgrass	<i>Oplismenus hirtellus ssp.</i>
Chain pickerel	<i>Esox niger</i>	Beaked spikerush	<i>Eleocharis rostellata</i>
Channel catfish	<i>Ictalurus punctatus</i>	Bearded sprangletop	<i>Leptochloa fusca ssp.</i>
Golden shiner	<i>Notemigonus crysoleucas</i>	Blue waterhyssop	<i>Bacopa caroliniana</i>
Largemouth bass	<i>Micropterus salmoides</i>	Cabbage palmetto	<i>Sabal palmetto</i>
Longnose gar	<i>Lepisosteus osseus</i>	Carolina bishopweed	<i>Ptilimnium ahlesii</i>
Pumpkinseed	<i>Lepomis gibbosus</i>	Chapman's arrowhead	<i>Sagittaria graminea var.</i>
Redbreast sunfish	<i>Lepomis auritus</i>	Chapman's tridens	<i>Tridens flavus var.</i>
Redear sunfish	<i>Lepomis microlophus</i>	Clustered pellitory	<i>Parietaria praetermissa</i>
Redfin pickerel	<i>Esox americanus</i>	Coastal beaksedge	<i>Rhynchospora pleiantha</i>
Swamp darter	<i>Etheostoma fusiforme</i>	Confederate huckleberry	<i>Gaylussacia nana</i>
Threadfin shad	<i>Dorosoma petenense</i>	Cypress panicgrass	<i>Dichanthelium</i>

SPECIES LIST

Common Name*	Scientific Name*	Common Name*	Scientific Name*
HABITATS cont.		Weatherby's arrowhead	<i>Sagittaria graminea</i> var. <i>weatherbiana</i>
Dixie sandmat	<i>Chamaesyce bombensis</i>	Welsh mudwort	<i>Limosella australis</i>
Dune bluecurls	<i>Trichostema species 1</i>	Winged primrose-willow	<i>Ludwigia alata</i>
Endangered plant	-	Woolly beachheather	<i>Hudsonia tomentosa</i>
Florida adder's-mouth orchid	<i>Malaxis spicata</i>	UPLAND	
Florida scrub frostweed	<i>Helianthemum nashii</i>	Beach morning glory	<i>Ipomoea pescaprea</i>
Fourangle flatsedge	<i>Cyperus tetragonus</i>	Rare upland community	-
Fragrant beaksedge	<i>Rhynchospora odorata</i>	Seaside knotweed	<i>Polygonum glaucum</i>
Georgia frostweed	<i>Helianthemum georgianum</i>	Tiny leaved buckthorn	<i>Sageretia minutiflora</i>
Globe beaksedge	<i>Rhynchospora globularis</i> var. <i>pinetorum</i>	WETLAND	
Glowing nightshade	<i>Solanum pseudogracile</i>	Carolina grasswort	<i>Lilaeopsis carolinensis</i>
Gulf Coast spikerush	<i>Eleocharis cellulosa</i>	Coastal dropseed	<i>Sporobolus virginicus</i>
Hairy-seed goldenrod	<i>Solidago villosicarpa</i>	Godfrey's sandwort	<i>Minuartia godfreyi</i>
Ivy buttercup	<i>Ranunculus hederaceus</i>	Low nutrush	<i>Scleria verticillata</i>
Lanceleaf primrose-willow	<i>Ludwigia lanceolata</i>	Rare wetland community	-
Le Conte's flatsedge	<i>Cyperus lecontei</i>	Reticulated nutrush	<i>Scleria reticularis</i>
Long's bittercress	<i>Cardamine longii</i>	Saltmarsh spikerush	<i>Eleocharis halophila</i>
Moundlily yucca	<i>Yucca gloriosa</i>	Seabeach amaranth	<i>Amaranthus pumilus</i>
Mudbank crowngrass	<i>Paspalum dissectum</i>	Seashore paspalum	<i>Paspalum vaginatum</i>
Narrowleaf evening primrose	<i>Oenothera fruticosa</i>	Spoon-flower	<i>Peltandra sagittifolia</i>
Nerved witchgrass	<i>Dichanthelium aciculare</i> var. <i>aciculare</i>	Virginia jointvetch	<i>Aeschynomene virginica</i>
Pine barren frostweed	<i>Helianthemum corymbosum</i>	HERPETOFAUNA	
Redcardinal	<i>Erythrina herbacea</i>	ALLIGATOR	
Ribbed mock bishopweed	<i>Ptilimnium costatum</i>	American alligator	<i>Alligator mississippiensis</i>
Sand spikerush	<i>Eleocharis montevidensis</i>	AMPHIBIAN	
Shoreline seapurslane	<i>Sesuvium portulacastrum</i>	Carolina gopher frog	<i>Lithobates capito</i>
Slender seapurslane	<i>Sesuvium maritimum</i>	Neuse River waterdog	<i>Necturus lewisi</i>
Slim spikerush	<i>Eleocharis elongata</i>	FROG	
Small's bogbutton	<i>Lachnocaulon minus</i>	Ornate chorus frog	<i>Pseudacris ornata</i>
Southern beaksedge	<i>Rhynchospora microcarpa</i>	Southern chorus frog	<i>Pseudacris nigrita</i>
Spreading sandwort	<i>Arenaria lanuginosa</i> var. <i>lanuginosa</i>	SNAKE	
Tough bully	<i>Sideroxylon tenax</i>	Carolina water snake	<i>Nerodia sipedon</i>
Tracy's beaksedge	<i>Rhynchospora tracyi</i>	Coachwhip	<i>Coluber flagellum</i>
Virginia pinweed	<i>Lechea maritima</i> var. <i>virginica</i>	<u>Coral snake</u>	<u><i>Micrurus</i> sp.</u>
Virginia wildrye	<i>Elymus virginicus</i> var. <i>halophilus</i>	<u>Eastern diamond-backed rattlesnake</u>	<u><i>Crotalus adamanteus</i></u>
Viviparous spikerush	<i>Eleocharis vivipara</i>	Eastern kingsnake	<i>Lampropeltis getula</i>
		Rainbow snake	<i>Farancia erythrogramma</i>
		Rare snake	-
		Southern hog-nosed snake	<i>Heterodon simus</i>

SPECIES LIST

Common Name*	Scientific Name*	Common Name*	Scientific Name*
HERPETOFAUNA cont.		MARINE MAMMALS	
TURTLE		DOLPHIN	
Chicken turtle	<i>Deirochelys reticularia</i>	Atlantic spotted dolphin	<i>Stenella frontalis</i>
Diamondback terrapin	<i>Malaclemys terrapin</i>	Bottlenose dolphin	<i>Tursiops truncatus</i>
<u>Green sea turtle</u>	<u><i>Chelonia mydas</i></u>	Harbor porpoise	<i>Phocoena phocoena</i>
<u>Hawksbill sea turtle</u>	<u><i>Eretmochelys imbricata</i></u>	Short-beaked common dolphin	<i>Delphinus delphis</i>
<u>Kemp's ridley sea turtle</u>	<u><i>Lepidochelys kempii</i></u>	MANATEE	
<u>Leatherback sea turtle</u>	<u><i>Dermochelys coriacea</i></u>	<u>West Indian manatee</u>	<u><i>Trichechus manatus</i></u>
<u>Loggerhead sea turtle</u>	<u><i>Caretta caretta</i></u>	PINNIPED	
INVERTEBRATES		Gray seal	<i>Halichoerus grypus</i>
BIVALVE		Harbor seal	<i>Phoca vitulina</i>
<u>Alewife floater</u>	<u><i>Anodonta implicata</i></u>	Harp seal	<i>Pagophilus groenlandicus</i>
Barrel floater	<i>Utterbackia couperiana</i>	Hooded seal	<i>Cystophora cristata</i>
Bay scallop	<i>Argopecten irradians</i>	WHALE	
Cape Fear spike	<i>Elliptio marsupibesa</i>	Fin whale	<i>Balaenoptera physalus</i>
<u>Eastern lampmussel</u>	<u><i>Lampsilis radiata</i></u>	<u>Humpback whale</u>	<u><i>Megaptera novaeangliae</i></u>
Eastern oyster	<i>Crassostrea virginica</i>	<u>North Atlantic right whale</u>	<u><i>Eubalaena glacialis</i></u>
<u>Eastern pondmussel</u>	<u><i>Ligumia nasuta</i></u>	TERRESTRIAL MAMMALS	
Quahog	<i>Mercenaria spp.</i>	SMALL MAMMAL	
<u>Tidewater mucket</u>	<u><i>Leptodea ochracea</i></u>	Buxton Woods white-footed	<i>Peromyscus leucopus</i>
<u>Waccamaw spike</u>	<u><i>Elliptio waccamawensis</i></u>	Dismal Swamp bog lemming	<i>Synaptomys cooperi</i>
CRAB		<u>Florida eastern woodrat</u>	<u><i>Neotoma floridana</i></u>
Blue crab	<i>Callinectes sapidus</i>	Pungo white-footed deermouse	<i>Peromyscus leucopus easti</i>
CRAYFISH		UNGULATE	
Chowanoke crayfish	<i>Orconectes virginianensis</i>	Horse	<i>Equus caballus</i>
INSECT		* Underlined species are listed as either threatened or endangered under the federal ESA, and/or are listed as threatened, endangered, or special concern by North Carolina	
Crystal skipper	<i>Atrytonopsis quinteri</i>		
Giant swallowtail	<i>Papilio cresphontes</i>		
SHRIMP			
Brown shrimp	<i>Farfantepenaeus aztecus</i>		
Florida stone crab	<i>Menippe mercenaria</i>		
Pink shrimp	<i>Farfantepenaeus</i>		
White shrimp	<i>Penaeus vannamei</i>		

SHORELINE DESCRIPTIONS

EXPOSED, SOLID MAN-MADE STRUCTURES

ESI = 1B

DESCRIPTION

- These structures are solid, man-made structures such as seawalls, jetties, breakwaters, groins, revetments, piers, and port facilities
- Many structures are constructed of concrete, wood, or metal
- Often there is no exposed substrate at low tide, but multiple habitats are indicated if present
- They are built to protect the shore from erosion by waves, boat wakes, and currents, and thus are exposed to relatively high-energy processes
- Attached animals and plants sparse to moderate
- Present in highly developed industrial and port areas and scattered along residential waterfronts



PREDICTED OIL BEHAVIOR

- Oil is held offshore by waves reflecting off the steep, hard surface in exposed settings
- Oil readily adheres to the dry, rough surfaces, but it does not adhere to wet substrates
- The most resistant oil would remain as a band at or above the high-tide line

RESPONSE CONSIDERATIONS

- Cleanup is usually not required
- High-pressure water spraying may be conducted to:
 - remove persistent oil in crevices;
 - minimize aesthetic damage; and
 - prevent chronic leaching of oil from the structure

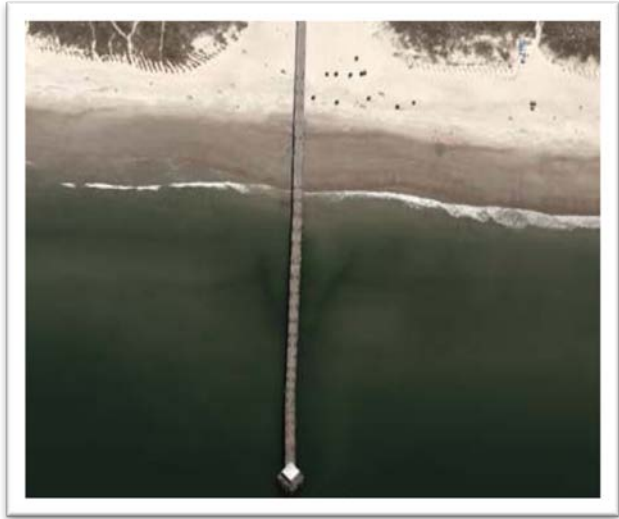
SHORELINE DESCRIPTIONS

FINE- TO MEDIUM-GRAINED SAND BEACHES

ESI = 3A

DESCRIPTION

- These beaches are flat to moderately sloping and relatively hard packed
- They are composed of predominantly quartz sand
- There can be heavy accumulations of wrack present
- They are utilized by birds and turtles
- Upper beach fauna include ghost crabs and amphipods; lower beach fauna can be moderate, but highly variable
- They are generally areas of heavy recreational use
- Most common along the barrier islands



PREDICTED OIL BEHAVIOR

- Light oil accumulations will be deposited as oily swashes or bands along the upper
- Heavy oil accumulations will cover the entire beach surface; oil will be lifted off the lower beach with the rising tide
- Maximum penetration of oil into fine- to medium-grained sand is about 10-15 cm
- Burial of oiled layers by clean sand within the first week after a spill typically will be less than 30 cm along the upper beach face
- Organisms living in the beach sediment may be killed by smothering or lethal oil concentrations in the interstitial water
- Biological impacts include temporary declines in infauna, which can affect important shorebird foraging areas

RESPONSE CONSIDERATIONS

- These beaches are among the easiest shoreline types to clean
- Cleanup should concentrate on removing oil and oily debris from the upper swash zone once oil has come ashore
- Traffic through dune areas should be limited to prevent contamination of clean areas and disturbance of habitat and birds
- Manual cleanup is advised to minimize the volume of sand removed from the shore and requiring disposal, particularly for non-amenity beaches
- Mechanical sand sifters may be effective on oil in the form of tarballs and patties
- All efforts should focus on preventing the mixing of oil deeper into the sediments by vehicular and foot traffic
- Mechanical reworking of lightly oiled sediments from the high-tide line to the upper intertidal zone can be effective along outer beaches

SHORELINE DESCRIPTIONS

SCARPS AND STEEP SLOPES IN SAND

ESI = 3B

DESCRIPTION

- This shoreline type occurs where sandy bluffs are undercut by waves or currents and slump
- Some scarps are fronted by narrow beaches, if the erosion rates are moderate and episodic
- Trees growing at the top of these slopes are eventually undercut and woody debris can accumulate at the base of the scarp
- Biological utilization by birds and infauna is low
- Prevalent near topographic highs along canals and rivers

PREDICTED OIL BEHAVIOR

- Any stranded oil will concentrate at the high-water line and may penetrate sandy sediments
- Oil will also adhere to the dry surfaces of any woody debris that has accumulated at the base of the scarp
- Burial risk is low except when slumping of the bluff occurs
- Active erosion of the scarp will remove the oil



RESPONSE CONSIDERATIONS

- In most cases, cleanup is not necessary because of the short residence time of the oil; sorbents can be deployed to recover oil being mobilized from the shore
- The need for removal of oiled sediments and debris should be carefully evaluated because of the potential for increased erosion
- Closely supervised manual labor should be used so that the minimal amount of material is removed during cleanup

SHORELINE DESCRIPTIONS

COARSE-GRAINED SAND BEACHES

ESI = 4

DESCRIPTION

- These beaches are moderate sloping, of variable width, and have soft sediments. These characteristics combine to lower their trafficability
- Generally species density and diversity is lower than on fine-grained sand beaches
- They occur along 3.6% of the shoreline, mostly along banks of major rivers

PREDICTED OIL BEHAVIOR

- During small spills, oil will be deposited primarily as a band along the high-tide line
- Under very heavy accumulations, oil may spread across the entire beach face, though the oil will be lifted off the lower part of the beach with the rising tide
- Penetration of oil into coarse-grained sand can reach 25 cm
- Burial of oiled layers by clean sand can be as rapid as one tidal cycle and to depths of 60 cm or more
- Burial to depths of over one meter is possible if the oil comes ashore at the start of a depositional period
- Biological impacts include temporary declines in infaunal populations, which can also affect important shorebird foraging areas



RESPONSE CONSIDERATIONS

- Removed oil primarily from the upper swash lines
- Removal of sediment should be limited to avoid erosion problems
- Mechanical reworking of the sediment into the surf zone may be used to release the oil without sediment removal
- Activity in the oiled sand should be limited to prevent mixing oil deeper into the beach
- Use of heavy equipment for oil/sand removal may result in the removal of excessive amounts of sand; manual cleanup may be more effective

SHORELINE DESCRIPTIONS

RIPRAP

ESI = 6B

DESCRIPTION

- Riprap structures are composed of cobble- to boulder-sized blocks of rock or concrete
- Riprap structures are used for shoreline protection and tidal- inlet stabilization)
- Attached biota are sparse to moderate on exposed riprap
- Common along highly developed commercial waterfronts, residential areas, and inlets

PREDICTED OIL BEHAVIOR

- Deep penetration of oil between the blocks is likely
- Oil adheres readily to the rough surfaces of the blocks
- Uncleaned oil can cause chronic leaching until the oil hardens



RESPONSE CONSIDERATIONS

- When the oil is fresh and liquid, high-pressure spraying and/or water flooding may be effective, making sure to recover all mobilized oil
- Heavy and weathered oils are more difficult to remove, requiring scraping and/or hot-water spraying
- It may be necessary to remove and replace heavily oiled blocks in high-use areas

SHORELINE DESCRIPTIONS

EXPOSED TIDAL FLATS

ESI = 7

DESCRIPTION

- Exposed tidal flats are broad, flat, intertidal areas composed primarily of sand and minor amounts of shell
- The presence of sand and gravel indicates that tidal currents and waves are strong enough to mobilize the sediments
- They are often associated with another shoreline type on the landward side of the flat, though they can occur as separate shoals; they are commonly associated with tidal inlets
- Biological utilization can be very high, with large numbers of infauna, heavy use by birds for roosting and foraging, and by foraging fish
- Present at tidal inlets between barrier islands, along the outer coast, and exposed areas of the bays



PREDICTED OIL BEHAVIOR

- Oil does not usually adhere to the surface of exposed tidal flats, but rather moves across the flat and accumulates at the high-tide line
- Deposition of oil on the flat may occur on a falling tide if concentrations are heavy
- Oil does not penetrate water-saturated sediments
- Biological damage may be severe, primarily to infauna, thereby reducing food sources for birds and other predators

RESPONSE CONSIDERATIONS

- Currents and waves can be very effective in natural removal of the oil
- Cleanup is very difficult (and possible only during low tides)
- The use of machinery should be restricted to prevent mixing of oil into the sediments

SHORELINE DESCRIPTIONS

SHELTERED, SOLID MAN-MADE STRUCTURES

ESI = 8B

DESCRIPTION

- These structures are solid man-made structures such as seawalls, groins, revetments, piers, and port facilities
- Most of the structures are designed to protect a single lot, thus their composition, design, and condition are highly variable
- Most structures are constructed of concrete, wood, or metal
- Often there is no exposed beach at low tide, but multiple habitats are indicated if present
- High densities of attached biota may be present at lower tidal elevations
- Common in highly developed commercial and residential waterfront areas



PREDICTED OIL BEHAVIOR

- Oil will adhere readily to rough surfaces, particularly along the high-tide line, forming a distinct oil band
- If the oil is not removed, it may cause chronic sheening until the oil hardens
- The lower intertidal zone usually stays wet (particularly if algae-covered), preventing oil from adhering to the surface

RESPONSE CONSIDERATIONS

- Cleanup of seawalls is usually conducted for aesthetic reasons or to prevent sheening
- Low- to high-pressure spraying at ambient water temperatures is most effective when the oil is fresh

SHORELINE DESCRIPTIONS

SHELTERED RIPRAP

ESI = 8C

DESCRIPTION

- Riprap structures are composed of cobble- to boulder-sized blocks of rock or concrete
- These structures are found inside harbors and bays in developed areas, sheltered from direct exposure to waves
- High densities of attached biota may be present at lower tidal elevations
- Common in highly developed commercial and residential waterfront areas

PREDICTED OIL BEHAVIOR

- Deep penetration of oil between the blocks is likely
- Oil adheres readily to the rough surfaces
- If oil is left uncleaned, it may cause chronic leaching until the oil hardens



RESPONSE CONSIDERATIONS

- High-pressure spraying may be required to remove oil for aesthetic reasons and to prevent leaching of oil from the structure
- Cleanup crews should make sure to recover all released oil
- It may be necessary to remove heavily oiled beaches and replace them in high-use areas

SHORELINE DESCRIPTIONS

SHELTERED TIDAL FLATS

ESI = 9A

DESCRIPTION

- Sheltered tidal flats are composed primarily of mud with minor amounts of sand and shell
- They are present in calm-water habitats, sheltered from regular wave activity, and are usually backed by marshes
- The sediments are very soft and cannot support even light foot traffic in many areas
- They can have heavy wrack deposits along the upper fringe
- Large concentrations of shellfish, worms, and snails can be found on and in the sediments
- They are heavily utilized by birds for foraging
- Common along marsh channels and sheltered areas of the bays



PREDICTED OIL BEHAVIOR

- Oil does not usually adhere to the surface of sheltered tidal flats, but rather moves across the flat and accumulates at the high-tide line
- Deposition of oil on the flat may occur on a falling tide if concentrations are heavy
- Oil will not penetrate the water-saturated sediments, but could penetrate burrows or other crevices in muddy sediments
- In areas of high suspended sediments, sorption of oil can result in deposition of contaminated sediments on the flats
- Biological damage can be severe

RESPONSE CONSIDERATIONS

- These are high-priority areas necessitating the use of spill protection devices to limit oil-spill impact; deflection or sorbent booms and open water skimmers should be used
- Cleanup of the flat surface is very difficult because of the soft substrate; many methods may be restricted
- Low-pressure flushing, vacuum, and deployment of sorbents from shallow-draft boats may be appropriate for use under heavy oiling

SHORELINE DESCRIPTIONS

VEGETATED LOW BANKS

ESI = 9B

DESCRIPTION

- These habitats are either low banks with grasses or trees and tree roots exposed to the water
- They are flooded occasionally by high water
- Present along upper canals and rivers

PREDICTED OIL BEHAVIOR

- During low water stages there is little impact, with the oil coating a narrow band of sediment at the water level
- During high water, the oil will cover and coat the grasses and base of trees
- May cause loss of the grasses, but the trees should survive unless oil penetrates and persists in the substrate



RESPONSE CONSIDERATIONS

- Low-pressure flushing of oiled areas may be effective in removing moderate to heavy accumulations of fresh oil from along the banks
- Sorbent and containment boom should be placed on the water side of the cleanup operations to contain and collect oil outflow
- Low- to high-pressure flushing can be used to remove weathered oil from tree roots and trunks, if deemed necessary in high-use areas

SHORELINE DESCRIPTIONS

SALT- AND BRACKISH-WATER MARSHES

ESI = 10A

DESCRIPTION

- These are grassy intertidal wetlands containing emergent, herbaceous vegetation
- Width of the marsh can vary widely, from a narrow fringe to extensive areas; many have been extensively ditched
- Sediments are composed of organic muds except on the margins of islands where sand is abundant
- Exposed areas are located along bays with wide fetches and along heavily trafficked waterways
- Sheltered areas are not exposed to significant wave or boat wake activity
- Resident flora and fauna are abundant and diverse, with high utilization by birds, fish, and shellfish
- Very common behind barrier islands



PREDICTED OIL BEHAVIOR

- Oil adheres readily to intertidal vegetation
- The band of coating will vary widely, depending upon the water level at the time oil slicks are in the vegetation; there may be multiple bands
- Large slicks will persist through multiple tidal cycles and coat the entire stem from the high-tide line to the base
- If the vegetation is thick, heavy oil coating will be restricted to the outer fringe, although lighter oils can penetrate deeper, to the limit of tidal influence
- Medium to heavy oils do not readily adhere to or penetrate the fine sediments, but can pool on the surface or penetrate into burrows
- Light oils can penetrate the top few centimeters of sediment and deeply into burrows and cracks (up to one meter); heavy oils will thickly cover or pool on the sediment surface

RESPONSE CONSIDERATIONS

- Under light oiling, the best practice is natural recovery; natural removal processes and rates should be evaluated prior to conducting cleanup
- Heavy accumulations of pooled oil can be removed by vacuum, sorbents, or low-pressure flushing. During flushing, care must be taken to prevent transporting oil to sensitive areas down slope or along shore
- Cleanup activities should be carefully supervised to avoid vegetation damage
- Any cleanup activity must not mix the oil deeper into the sediments; trampling of the roots should be minimized
- Cutting of oiled vegetation should only be considered when other resources present are at great risk from leaving the oiled vegetation in place

SHORELINE DESCRIPTIONS

FRESHWATER MARSHES

ESI = 10B

DESCRIPTION

- These are grassy wetlands composed of emergent herbaceous vegetation
- They occur upstream of brackish vegetation in the upper estuary and along major rivers and along creeks and rivers
- Those along major channels are exposed to strong currents and boat wakes; smaller channels tend to be sheltered
- Resident flora and fauna are abundant
- Present along tidal freshwater sections of rivers

PREDICTED OIL BEHAVIOR

- Oil adheres readily to the vegetation
- The band of coating will vary widely, depending upon the water level at the time oil slicks are in the vegetation; there may be multiple bands
- Most of the time, there will be a narrow band because of the small tidal range; the band can be very large during high- water events
- If the vegetation is thick, heavy oil coating will be restricted to the outer fringe, although lighter oils can penetrate deeper
- Medium to heavy oils do not readily adhere to or penetrate the fine sediments, but can pool on the surface or penetrate into burrows



RESPONSE CONSIDERATIONS

- Under light oiling, the best practice is natural recovery; natural removal processes and rates should be evaluated prior to conducting cleanup
- Heavy accumulations of pooled oil can be removed by vacuum, sorbents, or low-pressure flushing
- Cleanup activities should be carefully supervised to avoid vegetation damage
- Any cleanup activity must not mix the oil deeper into the sediments; trampling of the roots should be minimized
- Cutting of oiled vegetation should only be considered when other resources present are at great risk from leaving the oiled vegetation in place

SHORELINE DESCRIPTIONS

SWAMPS

ESI = 10C

DESCRIPTION

- Swamps consist of shrubs and hardwood forested wetlands, essentially flooded forests; vegetation is taller, on average, greater than 6 meters
- The sediment tends to be silty clay with large amounts of organic debris
- They are seasonally flooded, though there are many low, permanently flooded areas
- Resident flora and fauna are abundant with numerous species
- Common along upper sections of rivers

PREDICTED OIL BEHAVIOR

- Oil behavior depends on whether the swamp is flooded or not
- During floods, most of the oil passes through the forest, coating the vegetation at the waterline, which changes levels throughout the flood event
- Oiled woody vegetation is less sensitive than grasses to oil coating
- Some oil can be trapped and pooled on the swamp floodplain as water levels drop
- Penetration into the floodplain soils is usually limited because of high water levels, saturated soils, muddy composition, surface organic debris, and vegetation cover
- Large amounts of oily debris can remain
- During dry periods, terrestrial spills flow downhill and accumulate in depressions or reach water bodies



RESPONSE CONSIDERATIONS

- Under light oiling, the best practice is to let the area recover naturally
- Heavy accumulations of pooled oil can be removed by vacuum, sorbents, or low-pressure flushing. During flushing, care must be taken to prevent transporting oil to sensitive areas down slope or along shore
- Under stagnant water conditions, herding of oil with water spray may be needed to push oil to collection areas
- Oily debris can be removed where there is access
- Any cleanup activity must not mix the oil deeper into the sediments

SHORELINE DESCRIPTIONS

SCRUB-SHRUB WETLANDS

ESI = 10D

DESCRIPTION

- Scrub-shrub wetlands consist of woody vegetation less than 6 meters tall including true shrubs, small trees, and trees and shrubs that are stunted due to environmental conditions
- The sediments are silty clay mixed with organic debris
- They are seasonally flooded, though there are many low, permanently flooded areas
- Resident flora and fauna are abundant
- Uncommon, occurring in low areas adjacent to canals and rivers

PREDICTED OIL BEHAVIOR

- Oil behavior depends on water level
- During high water, most of the oil passes through the wetland, coating the vegetation above the waterline
- Woody vegetation is less sensitive than grasses to oil
- Some oil can be trapped and pooled on the surface as water levels drop
- Penetration into the soils is usually limited because of high water levels, muddy composition, surface organic debris, and vegetation cover
- Large amounts of oily debris can remain in the wetland
- During dry periods, terrestrial spills flow downhill and accumulate in depressions or reach water bodies

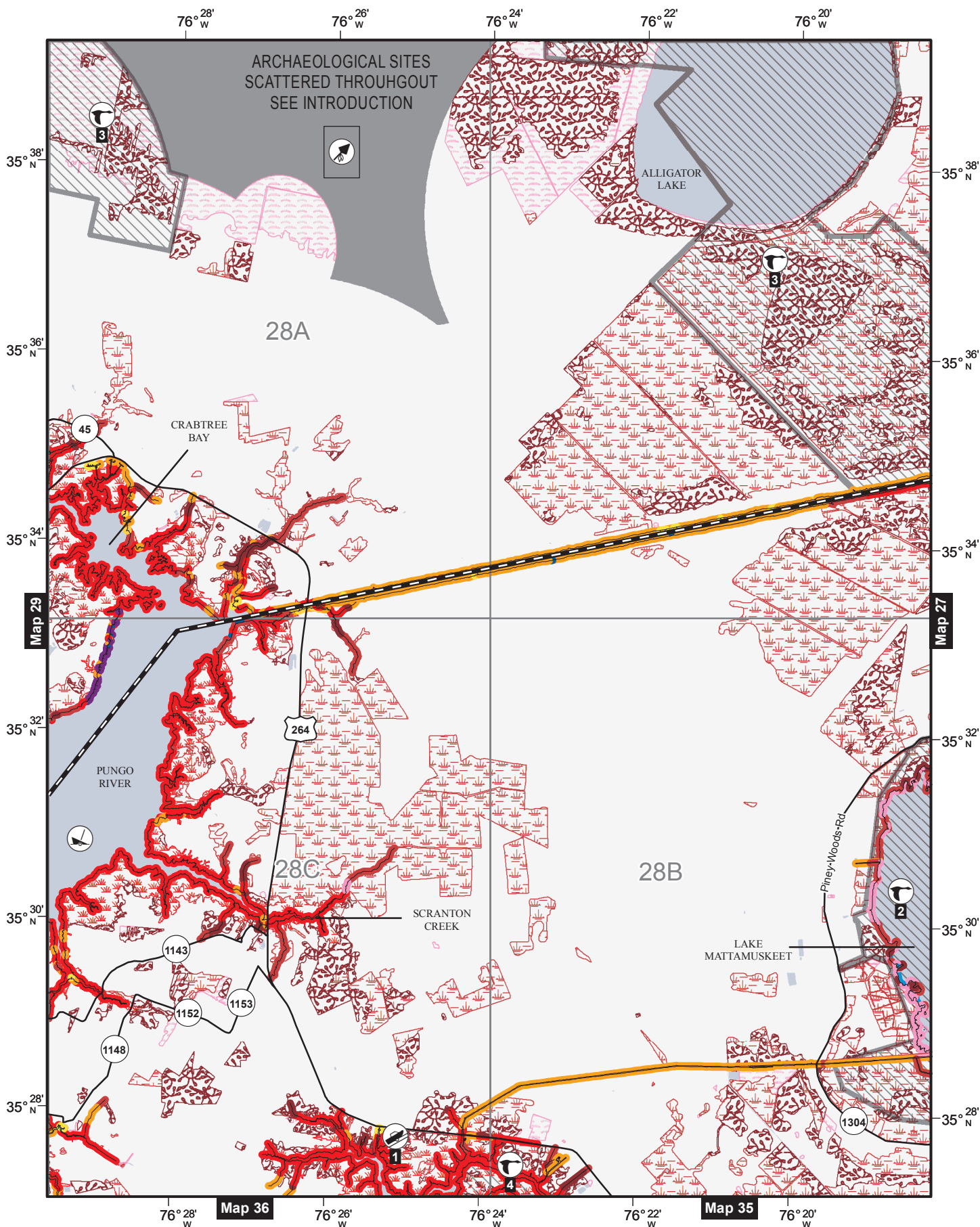


RESPONSE CONSIDERATIONS

- Under light oiling, the best practice is natural recovery
- Heavy accumulations of pooled oil can be removed by vacuum, sorbents, or low-pressure flushing
- Under stagnant water conditions, herding of oil with water spray may be needed to push oil to collection areas
- Oily debris can be removed where there is access
- Any cleanup activity must not mix the oil deeper into the sediments. Trampling of the roots must be minimized
- Woody vegetation should not be cut

ENVIRONMENTAL SENSITIVITY INDEX MAPS





Map 28
North Carolina



SEE BACK OF MAP
for details about mapped resources and
other resources that occur in mapped area.
Data Published: November 2016

0 2 Miles
Not for Navigation
0 2 Kilometers

1:100,000



HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Phone
1	BOAT RAMP	ROSE BAY	252-796-0062

DISPLAYED ON MAP (POLYGONS)			
Map ID	Type	Name	Phone
2	WILDLIFE REFUGE	MATTAMUSKEET NATIONAL WILDLIFE REFUGE	252-926-4021
3	WILDLIFE REFUGE	POCOSIN LAKES NATIONAL WILDLIFE REFUGE	252-796-3004
4	WILDLIFE REFUGE	SWANQUARTER NATIONAL WILDLIFE REFUGE	252-926-4021

ALSO PRESENT IN MAPPED AREA (POLYGONS)			
Type	Name	Contact	Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; COASTAL MIG. PELAGICS	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; CORAL	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SNAPPER GROUPE	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SPINY LOBSTER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC: SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC: SNAPPER GROUPE	DAVID DALE, SOUTHEAST REGION	727-824-5317
STATE PROTECTED AREA	BLACK BEAR SANCTUARY	THE NATURE CONSERVANCY	
STATE PROTECTED AREA	OUTSTANDING RESOURCE AND/OR HIGH QUALITY WATERS	NC DENR WATER QUALITY DIVISION	

JURISDICTIONS



COUNTY: BEAUFORT, HYDE
COAST GUARD: DISTRICT 5, SECTOR NORTH CAROLINA
USACE: SOUTH ATLANTIC DIVISION, WILMINGTON DISTRICT

FEMA: REGION I
EPA: REGION 4

ESI POLYGON HABITAT TYPES

 ESI Rank	 Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	3,530.82	5.52
10B	Freshwater Marshes	3,013.50	4.71
10C	Swamps	16,730.60	26.14
10D	Scrub and Shrub Wetlands	8,172.39	12.77

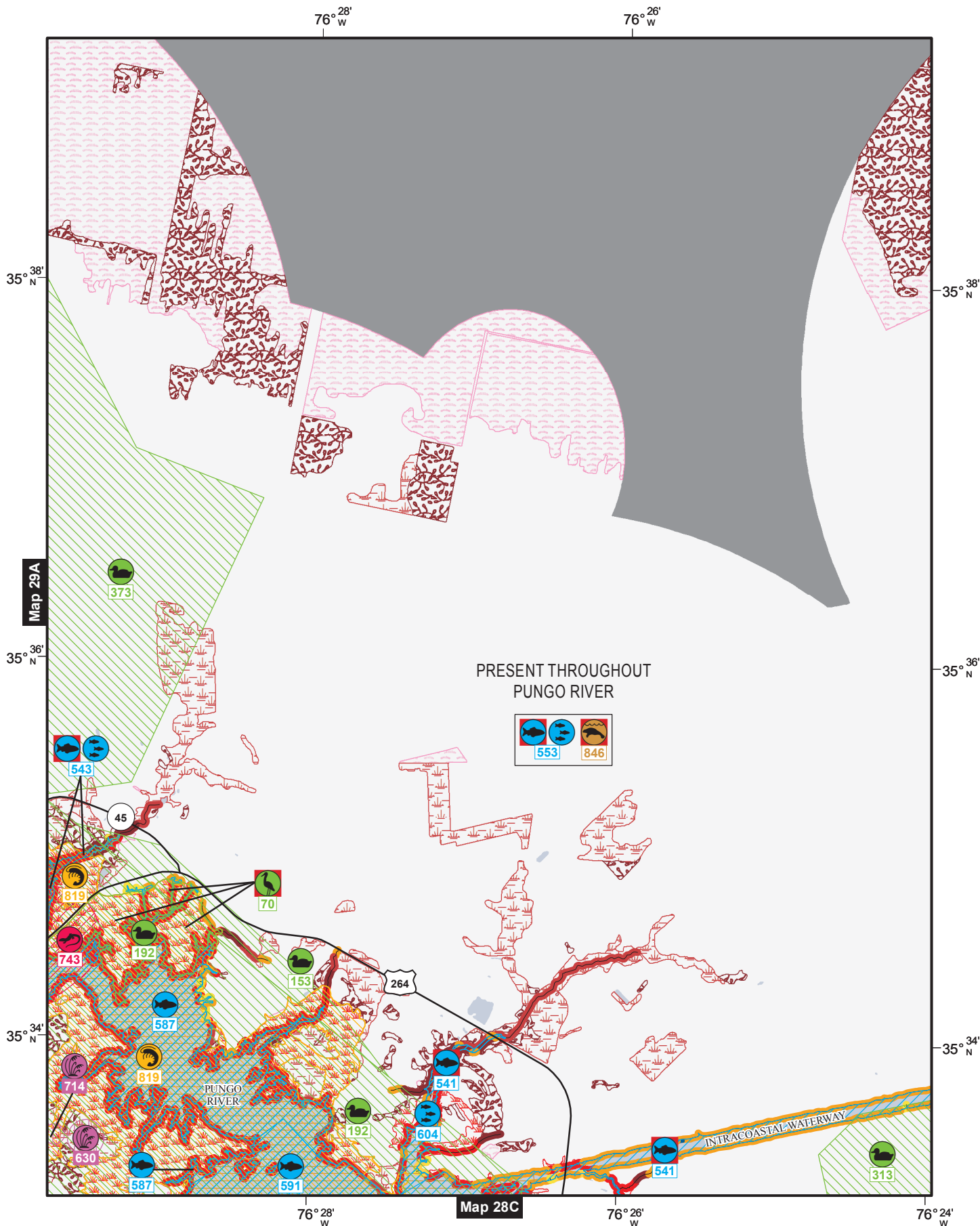
ESI SHORELINE HABITAT TYPES

 ESI Rank	 Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	132,328.95	82.23	57%
10B	Freshwater marshes	9,783.81	6.08	4%
10C	Swamps	19,116.91	11.88	8%
10D	Scrub-shrub wetlands	11,202.29	6.96	5%
9B	Sheltered, vegetated low banks	51,273.04	31.86	22%
8B	Sheltered, solid man-made structures	2,527.02	1.57	1%
8C	Sheltered riprap	647.93	0.40	< 1%
4	Coarse-grained sand beaches	821.31	0.51	< 1%
3A	Fine- to medium-grained sand beaches	500.69	0.31	< 1%
3B	Scarps and steep slopes in sand	67.38	0.04	< 1%
1B	Exposed, solid man-made structures	2,123.48	1.32	1%
Total ESI Shoreline:		230,392.80	143.16	
Total Shoreline:		223,350.40	138.78	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 28A
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
70	Wading	Black rail	Nesting	C		-													May-Aug	-	-	-
153	Waterfowl	Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-
192	Waterfowl	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	American coot	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Mergansers	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Red-breasted merganser	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Ruddy duck	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Scoters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Surf scoter	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Tundra swan	Wintering			100S													-	Feb-Mar	Oct-Nov	-
313	Waterfowl	American black duck	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	American coot	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	American wigeon	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Blue-winged teal	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Canada goose	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Canvasback	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Gadwall	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Green-winged teal	Wintering			100000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Mallard	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern pintail	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern shoveler	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Redhead	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Ring-necked duck	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Ruddy duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Snow goose	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
373	Waterfowl	Tundra swan	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Gadwall	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Green-winged teal	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Mallard	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Scaup	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Snow goose	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Tundra swan	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl		Wintering																-			-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Larvae	Eggs	Spawn	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
541	Diadromous	Alewife	Spawning Area			Present													May-Aug	Mar-Jul	Mar-Jul	-	-
	Diadromous	American shad	Spawning Area			Present													May-Jul	Apr-Jun	Apr-Jun	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
543	Diadromous	Blueback herring	Spawning Area			Present													May-Jul	Mar-Jul	Mar-Jul	-	-
	Diadromous	Alewife	Spawning Area			Present													May-Aug	Mar-Jul	Mar-Jul	-	-
	Diadromous	American shad	Spawning Area			Present													May-Jul	Apr-Jun	Apr-Jun	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Blueback herring	Spawning Area			Present													May-Jul	Mar-Jul	Mar-Jul	-	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													Dec-Mar	-	-	Jan-Dec	-
553	Diadromous	American shad	Spawning Area			Present													May-Jul	Apr-Jun	Apr-Jun	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													Dec-Mar	-	-	Jan-Dec	-
587	Diadromous	Alewife	Spawning Area			Present													May-Aug	Mar-Jul	Mar-Jul	-	-
	Diadromous	Blueback herring	Spawning Area			Present													May-Jul	Mar-Jul	Mar-Jul	-	-
	Diadromous	Alewife	Migration			Present													May-Aug	-	-	Jul-Mar	-
591	Diadromous	Blueback herring	Migration			Present													May-Jul	-	-	Aug-Oct	-
	Diadromous	Blueback herring	Concentration Area			Abundant													Dec-Mar	-	-	Jan-Dec	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	-	Jan-Dec	-

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
							J	F	M	A	M	J	J	A	S	O	N	D
630	Plant	Virginia wildrye	Vulnerable Occurrence			Current												
	Wetland	Rare wetland community	Vulnerable Occurrence			Current												
714	Plant	Gulf Coast spikerush	Vulnerable Occurrence			Current												

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
743	Snake	Rainbow snake	Vulnerable Occurrence			-													May-Sep	Aug-Nov	-	Jan-Dec	Jan-Dec

INVERTEBRATES














Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
819	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-

MARINE MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
846	Manatee	West Indian manatee	General Distribution	E	E	-													-	-	-	-


WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS




Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	American kestrel	Wintering			100S													-	-	-	-
	Bald eagle	Wintering	T		10S													-	-	-	-
	Northern harrier	Wintering			10S													-	-	-	-
	American woodcock	Wintering			10S													-	-	-	-
	American black duck	Wintering			-													-	-	-	-
	American black duck	Wintering			100S													-	-	-	-
	American wigeon	Wintering			100S													-	-	-	-
	American wigeon	Wintering			-													-	-	-	-
	Bufflehead	Wintering			-													-	-	-	-
	Canada goose	Wintering			100S													-	-	-	-
	Canada goose	Wintering			-													-	-	-	-
	Gadwall	Wintering			100S													-	-	-	-
	Gadwall	Wintering			-													-	-	-	-
	Greater scaup	Wintering			-													-	-	-	-
	Green-winged teal	Wintering			-													-	-	-	-
	Lesser scaup	Wintering			-													-	-	-	-
	Mallard	Wintering			-													-	-	-	-
	Mallard	Wintering			100S													-	-	-	-
	Northern pintail	Wintering			100S													-	-	-	-
	Northern shoveler	Wintering			-													-	-	-	-
	Ring-necked duck	Wintering			1000S													-	-	-	-
	Ring-necked duck	Wintering			-													-	-	-	-
	Scaup	Wintering			1000S													-	-	-	-
	Tundra swan	Wintering			Extremely High													-	-	-	-
	Tundra swan	Wintering			1000S													-	-	-	-
	Wood duck	Wintering			-													-	-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)



BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck													Apr-May	-	-	-
	Wood duck													Mar-Jun	-	-	-

FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American eel													-	-	Mar-Jul	May-Nov	-
	American shad													-	-	-	Oct-Mar	-
	Gizzard shad													-	-	-	-	-
	Estuarine Nursery													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Apr
	Hickory shad													-	-	Dec-Feb	Jan-Dec	Jan-Dec
	Striped bass													-	-	Sep-Mar	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Atlantic menhaden													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Bay anchovy													Apr-Nov	Apr-Nov	Jun-Nov	Jun-Nov	-
	Black drum													-	-	-	Jan-Dec	Jun-Nov
	Bluefish													-	-	-	May-Oct	May-Nov
	Ladyfish													-	-	-	May-Oct	-
	Ladyfish													-	-	-	Apr-Oct	Sep-Oct
	Pinfish													-	-	Dec-May	Feb-Oct	Apr-Oct
	Red drum													-	-	Jul-Oct	Jan-Dec	-
	Sheepshead													-	-	-	Jun-Oct	Jun-Oct
	Southern flounder													-	-	Dec-Mar	Jan-Dec	Jan-Dec
	Southern kingfish													-	-	-	May-Dec	Jul-Nov
	Spot													-	-	Jan-Apr	Jan-Dec	Apr-Oct
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	-	Jan-Dec	Apr-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	-
	Weakfish													Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Jan-Dec
	Estuarine Resident													-	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Freshwater													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Largemouth bass													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Yellow perch													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Atlantic needlefish													-	-	-	Jul-Nov	May-Aug
	Marine Pelagic													-	-	-	-	-
	Spanish mackerel													-	-	-	-	-

INVERTEBRATES

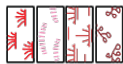
Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Crab													-	-	-	Jan-Dec	Jan-Dec
	Blue crab													-	-	-	-	-
MARINE MAMMALS																		
Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt	
		J	F	M	A	M	J	J	A	S	O	N	D					
	Dolphin													Sep-Oct	Sep-Oct	-	-	-
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	953.15	1.49
10B	Freshwater Marshes	1,756.07	2.74
10C	Swamps	816.19	1.28
10D	Scrub and Shrub Wetlands	1,067.01	1.67



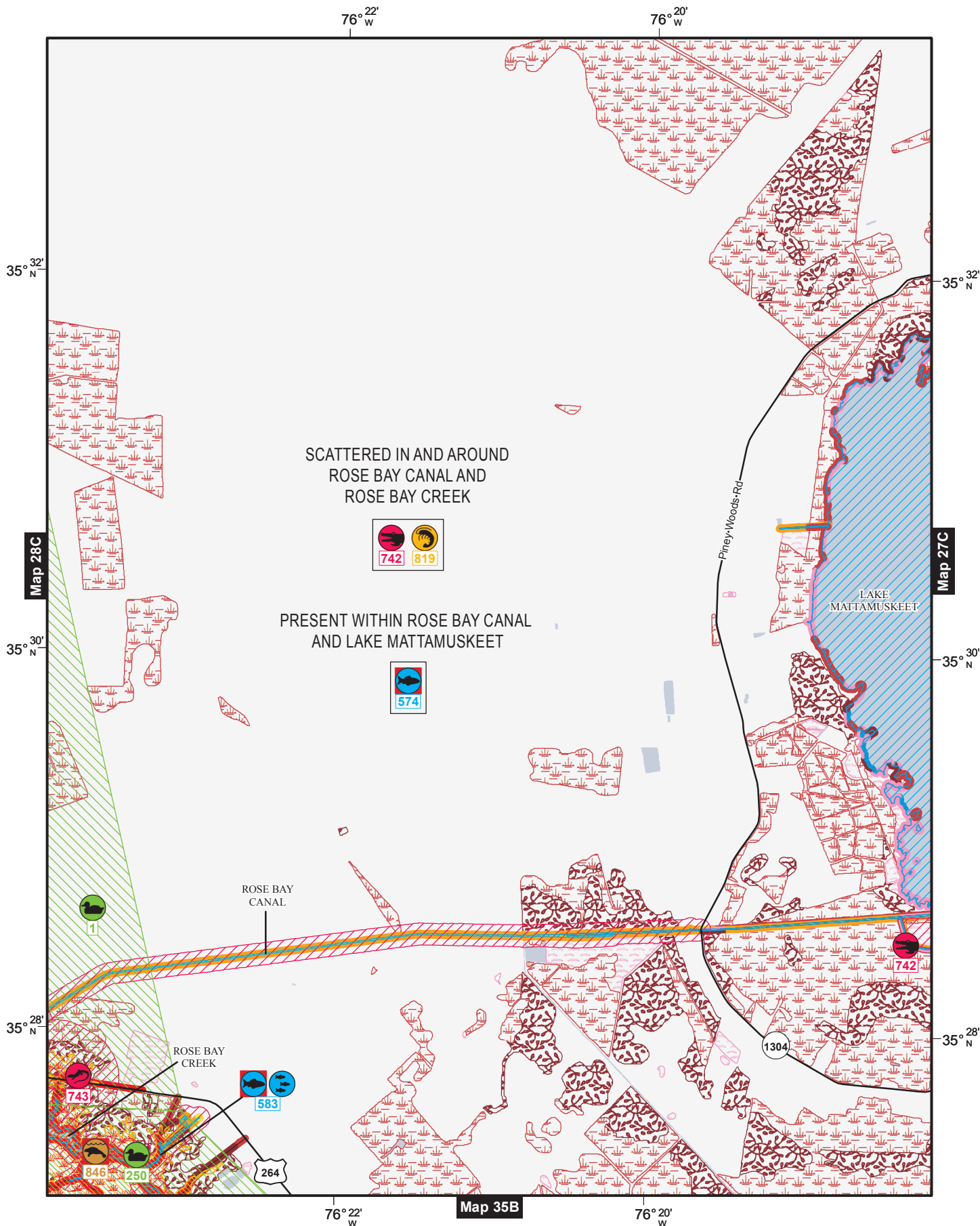
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	43,825.86	27.23	68%
10C	Swamps	4,153.18	2.58	6%
10D	Scrub-shrub wetlands	3,640.31	2.26	6%
9B	Sheltered, vegetated low banks	11,442.85	7.11	18%
8B	Sheltered, solid man-made structures	1,106.64	0.69	2%
8C	Sheltered riprap	490.77	0.30	1%
3A	Fine- to medium-grained sand beaches	59.37	0.04	< 1%
1B	Exposed, solid man-made structures	14.56	0.01	< 1%
Total ESI Shoreline:		64,733.54	Total ESI Shoreline: 40.22	
		64,402.77	Total Shoreline: 40.02	



Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

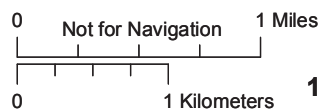
All underlying GIS data can be obtained from response.restoration.noaa.gov



Map 28B
North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



1:50,000



BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Molt
							J	F	M	A	M	J	J	A	S	O	N	D					
1	Waterfowl	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Canada goose	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Tundra swan	Wintering			Extremely High													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
250	Waterfowl	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	American wigeon	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Bufflehead	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Green-winged teal	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Mergansers	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Northern pintail	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Red-breasted merganser	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Ring-necked duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Scoters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
574	Diadromous	Alewife	Migration			Present													-	-	May-Aug	Jul-Mar	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Blueback herring	Migration			Present													-	-	May-Jul	Aug-Oct	-
583	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
	Marine Benthic	Spotted hake	Nursery Area			-													-	-	-	Dec-Jun	-

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
742	Alligator	American alligator	Vulnerable Occurrence			-													May-Jul	Jul-Sep	-	Jan-Dec	Jan-Dec
743	Snake	Rainbow snake	Vulnerable Occurrence			-													May-Sep	Aug-Nov	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
819	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-

MARINE MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)




BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
🦅 Raptor	American kestrel	Wintering			100S													-	-	-	
	Bald eagle	Concentration Area	T		10S													-	-	-	
	Northern harrier	Wintering			10S													-	-	-	
🦢 Shorebird	Shorebirds	Migration			10000S													-	Sep-Oct	-	
	Shorebirds	Wintering			10000S													-	-	-	
🦢 Wading	Clapper rail	Wintering			-													-	-	-	
	Sora	Wintering			-													-	-	-	
	Virginia rail	Wintering			-													-	-	-	
🦢 Waterfowl	American black duck	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	American coot	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Canada goose	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering			100000S													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
Ring-necked duck	Wintering			10000S													-	Feb-Mar	Oct-Nov	-	
Ruddy duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-	
Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	
Snow goose	Wintering			10000S													-	Feb-Mar	Oct-Nov	-	
Tundra swan	Wintering			10000S													-	Feb-Mar	Oct-Nov	-	


BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	American black duck													Apr-May	-	-	-	-
	Wood duck													Mar-Jun	-	-	-	-



FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife													-	-	-	Jul-Oct	-
	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American eel													-	-	Jan-Dec	Jan-Dec	Sep-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Blueback herring													-	-	May-Jul	Jul-Mar	Oct-Mar
	Gizzard shad													-	-	-	Oct-Mar	-
	Gizzard shad													Mar-May	Mar-May	Apr-Jun	Jan-Dec	-
	Hickory shad													-	-	-	-	Jan-Nov
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Sep-Apr	Jan-Dec	Jan-Dec
	Atlantic cutlassfish													-	-	-	-	Jul-Aug
	Atlantic menhaden													-	-	Nov-May	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Bay anchovy													Apr-Nov	Apr-Nov	Jun-Nov	Jun-Nov	-
	Black drum													Apr-Jun	Apr-Jun	Jun-Jul	Jan-Dec	Jun-Nov
	Black sea bass													-	-	-	Jun-Sep	May-Dec
	Bluefish													-	-	-	Feb-Nov	Apr-Nov
	Gulf flounder													-	-	Dec-May	Jan-Dec	Mar-Nov
	Ladyfish													-	-	Sep-Apr	Jun-Oct	Jun-Oct
	Northern kingfish													-	-	May-Sep	Jul-Oct	Apr-Sep
	Pinfish													-	-	Dec-May	Jan-Dec	May-Oct
	Red drum													Aug-Oct	Aug-Oct	Sep-Apr	Jan-Dec	Jan-Dec
	Sheepshead													-	-	May-Jan	Jan-Dec	May-Oct
	Southern flounder													-	-	-	Jan-Dec	-
	Southern kingfish													-	-	Jun-Sep	May-Dec	May-Oct
	Spot													-	-	Jan-Mar	Jan-Dec	Mar-Dec
	Spot													-	-	-	-	-
	Spotted seatrout													Apr-Sep	Apr-Sep	Apr-Nov	Jan-Dec	Jan-Dec
	Striped mullet													-	-	-	Jan-Dec	Mar-Sep
	Striped mullet													-	-	Sep-May	Jan-Dec	Jan-Dec
	Summer flounder													-	-	Oct-May	Jan-Dec	-
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Jan-Dec
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													Mar-Jun	Mar-Jun	Apr-Aug	May-Oct	-
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs		Larvae		Juveniles		Adults
		J	F	M	A	M	J	J	A	S	O	N	D		Jun-Aug	May-Sep	Jun-Aug	Jun-Sep	Jun-Nov	Jun-Apr	
 Fish Freshwater	Silver perch														Jun-Aug	May-Sep	Jun-Aug	Jun-Sep	Jun-Nov	Jun-Apr	-
	Striped killifish														May-Sep	May-Sep	Jun-Aug	Jun-Sep	Jun-Nov	Jun-Apr	-
	Triggerfish															-	-	-	-	-	Jul-Aug
	Black crappie														Mar-May	Mar-May	Mar-May	Mar-May	Jan-Dec	Jan-Dec	Jan-Dec
	Bluegill														Apr-Oct	Apr-Oct	-	-	Jan-Dec	Jan-Dec	Jan-Dec
	Bluespotted sunfish														-	-	-	-	-	-	Jan-Dec
	Bowfin														Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec	Jan-Dec	Jan-Dec
	Chain pickerel														-	-	-	-	-	-	Jan-Dec
	Channel catfish														-	-	-	-	-	-	Jan-Dec
	Golden shiner														-	-	-	-	-	-	Jan-Dec
	Largemouth bass														May-Jun	May-Jun	May-Jun	May-Jun	-	Jan-Dec	Jan-Dec
	Longnose gar														Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec	Jan-Dec	Jan-Dec
	Pumpkinseed														-	-	-	-	-	-	Jan-Dec
	Redbreast sunfish														-	-	-	-	-	-	Jan-Dec
	Redear sunfish														-	-	-	-	-	-	Jan-Dec
	Swamp darter														-	-	-	-	-	-	Jan-Dec
	Threadfin shad														-	-	-	-	-	-	Jan-Dec
	Warmouth														Apr-Jul	Apr-Jul	Apr-Jul	Apr-Jul	Jan-Dec	Jan-Dec	Jan-Dec
	Western mosquitofish														-	-	-	-	-	-	Jan-Dec
	Yellow perch														-	-	-	-	-	-	Jan-Dec
	Atlantic spadefish														-	-	-	-	-	-	Jan-Dec
 Marine Benthic	Florida pompano														Jan-Mar	Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec	Apr-Dec
	Tautog														-	-	-	-	May-Nov	May-Nov	Jul-Oct
	Atlantic needlefish														May-Aug	May-Aug	Jun-Aug	Jun-Aug	Jul-Sep	Jul-Sep	-
	Harvestfish														May-Jul	May-Jul	Jun-Aug	Jun-Aug	Jun-Oct	Jun-Oct	-
	Sharks														-	-	-	-	-	-	Jan-Dec
	Spanish mackerel														-	-	-	-	Jul-Nov	Jul-Nov	May-Oct
															-	-	-	-	-	-	May-Oct

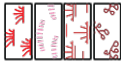
INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs		Larvae		Juveniles		Adults
		J	F	M	A	M	J	J	A	S	O	N	D		Jun-Aug	May-Sep	Jun-Aug	Jun-Sep	Jun-Nov	Jun-Apr	
 Crab	Blue crab														-	-	-	-	Jan-Dec	Jan-Dec	Jan-Dec
															-	-	-	-	-	-	Jan-Dec
MARINE MAMMALS																					
Subelement	Species	Monthly Presence												Mating	Calving		Pupping		Molt		
		J	F	M	A	M	J	J	A	S	O	N	D		Sep-Oct	Sep-Oct	-	-	-	-	
 Dolphin	Bottlenose dolphin													Sep-Oct	Sep-Oct	Sep-Oct	-	-	-	-	-
														Sep-Oct	Sep-Oct	Sep-Oct	-	-	-	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	185.48	0.29
10B	Freshwater Marshes	223.33	0.35
10C	Swamps	3,800.72	5.94
10D	Scrub and Shrub Wetlands	1,253.87	1.96



ESI SHORELINE HABITAT TYPES

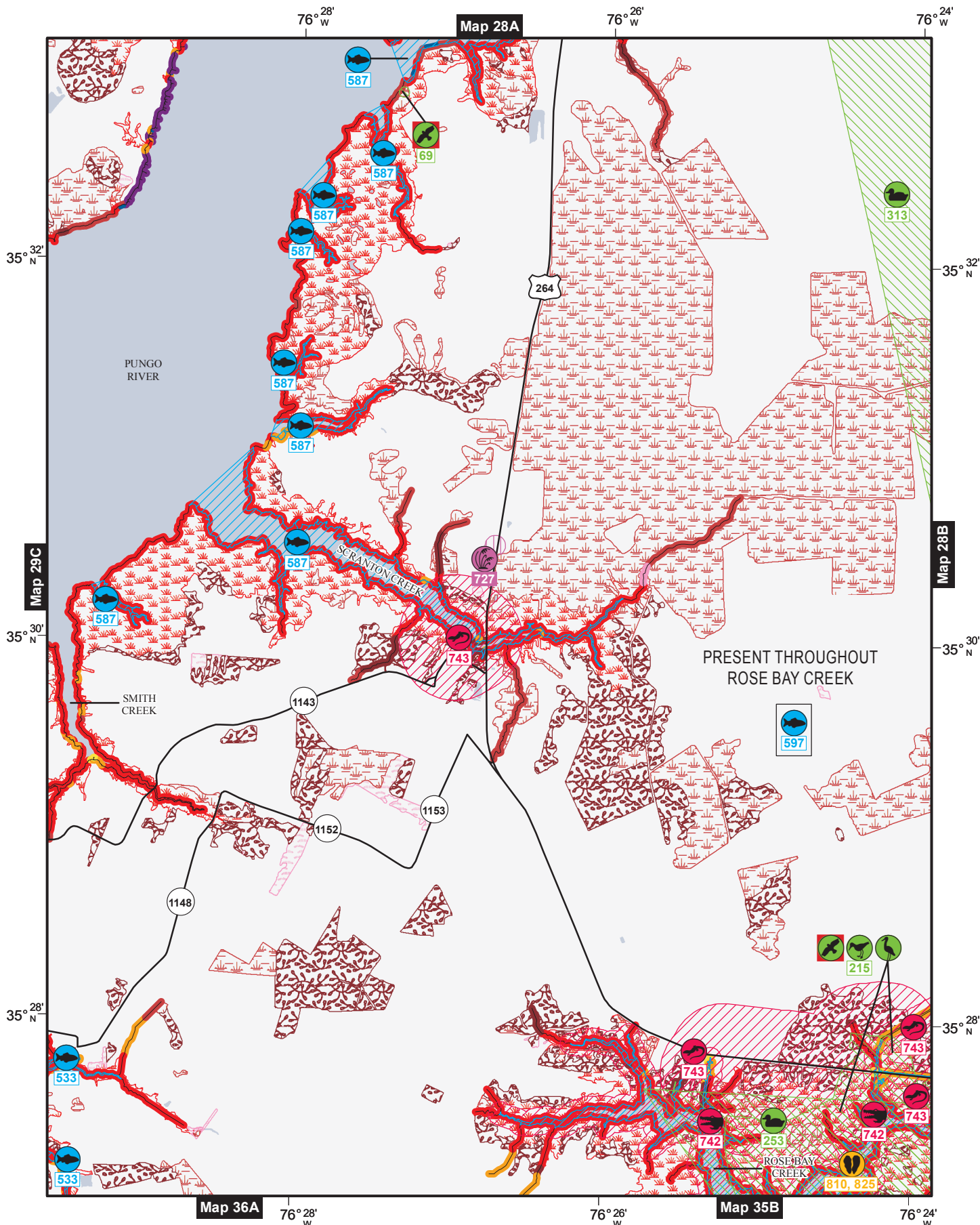
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	7,558.81	4.70	16%
10B	Freshwater marshes	9,603.46	5.97	20%
10C	Swamps	7,599.12	4.72	16%
10D	Scrub-shrub wetlands	3,762.97	2.34	8%
9B	Sheltered, vegetated low banks	18,450.86	11.46	39%
8B	Sheltered, solid man-made structures	106.93	0.07	< 1%
4	Coarse-grained sand beaches	821.31	0.51	2%

Total ESI Shoreline: 47,903.46 Total ESI Shoreline: 29.77
Total Shoreline: 42,918.55 Total Shoreline: 26.67

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov

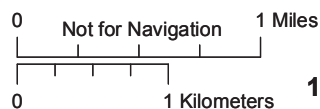




Map 28C North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



1:50,000



BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
69	Raptor	Bald eagle	Nesting	T		1 Pair													Jan-Jun	-	-	-
215	Raptor	American kestrel	Wintering			100S													-	-	-	-
	Raptor	Bald eagle	Concentration Area	T		10S													-	-	-	-
	Raptor	Northern harrier	Wintering			10S													-	-	-	-
	Shorebird	Shorebirds	Migration			10000S													-	-	Sep-Oct	-
	Shorebird	Shorebirds	Wintering			10000S													-	-	-	-
	Wading	Clapper rail	Wintering			-													-	-	-	-
	Wading	Sora	Wintering			-													-	-	-	-
	Wading	Virginia rail	Wintering			-													-	-	-	-
	Waterfowl	Bufflehead	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Green-winged teal	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Mergansers	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Red-breasted merganser	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Ring-necked duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Ruddy duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	American black duck	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
313	Waterfowl	American coot	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	American wigeon	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Blue-winged teal	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Canada goose	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Canvasback	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Gadwall	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Green-winged teal	Wintering			100000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Mallard	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern pintail	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern shoveler	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Redhead	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Ring-necked duck	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Ruddy duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Snow goose	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Tundra swan	Wintering			10000S													-	Feb-Mar	Oct-Nov	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D				
533	Diadromous	Alewife	Nursery Area			Present													-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present													-	May-Jul	Jul-Oct	-
587	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	May-Jul	-	-
597	Marine Benthic	Spotted hake	Nursery Area			-													-	-	Dec-Jun	-

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
							J	F	M	A	M	J	J	A	S	O	N	D
727	Wetland	Virginia jointvetch	Vulnerable Occurrence			Historical												

REPTILES & AMPHIBIANS


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
742	Alligator	American alligator	Vulnerable Occurrence			-													May-Jul	Jul-Sep	-	Jan-Dec	Jan-Dec
743	Snake	Rainbow snake	Vulnerable Occurrence			-													May-Sep	Aug-Nov	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
810	Bivalve	Eastern oyster	Concentration Area			High													Jun-Nov	Jun-Nov	Jun-Nov	Jan-Dec	Jan-Dec
825	Bivalve	Eastern oyster	Concentration Area			Abundant													May-Nov	May-Nov	May-Nov	Jan-Dec	Jan-Dec

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)



BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
	Waterfowl	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
		American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
		American coot	Wintering			100S													-	Feb-Mar	Oct-Nov	-
		American wigeon	Wintering			100S													-	Feb-Mar	Oct-Nov	-
		American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
		Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Canada goose	Wintering			100S													-	Feb-Mar	Oct-Nov	-
		Canada goose	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-
		Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Mergansers	Wintering			1000S													-	Feb-Mar	Oct-Nov	-


BIRDS (continued)

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Northern pintail	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Red-breasted merganser	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Ruddy duck	Wintering			10000S													-	Feb-Mar	Oct-Nov	-	-
	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Scoters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Surf scoter	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Tundra swan	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Tundra swan	Wintering			Extremely High													-	Feb-Mar	Oct-Nov	-	-
	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-	-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous Alewife	Migration			Present													-	-	May-Aug	Jul-Mar	-
	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Atlantic sturgeon	General Distribution		C	-													-	-	-	Jan-Dec	Jan-Dec
	Blueback herring	Migration			Present													-	-	May-Jul	Aug-Oct	-
	Estuarine Nursery Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-

INVERTEBRATES

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Shrimp Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Manatee West Indian manatee	General Distribution		E	-													-	-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BENTHIC



Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	SAV Submerged aquatic veg												

BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Waterfowl American black duck													Apr-May	-	-	-
	Wood duck													Mar-Jun	-	-	-

FISH

Monthly Presence

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
	Alewife													-	-	-	Jul-Oct	-
	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American eel													-	-	Jan-Dec	Jan-Dec	Sep-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Blueback herring													-	-	May-Jul	Jul-Mar	Oct-Mar
	Gizzard shad													-	-	-	Oct-Mar	-
	Gizzard shad													Mar-May	Mar-May	Apr-Jun	Jan-Dec	-
	Hickory shad													-	-	-	-	Jan-Nov
	Hickory shad													-	-	-	-	Jan-Apr
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Dec-Feb	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Sep-Apr	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Sep-Mar	Jan-Dec	Jan-Dec
	Atlantic cutlassfish													-	-	-	-	Jul-Aug
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Atlantic menhaden													-	-	Nov-May	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Bay anchovy													Apr-Nov	Apr-Nov	Jun-Nov	Jun-Nov	-
	Black drum													Apr-Jun	Apr-Jun	Jun-Jul	Jan-Dec	Jun-Nov
	Black drum													-	-	-	Jan-Dec	Jun-Nov
	Black sea bass													-	-	-	Jun-Sep	May-Dec
	Bluefish													-	-	-	May-Oct	May-Nov
	Bluefish													-	-	-	Feb-Nov	Apr-Nov
	Gulf flounder													-	-	Dec-May	Jan-Dec	Mar-Nov
	Ladyfish													-	-	Sep-Apr	Jun-Oct	Jun-Oct
	Ladyfish													-	-	-	May-Oct	-
	Ladyfish													-	-	-	Apr-Oct	Sep-Oct
	Northern kingfish													-	-	May-Sep	Jul-Oct	Apr-Sep
	Pinfish													-	-	Dec-May	Feb-Oct	Apr-Oct
	Pinfish													-	-	Dec-May	Jan-Dec	May-Oct
	Red drum													Aug-Oct	Aug-Oct	Sep-Apr	Jan-Dec	Jan-Dec
	Red drum													-	-	Jul-Oct	Jan-Dec	-
	Sheepshead													-	-	May-Jan	Jan-Dec	May-Oct
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Southern flounder													-	-	-	Jan-Dec	-
	Southern flounder													-	-	Dec-Mar	Jan-Dec	Jan-Dec
	Southern kingfish													-	-	-	May-Dec	Jul-Nov
	Southern kingfish													-	-	Jun-Sep	May-Dec	May-Oct
	Spot													-	-	Jan-Apr	Jan-Dec	Apr-Oct
	Spot													-	-	Jan-Mar	Jan-Dec	Mar-Dec
	Spot													-	-	-	-	-
	Spotted seatrout													Apr-Sep	Apr-Sep	Apr-Nov	Jan-Dec	Jan-Dec
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	Sep-May	Jan-Dec	Jan-Dec

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
Estuarine Resident	Striped mullet													-	-	-	Jan-Dec	Apr-Nov
	Striped mullet													-	-	-	Jan-Dec	Mar-Sep
	Summer flounder													-	-	Oct-May	Jan-Dec	-
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Jan-Dec
	Weakfish													Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Jan-Dec
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													Mar-Jun	Mar-Jun	Apr-Aug	May-Oct	-
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	White perch													-	-	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
Fish	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Triggerfish													-	-	-	-	Jul-Aug
	Black crappie													Mar-May	Mar-May	Mar-May	Jan-Dec	Jan-Dec
	Bluegill													Apr-Oct	Apr-Oct	-	Jan-Dec	Jan-Dec
	Bluespotted sunfish													-	-	-	-	Jan-Dec
	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Chain pickerel													-	-	-	-	Jan-Dec
	Channel catfish													-	-	-	-	Jan-Dec
	Golden shiner													-	-	-	-	Jan-Dec
Freshwater	Large mouth bass													-	-	-	-	Jan-Dec
	Longnose gar													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Pumpkinseed													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redbreast sunfish													-	-	-	-	Jan-Dec
	Redear sunfish													-	-	-	-	Jan-Dec
	Swamp darter													-	-	-	-	Jan-Dec
	Threadfin shad													Apr-Jul	Apr-Jul	Apr-Jul	Jan-Dec	-
	Warmouth													-	-	-	-	Jan-Dec
	Western mosquitofish													-	-	-	-	Jan-Dec
	Yellow perch													-	-	-	-	Jan-Dec
Marine Benthic	Atlantic spadefish													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Florida pompano													-	-	-	May-Nov	-
	Tautog													-	-	-	-	Jul-Oct
	Atlantic needlefish													May-Aug	May-Aug	Jun-Aug	Jul-Sep	-
	Harvestfish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Sharks													-	-	-	-	Jan-Dec
	Spanish mackerel													-	-	-	-	Jan-Dec
	Spanish mackerel													-	-	-	-	May-Aug
	Spanish mackerel													-	-	-	-	Jul-Nov
	Spanish mackerel													-	-	-	-	May-Oct

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
Crab	Blue crab													-	-	Jan-Dec	Jan-Dec
Shrimp	Brown shrimp													-	Feb-Apr	Mar-Aug	-
	Florida stone crab													May-Aug	-	-	-
	White shrimp													-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
Dolphin	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	2,368.09	3.70
10B	Freshwater Marshes	83.27	0.13
10C	Swamps	3,971.22	6.21
10D	Scrub and Shrub Wetlands	1,536.42	2.40

ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	79,522.36	49.41	81%
10B	Freshwater marshes	180.63	0.11	< 1%
10C	Swamps	6,326.97	3.93	6%
10D	Scrub-shrub wetlands	3,799.01	2.36	4%
9B	Sheltered, vegetated low banks	5,840.27	3.63	6%
8B	Sheltered, solid man-made structures	530.09	0.33	1%
8C	Sheltered riprap	157.16	0.10	< 1%
3A	Fine- to medium-grained sand beaches	288.18	0.18	< 1%
1B	Exposed, solid man-made structures	2,108.92	1.31	2%

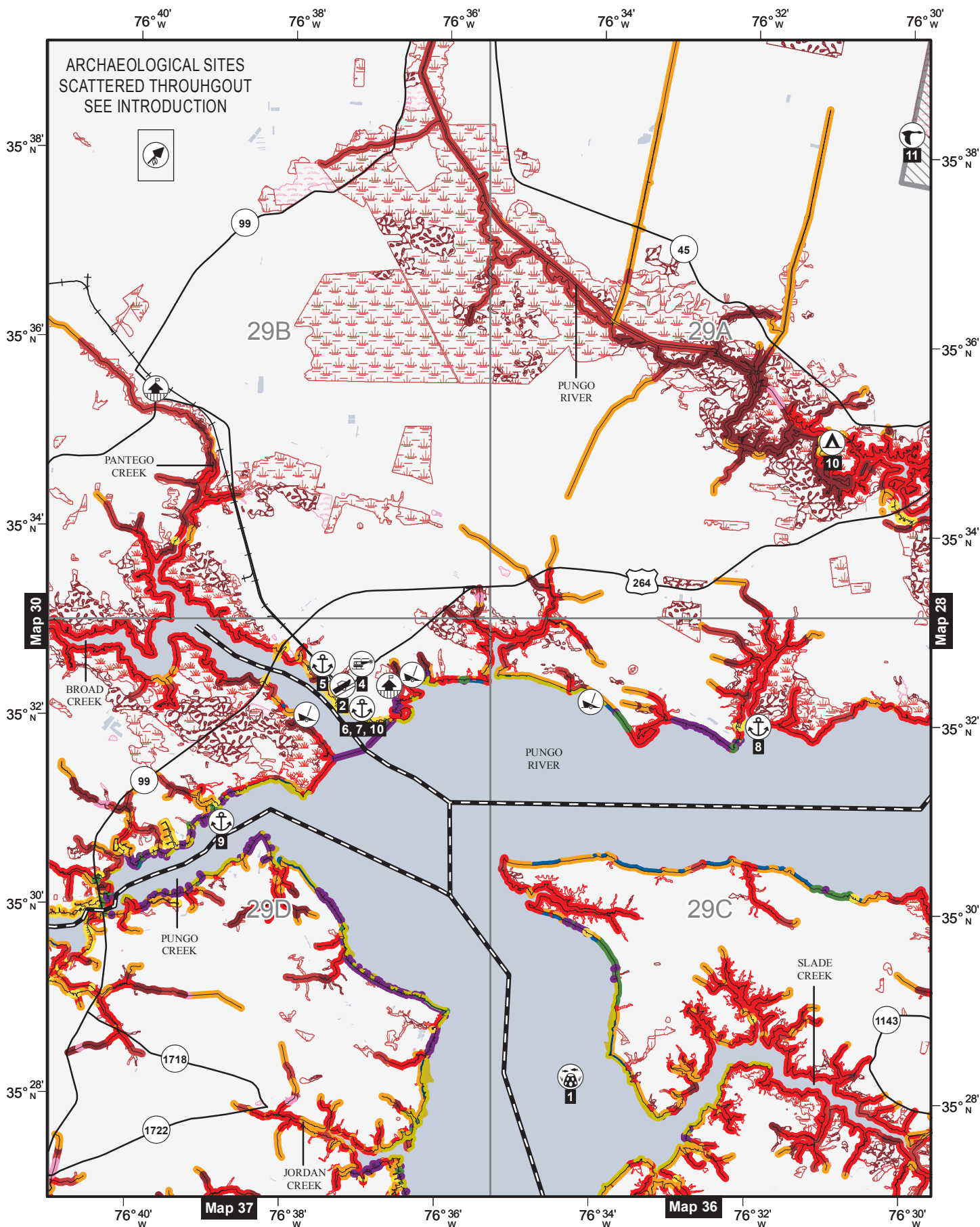
Total ESI Shoreline: 98,753.58
Total Shoreline: 97,179.83

Total ESI Shoreline: 61.36
Total Shoreline: 60.38

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 29
North Carolina



SEE BACK OF MAP
for details about mapped resources and
other resources that occur in mapped area.
Data Published: November 2016

0 Not for Navigation 2 Miles
0 2 Kilometers

1:100,000



Map 29
North Carolina

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Phone
1	ARTIFICIAL REEF	AR-292 QUILLEY POINT	
2	BOAT RAMP	BELHAVEN	252-796-0062
3	CAMPGROUND	RIVERSIDE CAMPGROUND AIRPORT	252-943-9012
4	HELIPORT	PUNGO DISTRICT HOSPITAL	252-943-2211
5	MARINA	BELHAVEN COOPERAGE TOWN DOCK	252-943-3055
6	MARINA	BELHAVEN TOWN DOCK ON WYNNE'S GUT	252-943-3055
7	MARINA	BELHAVEN WATERWAY MARINA	252-944-0066
8	MARINA	DOWRY CREEK MARINA	252-943-2728
9	MARINA	PUNGO CREEK MARINA	252-964-3777
10	MARINA	RIVER FOREST MARINA	252-943-0030

DISPLAYED ON MAP (POLYGONS)			
Map ID	Type	Name	Phone
11	WILDLIFE REFUGE	POCOSIN LAKES NATIONAL WILDLIFE REFUGE	252-796-3004

ALSO PRESENT IN MAPPED AREA (POLYGONS)			
Type	Name	Contact	Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; COASTAL MIG. PELAGICS	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SPINY LOBSTER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
STATE PROTECTED AREA	BLACK BEAR SANCTUARY	NC WILDLIFE RESOURCES COMMISSION	
STATE PROTECTED AREA	OUTSTANDING RESOURCE AND/OR HIGH QUALITY WATERS	NC DENR WATER QUALITY DIVISION	

JURISDICTIONS

COUNTY: BEAUFORT, HYDE
COAST GUARD: DISTRICT 5, SECTOR NORTH CAROLINA
USACE: SOUTH ATLANTIC DIVISION, WILMINGTON DISTRICT

FEMA: REGION I
EPA: REGION 4

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	3,871.70	6.05
10B	Freshwater Marshes	463.01	0.72
10C	Swamps	8,027.52	12.54
10D	Scrub and Shrub Wetlands	3,428.87	5.36
9A	Sheltered Tidal Flats	11.35	0.02
7	Exposed Tidal Flats	317.18	0.50



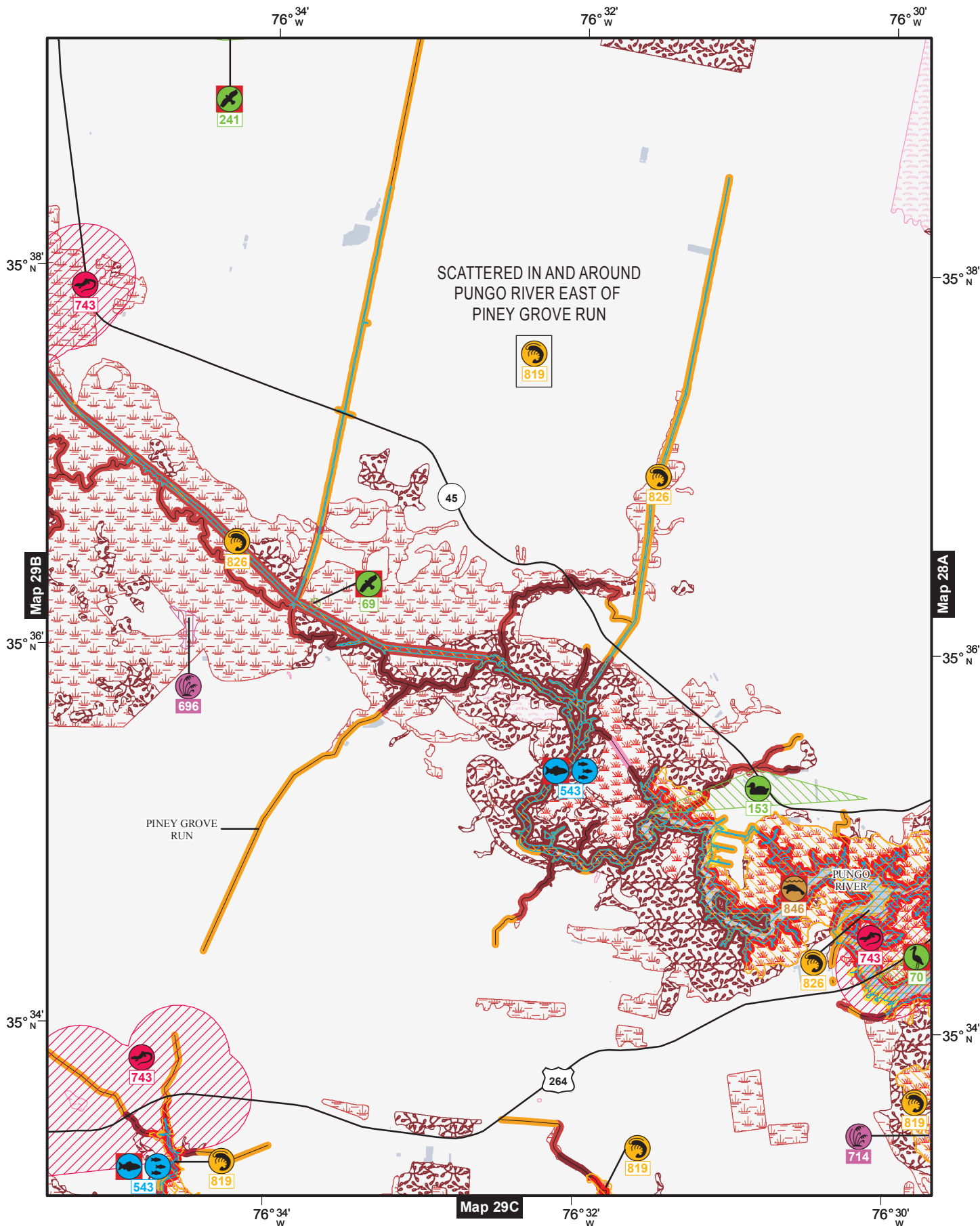
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	185,591.16	115.32	39%
10B	Freshwater marshes	1,528.75	0.95	< 1%
10C	Swamps	51,277.92	31.86	11%
10D	Scrub-shrub wetlands	49,011.04	30.45	10%
9A	Sheltered tidal flats	2,392.44	1.49	1%
9B	Sheltered, vegetated low banks	96,097.45	59.71	20%
8B	Sheltered, solid man-made structures	12,080.53	7.51	3%
8C	Sheltered riprap	3,546.37	2.20	1%
7	Exposed tidal flats	33,462.72	20.79	7%
6B	Exposed riprap	8,399.77	5.22	2%
3A	Fine- to medium-grained sand beaches	9,422.11	5.85	2%
1B	Exposed, solid man-made structures	20,503.29	12.74	4%
Total ESI Shoreline:		473,313.54	294.10	
Total Shoreline:		420,876.18	261.52	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov



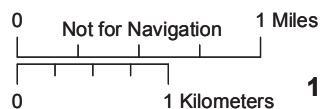


Map 29A

North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



1:50,000



Map 29A
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
69	Raptor	Bald eagle	Nesting	T		1 Pair													Jan-Jun	-	-	-	-
70	Wading	Black rail	Nesting	C		-													May-Aug	-	-	-	-
153	Waterfowl	Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
241	Raptor	Peregrine falcon	Wintering	E		-													-	-	Sep-Oct	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
543	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
							J	F	M	A	M	J	J	A	S	O	N	D
696	Wetland	Rare wetland community	Vulnerable Occurrence			Current												
714	Plant	Gulf Coast spikerush	Vulnerable Occurrence			Current												

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Interstest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
743	Snake	Rainbow snake	Vulnerable Occurrence			-													May-Sep	Aug-Nov	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
819	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-
826	Shrimp	Brown shrimp	Nursery Area			-													-	-	Feb-Apr	Mar-Aug	-

MARINE MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Mating	Calving	Pupping	Molt
846	Manatee	West Indian manatee	General Distribution	E	E	-													-	-	-	-

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig.(S)	Mig.(F)	Molt
Raptor	American kestrel	Wintering			100S													-	-	-	-
	Bald eagle	Wintering	T		10S													-	-	-	-
Wading	Northern harrier	Wintering			10S													-	-	-	-
	American woodcock	Wintering			10S													-	-	-	-
Waterfowl	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	American coot	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Canada goose	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Canada goose	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Mergansers	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Red-breasted merganser	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Ring-necked duck	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Ruddy duck	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Scaup	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Scooters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Snow goose	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Tundra swan	Wintering			Extremely High													-	Feb-Mar	Oct-Nov	-
	Tundra swan	Wintering			100S													-	Feb-Mar	Oct-Nov	-

BIRDS (continued)





Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Tundra swan	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck													Apr-May	-	-	-
	Wood duck													Mar-Jun	-	-	-

FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Gizzard shad													-	-	-	Oct-Mar	-
	Hickory shad													-	-	-	-	Jan-Apr
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Dec-Feb	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Jan-Dec	Jun-Nov
	Bluefish													-	-	-	May-Oct	May-Nov
	Ladyfish													-	-	-	May-Oct	-
	Pinfish													-	-	Dec-May	Feb-Oct	Apr-Oct
	Red drum													-	-	Jul-Oct	Jan-Dec	-
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish													-	-	-	May-Dec	Jul-Nov
	Spot													-	-	Jan-Apr	Jan-Dec	Apr-Oct
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	-	Jan-Dec	Apr-Nov
	Summer flounder													-	-	-	Jan-Dec	Jan-Dec
	Weakfish													-	-	Oct-May	Jan-Dec	-
	White perch													Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Jan-Dec
	Inland silverside													-	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Striped killifish													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Bowfin													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Largemouth bass													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Yellow perch													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Atlantic needlefish													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Spanish mackerel													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
														-	-	-	Jul-Nov	May-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles		Adults	
		J	F	M	A	M	J	J	A	S	O	N	D			Jan-Dec	Mar-Aug	Jan-Dec	Jan-Dec
Crab	Blue crab													-	-	-	-	-	-
Shrimp	Brown shrimp													-	-	-	-	-	-
	White shrimp													-	-	-	-	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	657.13	1.03
10B	Freshwater Marshes	144.76	0.23
10C	Swamps	2,537.07	3.96
10D	Scrub and Shrub Wetlands	1,573.40	2.46

ESI SHORELINE HABITAT TYPES

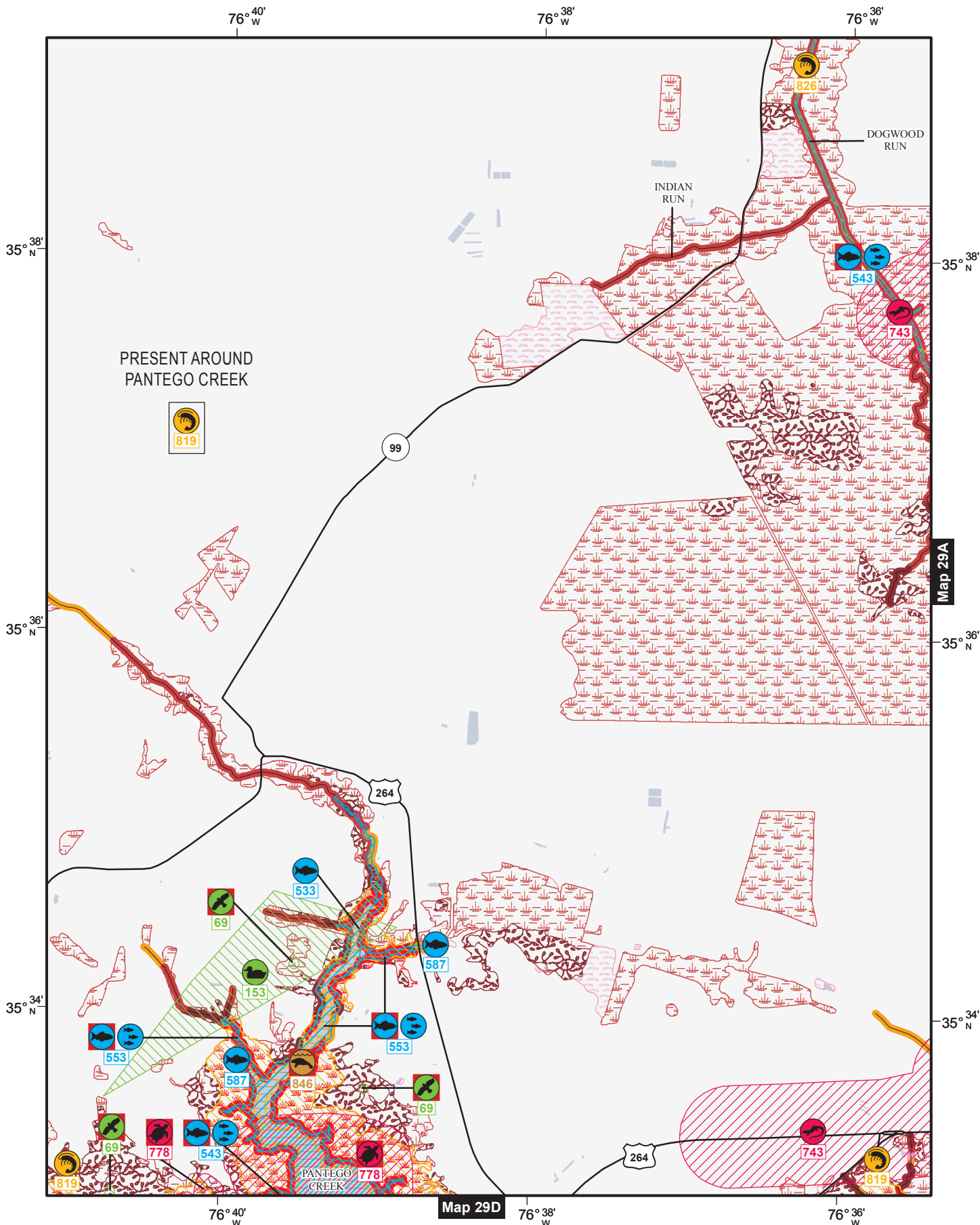
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	23,611.02	14.67	23%
10B	Freshwater marshes	381.47	0.24	< 1%
10C	Swamps	19,531.70	12.14	19%
10D	Scrub-shrub wetlands	29,254.23	18.18	28%
9B	Sheltered, vegetated low banks	29,957.17	18.61	29%
8B	Sheltered, solid man-made structures	1,393.10	0.87	1%
8C	Sheltered riprap	207.40	0.13	< 1%

Total ESI Shoreline: 104,336.08 Total ESI Shoreline: 64.83
Total Shoreline: 104,176.84 Total Shoreline: 64.73

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov

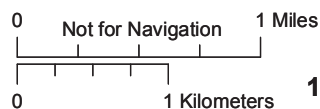




Map 29B North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



1:50,000



Map 29B
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
69	Raptor	Bald eagle	Nesting	T		1 Pair													Jan-Jun	-	-	-	-
153	Waterfowl	Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
533	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
543	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
553	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
587	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
743	Snake	Rainbow snake	Vulnerable Occurrence			-													May-Sep	Aug-Nov	-	Jan-Dec	Jan-Dec
778	Turtle	Diamondback terrapin	Vulnerable Occurrence	C		-													Apr-May	Mar-Oct*	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
819	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-
826	Shrimp	Brown shrimp	Nursery Area			-													-	-	Feb-Apr	Mar-Aug	-

Monthly Presence

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

Monthly Presence

North Carolina: Map 29B

BIRDS (continued)





Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Tundra swan	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck													Apr-May	-	-	-
	Wood duck													Mar-Jun	-	-	-

FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Gizzard shad													-	-	-	Oct-Mar	-
	Hickory shad													-	-	-	-	Jan-Apr
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Dec-Feb	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Jan-Dec	Jun-Nov
	Bluefish													-	-	-	May-Oct	May-Nov
	Ladyfish													-	-	-	May-Oct	-
	Pinfish													-	-	Dec-May	Feb-Oct	Apr-Oct
	Red drum													-	-	Jul-Oct	Jan-Dec	-
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish													-	-	-	May-Dec	Jul-Nov
	Spot													-	-	Jan-Apr	Jan-Dec	Apr-Oct
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	-	Jan-Dec	Apr-Nov
	Summer flounder													-	-	-	Jan-Dec	Jan-Dec
	Weakfish													-	-	Oct-May	Jan-Dec	-
	White perch													Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Jan-Dec
	Inland silverside													-	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Striped killifish													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Bowfin													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Largemouth bass													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Yellow perch													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Atlantic needlefish													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Spanish mackerel													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
														-	-	-	Jul-Nov	May-Aug
														-	-	-	-	-

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles		Adults
		J	F	M	A	M	J	J	A	S	O	N	D			Jan-Dec	Jan-Dec	
Crab	Blue crab													-	-	-	-	-
Shrimp	Brown shrimp													-	-	Mar-Aug	-	-
	Florida stone crab													May-Aug	-	-	-	-
	White shrimp													-	-	Jun-Dec	-	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
Dolphin	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	427.36	0.67
10B	Freshwater Marshes	234.15	0.37
10C	Swamps	4,444.14	6.94
10D	Scrub and Shrub Wetlands	742.66	1.16

ESI SHORELINE HABITAT TYPES

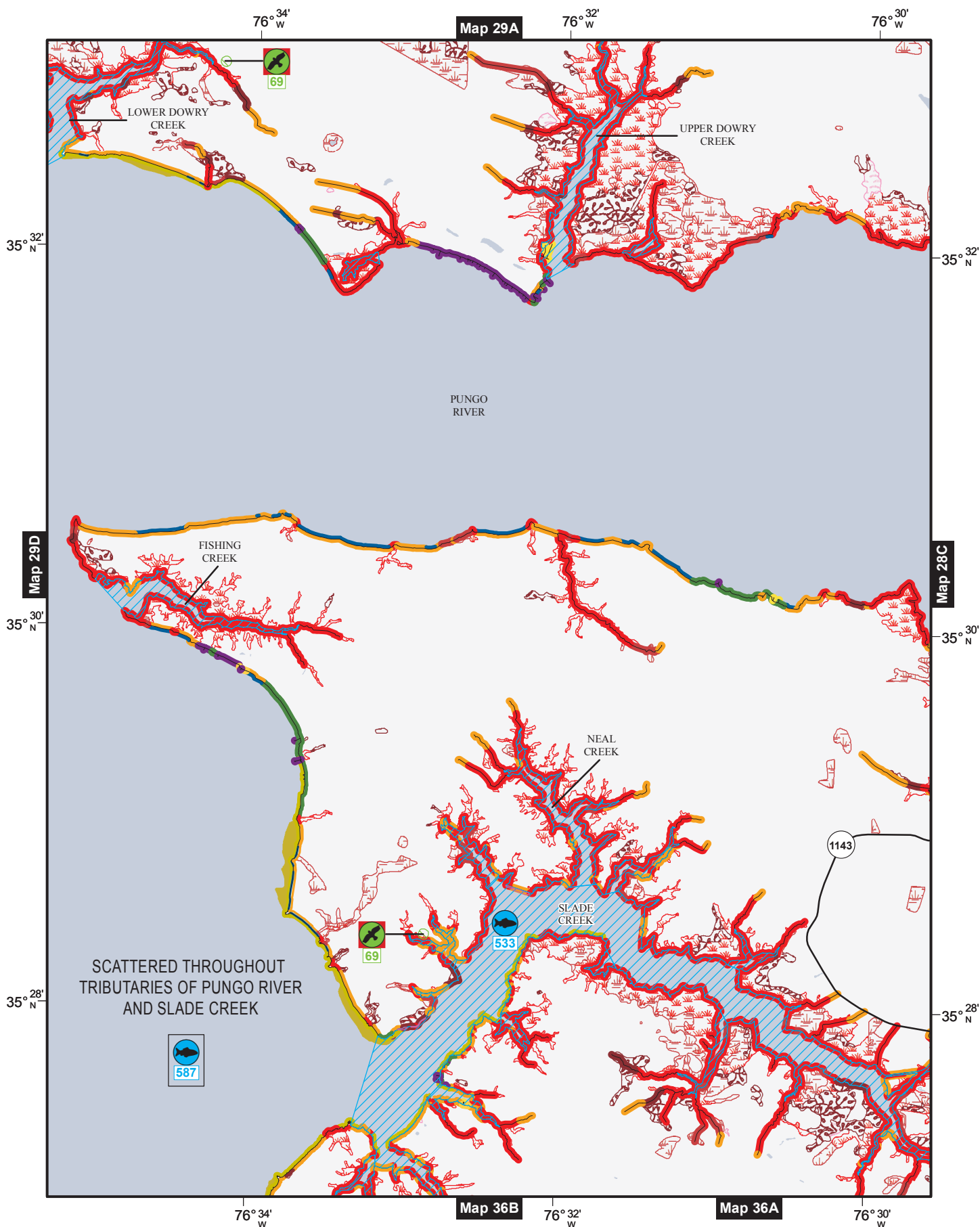
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	12,875.12	8.00	34%
10B	Freshwater marshes	58.69	0.04	< 1%
10C	Swamps	18,140.03	11.27	47%
10D	Scrub-shrub wetlands	4,203.86	2.61	11%
9B	Sheltered, vegetated low banks	3,003.61	1.87	8%
8B	Sheltered, solid man-made structures	66.60	0.04	< 1%

Total ESI Shoreline: 38,347.92
Total ESI Shoreline: 23.83
Total Shoreline: 38,295.80
Total Shoreline: 23.80

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov

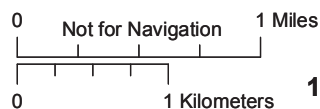




Map 29C
North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



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BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence
SAV	Submerged aquatic veg	High Ecological Value			Present	J F M A M J J A S O N D

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
69	Raptor	Bald eagle	Nesting	T		1 Pair	Jan-Jun	-	-	-	-

FISH



Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Spawn	Eggs	Larvae	Juveniles	Adults
533	Diadromous	Alewife	Nursery Area			Present	-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present	-	-	May-Jul	Jul-Oct	-
587	Diadromous	Alewife	Spawning Area			Present	Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present	Mar-Jul	Mar-Jul	May-Jul	-	-

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Nest	Mig.(S)	Mig.(F)	Molt
Waterfowl	American black duck	Wintering			100S	-	Feb-Mar	Oct-Nov	-
	American coot	Wintering			100S	-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			100S	-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			1000S	-	Feb-Mar	Oct-Nov	-
	Canada goose	Wintering			100S	-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			100S	-	Feb-Mar	Oct-Nov	-
	Mergansers	Wintering			1000S	-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			100S	-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			100S	-	Feb-Mar	Oct-Nov	-
	Red-breasted merganser	Wintering			1000S	-	Feb-Mar	Oct-Nov	-
	Ruddy duck	Wintering			10000S	-	Feb-Mar	Oct-Nov	-
	Scaup	Wintering			1000S	-	Feb-Mar	Oct-Nov	-
	Scoters	Wintering			1000S	-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering			100S	-	Feb-Mar	Oct-Nov	-
	Tundra swan	Wintering			100S	-	Feb-Mar	Oct-Nov	-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D				
	Diadromous	Alewife			Present													-	May-Aug	Jul-Mar	-
		American shad			Present													Apr-Jun	May-Jul	Feb-May	-
		Atlantic sturgeon		C	-													-	-	Jan-Dec	Jan-Dec
		Blueback herring			Present													-	May-Jul	Aug-Oct	-
	Estuarine Nursery	Southern flounder			Abundant													-	Dec-Mar	Jan-Dec	-

INVERTEBRATES

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D				
	Shrimp	Brown shrimp			Abundant													-	Feb-Apr	Mar-Aug	-
		White shrimp			Common													-	Jun-Dec	Jul-Feb	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Manatee	West Indian manatee			-													-	-	-	-
				E	E																

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)



BENTHIC

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	SAV												
	Submerged aquatic veg												

BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Waterfowl													Apr-May	-	-	-
	American black duck													Mar-Jun	-	-	-
	Wood duck																

FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous													-	-	Jan-Jun	Jan-Dec	Aug-Dec
														-	-	Mar-Jul	May-Nov	-
														-	-	-	Oct-Mar	-
	Estuarine Nursery													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Apr
														-	-	Dec-Feb	Jan-Dec	Jan-Dec
														-	-	Dec-Jun	Jan-Dec	Mar-Nov
														Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
														-	-	-	Jan-Dec	Jun-Nov
														-	-	-	May-Oct	May-Nov
														-	-	-	May-Oct	-
														-	-	-	May-Oct	-

FISH (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Pinfish													-	Dec-May	Feb-Oct	Apr-Oct
	Red drum													-	Jul-Oct	Jan-Dec	-
	Sheepshead													-	-	Jan-Nov	Jun-Oct
	Southern kingfish													-	-	May-Dec	Jul-Nov
	Spot													-	Jan-Apr	Jan-Dec	Apr-Oct
	Spotted seatrout													-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	Jan-Dec	Apr-Nov
	Summer flounder													-	Oct-May	Jan-Dec	-
	Weakfish													Mar-Oct	Mar-Oct	Jan-Dec	Jan-Dec
	White mullet													-	-	Jan-Dec	Jan-Dec
	White perch													Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
Estuarine Resident	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	-
Freshwater	Largemouth bass													May-Jun	May-Jun	Jun-Apr	-
	Yellow perch													Jan-Mar	Jan-Mar	Apr-Dec	Jan-Dec
Marine Pelagic	Atlantic needlefish													May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	Jul-Nov	May-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
Crab	Blue crab													-	-	Jan-Dec	Jan-Dec
Shrimp	Brown shrimp													-	Feb-Apr	Mar-Aug	-
	Florida stone crab													May-Aug	May-Aug	-	-
	White shrimp													-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
Dolphin	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	1,509.48	2.36
10B	Freshwater Marshes	17.11	0.03
10C	Swamps	481.77	0.75
10D	Scrub and Shrub Wetlands	374.46	0.59
9A	Sheltered Tidal Flats	2.58	0.00
7	Exposed Tidal Flats	103.41	0.16

ESI SHORELINE HABITAT TYPES

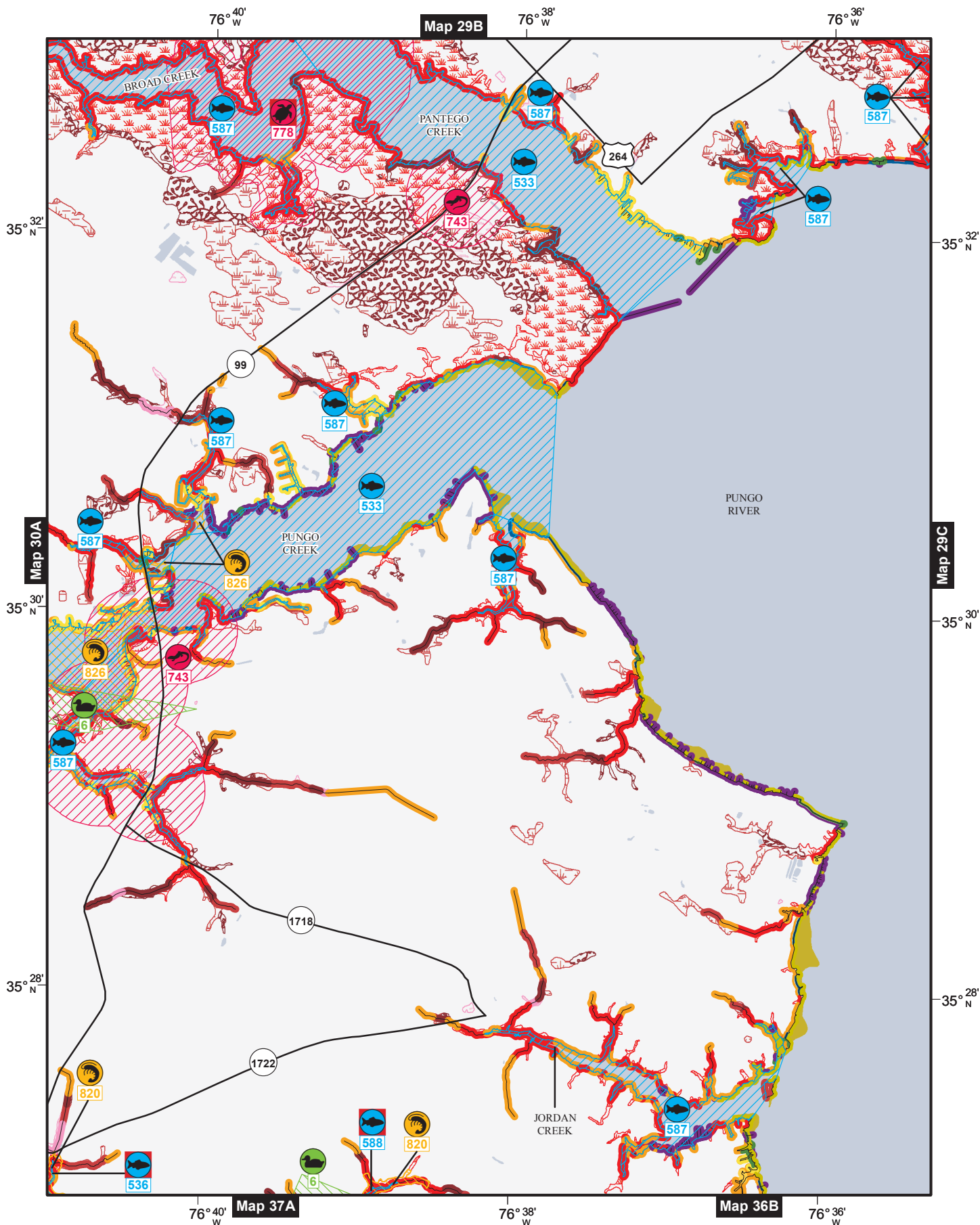
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	85,677.28	53.24	58%
10C	Swamps	5,121.50	3.18	3%
10D	Scrub-shrub wetlands	3,579.73	2.22	2%
9A	Sheltered tidal flats	639.02	0.40	< 1%
9B	Sheltered, vegetated low banks	27,216.95	16.91	19%
8B	Sheltered, solid man-made structures	559.94	0.35	< 1%
8C	Sheltered riprap	142.01	0.09	< 1%
7	Exposed tidal flats	11,511.78	7.15	8%
6B	Exposed riprap	3,786.01	2.35	3%
3A	Fine- to medium-grained sand beaches	5,931.81	3.69	4%
1B	Exposed, solid man-made structures	2,694.80	1.67	2%

Total ESI Shoreline: 146,860.83 Total ESI Shoreline: 91.26
 Total Shoreline: 126,916.27 Total Shoreline: 78.86

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov

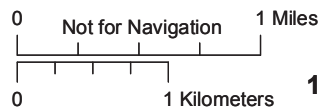




Map 29D North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



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Map 29D
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Molt
							J	F	M	A	M	J	J	A	S	O	N	D					
6	Waterfowl	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
533	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
536	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
587	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
588	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-

REPTILES & AMPHIBIANS


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
743	Snake	Rainbow snake	Vulnerable Occurrence			-													May-Sep	Aug-Nov	-	Jan-Dec	Jan-Dec
778	Turtle	Diamondback terrapin	Vulnerable Occurrence	C		-													Apr-May	Mar-Oct*	-	Jan-Dec	Jan-Dec

INVERTEBRATES



Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D				
820	Shrimp	Pink shrimp	Nursery Area			Rate													-	May-Nov	Jan-Dec	-
826	Shrimp	Brown shrimp	Nursery Area			-													-	Feb-Apr	Mar-Aug	-

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)


BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Waterfowl																	-	Feb-Mar	Oct-Nov	-
	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American coot	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Canada goose	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Mergansers	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Red-breasted merganser	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Ruddy duck	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Sooters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Tundra swan	Wintering			100S													-	Feb-Mar	Oct-Nov	-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous																	-	-	May-Aug	Jul-Mar	-
	Alewife	Migration			Present													-	-	May-Aug	Jul-Mar	-
	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Atlantic sturgeon	General Distribution		C	-													-	-	-	Jan-Dec	Jan-Dec
	Blueback herring	Migration			Present													-	-	May-Jul	Aug-Oct	-
	Estuarine Nursery	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-

INVERTEBRATES

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Shrimp																	-	-	Feb-Apr	Mar-Aug	-
	Brown shrimp	Nursery Area			Abundant													-	-	-	Jun-Dec	-
	White shrimp	Nursery Area			Common													-	-	-	Jul-Feb	-

MARINE MAMMALS


	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
	Manatee	West Indian manatee	General Distribution	E	E	-													-	-	-	-

BENTHIC

Subelement	Species
SAV	Submerged aquatic veg







BIRDS



Subelement	Species
 Waterfowl	American black duck
	Wood duck





FISH

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Gizzard shad													-	-	-	Oct-Mar	-
	Hickory shad													-	-	-	-	Jan-Apr
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Dec-Feb	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Jan-Dec	Jun-Nov
	Bluefish													-	-	-	May-Oct	May-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	May-Oct	-
	Pinfish													-	-	Dec-May	Feb-Oct	Apr-Oct
	Red drum													-	-	Jul-Oct	Jan-Dec	-
	Sheepshead													-	-	-	Jan-Nov	Jun-Oct
	Southern kingfish													-	-	-	May-Dec	Jul-Nov
	Spot													-	-	Jan-Apr	Jan-Dec	Apr-Oct
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	-	Jan-Dec	Apr-Nov
	Summer flounder													-	-	-	Jan-Dec	Jan-Dec
	Weakfish													-	-	Oct-May	Jan-Dec	-
	Weakfish													Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Mar-Oct
	White mullet													Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Jan-Dec
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													-	-	Apr-Jul	Apr-Aug	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	Jun-Sep	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Marine Benthic	Atlantic spadefish													-	-	-	Jun-Sep	-
 Marine Pelagic	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	-	Jul-Nov	May-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Crab	Blue crab													-	-	-	Jan-Dec	Jan-Dec
 Shrimp	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Florida stone crab													May-Aug	May-Aug	-	-	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
 Dolphin	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	1,277.71	2.00
10B	Freshwater Marshes	67.01	0.10
10C	Swamps	565.19	0.88
10D	Scrub and Shrub Wetlands	738.85	1.15
9A	Sheltered Tidal Flats	8.76	0.01
7	Exposed Tidal Flats	213.74	0.33

ESI SHORELINE HABITAT TYPES

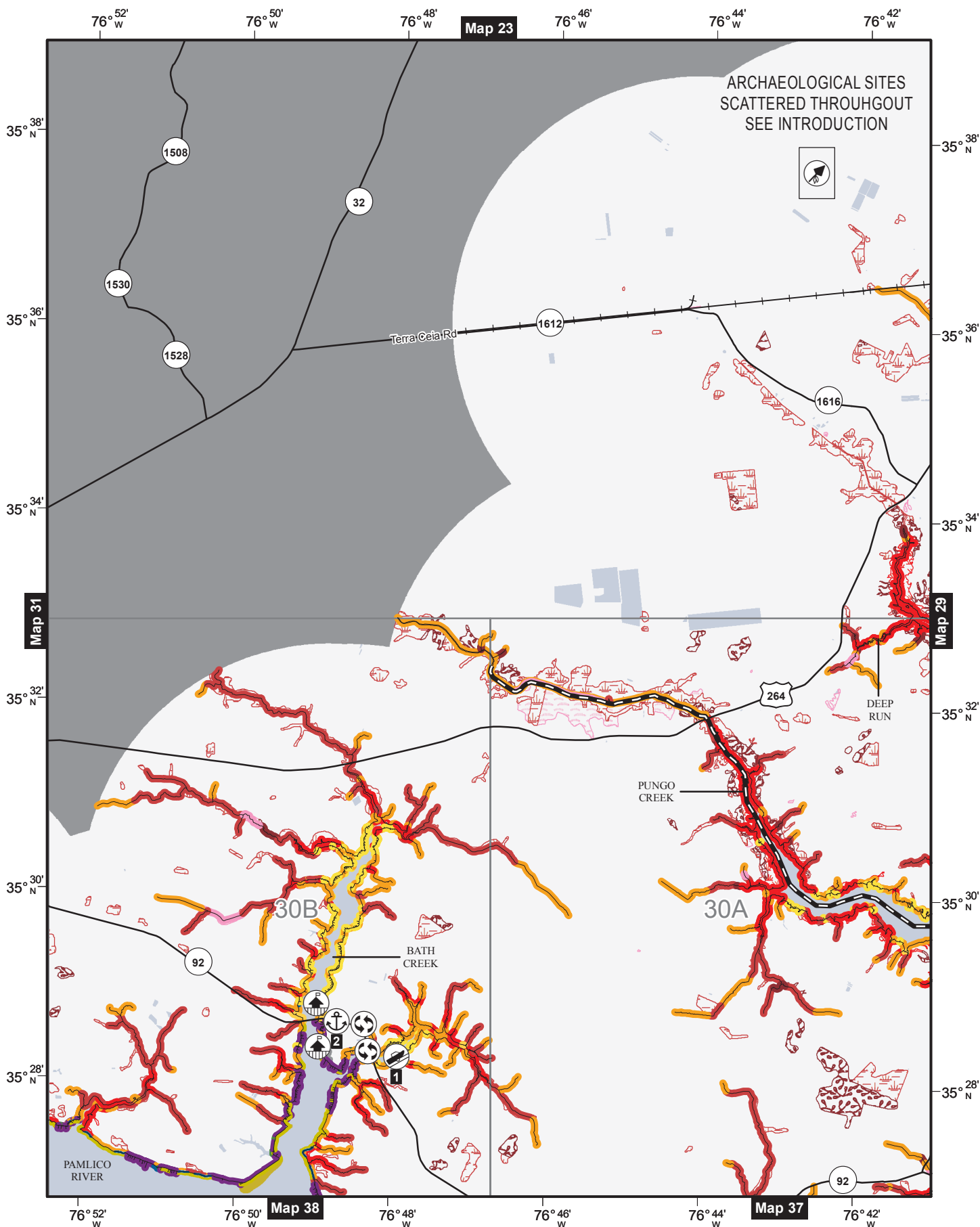
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	63,425.43	39.41	35%
10B	Freshwater marshes	1,088.55	0.68	1%
10C	Swamps	8,492.42	5.28	5%
10D	Scrub-shrub wetlands	11,973.22	7.44	7%
9A	Sheltered tidal flats	1,753.10	1.09	1%
9B	Sheltered, vegetated low banks	35,912.54	22.32	20%
8B	Sheltered, solid man-made structures	10,060.59	6.25	5%
8C	Sheltered riprap	3,196.95	1.99	2%
7	Exposed tidal flats	21,947.09	13.64	12%
6B	Exposed riprap	4,613.76	2.87	3%
3A	Fine- to medium-grained sand beaches	3,488.92	2.17	2%
1B	Exposed, solid man-made structures	17,808.49	11.07	10%

Total ESI Shoreline: 183,761.06 Total ESI Shoreline: 114.18
 Total Shoreline: 151,487.32 Total Shoreline: 94.13

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 30
North Carolina

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Contact
1	BOAT RAMP	TOWN OF BATH BOAT RAMP	
2	MARINA	BATH HARBOR MARINA	252-923-5711

ALSO PRESENT IN MAPPED AREA (POLYGONS)			
Type	Name	Contact	Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; COASTAL MIG. PELAGICS	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SPINY LOBSTER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
STATE PROTECTED AREA	OUTSTANDING RESOURCE AND/OR HIGH QUALITY WATERS	NC DENR WATER QUALITY DIVISION	

JURISDICTIONS

COUNTY:	BEAUFORT	FEMA:	REGION I
COAST GUARD:	DISTRICT 5, SECTOR NORTH CAROLINA	EPA:	REGION 4
USACE:	SOUTH ATLANTIC DIVISION, WILMINGTON DISTRICT		

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	529.94	0.83
10B	Freshwater Marshes	271.94	0.42
10C	Swamps	2,773.16	4.33
10D	Scrub and Shrub Wetlands	769.93	1.20
9A	Sheltered Tidal Flats	23.10	0.04
7	Exposed Tidal Flats	116.48	0.18



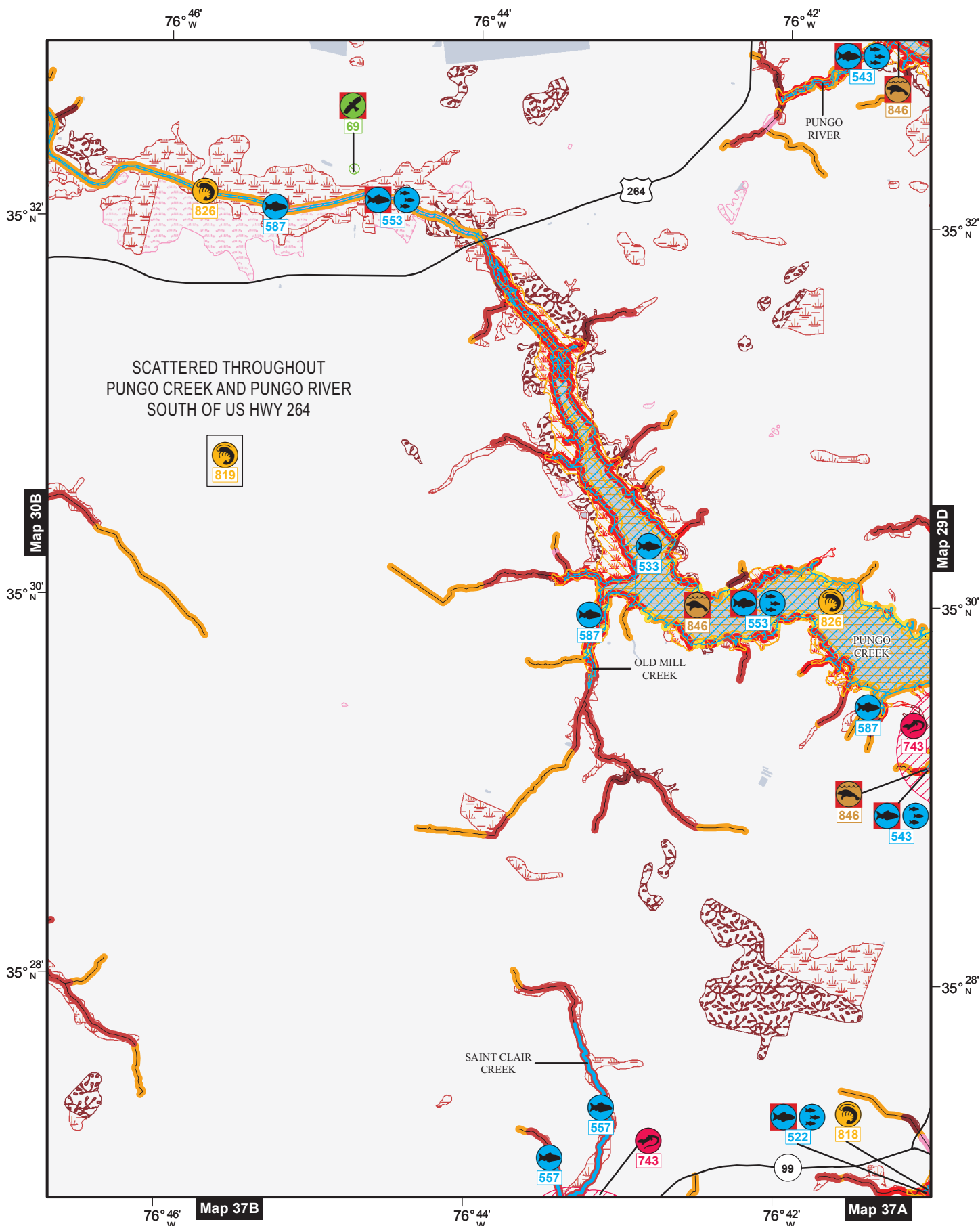
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	56,289.24	34.98	24%
10B	Freshwater marshes	5,776.24	3.59	2%
10C	Swamps	58,986.46	36.65	25%
10D	Scrub-shrub wetlands	2,975.23	1.85	1%
9A	Sheltered tidal flats	4,889.99	3.04	2%
9B	Sheltered, vegetated low banks	64,736.47	40.23	27%
8B	Sheltered, solid man-made structures	14,226.97	8.84	6%
8C	Sheltered riprap	1,747.52	1.09	1%
7	Exposed tidal flats	10,570.14	6.57	4%
6B	Exposed riprap	906.65	0.56	< 1%
3A	Fine- to medium-grained sand beaches	2,296.53	1.43	1%
1B	Exposed, solid man-made structures	14,441.14	8.97	6%
Total ESI Shoreline:		237,842.58	147.79	
Total Shoreline:		206,987.97	128.62	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov

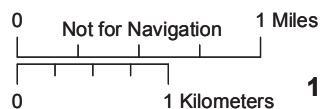




Map 30A North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



1:50,000



Map 30A
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
69	Raptor	Bald eagle	Nesting	T		1 Pair	J	F	M	A	M	J	J	A	S	O	N	D	Jan-Jun	-	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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522	Diadromous	Alewife	Nursery Area			Present																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
743	Snake	Rainbow snake	Vulnerable Occurrence			-	J	F	M	A	M	J	J	A	S	O	N	D	May-Sep	Aug-Nov	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D				
818	Shrimp	Brown shrimp	Nursery Area			Abundant													-	Feb-Apr	Mar-Aug	-
	Shrimp	Pink shrimp	Nursery Area			Rare													-	May-Nov	Jan-Dec	-
	Shrimp	White shrimp	Nursery Area			Common													-	Jun-Dec	Jul-Feb	-
819	Shrimp	Brown shrimp	Nursery Area			Abundant													-	Feb-Apr	Mar-Aug	-
	Shrimp	White shrimp	Nursery Area			Common													-	Jun-Dec	Jul-Feb	-
826	Shrimp	Brown shrimp	Nursery Area			-													-	Feb-Apr	Mar-Aug	-

MARINE MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Calving	Pupping	Molt																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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846	Manatee	West Indian manatee	General Distribution	E	E	-																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			</

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

<div><div></div><div>Subelement</div></div>	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence													Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D					
<div><div></div><div>Waterfowl</div></div>	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-	
	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-	
	American coot	Wintering			100S													-	Feb-Mar	Oct-Nov	-	
	American wigeon	Wintering			100S													-	Feb-Mar	Oct-Nov	-	
	American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-	
	Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-	
	Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-	
	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	
	Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-	
	Canada goose	Wintering			100S													-	Feb-Mar	Oct-Nov	-	
	Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-	
	Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-	
	Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-	
	Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-	
	Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-	
	Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-	
	Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-	
	Mergansers	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	
	Northern pintail	Wintering			100S													-	Feb-Mar	Oct-Nov	-	
	Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-	
	Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-	
	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-	
	Red-breasted merganser	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	
	Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-	
	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-	
	Ruddy duck	Wintering			10000S													-	Feb-Mar	Oct-Nov	-	
	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	

BIRDS (continued)

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Scoters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Tundra swan	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
SAV	Submerged aquatic veg																				



BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
Waterfowl	American black duck																	Apr-May	-	-	-
	Wood duck																	Mar-Jun	-	-	-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
Diadromous	American eel																	-	-	-	-
	American shad																	-	-	-	-
	Gizzard shad																	-	-	-	-
	Hickory shad																	-	-	-	-
Estuarine Nursery	Striped bass																	Mar-May	Mar-May	Apr-Jun	Jan-Apr
	Atlantic croaker																	-	-	-	Jan-Dec
	Atlantic menhaden																	-	-	-	Jan-Dec
	Bay anchovy																	-	-	-	Jan-Dec
	Black drum																	Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec
	Bluefish																	-	-	-	Jan-Dec
	Hogchoker																	-	-	-	May-Nov
	Ladyfish																	-	-	-	Jan-Dec
	Pinfish																	-	-	-	May-Oct
	Red drum																	-	-	-	Feb-Oct
	Sheepshead																	-	-	-	Jul-Oct
	Southern kingfish																	-	-	-	Jan-Dec
	Spot																	-	-	-	Jan-Dec
	Spotted seatrout																	-	-	-	Apr-Oct
	Striped mullet																	-	-	-	Mar-Dec
	Summer flounder																	-	-	-	Jan-Dec
	Weakfish																	-	-	-	Jan-Dec
	Weakfish																	Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	White perch													-	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
Marine Benthic	Atlantic spadefish													-	-	-	Jun-Sep	-
Marine Pelagic	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	-	Jul-Nov	May-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
Crab	Blue crab													-	-	-	Jan-Dec	Jan-Dec
Shrimp	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Florida stone crab													May-Aug	May-Aug	-	-	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

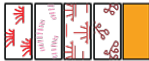
MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
Dolphin	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	293.43	0.46
10B	Freshwater Marshes	232.41	0.36
10C	Swamps	1,031.86	1.61
10D	Scrub and Shrub Wetlands	567.09	0.89
9A	Sheltered Tidal Flats	4.08	0.01



ESI SHORELINE HABITAT TYPES

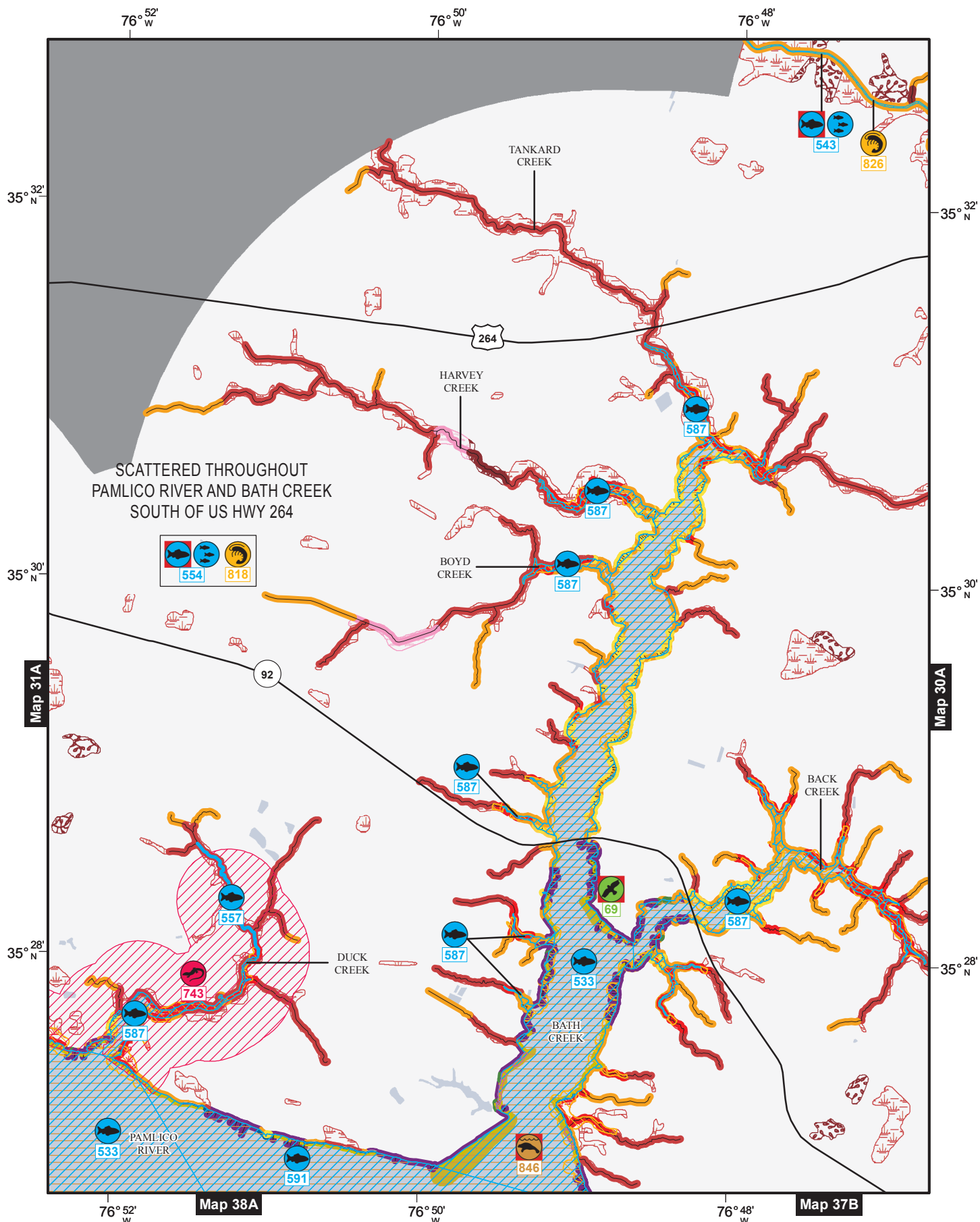
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	26,870.61	16.70	33%
10B	Freshwater marshes	4,417.05	2.74	5%
10C	Swamps	17,065.44	10.60	21%
10D	Scrub-shrub wetlands	2,130.46	1.32	3%
9A	Sheltered tidal flats	774.06	0.48	1%
9B	Sheltered, vegetated low banks	25,509.89	15.85	32%
8B	Sheltered, solid man-made structures	2,743.54	1.70	3%
8C	Sheltered riprap	863.97	0.54	1%
3A	Fine- to medium-grained sand beaches	86.42	0.05	< 1%

Total ESI Shoreline: 80,461.44 Total ESI Shoreline: 50.00
 Total Shoreline: 74,839.67 Total Shoreline: 46.50

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov

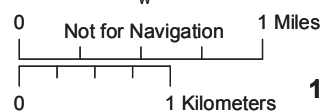




Map 30B
North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



1:50,000



Map 30B
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
SAV	Submerged aquatic veg	High Ecological Value			Present	J	F	M	A	M	J	J	A	S	O	N	D

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
69	Raptor	Bald eagle	Nesting	T		1 Pair	J	F	M	A	M	J	J	A	S	O	N	D
																	Jan-Jun	Molt

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
533	Diadromous	Alewife	Nursery Area			Present	J	F	M	A	M	J	J	A	S	O	N	D
	Diadromous	Blueback herring	Nursery Area			Present												
543	Diadromous	Alewife	Spawning Area			Present												
	Diadromous	American shad	Spawning Area			Present												
	Diadromous	Atlantic sturgeon	General Distribution	C		-												
	Diadromous	Blueback herring	Spawning Area			Present												
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant												
554	Diadromous	American shad	Spawning Area			Present												
	Diadromous	Atlantic sturgeon	General Distribution	C		-												
	Diadromous	Atlantic sturgeon	Spawning Area	C		-												
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant												
557	Diadromous	Alewife	Spawning Area			Present												
	Diadromous	American shad	Spawning Area			Present												
	Diadromous	Blueback herring	Spawning Area			Present												
587	Diadromous	Alewife	Spawning Area			Present												
	Diadromous	Blueback herring	Spawning Area			Present												
591	Diadromous	Alewife	Migration			Present												
	Diadromous	Blueback herring	Migration			Present												


REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
743	Snake	Rainbow snake	Vulnerable Occurrence			-	J	F	M	A	M	J	J	A	S	O	N	D
																	May-Sep	Hatch
																		Interst
																		Adults

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D				
818	Shrimp	Brown shrimp	Nursery Area			Abundant													-	Feb-Apr	Mar-Aug	-
	Shrimp	Pink shrimp	Nursery Area			Rare													-	May-Nov	Jan-Dec	-
	Shrimp	White shrimp	Nursery Area			Common													-	Jun-Dec	Jul-Feb	-
826	Shrimp	Brown shrimp	Nursery Area			-													-	Feb-Apr	Mar-Aug	-
MARINE MAMMALS																						

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American coot	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Canada goose	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Mergansers	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Red-breasted merganser	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Ruddy duck	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Scoters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering			100S													-	Feb-Mar	Oct-Nov	-

BIRDS (continued)

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Tundra swan	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)



BENTHIC

Subelement	Species	Monthly Presence											
SAV	Submerged aquatic veg	J	F	M	A	M	J	J	A	S	O	N	D




BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
 Waterfowl	American black duck													Apr-May	-	-	-
	Wood duck													Mar-Jun	-	-	-



FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults	
		J	F	M	A	M	J	J	A	S	O	N	D						
	American eel														-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad														-	-	Mar-Jul	May-Nov	-
	Gizzard shad														-	-	-	Oct-Mar	-
	Hickory shad														-	-	-	-	Jan-Apr
	Striped bass														Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker														-	-	Dec-Feb	Jan-Dec	Jan-Dec
	Atlantic menhaden														-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy														Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum														-	-	-	Jan-Dec	Jun-Nov
	Bluefish														-	-	-	May-Oct	May-Nov
	Hogchoker														-	-	-	Jan-Dec	Jan-Dec
	Ladyfish														-	-	-	May-Oct	-
	Pinfish														-	-	Dec-May	Feb-Oct	Apr-Oct
	Red drum														-	-	Jul-Oct	Jan-Dec	-
	Sheepshead														-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish														-	-	-	May-Dec	Jul-Nov
	Spot														-	-	Jan-Apr	Jan-Dec	Apr-Oct
	Spotted seatrout														-	-	-	Jan-Dec	Mar-Dec
	Striped mullet														-	-	-	Jan-Dec	Apr-Nov
	Summer flounder														-	-	Oct-May	Jan-Dec	-
	Weakfish														Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Jan-Dec
	Weakfish														Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Mar-Oct
	White mullet														-	-	-	Jan-Dec	Jan-Dec
	White perch														-	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec

FISH (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Estuarine Resident													Mar-Aug	Mar-Aug	Jun-Sep	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	-
	Freshwater													May-Sep	May-Sep	Jun-Sep	Jun-Apr
	Striped killifish													Apr-Oct	-	Jan-Dec	Jan-Dec
	Bluegill													May-Jun	May-Jun	-	Jan-Dec
	Largemouth bass													Mar-Sep	-	Jan-Dec	Jan-Dec
	Longnose gar													Mar-Dec*	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Yellow perch													-	-	Jun-Sep	-
	Atlantic spadefish													May-Jul	May-Jul	Jun-Oct	-
	Marine Pelagic													-	-	Jul-Nov	May-Aug
	Spanish mackerel													-	-	-	-

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Crab													-	-	Jan-Dec	Jan-Dec
	Blue crab													-	-	Mar-Aug	-
	Shrimp													-	-	Jan-Dec	-
	Brown shrimp													-	-	Jan-Dec	-
	Pink shrimp													-	-	Dec-Feb	-
	White shrimp													-	-	-	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D			
	Dolphin													Sep-Oct	-	-
	Bottlenose dolphin													Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	118.33	0.18
10B	Freshwater Marshes	34.19	0.05
10C	Swamps	1,120.88	1.75
10D	Scrub and Shrub Wetlands	116.54	0.18
9A	Sheltered Tidal Flats	19.02	0.03
7	Exposed Tidal Flats	116.48	0.18

ESI SHORELINE HABITAT TYPES

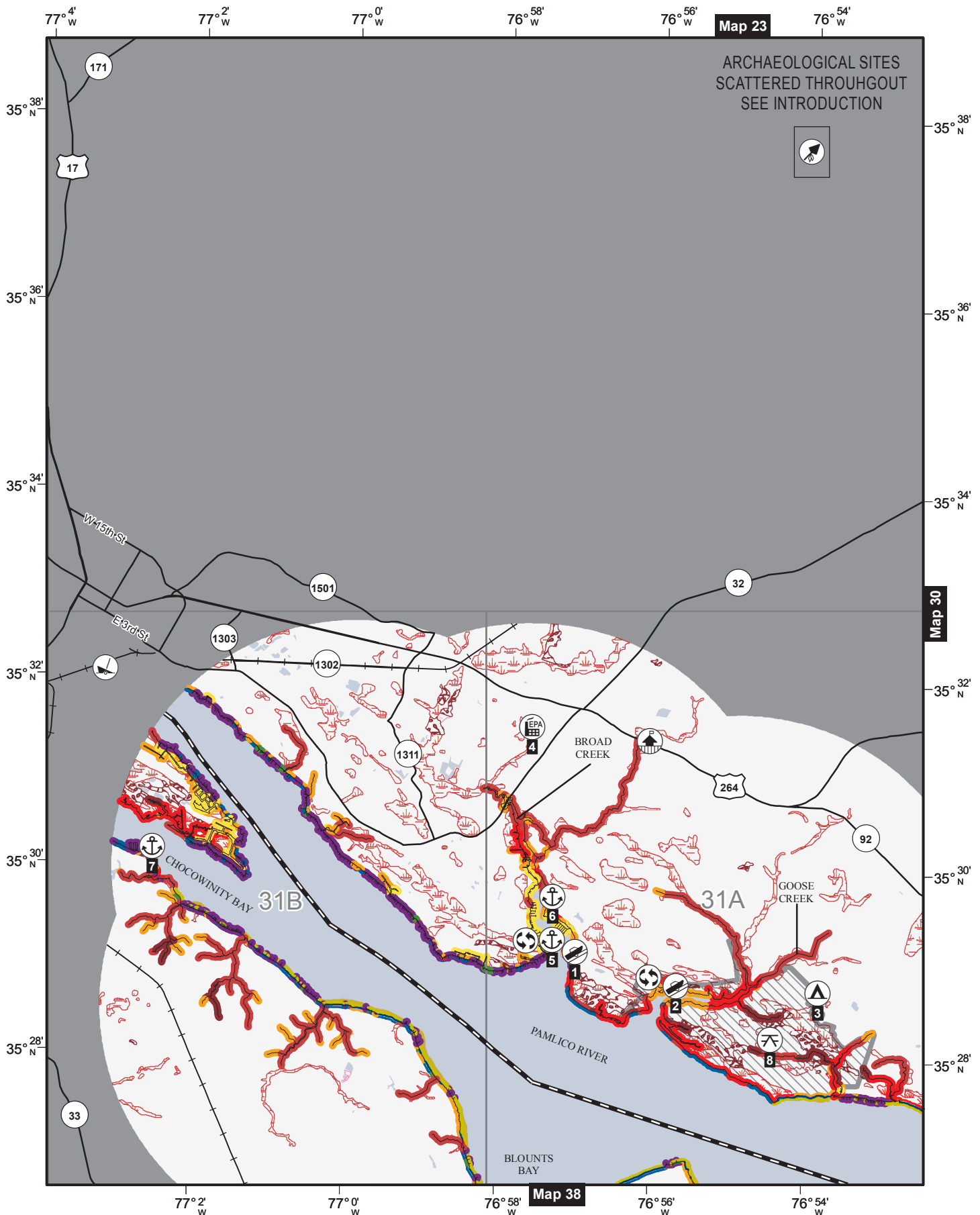
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	24,011.29	14.92	16%
10B	Freshwater marshes	1,359.22	0.84	1%
10C	Swamps	41,794.84	25.97	28%
10D	Scrub-shrub wetlands	646.02	0.40	< 1%
9A	Sheltered tidal flats	4,116.24	2.56	3%
9B	Sheltered, vegetated low banks	37,753.53	23.46	25%
8B	Sheltered, solid man-made structures	11,483.73	7.14	8%
8C	Sheltered riprap	883.55	0.55	1%
7	Exposed tidal flats	10,570.07	6.57	7%
6B	Exposed riprap	906.07	0.56	1%
3A	Fine- to medium-grained sand beaches	2,210.11	1.37	1%
1B	Exposed, solid man-made structures	14,440.56	8.97	10%

Total ESI Shoreline: 150,175.24 Total ESI Shoreline: 93.31
 Total Shoreline: 124,942.74 Total Shoreline: 77.64

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 31
North Carolina

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Phone
1	BOAT RAMP	MCCOTTERS MARINA & BOAT YARD	252-975-2174
2	BOAT RAMP	DINAHS LANDING	
3	CAMPGROUND	GOOSE CREEK STATE PARK	252-923-2191
4	EPA FACILITY	CITY OF WASHINGTON REGIONAL WATER TREATMENT PLANT	252-975-9310
5	MARINA	MCCOTTERS MARINA	252-975-2174
6	MARINA	WASHINGTON YACHT CLUB	252-402-5153
7	MARINA	CYPRESS LANDING MARINA	252-975-3955

DISPLAYED ON MAP (POLYGONS)			
Map ID	Type	Name	Phone
8	PARK	GOOSE CREEK STATE PARK	252-923-2191

ALSO PRESENT IN MAPPED AREA (POLYGONS)			
Type	Name	Contact	Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; COASTAL MIG. PELAGICS	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SPINY LOBSTER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317

JURISDICTIONS			
COUNTY:	BEAUFORT	FEMA:	REGION I
COAST GUARD:	DISTRICT 5, SECTOR NORTH CAROLINA	EPA:	REGION 4
USACE:	SOUTH ATLANTIC DIVISION, WILMINGTON DISTRICT		

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	481.18	0.75
10B	Freshwater Marshes	13.90	0.02
10C	Swamps	2,874.24	4.49
10D	Scrub and Shrub Wetlands	549.89	0.86
9A	Sheltered Tidal Flats	0.81	0.00
7	Exposed Tidal Flats	289.79	0.45

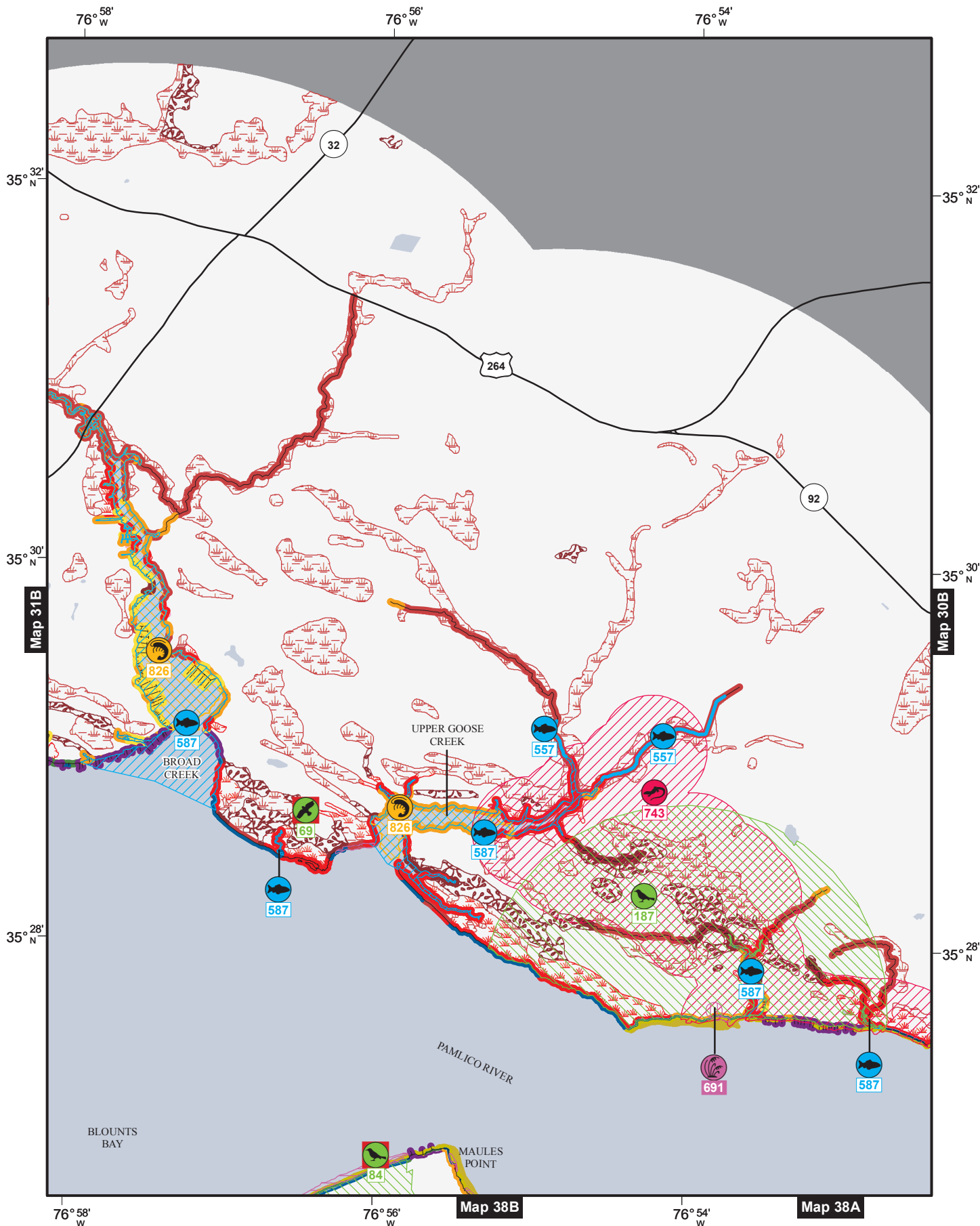
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	31,668.08	19.68	16%
10C	Swamps	40,626.01	25.24	21%
10D	Scrub-shrub wetlands	7,309.08	4.54	4%
9A	Sheltered tidal flats	182.56	0.11	< 1%
9B	Sheltered, vegetated low banks	28,165.85	17.50	14%
8B	Sheltered, solid man-made structures	18,843.40	11.71	10%
8C	Sheltered riprap	448.09	0.28	< 1%
7	Exposed tidal flats	15,145.35	9.41	8%
6B	Exposed riprap	2,677.18	1.66	1%
3A	Fine- to medium-grained sand beaches	18,458.53	11.47	9%
3B	Scarps and steep slopes in sand	4,604.37	2.86	2%
1B	Exposed, solid man-made structures	29,440.67	18.29	15%
Total ESI Shoreline:		197,569.17	122.76	
Total Shoreline:		160,208.49	99.55	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov

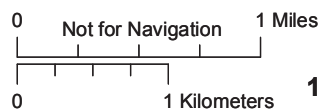




Map 31A
North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



1:50,000



Map 31A
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
SAV	Submerged aquatic veg	High Ecological Value			Present	J	F	M	A	M	J	J	A	S	O	N	D

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig.(S)	Mig.(F)	Molt
69	Raptor	Bald eagle	Nesting	T		1 Pair													Jan-Jun	-	-	-
84	Passerine	Red-cockaded woodpecker	Vulnerable Occurrence	E	E	-													Apr-Jul	-	-	Jun-Nov
187	Passerine	Black-throated green warbler	Nesting			-													Apr-Aug	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
557	Diadromous	Alewife	Spawning Area			Present	J	F	M	A	M	J	J	A	S	O	N	D	Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present	J	F	M	A	M	J	J	A	S	O	N	D	Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Blueback herring	Spawning Area			Present	J	F	M	A	M	J	J	A	S	O	N	D	Mar-Jul	Mar-Jul	May-Jul	-	-
587	Diadromous	Alewife	Spawning Area			Present	J	F	M	A	M	J	J	A	S	O	N	D	Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present	J	F	M	A	M	J	J	A	S	O	N	D	Mar-Jul	Mar-Jul	May-Jul	-	-

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
691	Upland	Rare upland community	Vulnerable Occurrence			Current	J	F	M	A	M	J	J	A	S	O	N	D


REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
743	Snake	Rainbow snake	Vulnerable Occurrence			-	J	F	M	A	M	J	J	A	S	O	N	D	May-Sep	Aug-Nov	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
826	Shrimp	Brown shrimp	Nursery Area			-	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Feb-Apr	Mar-Aug	-


BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Waterfowl	American black duck	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		American black duck	Wintering		100S													-	Feb-Mar	Oct-Nov	-	-
		American coot	Wintering		100S													-	Feb-Mar	Oct-Nov	-	-
		American wigeon	Wintering		100S													-	Feb-Mar	Oct-Nov	-	-
		American wigeon	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Black scoter	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Blue-winged teal	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Bufflehead	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Bufflehead	Wintering		1000S													-	Feb-Mar	Oct-Nov	-	-
		Canada goose	Wintering		100S													-	Feb-Mar	Oct-Nov	-	-
		Canvasback	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Gadwall	Wintering		100S													-	Feb-Mar	Oct-Nov	-	-
		Gadwall	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Greater scaup	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Green-winged teal	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Lesser scaup	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Mallard	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Mergansers	Wintering		1000S													-	Feb-Mar	Oct-Nov	-	-
		Northern pintail	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Northern pintail	Wintering		100S													-	Feb-Mar	Oct-Nov	-	-


FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous	Alewife	Nursery Area		Present													-	-	May-Aug	Jul-Oct	-
		American shad	Spawning Area		Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
		Atlantic sturgeon	General Distribution	C	-													-	-	-	Jan-Dec	Jan-Dec
		Atlantic sturgeon	Spawning Area	C	-													Sep-May*	Sep-May*	Sep-May*	-	-
	Estuarine Nursery	Blueback herring	Nursery Area		Present													-	-	May-Jul	Jul-Oct	-
		Southern flounder	Concentration Area		Abundant													-	-	Dec-Mar	Jan-Dec	-

INVERTEBRATES


Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D				
	Brown shrimp	Nursery Area			Abundant													-	Feb-Apr	Mar-Aug	-
	Pink shrimp	Nursery Area			Rare													-	May-Nov	Jan-Dec	-
	White shrimp	Nursery Area			Common													-	Jun-Dec	Jul-Feb	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D			
	West Indian manatee	General Distribution	E	E	-													-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)





BENTHIC

Subelement	Species	Submerged aquatic veg	Monthly Presence											
			J	F	M	A	M	J	J	A	S	O	N	D
	SAV													

BIRDS




Subelement	Species	Nest	Monthly Presence												Mig.(S)	Mig.(F)	Molt
			J	F	M	A	M	J	J	A	S	O	N	D			
	American black duck	Apr-May													-	-	-
	Wood duck	Mar-Jun													-	-	-

FISH



Subelement	Species	Spawn	Monthly Presence												Eggs	Larvae	Juveniles	Adults
			J	F	M	A	M	J	J	A	S	O	N	D				
	American eel	-													-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad	-													-	Mar-Jul	May-Nov	-
	Gizzard shad	-													-	-	Oct-Mar	-
	Hickory shad	-													-	-	-	Jan-Apr
	Striped bass	Mar-May													Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker	-													-	Dec-Feb	Jan-Dec	Jan-Dec
	Atlantic menhaden	-													-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy	Apr-Sep													Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum	-													-	-	Jan-Dec	Jun-Nov
	Bluefish	-													-	-	May-Oct	May-Nov
	Hogchoker	-													-	-	Jan-Dec	Jan-Dec
	Ladyfish	-													-	-	May-Oct	-
	Pinfish	-													-	Dec-May	Feb-Oct	Apr-Oct
	Red drum	-													-	Jul-Oct	Jan-Dec	-
	Sheepshead	-													-	-	Jun-Nov	Jun-Oct
	Southern kingfish	-													-	-	May-Dec	Jul-Nov
	Spot	-													-	Jan-Apr	Jan-Dec	Apr-Oct
	Spotted seatrout	-													-	-	Jan-Dec	Mar-Dec
	Striped mullet	-													-	-	Jan-Dec	Apr-Nov

North Carolina: Map 31A

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Summer flounder													-	-	Oct-May	Jan-Dec	-
	Weakfish													Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Mar-Oct
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													-	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Bluegill													Apr-Oct	Apr-Oct	-	Jan-Dec	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	-	Jul-Nov	May-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Crab													-	-	-	Jan-Dec	Jan-Dec
	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	351.74	0.55
10B	Freshwater Marshes	4.03	0.01
10C	Swamps	1,661.10	2.60
10D	Scrub and Shrub Wetlands	402.00	0.63
9A	Sheltered Tidal Flats	0.73	0.00
7	Exposed Tidal Flats	56.40	0.09

ESI SHORELINE HABITAT TYPES

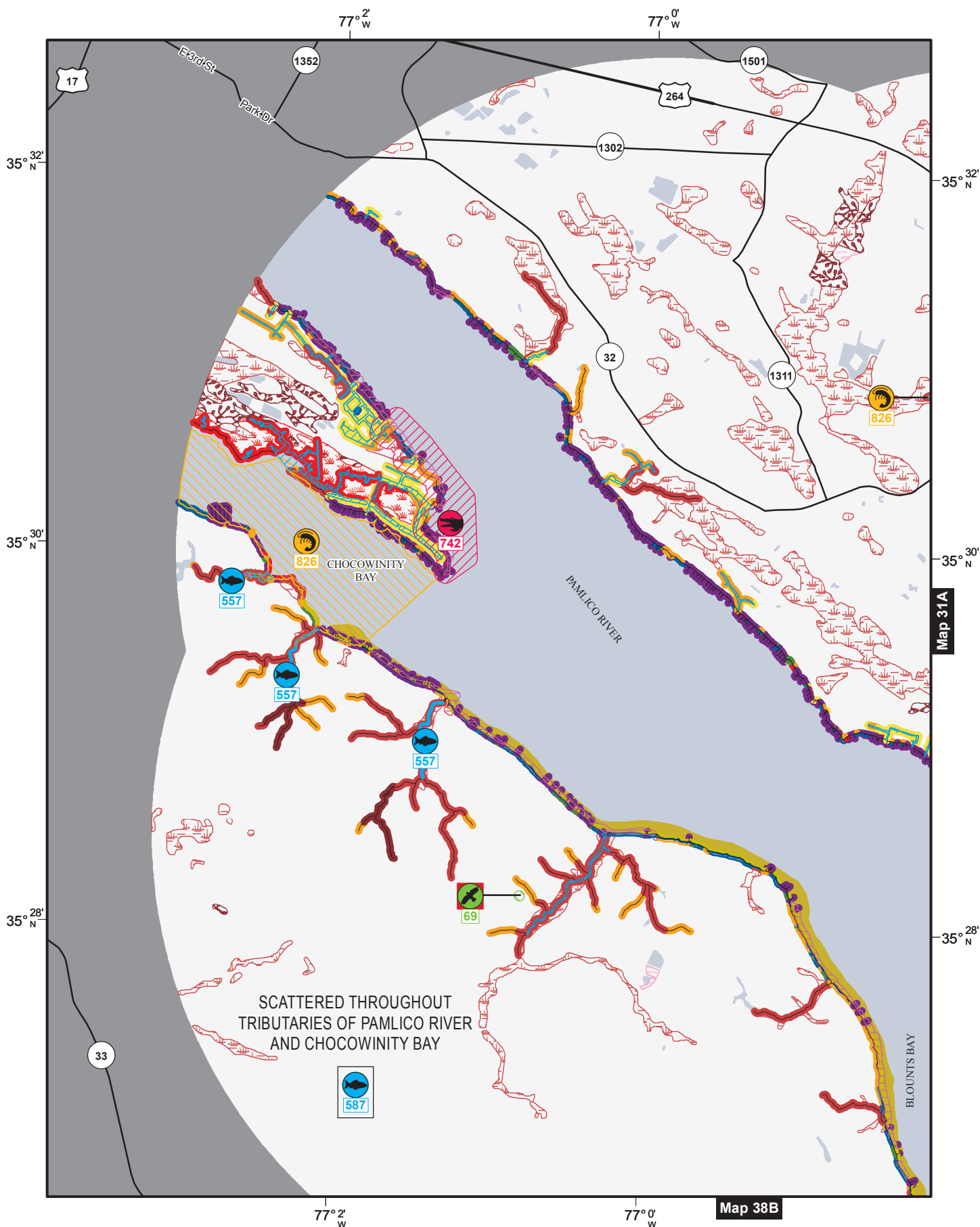
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	22,131.01	13.75	27%
10C	Swamps	18,384.18	11.42	23%
10D	Scrub-shrub wetlands	4,811.51	2.99	6%
9A	Sheltered tidal flats	108.95	0.07	< 1%
9B	Sheltered, vegetated low banks	10,635.04	6.61	13%
8B	Sheltered, solid man-made structures	6,109.54	3.80	8%
8C	Sheltered riprap	95.16	0.06	< 1%
7	Exposed tidal flats	5,409.75	3.36	7%
6B	Exposed riprap	603.41	0.37	1%
3A	Fine- to medium-grained sand beaches	7,371.96	4.58	9%
3B	Scarps and steep slopes in sand	985.75	0.61	1%
1B	Exposed, solid man-made structures	4,465.02	2.77	6%

Total ESI Shoreline: 81,111.28 Total ESI Shoreline: 50.40
 Total Shoreline: 65,365.67 Total Shoreline: 40.62

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 31B
North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016

Map 31B
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence
SAV	Submerged aquatic veg	High Ecological Value			Present	J F M A M J J A S O N D

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence
69	Raptor	Bald eagle	Nesting			1 Pair	J F M A M J J A S O N D

FISH

[illegible]



REPTILES & AMPHIBIANS

[illegible]



INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence
826	Shrimp	Brown shrimp	Nursery Area			-	


BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	American black duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-	-
	American black duck	Wintering	100S	-	100S													-	Feb-Mar	Oct-Nov	-	-
	American coot	Wintering	100S	-	100S													-	Feb-Mar	Oct-Nov	-	-
	American wigeon	Wintering	100S	-	100S													-	Feb-Mar	Oct-Nov	-	-
	American wigeon	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-	-
	Black scoter	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-	-
	Blue-winged teal	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-	-
	Bufflehead	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-	-
	Bufflehead	Wintering	1000S	-	1000S													-	Feb-Mar	Oct-Nov	-	-
	Canada goose	Wintering	100S	-	100S													-	Feb-Mar	Oct-Nov	-	-
	Canvasback	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-	-
	Gadwall	Wintering	100S	-	100S													-	Feb-Mar	Oct-Nov	-	-
	Gadwall	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-	-
	Greater scaup	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-	-
	Green-winged teal	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-	-
	Lesser scaup	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-	-
	Mallard	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-	-
	Mergansers	Wintering	1000S	-	1000S													-	Feb-Mar	Oct-Nov	-	-
	Northern pintail	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-	-
	Northern pintail	Wintering	100S	-	100S													-	Feb-Mar	Oct-Nov	-	-
	Northern shoveler	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-	-
	Northern shoveler	Wintering	100S	-	100S													-	Feb-Mar	Oct-Nov	-	-
	Red-breasted merganser	Wintering	1000S	-	1000S													-	Feb-Mar	Oct-Nov	-	-
	Redhead	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-	-
	Ring-necked duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-	-
	Ruddy duck	Wintering	1000S	-	1000S													-	Feb-Mar	Oct-Nov	-	-
	Scaup	Wintering	1000S	-	1000S													-	Feb-Mar	Oct-Nov	-	-
	Scoters	Wintering	1000S	-	1000S													-	Feb-Mar	Oct-Nov	-	-
	Surf scoter	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-	-
	Surf scoter	Wintering	100S	-	100S													-	Feb-Mar	Oct-Nov	-	-
	Tundra swan	Wintering	100S	-	100S													-	Feb-Mar	Oct-Nov	-	-
	Wood duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-	-


FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife	Nursery Area	-	-	Present													-	-	May-Aug	Jul-Oct	-
	American shad	Spawning Area	-	-	Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Atlantic sturgeon	General Distribution	C	-	-													-	-	-	Jan-Dec	Jan-Dec
	Atlantic sturgeon	Spawning Area	C	-	-													Sep-May*	Sep-May*	Sep-May*	-	-
	Blueback herring	Nursery Area	-	-	Present													-	-	May-Jul	Jul-Oct	-
	Southern flounder	Concentration Area	-	-	Abundant													-	-	Dec-Mar	Jan-Dec	-

INVERTEBRATES


Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D				
	Brown shrimp	Nursery Area			Abundant													-	Feb-Apr	Mar-Aug	-
	Pink shrimp	Nursery Area			Rare													-	May-Nov	Jan-Dec	-
	White shrimp	Nursery Area			Common													-	Jun-Dec	Jul-Feb	-

MARINE MAMMALS


Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D			
	West Indian manatee	General Distribution			-													-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)





BENTHIC

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Submerged aquatic veg												




BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck													Apr-May	-	-	-
	Wood duck													Mar-Jun	-	-	-

FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Gizzard shad													-	-	-	Oct-Mar	-
	Hickory shad													-	-	-	-	Jan-Apr
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Dec-Feb	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Jan-Dec	Jun-Nov
	Bluefish													-	-	-	May-Oct	May-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	May-Oct	-
	Pinfish													-	-	Dec-May	Feb-Oct	Apr-Oct
	Red drum													-	-	Jul-Oct	Jan-Dec	-
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish													-	-	-	May-Dec	Jul-Nov
	Spot													-	-	-	Jan-Dec	Jan-Oct
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	-	Jan-Dec	Apr-Nov

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Summer flounder													-	-	Oct-May	Jan-Dec	-
	Weakfish													Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Mar-Oct
	White perch													-	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Bluegill													Apr-Oct	Apr-Oct	-	Jan-Dec	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	-	Jul-Nov	May-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Blue crab													-	-	-	Jan-Dec	Jan-Dec

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	129.45	0.20
10B	Freshwater Marshes	9.87	0.02
10C	Swamps	1,213.17	1.90
10D	Scrub and Shrub Wetlands	147.89	0.23
9A	Sheltered Tidal Flats	0.09	0.00
7	Exposed Tidal Flats	233.24	0.36

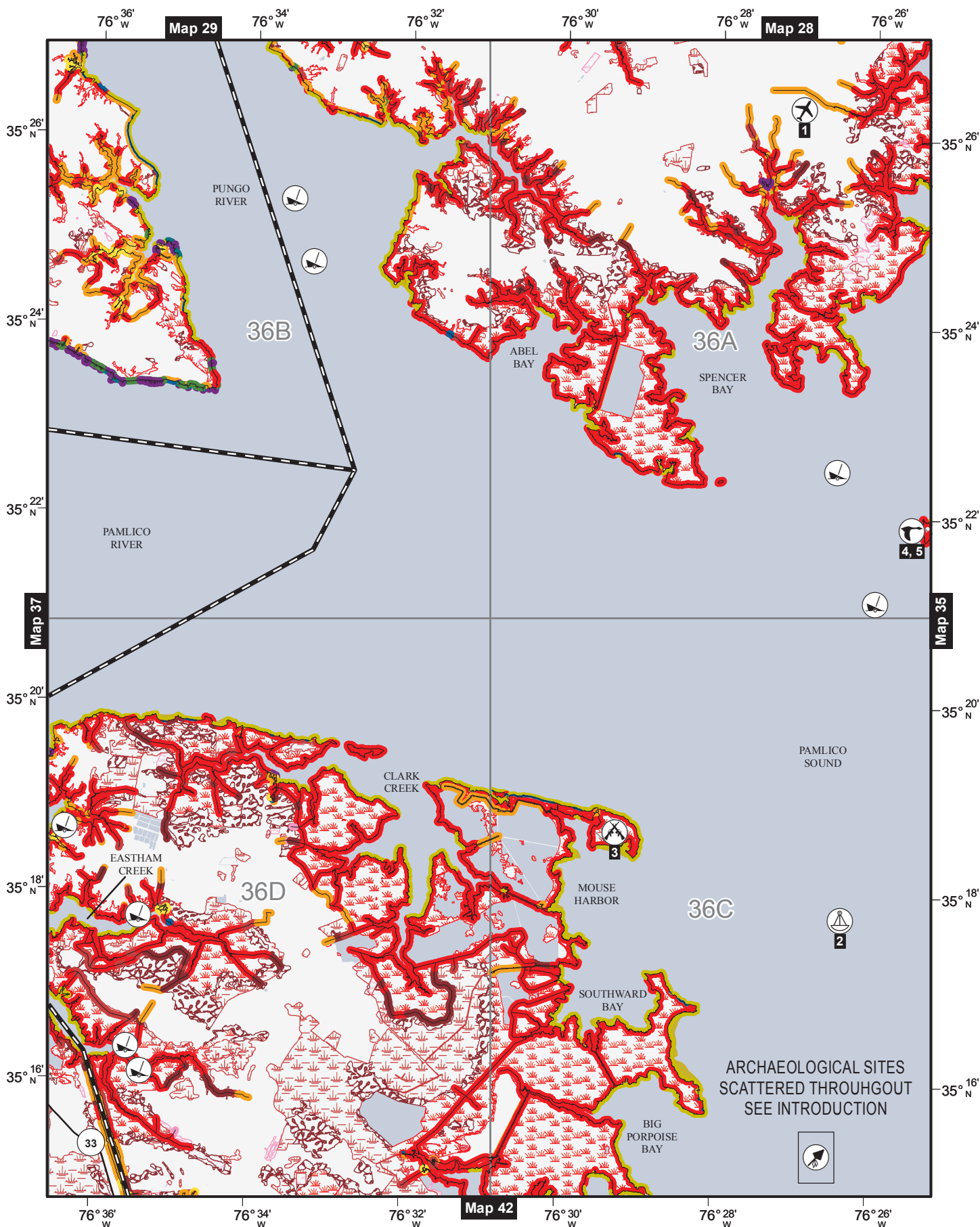
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	9,535.04	5.92	8%
10C	Swamps	22,241.83	13.82	19%
10D	Scrub-shrub wetlands	2,497.57	1.55	2%
9A	Sheltered tidal flats	73.61	0.05	< 1%
9B	Sheltered, vegetated low banks	17,528.71	10.89	15%
8B	Sheltered, solid man-made structures	12,733.86	7.91	11%
8C	Sheltered riprap	352.93	0.22	< 1%
7	Exposed tidal flats	9,726.45	6.04	8%
6B	Exposed riprap	2,073.78	1.29	2%
3A	Fine- to medium-grained sand beaches	11,081.41	6.89	10%
3B	Scarps and steep slopes in sand	3,613.48	2.25	3%
1B	Exposed, solid man-made structures	24,973.67	15.52	21%
Total ESI Shoreline:		116,432.33	72.35	
Total Shoreline:		94,833.67	58.93	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 36
North Carolina



SEE BACK OF MAP
for details about mapped resources and
other resources that occur in mapped area.
Data Published: November 2016

0 Not for Navigation 2 Miles
0 2 Kilometers

1:100,000



Map 36
North Carolina

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Contact
1	AIRPORT	HODGES FARM	J. AL HODGES, JR., MANAGER
2	REPEATED MEASUREMENT SITE	MUSSEL WATCH SITE, PUNGO RIVER	

Map ID	Type	Name	Contact	Phone
1	AIRPORT	HODGES FARM	J. AL HODGES, JR., MANAGER	252-986-2230

DISPLAYED ON MAP (POLYGONS)			
Map ID	Type	Name	Contact
3	MILITARY	PAMLICO POINT BOMBING RANGE	US DEPARTMENT OF DEFENSE
4	WILDLIFE REFUGE	SWANQUARTER NATIONAL WILDLIFE REFUGE	US FISH AND WILDLIFE SERVICE
5	WILDLIFE REFUGE	SWANQUARTER NATIONAL WILDLIFE REFUGE - WILDERNESS	US FISH AND WILDLIFE SERVICE

Map ID	Type	Name	Contact	Phone
3	MILITARY	PAMLICO POINT BOMBING RANGE	US DEPARTMENT OF DEFENSE	
4	WILDLIFE REFUGE	SWANQUARTER NATIONAL WILDLIFE REFUGE	US FISH AND WILDLIFE SERVICE	252-926-4021
5	WILDLIFE REFUGE	SWANQUARTER NATIONAL WILDLIFE REFUGE - WILDERNESS	US FISH AND WILDLIFE SERVICE	252-926-4021

ALSO PRESENT IN MAPPED AREA (POLYGONS)

Type	Name	Contact	Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; COASTAL MIG. PELAGICS	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; CORAL	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SPINY LOBSTER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
STATE PROTECTED AREA	GAME LAND	NC WILDLIFE RESOURCES COMMISSION	
STATE PROTECTED AREA	GAME LAND	NCDOT	
STATE PROTECTED AREA	OUTSTANDING RESOURCE AND/OR HIGH QUALITY WATERS	NC DENR WATER QUALITY DIVISION	
STATE PROTECTED AREA	WATERFOWL IMPOUNDMENT	NC WILDLIFE RESOURCES COMMISSION	

Type	Name	Contact	Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; COASTAL MIG. PELAGICS	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; CORAL	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SPINY LOBSTER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
STATE PROTECTED AREA	GAME LAND	NC WILDLIFE RESOURCES COMMISSION	
STATE PROTECTED AREA	GAME LAND	NCDOT	
STATE PROTECTED AREA	OUTSTANDING RESOURCE AND/OR HIGH QUALITY WATERS	NC DENR WATER QUALITY DIVISION	
STATE PROTECTED AREA	WATERFOWL IMPOUNDMENT	NC WILDLIFE RESOURCES COMMISSION	

JURISDICTIONS

COUNTY:	BEAUFORT, HYDE, PAMLICO	FEMA:	REGION 1
COAST GUARD:	DISTRICT 5, SECTOR NORTH CAROLINA	EPA:	REGION 4
USACE:	SOUTH ATLANTIC DIVISION, WILMINGTON DISTRICT		

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	12,442.26	19.44
10B	Freshwater Marshes	229.86	0.36
10C	Swamps	3,476.50	5.43
10D	Scrub and Shrub Wetlands	2,790.91	4.36
9A	Sheltered Tidal Flats	23.65	0.04
7	Exposed Tidal Flats	765.00	1.20



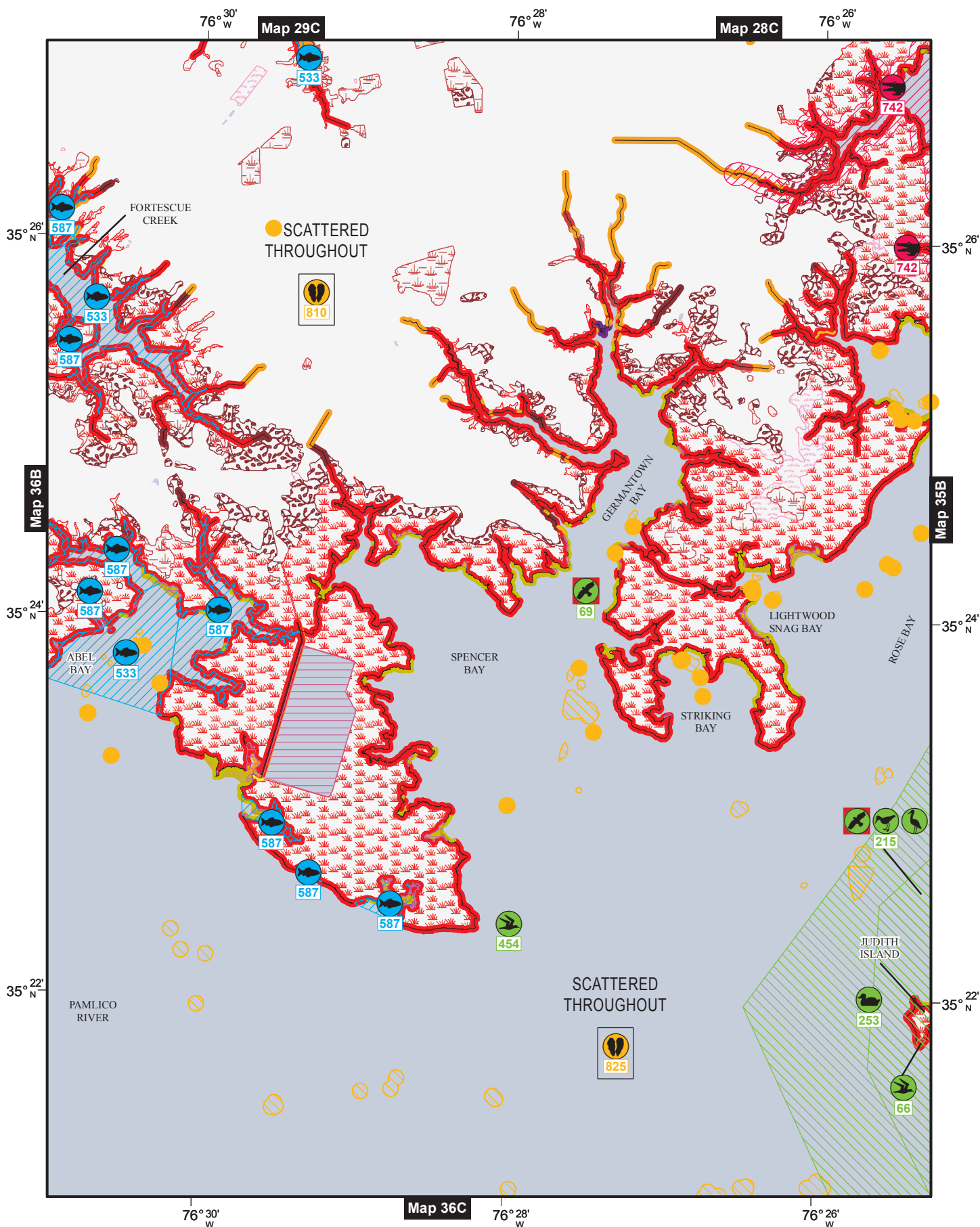
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	410,406.62	255.02	64%
10B	Freshwater marshes	261.15	0.16	< 1%
10C	Swamps	9,895.39	6.15	2%
10D	Scrub-shrub wetlands	17,156.10	10.66	3%
9A	Sheltered tidal flats	7,079.14	4.40	1%
9B	Sheltered, vegetated low banks	53,054.41	32.97	8%
8B	Sheltered, solid man-made structures	5,640.74	3.50	1%
8C	Sheltered riprap	1,116.11	0.69	< 1%
7	Exposed tidal flats	116,705.26	72.52	18%
6B	Exposed riprap	5,356.79	3.33	1%
3A	Fine- to medium-grained sand beaches	7,034.56	4.37	1%
1B	Exposed, solid man-made structures	5,733.00	3.56	1%
Total ESI Shoreline:		639,439.28	397.33	
Total Shoreline:		496,435.39	308.47	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov

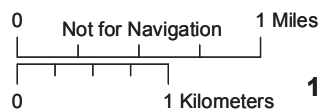




Map 36A North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



1:50,000



Map 36A
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Monthly Presence
SAV	Submerged aquatic veg	High Ecological Value			Present													

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig.(S)	Mig.(F)	Juveniles	Adults	Molt
66	Gull/Tern	Forster's tern	Nesting			1 Pair													Apr-Aug	-	-	-	-	-
69	Raptor	Bald eagle	Nesting	T		1 Pair													Jan-Jun	-	-	-	-	-
215	Raptor	American kestrel	Wintering			100S													-	-	-	-	-	-
	Raptor	Bald eagle	Concentration Area	T		10S													-	-	-	-	-	-
	Raptor	Northern harrier	Wintering			10S													-	-	-	-	-	-
	Shorebird	Shorebirds	Migration			10000S													-	-	Sep-Oct	-	-	-
	Shorebird	Shorebirds	Wintering			10000S													-	-	-	-	-	-
	Wading	Clapper rail	Wintering			-													-	-	-	-	-	-
	Wading	Sora	Wintering			-													-	-	-	-	-	-
	Wading	Virginia rail	Wintering			-													-	-	-	-	-	-
253	Waterfowl	Bufflehead	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-	-
	Waterfowl	Green-winged teal	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-	-
	Waterfowl	Mergansers	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-	-
	Waterfowl	Red-breasted merganser	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-	-
	Waterfowl	Ring-necked duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-	-
	Waterfowl	Ruddy duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-	-
454	Gull/Tern	Forster's tern	Nesting			55-257 Pairs													Apr-Aug	-	-	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
533	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
587	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-

REPTILES & AMPHIBIANS


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Hatch	Internest	Juveniles	Adults
742	Alligator	American alligator	Vulnerable Occurrence			-													May-Jul	Jul-Sep	-	Jan-Dec	Jan-Dec

INVERTEBRATES


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Larvae	Eggs	Spawn	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
810	Bivalve	Eastern oyster	Concentration Area			High															Jun-Nov	Jan-Dec	Jan-Dec
825	Bivalve	Eastern oyster	Concentration Area			Abundant															May-Nov	Jan-Dec	Jan-Dec

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)


BIRDS

<div></div>	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
	Waterfowl	American black duck	Wintering			100S												-	Feb-Mar	Oct-Nov	-	
		American coot	Wintering			100S												-	Feb-Mar	Oct-Nov	-	
		American wigeon	Wintering			100S												-	Feb-Mar	Oct-Nov	-	
		Bufflehead	Wintering			1000S												-	Feb-Mar	Oct-Nov	-	
		Canada goose	Wintering			100S												-	Feb-Mar	Oct-Nov	-	
		Gadwall	Wintering			100S												-	Feb-Mar	Oct-Nov	-	
		Mergansers	Wintering			1000S												-	Feb-Mar	Oct-Nov	-	
		Northern pintail	Wintering			100S												-	Feb-Mar	Oct-Nov	-	
		Northern shoveler	Wintering			100S												-	Feb-Mar	Oct-Nov	-	
		Red-breasted merganser	Wintering			1000S												-	Feb-Mar	Oct-Nov	-	
		Ruddy duck	Wintering			10000S												-	Feb-Mar	Oct-Nov	-	
		Scaup	Wintering			1000S												-	Feb-Mar	Oct-Nov	-	
		Scoters	Wintering			1000S												-	Feb-Mar	Oct-Nov	-	
		Surf scoter	Wintering			100S												-	Feb-Mar	Oct-Nov	-	
		Tundra swan	Wintering			100S												-	Feb-Mar	Oct-Nov	-	
																		-			-	


FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife	Migration			Present													-	-	May-Aug	Jul-Mar	-
	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Blueback herring	Migration			Present													-	-	May-Jul	Aug-Oct	-
	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
	Spotted hake	Nursery Area			-													-	-	-	Dec-Jun	-

REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Green sea turtle	General Distribution	T		-													-	-	-	Apr-Dec	-
	Hawksbill sea turtle	General Distribution	E		Infrequent													-	-	-	Apr-Dec	-
	K. ridley sea turtle	General Distribution	E		-													-	-	-	Apr-Dec	-
	Loggerhead sea turtle	General Distribution	E		Occasional													-	-	-	Apr-Dec	-
	Loggerhead sea turtle	General Distribution	T		-													-	-	-	Apr-Dec	-

INVERTEBRATES

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D				
	Brown shrimp	Nursery Area			Abundant														Feb-Apr	Mar-Aug	-
	White shrimp	Nursery Area			Common														Jun-Dec	Jul-Feb	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D			
	West Indian manatee	General Distribution			-													-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)



BENTHIC

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Submerged aquatic veg												

BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck													Apr-May	-	-	-
	Wood duck													Mar-Jun	-	-	-

FISH

	Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults	
			J	F	M	A	M	J	J	A	S	O	N	D						
	Diadromous	Alewife													-	-	-	Jul-Oct	-	
		American eel														-	-	Jan-Jun	Jan-Dec	Aug-Dec
		American shad														-	-	Mar-Jul	May-Nov	-
		Blueback herring														-	-	May-Jul	Jul-Mar	Oct-Mar
		Gizzard shad														-	-	-	Oct-Mar	-
		Hickory shad														-	-	-	-	Jan-Apr
		Hickory shad														-	-	-	-	Jan-Nov
		Striped bass														Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
		Atlantic croaker														-	-	Dec-Feb	Jan-Dec	Jan-Dec
		Atlantic croaker														-	-	Sep-Apr	Jan-Dec	Jan-Dec
		Atlantic cutlassfish													-	-	-	-	Jul-Aug	
		Atlantic menhaden														-	-	Nov-May	Jan-Dec	Mar-Nov
		Atlantic menhaden														-	-	Dec-Jun	Jan-Dec	Mar-Nov
		Bay anchovy														Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
		Black drum														Apr-Jun	Apr-Jun	Jun-Jul	Jan-Dec	Jun-Nov
		Black drum														-	-	-	Jan-Dec	Jun-Nov
		Black sea bass														-	-	-	Jun-Sep	May-Dec
		Bluefish														-	-	-	Feb-Nov	Apr-Nov
		Bluefish														-	-	-	May-Oct	May-Nov
		Gulf flounder														-	-	Dec-May	Jan-Dec	Mar-Nov




FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	Sep-Apr	Jun-Oct	Jun-Oct
	Ladyfish													-	-	-	May-Oct	-
	Northern kingfish													-	-	May-Sep	Jul-Oct	Apr-Sep
	Northern puffer													Apr-Nov	Apr-Nov	-	-	Jul-Dec
	Pinfish													-	-	Dec-May	Feb-Oct	Apr-Oct
	Pinfish													-	-	Dec-May	Jan-Dec	May-Oct
	Red drum													Aug-Oct	Aug-Oct	Sep-Apr	Jan-Dec	Jan-Dec
	Red drum													-	-	Jul-Oct	Jan-Dec	-
	Sheepshead													-	-	May-Jan	Jan-Dec	May-Oct
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish													-	-	-	May-Dec	Jul-Nov
	Southern kingfish													-	-	Jun-Sep	May-Dec	May-Oct
	Spot													-	-	Jan-Apr	Jan-Dec	Apr-Oct
	Spot													-	-	Jan-Mar	Jan-Dec	Mar-Dec
	Spotted seatrout													Apr-Sep	Apr-Sep	Apr-Nov	Jan-Dec	Jan-Dec
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	-	Jan-Dec	Apr-Nov
	Striped mullet													-	-	Sep-May	Jan-Dec	Jan-Dec
	Summer flounder													-	-	Oct-May	Jan-Dec	-
	Weakfish													Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Mar-Oct
	Weakfish													Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Jan-Dec
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Jan-Dec
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													-	-	Apr-Jul	Jan-Dec	Jan-Dec
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Silver perch													Jun-Aug	Jun-Aug	Jun-Sep	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Triggerfish													-	-	-	-	Jul-Aug
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													-	-	-	Apr-Dec	Apr-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic spadefish													-	-	-	May-Nov	-
	Florida pompano													-	-	-	-	Jul-Oct
	Little tunny													-	-	-	-	Jul-Aug
	Tautog													May-Aug	May-Aug	Jun-Aug	Jul-Sep	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Bluefin tuna													-	-	-	-	Jan-Dec
	Cobia													-	-	-	May-Sep	May-Oct
	Harvestfish													-	-	-	-	Jan-Dec

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	King mackerel													-	-	-	-	Sep-Nov*
	Sharks													-	-	-	-	Jan-Dec
	Spanish mackerel													-	-	-	-	Jul-Nov
	Spanish mackerel													-	-	-	-	May-Oct
														-	-	-	-	Jul-Nov
														-	-	-	-	May-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Eastern oyster													May-Nov	May-Nov	May-Nov	Jan-Dec	Jan-Dec
	Blue crab													-	-	-	-	Jan-Dec
	Blue crab													-	-	May-Oct	-	Jan-Dec
	Brown shrimp													-	-	Feb-Apr	Mar-Aug	Jan-Dec
	Florida stone crab													May-Aug	May-Aug	-	-	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-
														-	-	-	-	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-
														-	-	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	3,761.29	5.88
10B	Freshwater Marshes	92.51	0.14
10C	Swamps	312.68	0.49
10D	Scrub and Shrub Wetlands	731.66	1.14
9A	Sheltered Tidal Flats	2.39	0.00
7	Exposed Tidal Flats	143.53	0.22

ESI SHORELINE HABITAT TYPES

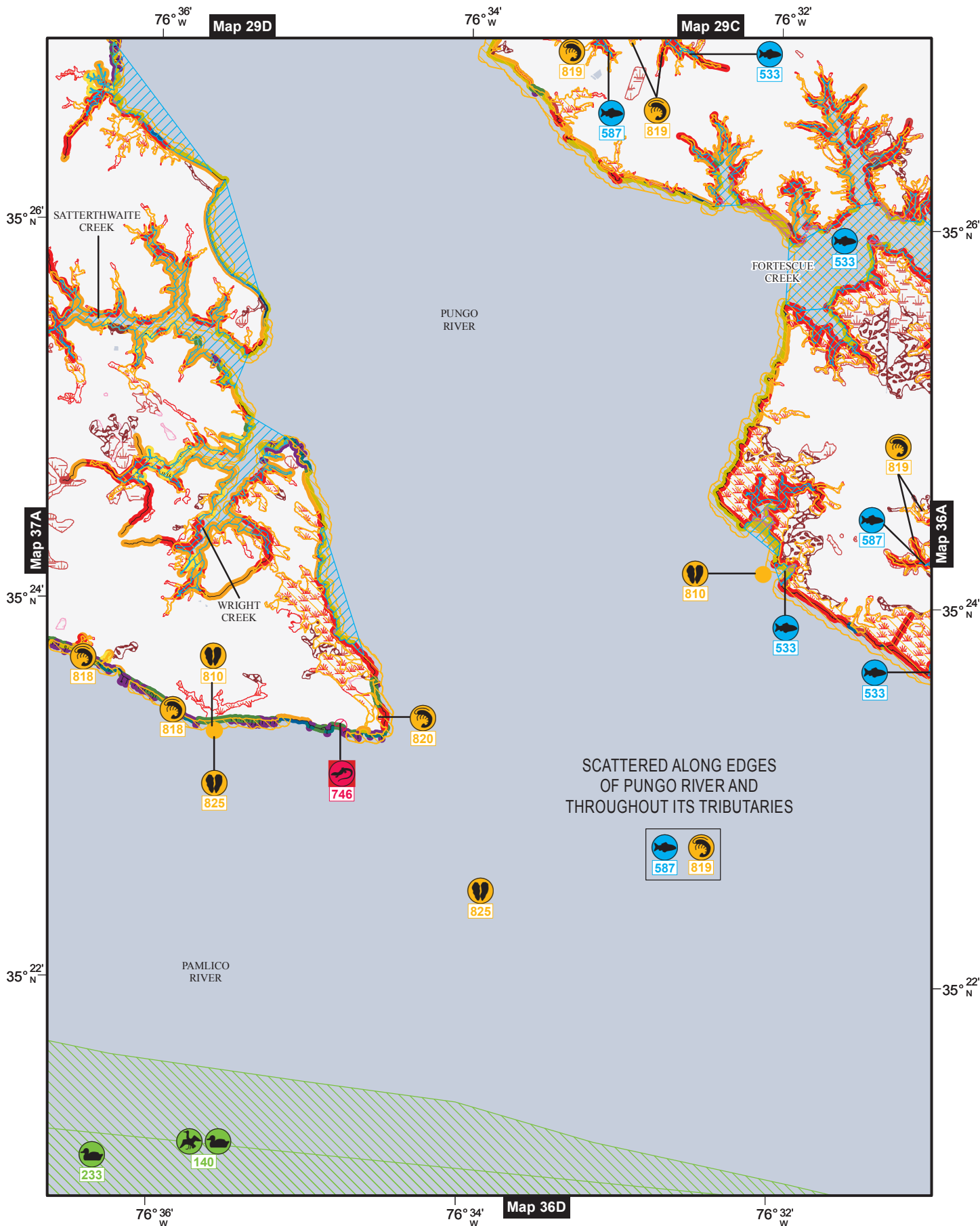
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	139,517.11	86.69	75%
10C	Swamps	1,443.12	0.90	1%
10D	Scrub-shrub wetlands	3,672.33	2.28	2%
9A	Sheltered tidal flats	556.49	0.35	< 1%
9B	Sheltered, vegetated low banks	10,785.47	6.70	6%
8B	Sheltered, solid man-made structures	206.48	0.13	< 1%
7	Exposed tidal flats	27,721.73	17.23	15%
3A	Fine- to medium-grained sand beaches	484.59	0.30	< 1%
1B	Exposed, solid man-made structures	449.93	0.28	< 1%

Total ESI Shoreline: 184,837.25 Total ESI Shoreline: 114.85
 Total Shoreline: 151,888.45 Total Shoreline: 94.38

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 36B
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
SAV	Submerged aquatic veg	High Ecological Value			Present	J	F	M	A	M	J	J	A	S	O	N	D

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Molt
140	Diving	Common loon	Wintering			100S	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-
	Diving	Horned grebe	Wintering			10S	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-
233	Waterfowl	American coot	Migration			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	American wigeon	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Bufflehead	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Gadwall	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Green-winged teal	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Mallard	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Northern pintail	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Ruddy duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Scaup	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Sooters	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Waterfowl	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
533	Diadromous	Alewife	Nursery Area			Present	J	F	M	A	M	J	J	A	S	O	N	D	-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
587	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-

REPTILES & AMPHIBIANS


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
746	Snake	Carolina water snake	Vulnerable Occurrence			-	J	F	M	A	M	J	J	A	S	O	N	D	Aug-Oct	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES



Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Larvae	Eggs	Spawn	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
810	Bivalve	Eastern oyster	Concentration Area			High																	
818	Shrimp	Brown shrimp	Nursery Area			Abundant																	
	Shrimp	White shrimp	Nursery Area			Rare																	
819	Shrimp	White shrimp	Nursery Area			Common																	
	Shrimp	Brown shrimp	Nursery Area			Abundant																	
	Shrimp	White shrimp	Nursery Area			Common																	
820	Shrimp	Pink shrimp	Nursery Area			Rare																	
825	Bivalve	Eastern oyster	Concentration Area			Abundant																	

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American coot	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Canada goose	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Mergansers	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Red-breasted merganser	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Ruddy duck	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Scoters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Tundra swan	Wintering			100S													-	Feb-Mar	Oct-Nov	-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife	Migration			Present													-	-	May-Aug	Jul-Mar	-
	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Blueback herring	Migration			Present													-	-	May-Jul	Aug-Oct	-
	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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	West Indian manatee	General Distribution	E	E	-																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	

BENTHIC

Subelement	Species
SAV	Submerged aquatic veg



BIRDS



Subelement	Species
Waterfowl	American black duck
	Wood duck





FISH

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
Diadromous	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Gizzard shad													-	-	-	Oct-Mar	-
	Hickory shad													-	-	-	-	Jan-Apr
Estuarine Nursery	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Dec-Feb	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Jan-Dec	Jun-Nov
	Bluefish													-	-	-	May-Oct	May-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	May-Oct	-
	Pinfish													-	-	Dec-May	Feb-Oct	Apr-Oct
	Red drum													-	-	Jul-Oct	Jan-Dec	-
	Sheepshead													-	-	-	Jan-Nov	Jun-Oct
	Southern kingfish													-	-	-	May-Dec	Jul-Nov
	Spot													-	-	Jan-Apr	Jan-Dec	Apr-Oct
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	-	Jan-Dec	Mar-Dec
	Summer flounder													-	-	-	Jan-Dec	Apr-Nov
	Weakfish													-	-	Oct-May	Jan-Dec	-
	Weakfish													Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Mar-Oct
	White mullet													Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Jan-Dec
	White perch													-	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
Estuarine Resident	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
Freshwater	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Marine Benthic	Atlantic spadefish													-	-	-	Jun-Sep	-
 Marine Pelagic	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	-	Jul-Nov	May-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Crab	Blue crab													-	-	May-Oct	-	Jan-Dec
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
 Shrimp	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Florida stone crab													May-Aug	May-Aug	-	-	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
 Dolphin	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	829.49	1.30
10B	Freshwater Marshes	13.15	0.02
10C	Swamps	204.86	0.32
10D	Scrub and Shrub Wetlands	194.83	0.30
9A	Sheltered Tidal Flats	0.39	0.00
7	Exposed Tidal Flats	141.17	0.22

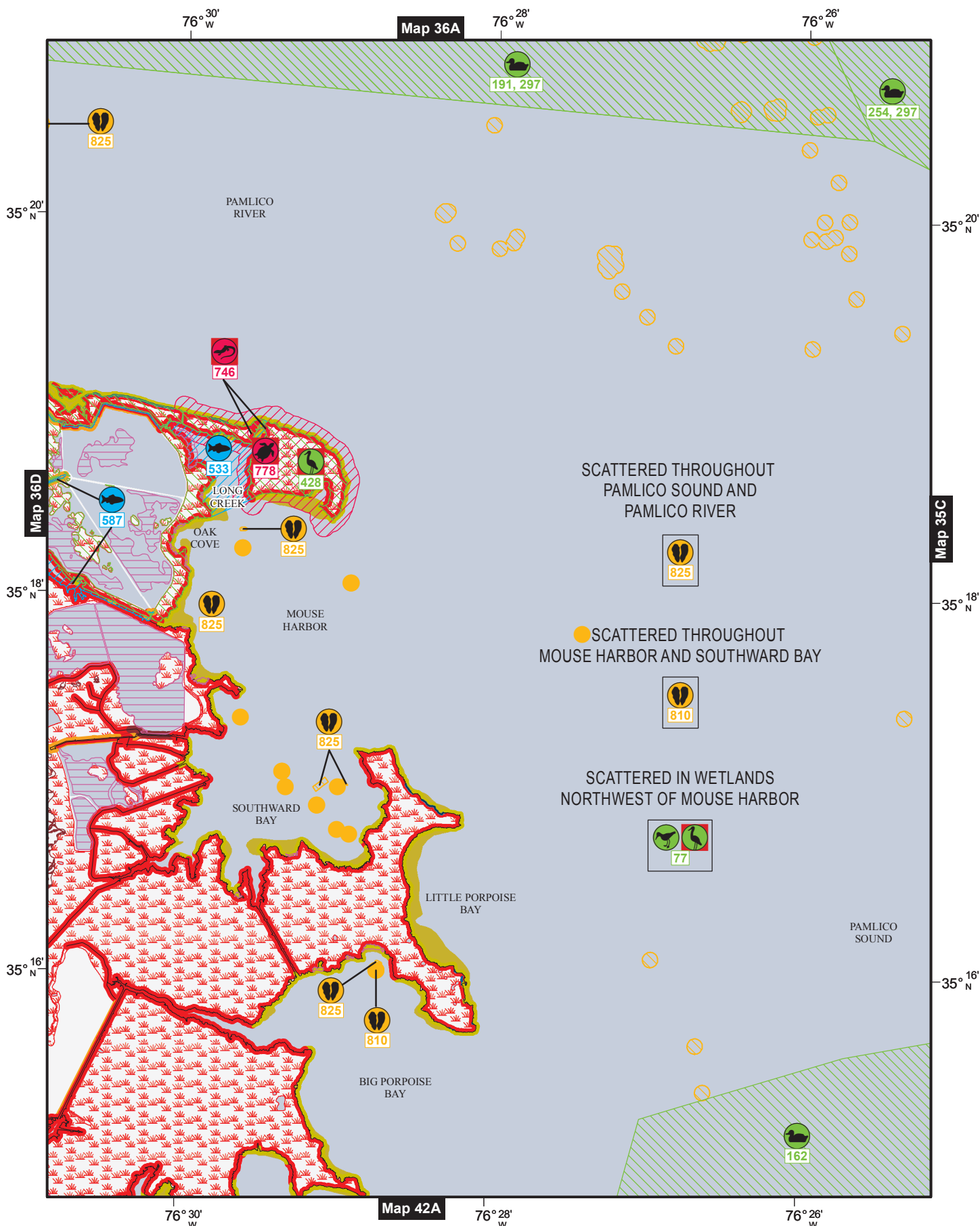
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	48,556.05	30.17	41%
10C	Swamps	1,889.78	1.17	2%
10D	Scrub-shrub wetlands	1,010.08	0.63	1%
9A	Sheltered tidal flats	191.44	0.12	< 1%
9B	Sheltered, vegetated low banks	25,581.98	15.90	22%
8B	Sheltered, solid man-made structures	3,601.67	2.24	3%
8C	Sheltered riprap	765.19	0.48	1%
7	Exposed tidal flats	22,469.90	13.96	19%
6B	Exposed riprap	5,198.37	3.23	4%
3A	Fine- to medium-grained sand beaches	3,546.25	2.20	3%
1B	Exposed, solid man-made structures	5,069.20	3.15	4%
Total ESI Shoreline:		117,879.89	73.25	
Total Shoreline:		86,504.24	53.75	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov

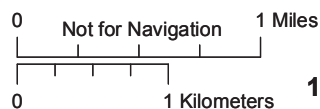




Map 36C North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



1:50,000



Map 36C
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
SAV	Submerged aquatic veg	High Ecological Value			Present	J	F	M	A	M	J	J	A	S	O	N	D

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
77	Shorebird	Black-necked stilt	Nesting			-													May-Aug	-	-	-
	Wading	Least bittern	Vulnerable Occurrence	C		High													-	-	-	-
162	Waterfowl	Long-tailed duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Red-breasted merganser	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	White-winged scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
191	Waterfowl	American coot	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Canada goose	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Mergansers	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Red-breasted merganser	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Ruddy duck	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Surf scoter	Wintering			100S													-	Feb-Mar	Oct-Nov	-
254	Waterfowl	Green-winged teal	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Mergansers	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Red-breasted merganser	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Ring-necked duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
297	Waterfowl	American wigeon	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern pintail	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Sooters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
428	Wading	Least bittern	Vulnerable Occurrence	C		High													-	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
533	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
587	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-

REPTILES & AMPHIBIANS



Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
746	Snake	Carolina water snake	Vulnerable Occurrence	C		-													Aug-Oct	Aug-Oct	-	Jan-Dec	Jan-Dec
778	Turtle	Diamondback terrapin	Vulnerable Occurrence	C		-													Apr-May	Mar-Oct*	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
810	Bivalve	Eastern oyster	Concentration Area			High													Jun-Nov	Jun-Nov	Jun-Nov	Jan-Dec	Jan-Dec
825	Bivalve	Eastern oyster	Concentration Area			Abundant													May-Nov	May-Nov	May-Nov	Jan-Dec	Jan-Dec

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Diving	Common loon	Wintering			100S												-	-	-	-
		Horned grebe	Wintering			10S												-	-	-	-
	Waterfowl	American black duck	Wintering			-												-	Feb-Mar	Oct-Nov	-
		American black duck	Wintering			100S												-	Feb-Mar	Oct-Nov	-
		American coot	Migration			1000S												-	Feb-Mar	Oct-Nov	-
		American coot	Wintering			1000S												-	Feb-Mar	Oct-Nov	-
		American wigeon	Wintering			-												-	Feb-Mar	Oct-Nov	-
		American wigeon	Wintering			1000S												-	Feb-Mar	Oct-Nov	-
		Black scoter	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Blue-winged teal	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Bufflehead	Wintering			100S												-	Feb-Mar	Oct-Nov	-
		Bufflehead	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Canvasback	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Gadwall	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Gadwall	Wintering			1000S												-	Feb-Mar	Oct-Nov	-
		Greater scaup	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Green-winged teal	Wintering			1000S												-	Feb-Mar	Oct-Nov	-
		Green-winged teal	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Lesser scaup	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Mallard	Wintering			100S												-	Feb-Mar	Oct-Nov	-
		Mallard	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Northern pintail	Wintering			1000S												-	Feb-Mar	Oct-Nov	-
		Northern pintail	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Northern shoveler	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Redhead	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Ring-necked duck	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Ruddy duck	Wintering			100S												-	Feb-Mar	Oct-Nov	-
		Scaup	Wintering			100S												-	Feb-Mar	Oct-Nov	-
		Scoters	Wintering			100S												-	Feb-Mar	Oct-Nov	-
		Surf scoter	Wintering			-												-	Feb-Mar	Oct-Nov	-

BIRDS (contained)

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Molt
						J	F	M	A	M	J	J	A	S	O	N	D	
	Tundra swan	Wintering			100S													-
	Waterfowl	Wintering			100S													-
	Wood duck	Wintering			-													-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Adults
						J	F	M	A	M	J	J	A	S	O	N	D	
	Alewife	Migration			Present													-
	American shad	Spawning Area			Present													-
	Atlantic sturgeon	General Distribution	C		-													-
	Atlantic sturgeon	Spawning Area	C		-													-
	Blueback herring	Migration			Present													-
	Southern flounder	Concentration Area			Abundant													-
	Summer flounder	Concentration Area			Highly Abundant													May-Oct
	Spotted hake	Nursery Area			-													-

REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Adults
						J	F	M	A	M	J	J	A	S	O	N	D	
	Green sea turtle	General Distribution	T	T	-													-
	Hawksbill sea turtle	General Distribution	E	E	Infrequent													-
	K. ridley sea turtle	General Distribution	E	E	-													-
	Leatherback sea turtle	General Distribution	E	E	Occasional													-
	Loggerhead sea turtle	General Distribution	T	T	-													-

INVERTEBRATES

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Adults
						J	F	M	A	M	J	J	A	S	O	N	D	
	Brown shrimp	Nursery Area			Abundant													-
	White shrimp	Nursery Area			Common													-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Molt
						J	F	M	A	M	J	J	A	S	O	N	D	
	West Indian manatee	General Distribution	E	E	-													-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Molt
						J	F	M	A	M	J	J	A	S	O	N	D	
	Submerged aquatic veg																	-



BIRDS

Monthly Presence





Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
	American black duck													Apr-May	-	-	-	-

FISH



Monthly Presence

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
	Alewife													-	-	-	Jul-Oct	-
	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Blueback herring													-	-	May-Jul	Jul-Mar	Oct-Mar
	Gizzard shad													-	-	-	Oct-Mar	-
	Hickory shad													-	-	-	-	Jan-Nov
	Hickory shad													-	-	-	-	Jan-Apr
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Dec-Feb	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Sep-Apr	Jan-Dec	Jan-Dec
	Atlantic cutlassfish													-	-	-	-	Jul-Aug
	Atlantic menhaden													-	-	Nov-May	Jan-Dec	Mar-Nov
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Jan-Dec	Jun-Nov
	Black drum													Apr-Jun	Apr-Jun	Jun-Jul	Jan-Dec	Jun-Nov
	Black sea bass													-	-	-	Jun-Sep	May-Dec
	Bluefish													-	-	-	May-Oct	May-Nov
	Bluefish													-	-	-	Feb-Nov	Apr-Nov
	Gulf flounder													-	-	Dec-May	Jan-Dec	Mar-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	May-Oct	-
	Ladyfish													-	-	Sep-Apr	Jun-Oct	Jun-Oct
	Northern kingfish													-	-	May-Sep	Jul-Oct	Apr-Sep
	Northern puffer													Apr-Nov	Apr-Nov	-	-	Jul-Dec
	Pinfish													-	-	Dec-May	Feb-Oct	Apr-Oct
	Pinfish													-	-	Dec-May	Jan-Dec	May-Oct
	Red drum													Aug-Oct	Aug-Oct	Sep-Apr	Jan-Dec	Jan-Dec
	Red drum													-	-	Jul-Oct	Jan-Dec	-
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Sheepshead													-	-	May-Jan	Jan-Dec	May-Oct
	Southern flounder													-	-	Dec-Mar	Jan-Dec	Feb-Dec
	Southern kingfish													-	-	Jun-Sep	May-Dec	May-Oct
	Southern kingfish													-	-	-	May-Dec	Jul-Nov
	Spot													-	-	Jan-Apr	Jan-Dec	Apr-Oct
	Spot													-	-	Jan-Mar	Jan-Dec	Mar-Dec
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Spotted seatrout													Apr-Sep	Apr-Sep	Apr-Nov	Jan-Dec	Jan-Dec
	Striped mullet													-	-	Sep-May	Jan-Dec	Jan-Dec


FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Striped mullet													-	-	-	Jan-Dec	Apr-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	-
	Weakfish													Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Mar-Oct
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Jan-Dec
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													-	-	-	Jan-Dec	Jan-Dec
	White perch													-	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Silver perch													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Striped killifish													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Triggerfish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Largemouth bass													-	-	-	-	Jul-Aug
	Longnose gar													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Redfin pickerel													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Yellow perch													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													-	-	-	Apr-Dec	Apr-Dec
	Atlantic spadefish													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	May-Nov	-
	Florida pompano													-	-	-	Jun-Sep	-
	Little tunny													-	-	-	-	Jul-Oct
	Tautog													-	-	-	-	Jul-Aug
	Atlantic needlefish													May-Aug	May-Aug	Jun-Aug	Jul-Sep	-
	Bluefin tuna													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Cobia													-	-	-	-	Jan-Dec
	Harvestfish													-	-	-	May-Sep	May-Oct
	King mackerel													-	-	-	-	Jan-Dec
	Sharks													-	-	-	-	Sep-Nov*
	Spanish mackerel													-	-	-	-	Jan-Dec
	Spanish mackerel													-	-	-	Jul-Nov	May-Oct
	Spanish mackerel													-	-	-	Jul-Nov	May-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Blue crab													-	-	May-Oct	-	Jan-Dec
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Florida stone crab													May-Aug	May-Aug	-	-	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	2,949.78	4.61
10C	Swamps	0.59	0.00
10D	Scrub and Shrub Wetlands	18.67	0.03
9A	Sheltered Tidal Flats	0.30	0.00
7	Exposed Tidal Flats	330.22	0.52

ESI SHORELINE HABITAT TYPES

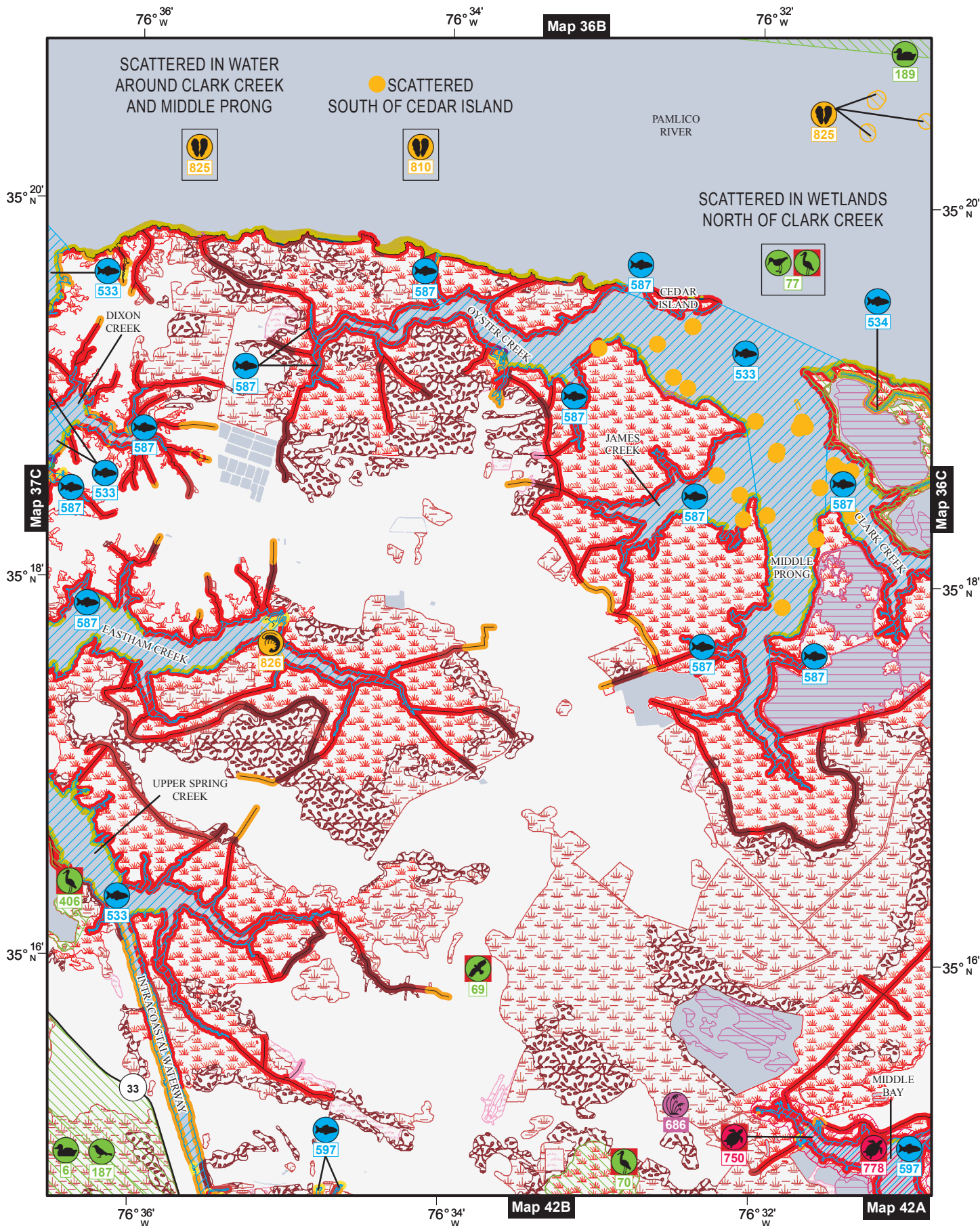
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	75,863.14	47.14	63%
10D	Scrub-shrub wetlands	600.75	0.37	< 1%
9A	Sheltered tidal flats	425.09	0.26	< 1%
9B	Sheltered, vegetated low banks	4,680.03	2.91	4%
7	Exposed tidal flats	36,716.09	22.81	31%
3A	Fine- to medium-grained sand beaches	2,073.41	1.29	2%

Total ESI Shoreline: 120,358.52 Total ESI Shoreline: 74.79
 Total Shoreline: 79,392.29 Total Shoreline: 49.33

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 36D
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
SAV	Submerged aquatic veg	High Ecological Value			Present	J	F	M	A	M	J	J	A	S	O	N	D

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig.(S)	Mig.(F)	Molt
6	Waterfowl	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Raptor	Bald eagle	Nesting	T		1 Pair													Jan-Jun	-	-	-
	Wading	Black rail	Nesting	C		-													May-Aug	-	-	-
	Shorebird	Black-necked stilt	Nesting			-													May-Aug	-	-	-
187	Wading	Least bittern	Vulnerable Occurrence	C		High													-	-	-	-
	Passerine	Black-throated green warbler	Nesting			-													Apr-Aug	-	-	-
	Waterfowl	American coot	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	American wigeon	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Canada goose	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Mergansers	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern pintail	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Red-breasted merganser	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Ruddy duck	Wintering			10000S													-	Feb-Mar	Oct-Nov	-

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
	Waterfowl	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Scoters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Surf scoter	Wintering			100S													-	Feb-Mar	Oct-Nov	-
406	Wading	American bittern	Nesting			-												Apr-Aug	-	-	-	-
	Wading	Least bittern	Nesting	C		-												Apr-Aug	-	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
533	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
534	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
587	Marine Benthic	Spotted hake	Nursery Area			-													-	-	-	Dec-Jun	-
	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
597	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
	Marine Benthic	Spotted hake	Nursery Area			-													-	-	-	Dec-Jun	-

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
686	Plant	Beaked spikerush	Vulnerable Occurrence			Current	J	F	M	A	M	J	J	A	S	O	N	D



REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
750	Turtle	Green sea turtle	General Distribution	T	T	-													-	-	-	Apr-Dec	-
	Turtle	Hawksbill sea turtle	General Distribution	E	E	Infrequent													-	-	-	Apr-Dec	-
	Turtle	K. ridley sea turtle	General Distribution	E	E	-													-	-	-	Apr-Dec	-
	Turtle	Leatherback sea turtle	General Distribution	E	E	Occasional													-	-	-	Apr-Dec	-
778	Turtle	Loggerhead sea turtle	General Distribution	T	T	-													-	-	-	Apr-Dec	-
	Turtle	Diamondback terrapin	Vulnerable Occurrence	C		-													Apr-May	Mar-Oct*	-	Jan-Dec	Jan-Dec



INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
810	Bivalve	Eastern oyster	Concentration Area			High													Jun-Nov	Jun-Nov	Jun-Nov	Jan-Dec	Jan-Dec
825	Bivalve	Eastern oyster	Concentration Area			Abundant													May-Nov	May-Nov	May-Nov	Jan-Dec	Jan-Dec
826	Shrimp	Brown shrimp	Nursery Area			-													-	-	Feb-Apr	Mar-Aug	-

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Diving	Common loon			100S													-	-	-	-
		Horned grebe			10S													-	-	-	-
		American black duck			100S													-	-	-	-
		American coot			1000S													-	-	-	-
		American coot			1000S													-	-	-	-
		American wigeon			1000S													-	-	-	-
		Bufflehead			100S													-	-	-	-
		Gadwall			1000S													-	-	-	-
		Green-winged teal			1000S													-	-	-	-
		Mallard			100S													-	-	-	-
		Northern pintail			1000S													-	-	-	-
		Ruddy duck			100S													-	-	-	-
		Scaup			100S													-	-	-	-
		Scoters			100S													-	-	-	-
		Tundra swan			100S													-	-	-	-
		Waterfowl			100S													-	-	-	-
																		-	-	-	-
																		-	-	-	-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous	Alewife			Present													-	-	-	-	-
		American shad			Present													-	-	-	-	-
		Atlantic sturgeon	C		-													-	-	-	-	-
		Atlantic sturgeon	C		-													-	-	-	-	-
	Estuarine Nursery	Blueback herring			Present													-	-	-	-	-
		Southern flounder			Abundant													-	-	-	-	-

INVERTEBRATES

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Shrimp	Brown shrimp			Abundant													-	-	-	-	-
		White shrimp			Common													-	-	-	-	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Manatee	General Distribution	E		-													-	-	-	-
		West Indian manatee			-													-	-	-	-

BENTHIC

Monthly Presence



Subelement	Species
SAV	Submerged aquatic veg

BIRDS

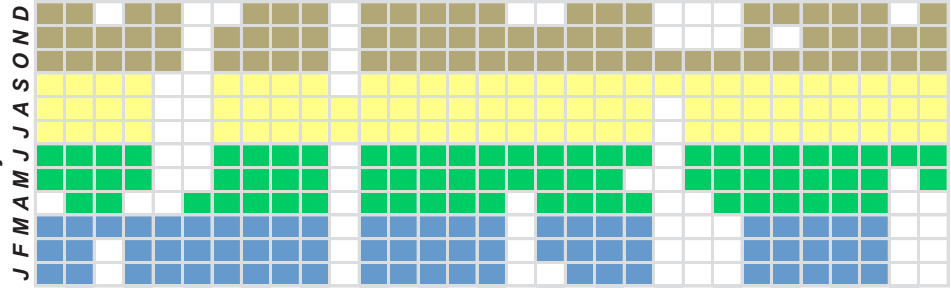
Monthly Presence



Subelement	Species
Waterfowl	American black duck
	Wood duck





FISH

Monthly Presence




Subelement	Species
Diadromous	Alewife
	American eel
	American shad
	Blueback herring
	Gizzard shad
	Hickory shad
	Hickory shad
	Striped bass
Estuarine Nursery	Atlantic croaker
	Atlantic croaker
	Atlantic cutlassfish
	Atlantic menhaden
	Atlantic menhaden
	Bay anchovy
	Black drum
	Black drum
	Bluefish
	Bluefish
	Gulf flounder
	Hogchoker
	Ladyfish
	Ladyfish
	Ladyfish
	Northern kingfish
	Pinfish
	Pinfish
	Red drum
	Red drum
	Sheepshead
	Sheepshead
	Southern kingfish

FISH (contained)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Southern kingfish													-	-	-	May-Dec	Jul-Nov
	Spot													-	-	Jan-Apr	Jan-Dec	Apr-Oct
	Spot													-	-	Jan-Mar	Jan-Dec	Mar-Dec
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Spotted seatrout													Apr-Sep	Apr-Sep	Apr-Nov	Jan-Dec	Jan-Dec
	Striped mullet													-	-	Sep-May	Jan-Dec	Jan-Dec
	Striped mullet													-	-	-	Jan-Dec	Apr-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	-
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Jan-Dec
	Weakfish													Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Mar-Oct
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													-	-	-	Jan-Dec	Jan-Dec
	White perch													-	-	Apr-Jul	Jan-Dec	Jan-Dec
	Inland silverside													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Silver perch													Mar-Aug	Mar-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Striped killifish													Jun-Aug	Jun-Aug	Jun-Aug	-	-
	Triggerfish													May-Sep	May-Sep	Jun-Sep	Jun-Nov	-
	Bowfin													-	-	-	Jun-Apr	-
	Large mouth bass													Mar-Jun	Mar-Jun	-	Jan-Dec	Jul-Aug
	Longnose gar													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Redfin pickerel													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Yellow perch													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Atlantic spadefish													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Florida pompano													-	-	-	May-Nov	-
	Tautog													-	-	-	-	Jul-Oct
	Atlantic needlefish													May-Aug	May-Aug	Jun-Aug	Jul-Sep	-
	Harvestfish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Sharks													-	-	-	-	Jan-Dec
	Spanish mackerel													-	-	-	-	Jan-Dec
	Spanish mackerel													-	-	-	Jul-Nov	May-Oct
	Spanish mackerel													-	-	-	Jul-Nov	May-Aug
	Spanish mackerel													-	-	-	Jul-Nov	May-Aug
	Spanish mackerel													-	-	-	Jul-Nov	May-Aug
	Spanish mackerel													-	-	-	Jul-Nov	May-Aug
	Spanish mackerel													-	-	-	Jul-Nov	May-Aug
	Spanish mackerel													-	-	-	Jul-Nov	May-Aug
	Spanish mackerel													-	-	-	Jul-Nov	May-Aug
	Spanish mackerel													-	-	-	Jul-Nov	May-Aug
	Spanish mackerel													-	-	-	Jul-Nov	May-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Blue crab													-	-	May-Oct	-	Jan-Dec
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Florida stone crab													May-Aug	May-Aug	-	-	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Monthly Presence

Subelement	Species	Monthly Presence												Calving	Pupping	Molt
Dolphin	Bottlenose dolphin	J	F	M	A	M	J	J	A	S	O	N	D	Mating Sep-Oct		

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	4,899.78	7.66
10B	Freshwater Marshes	124.11	0.19
10C	Swamps	2,956.96	4.62
10D	Scrub and Shrub Wetlands	1,845.13	2.88
9A	Sheltered Tidal Flats	20.57	0.03
7	Exposed Tidal Flats	149.72	0.23

ESI SHORELINE HABITAT TYPES

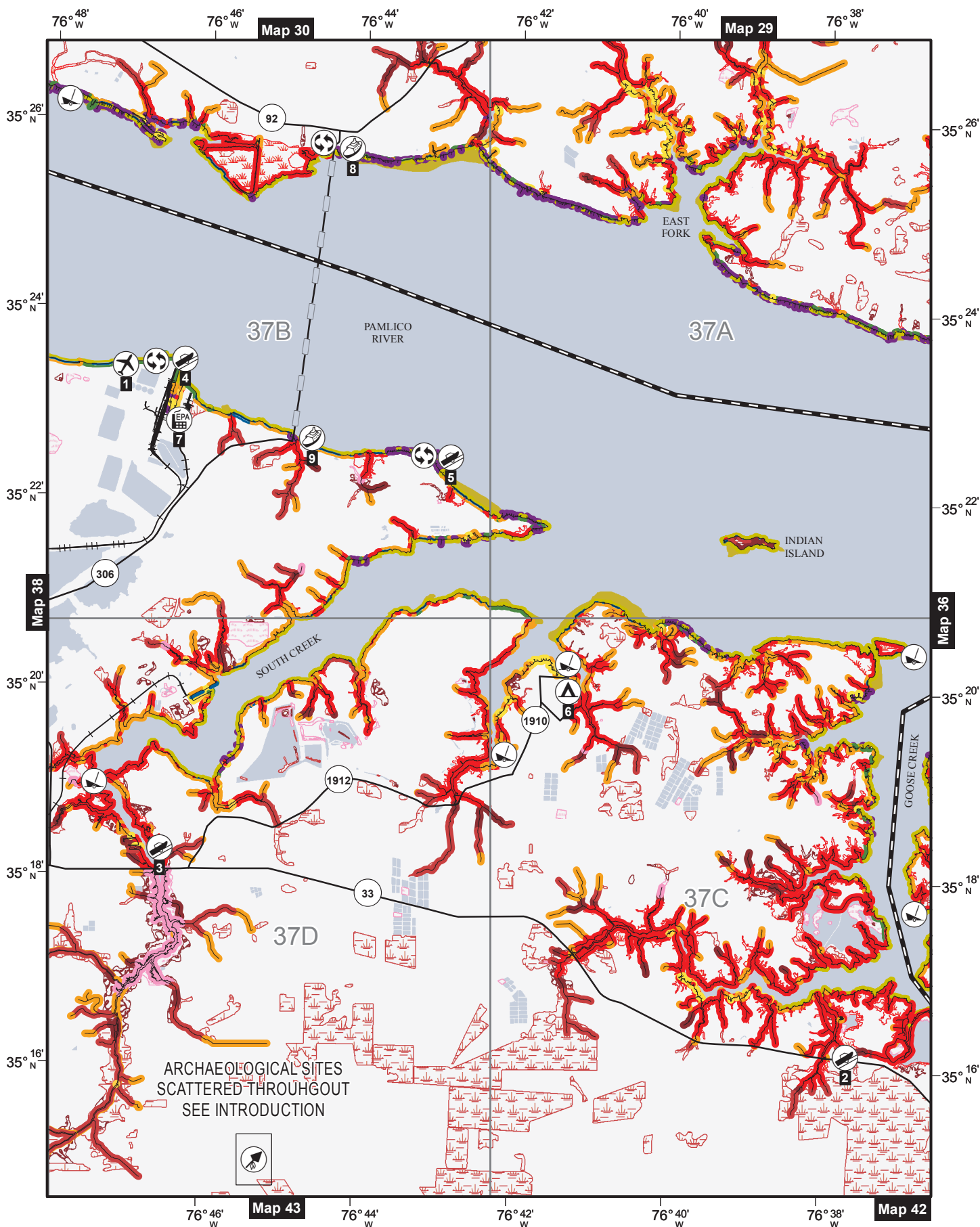
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	146,411.79	90.98	68%
10B	Freshwater marshes	261.15	0.16	< 1%
10C	Swamps	6,558.40	4.08	3%
10D	Scrub-shrub wetlands	11,872.94	7.38	5%
9A	Sheltered tidal flats	5,905.77	3.67	3%
9B	Sheltered, vegetated low banks	12,008.70	7.46	6%
8B	Sheltered, solid man-made structures	1,830.65	1.14	1%
8C	Sheltered riprap	350.93	0.22	< 1%
7	Exposed tidal flats	29,765.06	18.50	14%
6B	Exposed riprap	158.16	0.10	< 1%
3A	Fine- to medium-grained sand beaches	930.63	0.58	< 1%
1B	Exposed, solid man-made structures	213.50	0.13	< 1%

Total ESI Shoreline: 216,267.68 Total ESI Shoreline: 134.38
Total Shoreline: 178,584.81 Total Shoreline: 110.97

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Contact Phone
1	AIRPORT	LEE CREEK	ROSEMARY WILLIAMSON, MANAGER 252-322-8148
2	BOAT RAMP	SMITHS CREEK	NEW BERN DEPOT 252-514-4734
3	BOAT RAMP	AURORA	NEW BERN DEPOT 252-514-4734
4	BOAT RAMP	PCS PHOSPHATE BOAT RAMP	252-322-4111
5	BOAT RAMP	LONG POINT BOAT RAMP	
6	CAMPGROUND	CREEKSIDE LODGING RENTALS AND CAMPGROUND	252-322-4473
7	EPA FACILITY	PCS PHOSPHATE	SCOTT BROWN, MANAGER, SAFETY & HEALTH 252-322-8271
8	FERRY	BAYVIEW FERRY TERMINAL	252-964-4521
9	FERRY	AURORA FERRY TERMINAL	252-964-4521

ALSO PRESENT IN MAPPED AREA (POLYGONS)

Type	Name	Contact Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; COASTAL MIG. PELAGICS	DAVID DALE, SOUTHEAST REGION 727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SHRIMP	DAVID DALE, SOUTHEAST REGION 727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SNAPPER GROUPE	DAVID DALE, SOUTHEAST REGION 727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SPINY LOBSTER	DAVID DALE, SOUTHEAST REGION 727-824-5317
ESSENTIAL HABITAT	HAPC; SHRIMP	DAVID DALE, SOUTHEAST REGION 727-824-5317
ESSENTIAL HABITAT	HAPC; SNAPPER GROUPE	DAVID DALE, SOUTHEAST REGION 727-824-5317
STATE PROTECTED AREA	BLACK BEAR SANCTUARY	NC WILDLIFE RESOURCES COMMISSION WEYERHAEUSER CO.
STATE PROTECTED AREA	BLACK BEAR SANCTUARY	NC WILDLIFE RESOURCES COMMISSION WEYERHAEUSER CO.
STATE PROTECTED AREA	GAME LAND	NC WILDLIFE RESOURCES COMMISSION
STATE PROTECTED AREA	GAME LAND	PCS PHOSPHATE COMPANY INC.
STATE PROTECTED AREA	GAME LAND	WEATHERLY MARGARET J
STATE PROTECTED AREA	OUTSTANDING RESOURCE AND/OR HIGH QUALITY WATERS	NC DENR WATER QUALITY DIVISION
STATE PROTECTED AREA	WATERFOWL IMPOUNDMENT	NC WILDLIFE RESOURCES COMMISSION

JURISDICTIONS

COUNTY:	BEAUFORT, PAMLICO
COAST GUARD:	DISTRICT 5, SECTOR NORTH CAROLINA
USACE:	SOUTH ATLANTIC DIVISION, WILMINGTON DISTRICT

FEMA:	REGION I
EPA:	REGION 4

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	2,977.85	4.65
10B	Freshwater Marshes	543.87	0.85
10C	Swamps	5,486.59	8.57
10D	Scrub and Shrub Wetlands	770.94	1.20
9A	Sheltered Tidal Flats	50.25	0.08
7	Exposed Tidal Flats	1,144.46	1.79



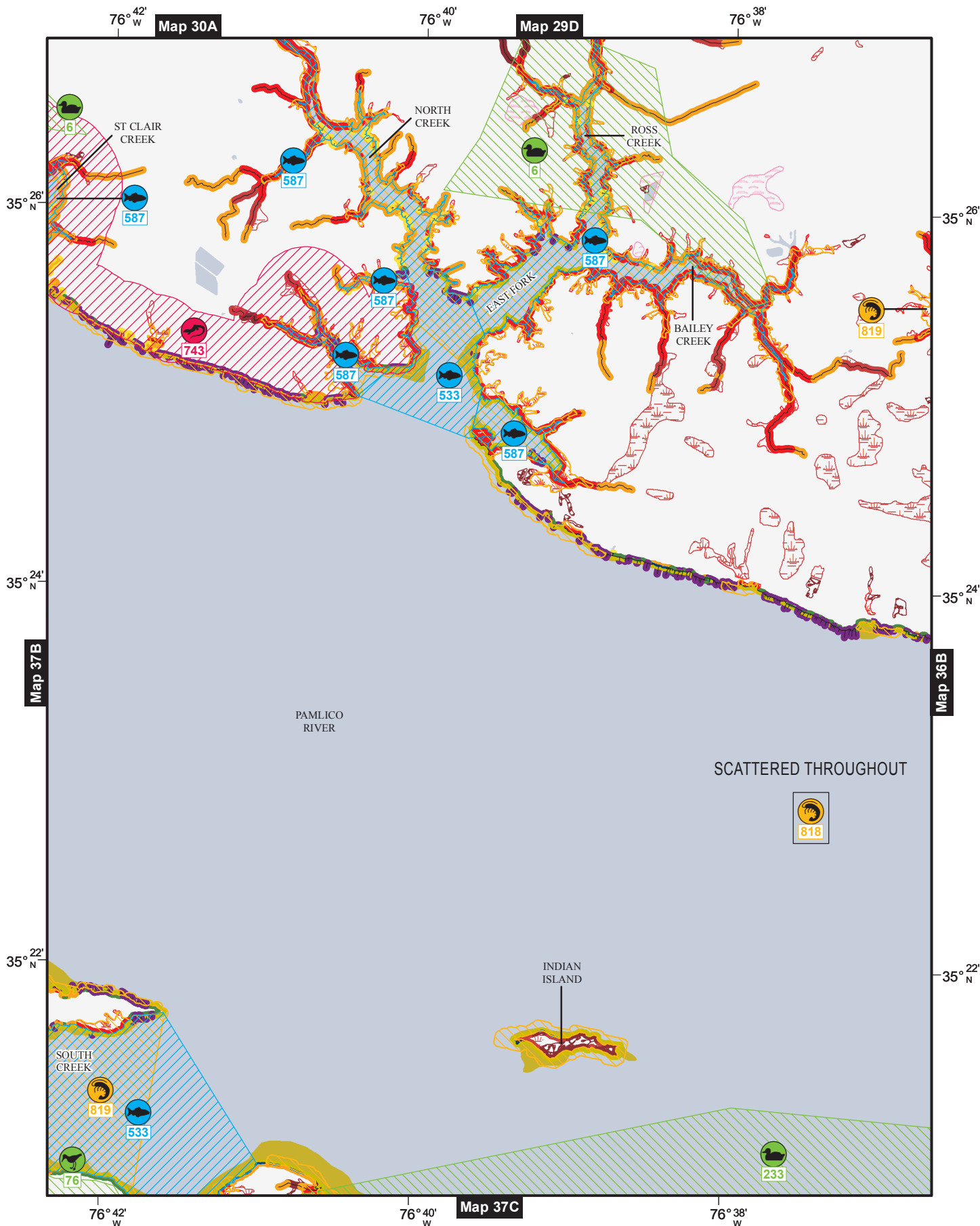
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	247,788.08	153.97	40%
10B	Freshwater marshes	15,504.96	9.63	2%
10C	Swamps	37,308.63	23.18	6%
10D	Scrub-shrub wetlands	19,843.09	12.33	3%
9A	Sheltered tidal flats	11,292.16	7.02	2%
9B	Sheltered, vegetated low banks	109,965.23	68.33	18%
8B	Sheltered, solid man-made structures	11,363.37	7.06	2%
8C	Sheltered riprap	3,271.88	2.03	1%
7	Exposed tidal flats	100,999.67	62.76	16%
6B	Exposed riprap	23,431.86	14.56	4%
3A	Fine- to medium-grained sand beaches	12,971.18	8.06	2%
3B	Scarps and steep slopes in sand	468.44	0.29	< 1%
1B	Exposed, solid man-made structures	28,771.19	17.88	5%
Total ESI Shoreline:		622,979.74	387.10	
Total Shoreline:		476,982.86	296.38	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov

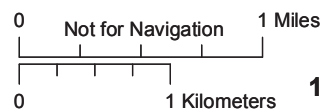




Map 37A
North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



1:50,000



Map 37A
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
6	Waterfowl	American black duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	American wigeon	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Black scoter	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Blue-winged teal	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Bufflehead	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Canvasback	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Gadwall	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Greater scaup	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Green-winged teal	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Lesser scaup	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Mallard	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern pintail	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern shoveler	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Redhead	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
76	Waterfowl	Ring-necked duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Surf scoter	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Wood duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Shorebird	Black-necked stilt	Nesting	-	-	-													May-Aug	-	-	-
	Waterfowl	American coot	Wintering	1000S	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	American wigeon	Wintering	1000S	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Bufflehead	Wintering	100S	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Gadwall	Wintering	1000S	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Green-winged teal	Wintering	1000S	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Mallard	Wintering	100S	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern pintail	Wintering	1000S	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Ruddy duck	Wintering	100S	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Scaup	Wintering	100S	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Sooters	Wintering	100S	-	-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Waterfowl	Wintering	100S	-	-													-	Feb-Mar	Oct-Nov	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
533	Diadromous	Alewife	Nursery Area	Present	-	Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area	Present	-	Present													-	-	May-Jul	Jul-Oct	-
587	Diadromous	Alewife	Spawning Area	Present	-	Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area	Present	-	Present													Mar-Jul	Mar-Jul	May-Jul	-	-

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
743	Snake	Rainbow snake	Vulnerable Occurrence			-													May-Sep	Aug-Nov	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
818	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	Pink shrimp	Nursery Area			Rare													-	-	May-Nov	Jan-Dec	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-
819	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
Diving	Common loon	Wintering			100S													-	-	-	-
	Horned grebe	Wintering			10S													-	-	-	-
Waterfowl	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American coot	Migration			1000S													-	Feb-Mar	Oct-Nov	-
	American coot	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Canada goose	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Mergansers	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Red-breasted merganser	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Ruddy duck	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Scoters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Tundra swan	Wintering			100S													-	Feb-Mar	Oct-Nov	-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
Diadromous	Alewife	Migration			Present													-	-	May-Aug	Jul-Mar	-
	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
Estuarine Nursery	Blueback herring	Migration			Present													-	-	May-Jul	Aug-Oct	-
	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Manatee	West Indian manatee																-	-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)




BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	SAV	Submerged aquatic veg																-	-	-	-



BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Waterfowl	American black duck																Apr-May	-	-	-
		Wood duck																Mar-Jun	-	-	-



FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous	American eel																-	-	Jan-Jun	Jan-Dec	Aug-Dec
		American shad																-	-	Mar-Jul	May-Nov	-
		Gizzard shad																-	-	-	Oct-Mar	-
		Hickory shad																-	-	-	-	Jan-Apr
		Striped bass																Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Estuarine Nursery	Atlantic croaker																-	-	Dec-Feb	Jan-Dec	Jan-Dec
		Atlantic menhaden																-	-	Dec-Jun	Jan-Dec	Mar-Nov
		Bay anchovy																Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
		Black drum																-	-	-	Jan-Dec	Jun-Nov
		Bluefish																-	-	-	May-Oct	May-Nov
	Hogchoker																	-	-	-	Jan-Dec	Jan-Dec
	Ladyfish																	-	-	-	May-Oct	-
	Pinfish																	-	-	Dec-May	Feb-Oct	Apr-Oct
	Red drum																	-	-	Jul-Oct	Jan-Dec	-
	Sheepshead																	-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish																	-	-	-	May-Dec	Jul-Nov
	Spot																	-	-	Jan-Apr	Jan-Dec	Apr-Oct
	Spotted seatrout																	-	-	-	Jan-Dec	Mar-Dec
	Striped mullet																	-	-	-	Jan-Dec	Apr-Nov
	Summer flounder																	-	-	Oct-May	Jan-Dec	-
	Weakfish																	Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Jan-Dec
	Weakfish																	Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Mar-Oct
	White mullet																	-	-	-	Jan-Dec	Jan-Dec
	White perch																	-	-	Apr-Jul	Apr-Aug	Jan-Dec
	Estuarine Resident	Inland silverside																Mar-Aug	Mar-Aug	Jun-Sep	Jan-Dec	-
		Silver perch																Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-

FISH (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Freshwater													May-Sep	May-Jun	Jun-Apr	-
	Striped killifish													May-Jun	May-Jun	-	Jan-Dec
	Longnose bass													Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	-	Jan-Dec	Jan-Dec
	Marine Benthic													Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	Jun-Sep	-
	Atlantic needlefish													May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	Jul-Nov	May-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Crab													-	May-Oct	-	Jan-Dec
	Blue crab													-	-	Jan-Dec	Jan-Dec
	Shrimp													-	Feb-Apr	Mar-Aug	-
	Brown shrimp													-	May-Nov	Jan-Dec	-
	Pink shrimp													-	Jun-Dec	Dec-Feb	-
	White shrimp													-	-	-	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Dolphin													Sep-Oct	Sep-Oct	-	-
	Bottlenose dolphin													-	-	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	445.51	0.70
10B	Freshwater Marshes	48.71	0.08
10C	Swamps	287.87	0.45
10D	Scrub and Shrub Wetlands	53.41	0.08
9A	Sheltered Tidal Flats	4.01	0.01
7	Exposed Tidal Flats	332.80	0.52

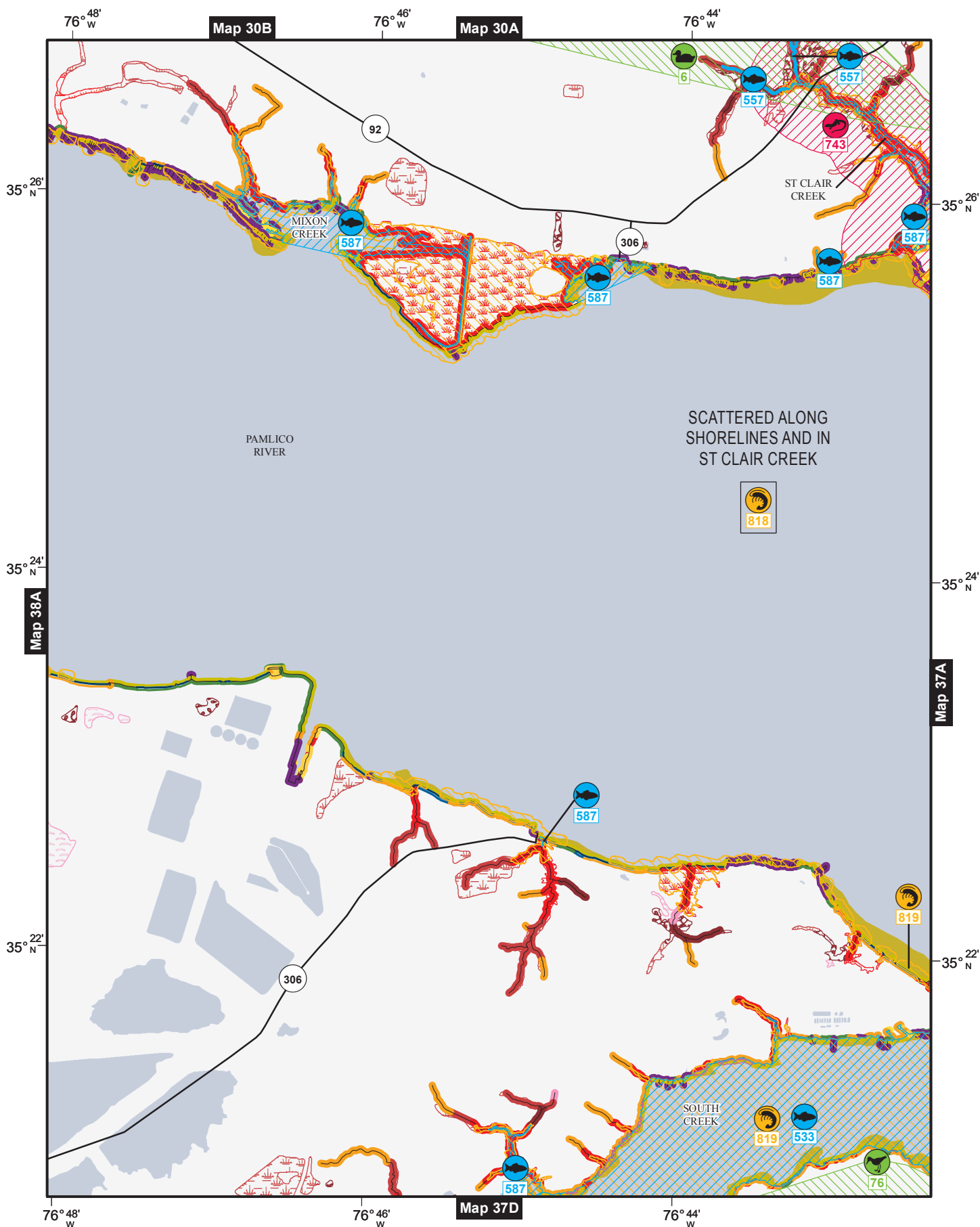
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	43,847.31	27.25	33%
10C	Swamps	3,425.88	2.13	3%
10D	Scrub-shrub wetlands	2,685.23	1.67	2%
9A	Sheltered tidal flats	1,914.11	1.19	1%
9B	Sheltered, vegetated low banks	26,351.08	16.37	20%
8B	Sheltered, solid man-made structures	3,982.80	2.47	3%
8C	Sheltered riprap	531.50	0.33	< 1%
7	Exposed tidal flats	26,054.50	16.19	20%
6B	Exposed riprap	9,472.46	5.89	7%
3A	Fine- to medium-grained sand beaches	1,756.70	1.09	1%
3B	Scarps and steep slopes in sand	16.53	0.01	< 1%
1B	Exposed, solid man-made structures	12,370.68	7.69	9%
Total ESI Shoreline:		132,408.79	82.28	
Total Shoreline:		94,767.26	58.89	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov

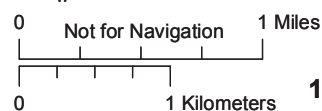




Map 37B
North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



1:50,000

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
SAV	Submerged aquatic veg	High Ecological Value			Present	J	F	M	A	M	J	J	A	S	O	N	D

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig.(S)	Mig.(F)	Juveniles	Molt
6	Waterfowl	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
76	Waterfowl	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Shorebird	Black-necked stilt	Nesting			-												May-Aug	-	-	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
533	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
557	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
587	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Interment	Juveniles	Adults				
							J	F	M	A	M	J	J	A	S	O	N	D									
743	Snake	Rainbow snake	Vulnerable Occurrence	-	-														May-Sep	Aug-Nov	-	-					

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D				
818	Shrimp	Brown shrimp	Nursery Area			Abundant										-	Feb-Apr	Mar-Aug	-			
	Shrimp	Pink shrimp	Nursery Area			Rare										-	May-Nov	Jan-Dec	-			
	Shrimp	White shrimp	Nursery Area			Common										-	Jun-Dec	Jul-Feb	-			
819	Shrimp	Brown shrimp	Nursery Area			Abundant										-	Feb-Apr	Mar-Aug	-			
	Shrimp	White shrimp	Nursery Area			Common										-	Jun-Dec	Jul-Feb	-			

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

[illegible]

FISH

[illegible]

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				

	Manatee	West Indian manatee			-													-	-	-	-
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ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				

	Submerged aquatic veg																				
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BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				



	American black duck																	Apr-May	-	-	-
	Wood duck																	Mar-Jun	-	-	-

FISH


Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					

	American eel																	-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad																	-	-	Mar-Jul	May-Nov	-
	Gizzard shad																	-	-	-	Oct-Mar	-
	Hickory shad																	-	-	-	-	Jan-Apr
	Striped bass																	Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker																	-	-	Dec-Feb	Jan-Dec	Jan-Dec
	Atlantic menhaden																	-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy																	Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum																	-	-	-	Jan-Dec	Jun-Nov
	Bluefish																	-	-	-	May-Oct	May-Nov
	Hogchoker																	-	-	-	Jan-Dec	Jan-Dec
	Ladyfish																	-	-	-	May-Oct	-
	Pinfish																	-	-	Dec-May	Feb-Oct	Apr-Oct
	Red drum																	-	-	Jul-Oct	Jan-Dec	-
	Sheepshead																	-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish																	-	-	-	May-Dec	Jul-Nov
	Spot																	-	-	Jan-Apr	Jan-Dec	Apr-Oct
	Spotted seatrout																	-	-	-	Jan-Dec	Mar-Dec
	Striped mullet																	-	-	-	Jan-Dec	Apr-Nov
	Summer flounder																	-	-	Oct-May	Jan-Dec	-
	Weakfish																	Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Mar-Oct
	White mullet																	-	-	-	Jan-Dec	Jan-Dec
	White perch																	-	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside																	Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch																	Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish																	May-Sep	May-Sep	Jun-Sep	Jun-Apr	-

FISH (contained)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Freshwater													Apr-Oct	Apr-Oct	-	Jan-Dec	Jan-Dec
														May-Jun	May-Jun	May-Jun	-	Jan-Dec
														Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
														Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Marine Benthic													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
														-	-	-	Jun-Sep	-
														May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
														-	-	-	Jul-Nov	May-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Crab													-	-	-	Jan-Dec	Jan-Dec
	Shrimp													-	-	Feb-Apr	Mar-Aug	-
														May-Aug	May-Aug	-	-	-
														-	-	May-Nov	Jan-Dec	-
														-	-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Dolphin													Sep-Oct	Sep-Oct	-	-
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	527.09	0.82
10B	Freshwater Marshes	35.30	0.06
10C	Swamps	265.14	0.41
10D	Scrub and Shrub Wetlands	92.03	0.14
9A	Sheltered Tidal Flats	0.98	0.00
7	Exposed Tidal Flats	499.68	0.78

ESI SHORELINE HABITAT TYPES

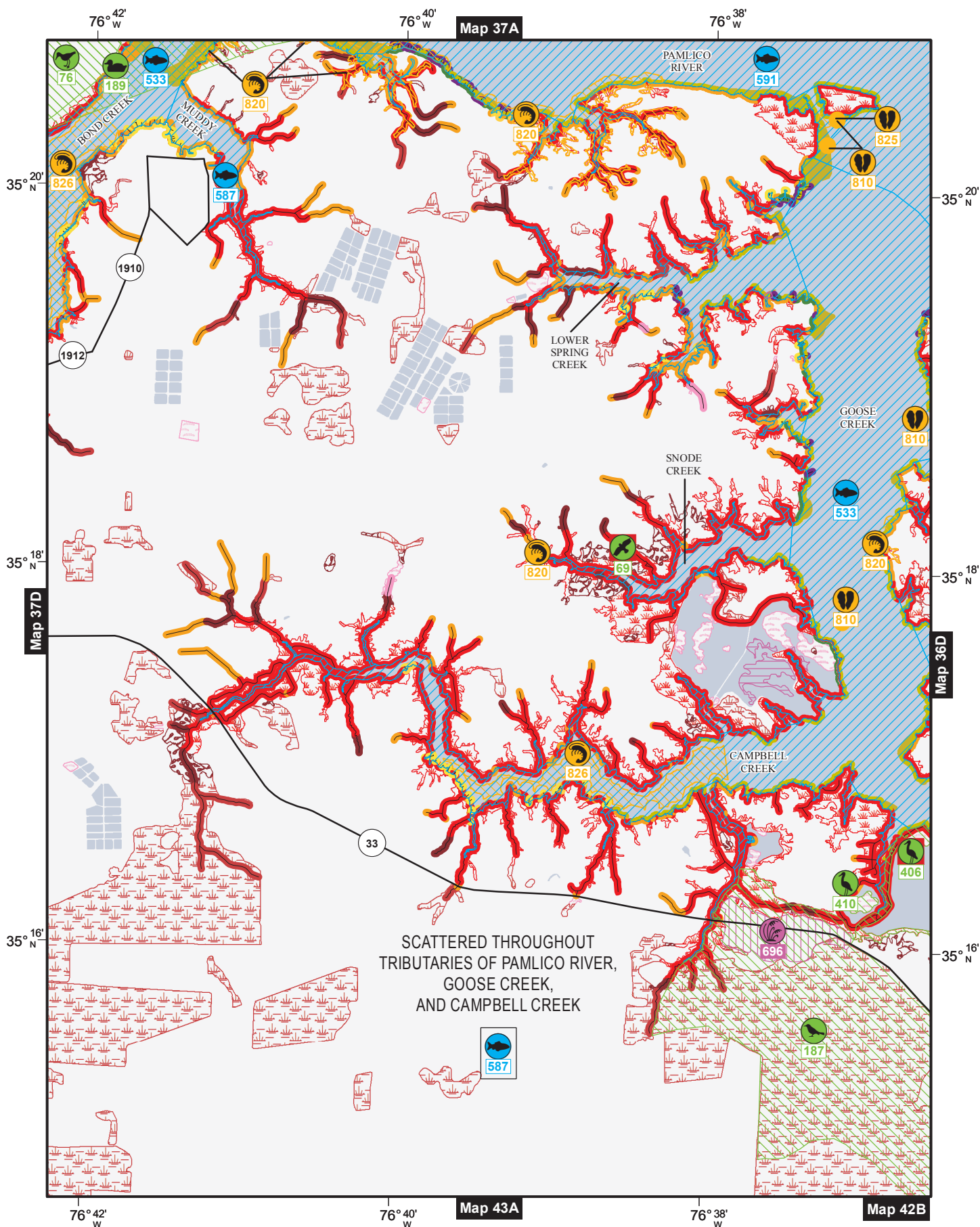
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	31,151.80	19.36	24%
10B	Freshwater marshes	228.74	0.14	< 1%
10C	Swamps	7,032.91	4.37	5%
10D	Scrub-shrub wetlands	2,865.10	1.78	2%
9A	Sheltered tidal flats	378.89	0.24	< 1%
9B	Sheltered, vegetated low banks	22,307.43	13.86	17%
8B	Sheltered, solid man-made structures	1,796.96	1.12	1%
8C	Sheltered riprap	831.50	0.52	1%
7	Exposed tidal flats	31,769.53	19.74	24%
6B	Exposed riprap	9,888.85	6.14	8%
3A	Fine- to medium-grained sand beaches	8,839.20	5.49	7%
3B	Scarps and steep slopes in sand	451.91	0.28	< 1%
1B	Exposed, solid man-made structures	12,899.76	8.02	10%

Total ESI Shoreline: 130,442.58 Total ESI Shoreline: 81.05
 Total Shoreline: 85,751.09 Total Shoreline: 53.28

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
SAV	Submerged aquatic veg	High Ecological Value			Present	J	F	M	A	M	J	J	A	S	O	N	D

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig.(S)	Mig.(F)	Molt
69	Raptor	Bald eagle	Nesting	T		1 Pair													Jan-Jun	-	-	-
76	Shorebird	Black-necked stilt	Nesting			-													May-Aug	-	-	-
187	Passerine	Black-throated green warbler	Nesting			-													Apr-Aug	-	-	-
189	Waterfowl	American coot	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	American wigeon	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Canada goose	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Mergansers	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern pintail	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Red-breasted merganser	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Ruddy duck	Wintering			10000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Sooters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Surf scoter	Wintering			100S													-	Feb-Mar	Oct-Nov	-
406	Wading	American bittern	Nesting			-													Apr-Aug	-	-	-
	Wading	Least bittern	Nesting	C		-													Apr-Aug	-	-	-
410	Wading	American bittern	Nesting			-													Apr-Aug	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
533	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
587	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
591	Diadromous	Alewife	Migration			Present													-	-	May-Aug	Jul-Mar	-
	Diadromous	Blueback herring	Migration			Present													-	-	May-Jul	Aug-Oct	-

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
696	Wetland	Rare wetland community	Vulnerable Occurrence			Current	J	F	M	A	M	J	J	A	S	O	N	D

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
810	Bivalve	Eastern oyster	Concentration Area			High	J	F	M	A	M	J	J	A	S	O	N	D
820	Shrimp	Pink shrimp	Nursery Area			Rare												
825	Bivalve	Eastern oyster	Concentration Area			Abundant												
826	Shrimp	Brown shrimp	Nursery Area			-												

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
Diving	Common loon	Wintering			100S	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-
	Horned grebe	Wintering			10S													-	-	-	-
Waterfowl	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American coot	Migration			1000S													-	Feb-Mar	Oct-Nov	-
	American coot	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Ruddy duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Scaup	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Scooters	Wintering			100S													-	Feb-Mar	Oct-Nov	-

BIRDS (contained)

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	Feb-May	Jan-Dec
	Tundra swan	Wintering			100S													-	Feb-Mar	Oct-Nov	Feb-May	Jan-Dec
	Waterfowl	Wintering			100S													-	Feb-Mar	Oct-Nov	Feb-May	Jan-Dec
	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	Feb-May	Jan-Dec

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Jan-Dec	Jan-Dec
	Atlantic sturgeon	General Distribution	C		-													-	-	-	Feb-May	Jan-Dec
	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	Jan-Dec

INVERTEBRATES

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	West Indian manatee	General Distribution	E		-													-	-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BENTHIC






Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Submerged aquatic veg												

BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck													Apr-May	-	-	-
	Wood duck													Mar-Jun	-	-	-

FISH

Monthly Presence

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Gizzard shad													-	-	-	Oct-Mar	-
	Hickory shad													-	-	-	-	Jan-Apr
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Dec-Feb	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Jan-Dec	Jun-Nov
	Bluefish													-	-	-	May-Oct	May-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	May-Oct	-
	Pinfish													-	-	Dec-May	Feb-Oct	Apr-Oct
	Red drum													-	-	Jul-Oct	Jan-Dec	-
	Sheepshead													-	-	-	Jan-Nov	Jun-Oct
	Southern kingfish													-	-	-	May-Dec	Jul-Nov
	Spot													-	-	Jan-Apr	Jan-Dec	Apr-Oct
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	-	Jan-Dec	Apr-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	-
	Weakfish													Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Mar-Oct
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													-	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	-	Jul-Nov	May-Aug

INVERTEBRATES

Monthly Presence

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement
Dolphin



Species
Bottlenose dolphin

Monthly Presence



Calving
Sep-Oct

Pupping
-

Molt
-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	1,562.44	2.44
10B	Freshwater Marshes	110.88	0.17
10C	Swamps	2,711.23	4.24
10D	Scrub and Shrub Wetlands	206.40	0.32
9A	Sheltered Tidal Flats	40.15	0.06
7	Exposed Tidal Flats	243.21	0.38

ESI SHORELINE HABITAT TYPES

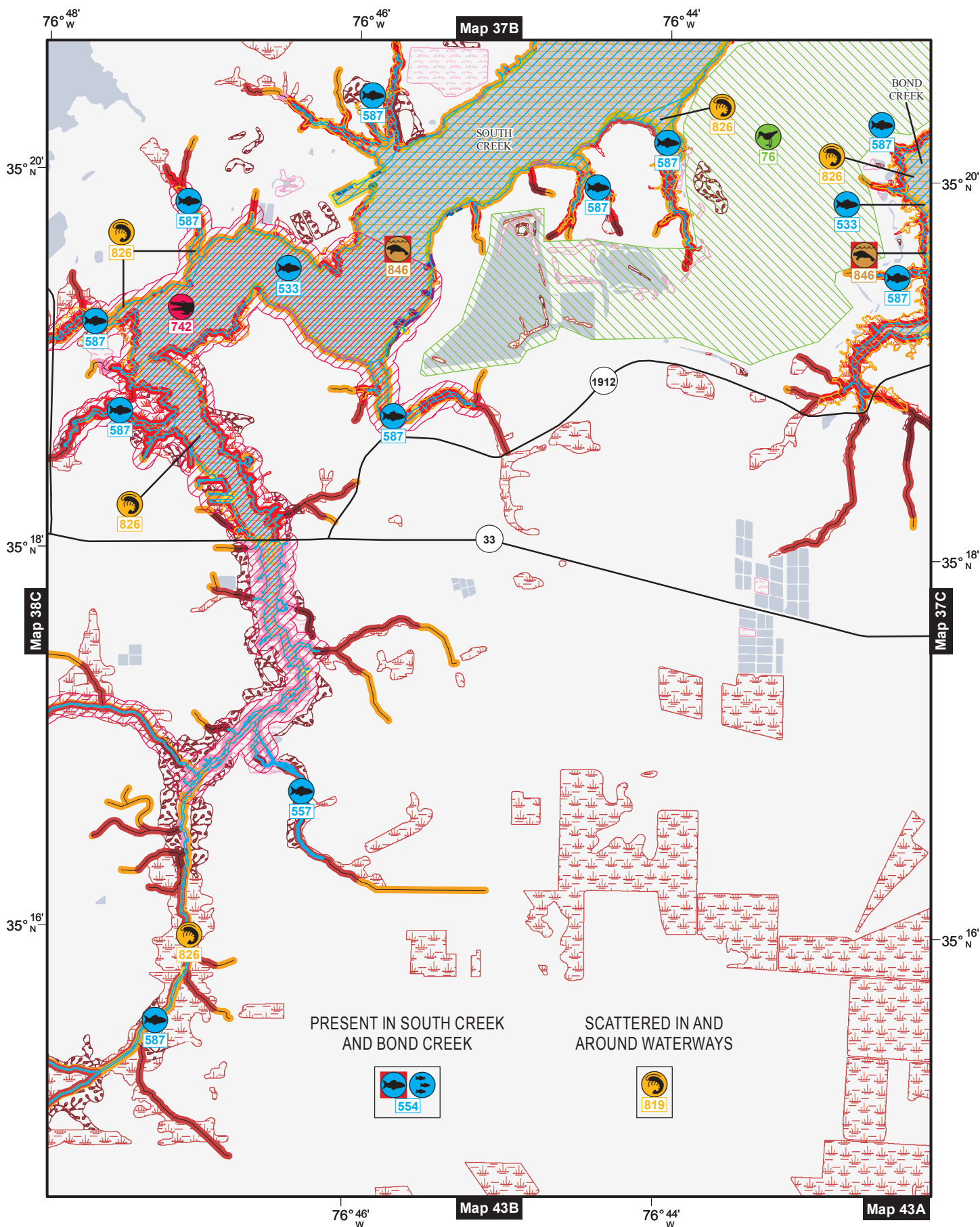
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	126,753.08	78.76	57%
10B	Freshwater marshes	566.88	0.35	< 1%
10C	Swamps	7,050.89	4.38	3%
10D	Scrub-shrub wetlands	8,104.88	5.04	4%
9A	Sheltered tidal flats	6,910.09	4.29	3%
9B	Sheltered, vegetated low banks	29,600.09	18.39	13%
8B	Sheltered, solid man-made structures	4,639.04	2.88	2%
8C	Sheltered riprap	1,092.28	0.68	< 1%
7	Exposed tidal flats	31,789.76	19.75	14%
6B	Exposed riprap	3,867.68	2.40	2%
3A	Fine- to medium-grained sand beaches	1,038.00	0.64	< 1%
1B	Exposed, solid man-made structures	2,559.03	1.59	1%

Total ESI Shoreline: 223,971.70 Total ESI Shoreline: 139.17
Total Shoreline: 179,737.25 Total Shoreline: 111.68

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 37D
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
SAV	Submerged aquatic veg	High Ecological Value			Present	J	F	M	A	M	J	J	A	S	O	N	D

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig.(S)	Mig.(F)	Juveniles	Adults	Molt
76	Shorebird	Black-necked stilt	Nesting			-													May-Aug	-	-	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
533	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present												-	-	May-Jul	Jul-Oct	-	
	Diadromous	American shad	Spawning Area			Present												Apr-Jun	Apr-Jun	May-Jul	Feb-May	-	
554	Diadromous	Atlantic sturgeon	General Distribution	C		-												-	-	-	Jan-Dec	Jan-Dec	
	Diadromous	Atlantic sturgeon	Spawning Area	C		-												Sep-May*	Sep-May*	Sep-May*	-	-	
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant												-	-	Dec-Mar	Jan-Dec	-	
557	Diadromous	Alewife	Spawning Area			Present												Mar-Jul	Mar-Jul	May-Aug	-	-	
	Diadromous	American shad	Spawning Area			Present												Apr-Jun	Apr-Jun	May-Jul	Feb-May	-	
	Diadromous	Blueback herring	Spawning Area			Present												Mar-Jul	Mar-Jul	May-Jul	-	-	
587	Diadromous	Alewife	Spawning Area			Present												Mar-Jul	Mar-Jul	May-Aug	-	-	
	Diadromous	Blueback herring	Spawning Area			Present												Mar-Jul	Mar-Jul	May-Jul	-	-	

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Hatch	Internest	Juveniles	Adults
742	Alligator	American alligator	Vulnerable Occurrence			-													May-Jul	Jul-Sep	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence																Spawn	Eggs	Larvae	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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819	Shrimp	Brown shrimp	Nursery Area			Abundant																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	

MARINE MAMMALS


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Calving	Pupping	Molt
							J	F	M	A	M	J	J	A	S	O	N	D			

846	Manatee	West Indian manatee	General Distribution	E	E	-													-	-	-
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WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				

	American black duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	American black duck	Wintering	-	-	100S													-	Feb-Mar	Oct-Nov	-
	American coot	Wintering	-	-	100S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering	-	-	100S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Black scoter	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering	-	-	1000S													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Canada goose	Wintering	-	-	100S													-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering	-	-	100S													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Greater scaup	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Lesser scaup	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Mergansers	Wintering	-	-	1000S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering	-	-	100S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-

	Northern shoveler	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering	-	-	100S													-	Feb-Mar	Oct-Nov	-
	Red-breasted merganser	Wintering	-	-	1000S													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Ring-necked duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Ruddy duck	Wintering	-	-	10000S													-	Feb-Mar	Oct-Nov	-
	Scaup	Wintering	-	-	1000S													-	Feb-Mar	Oct-Nov	-
	Scoters	Wintering	-	-	1000S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering	-	-	100S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Tundra swan	Wintering	-	-	100S													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-

BENTHIC

Subelement	Species
SAV	Submerged aquatic veg



BIRDS

Subelement	Species
Waterfowl	American black duck
	Wood duck



FISH

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
Diadromous	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Gizzard shad													-	-	-	Oct-Mar	-
	Hickory shad													-	-	-	-	Jan-Apr
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
Estuarine Nursery	Atlantic croaker													-	-	Dec-Feb	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Jan-Dec	Jun-Nov
	Bluefish													-	-	-	May-Oct	May-Nov
Hogchoker	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	May-Oct	-
	Pinfish													-	-	Dec-May	Feb-Oct	Apr-Oct
	Red drum													-	-	Jul-Oct	Jan-Dec	-
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
Southern kingfish	Southern kingfish													-	-	-	May-Dec	Jul-Nov
	Spot													-	-	Jan-Apr	Jan-Dec	Apr-Oct
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	-	Jan-Dec	Apr-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	-
Weakfish	Weakfish													Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Mar-Oct
	White perch													-	-	Apr-Jul	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Sep	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
Freshwater	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
Marine Benthic	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	-	Jul-Nov	May-Aug
														-	-	-	-	-

INVERTEBRATES

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
Crab	Blue crab												

MARINE MAMMALS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
Dolphin	Bottlenose dolphin												

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	442.97	0.69
10B	Freshwater Marshes	348.94	0.55
10C	Swamps	2,220.60	3.47
10D	Scrub and Shrub Wetlands	419.11	0.65
9A	Sheltered Tidal Flats	5.11	0.01
7	Exposed Tidal Flats	68.79	0.11

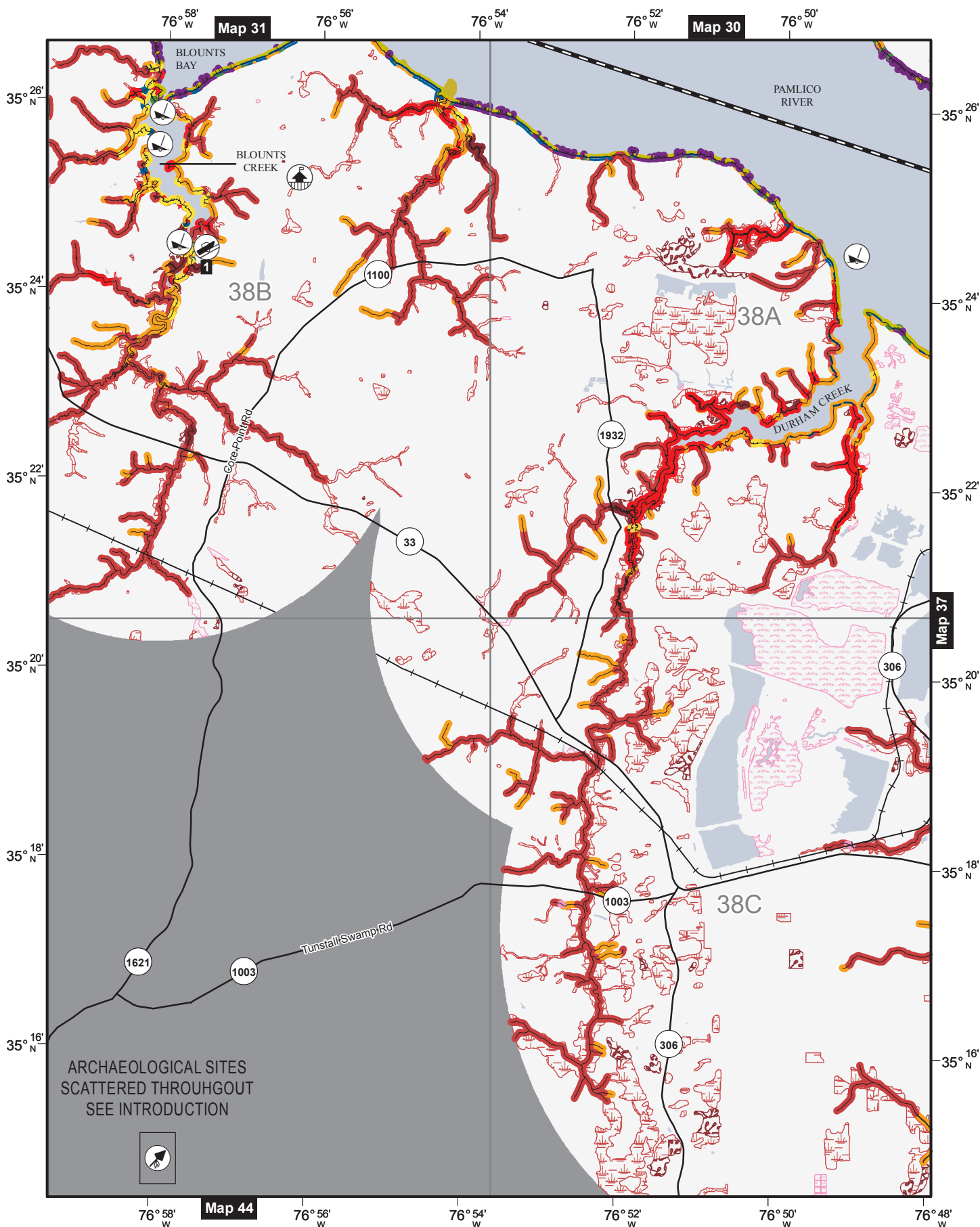
ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	46,043.96	28.61	34%
10B	Freshwater marshes	14,709.34	9.14	11%
10C	Swamps	19,803.16	12.31	15%
10D	Scrub-shrub wetlands	6,187.89	3.84	5%
9A	Sheltered tidal flats	2,089.40	1.30	2%
9B	Sheltered, vegetated low banks	31,708.19	19.70	23%
8B	Sheltered, solid man-made structures	944.56	0.59	1%
8C	Sheltered riprap	816.60	0.51	1%
7	Exposed tidal flats	11,390.79	7.08	8%
6B	Exposed riprap	203.13	0.13	< 1%
3A	Fine- to medium-grained sand beaches	1,337.28	0.83	1%
1B	Exposed, solid man-made structures	941.89	0.59	1%
Total ESI Shoreline:		136,176.19	84.62	
Total Shoreline:		116,741.53	72.54	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 38

North Carolina



SEE BACK OF MAP
for details about mapped resources and
other resources that occur in mapped area.
Data Published: November 2016

0 Not for Navigation 2 Miles
0 2 Kilometers

1:100,000



Map 38
North Carolina

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)				
Map ID	Type	Name	Contact	Phone
1	BOAT RAMP	BLOUNTS CREEK	RHEMS DEPOT	252-514-6582
ALSO PRESENT IN MAPPED AREA (POLYGONS)				
Type	Name	Contact	Phone	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; COASTAL MIG. PELAGICS	DAVID DALE, SOUTHEAST REGION	727-824-5317	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SPINY LOBSTER	DAVID DALE, SOUTHEAST REGION	727-824-5317	
ESSENTIAL HABITAT	HAPC; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317	
ESSENTIAL HABITAT	HAPC; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317	
STATE PROTECTED AREA	OUTSTANDING RESOURCE AND/OR HIGH QUALITY WATERS	NC DENR WATER QUALITY DIVISION		

JURISDICTIONS

COUNTY:	BEAUFORT	FEMA:	REGION 1
COAST GUARD:	DISTRICT 5, SECTOR NORTH CAROLINA	EPA:	REGION 4
USACE:	SOUTH ATLANTIC DIVISION, WILMINGTON DISTRICT		

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	369.40	0.58
10B	Freshwater Marshes	1,607.25	2.51
10C	Swamps	6,324.12	9.88
10D	Scrub and Shrub Wetlands	588.11	0.92
9A	Sheltered Tidal Flats	41.21	0.06
7	Exposed Tidal Flats	205.53	0.32

ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	48,429.64	30.09	15%
10B	Freshwater marshes	749.90	0.47	< 1%
10C	Swamps	153,167.71	95.17	47%
10D	Scrub-shrub wetlands	8,380.77	5.21	3%
9A	Sheltered tidal flats	7,365.34	4.58	2%
9B	Sheltered, vegetated low banks	48,052.33	29.86	15%
8B	Sheltered, solid man-made structures	8,056.62	5.01	2%
8C	Sheltered riprap	128.29	0.08	< 1%
7	Exposed tidal flats	19,731.34	12.26	6%
6B	Exposed riprap	3,762.23	2.34	1%
3A	Fine- to medium-grained sand beaches	12,605.29	7.83	4%
3B	Scarps and steep slopes in sand	4,581.05	2.85	1%
1B	Exposed, solid man-made structures	13,096.85	8.14	4%
Total ESI Shoreline:		328,107.38	203.88	
Total Shoreline:		276,347.26	171.71	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov



Map 38A
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
69	Raptor	Bald eagle	Nesting	T		1 Pair													Jan-Jun	-	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
557	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
587	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
743	Snake	Rainbow snake	Vulnerable Occurrence			-													May-Sep	Aug-Nov	-	Jan-Dec	Jan-Dec
780	Frog	Southern chorus frog	Vulnerable Occurrence			-													-	-	-	-	Jan-Dec


INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
818	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	Pink shrimp	Nursery Area			Rare													-	-	May-Nov	Jan-Dec	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-
825	Bivalve	Eastern oyster	Concentration Area			Abundant													May-Nov	May-Nov	May-Nov	Jan-Dec	Jan-Dec

TERRESTRIAL MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
							J	F	M	A	M	J	J	A	S	O	N	D
859	Small Mammal	Dismal Swamp bog lemming	Vulnerable Occurrence			-												

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	American black duck	Wintering	100S		100S													-	Feb-Mar	Oct-Nov	-
	American coot	Wintering	100S		100S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering	100S		100S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Black scoter	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering	1000S		1000S													-	Feb-Mar	Oct-Nov	-
	Canada goose	Wintering	100S		100S													-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering	100S		100S													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Greater scaup	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Lesser scaup	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Mergansers	Wintering	1000S		1000S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering	100S		100S													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering	100S		100S													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Red-breasted merganser	Wintering	1000S		1000S													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Ring-necked duck	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Ruddy duck	Wintering	10000S		10000S													-	Feb-Mar	Oct-Nov	-
	Scaup	Wintering	1000S		1000S													-	Feb-Mar	Oct-Nov	-
	Scoters	Wintering	1000S		1000S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering	100S		100S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Tundra swan	Wintering	100S		100S													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering	-		-													-	Feb-Mar	Oct-Nov	-

FISH


Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D				
	Diadromous	Alewife			Present													-	May-Aug	Jul-Mar	-
		Alewife			Present													-	May-Aug	Jul-Oct	-
	American shad	Spawning Area			Present													Apr-Jun	May-Jul	Feb-May	-
	Atlantic sturgeon	General Distribution	C		-													-	-	Jan-Dec	Jan-Dec
	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	-	-
	Blueback herring	Migration			Present													-	May-Jul	Aug-Oct	-
	Blueback herring	Nursery Area			Present													-	May-Jul	Jul-Oct	-
	Southern flounder	Concentration Area			Abundant													-	Dec-Mar	Jan-Dec	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D			
	Manatee	West Indian manatee			-													-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)



BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
						J	F	M	A	M	J	J	A	S	O	N	D
	SAV	Submerged aquatic veg															




BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Waterfowl	American black duck																Apr-May	-	-	-
		Wood duck																Mar-Jun	-	-	-



FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D				
	Diadromous	American eel																-	Jan-Jun	Jan-Dec	Aug-Dec
		American shad																-	Mar-Jul	May-Nov	-
	Gizzard shad																	-	-	Oct-Mar	-
	Hickory shad																	-	-	-	Jan-Apr
	Striped bass																	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker																	-	Dec-Feb	Jan-Dec	Jan-Dec
	Atlantic menhaden																	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy																	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum																	-	-	Jan-Dec	Jun-Nov
	Bluefish																	-	-	May-Oct	May-Nov
	Hogchoker																	-	-	Jan-Dec	Jan-Dec
	Ladyfish																	-	-	May-Oct	-
	Pinfish																	-	Dec-May	Feb-Oct	Apr-Oct
	Red drum																	-	Jul-Oct	Jan-Dec	-

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish													-	-	-	May-Dec	Jul-Nov
	Spot													-	-	Jan-Apr	Jan-Dec	Apr-Oct
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	-	Jan-Dec	Apr-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	-
	Weakfish													Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Mar-Oct
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													-	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Bluegill													Apr-Oct	Apr-Oct	-	Jan-Dec	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	-	Jul-Nov	May-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	301.29	0.47
10B	Freshwater Marshes	466.52	0.73
10C	Swamps	1,632.33	2.55
10D	Scrub and Shrub Wetlands	256.48	0.40
9A	Sheltered Tidal Flats	41.11	0.06
7	Exposed Tidal Flats	113.95	0.18

ESI SHORELINE HABITAT TYPES

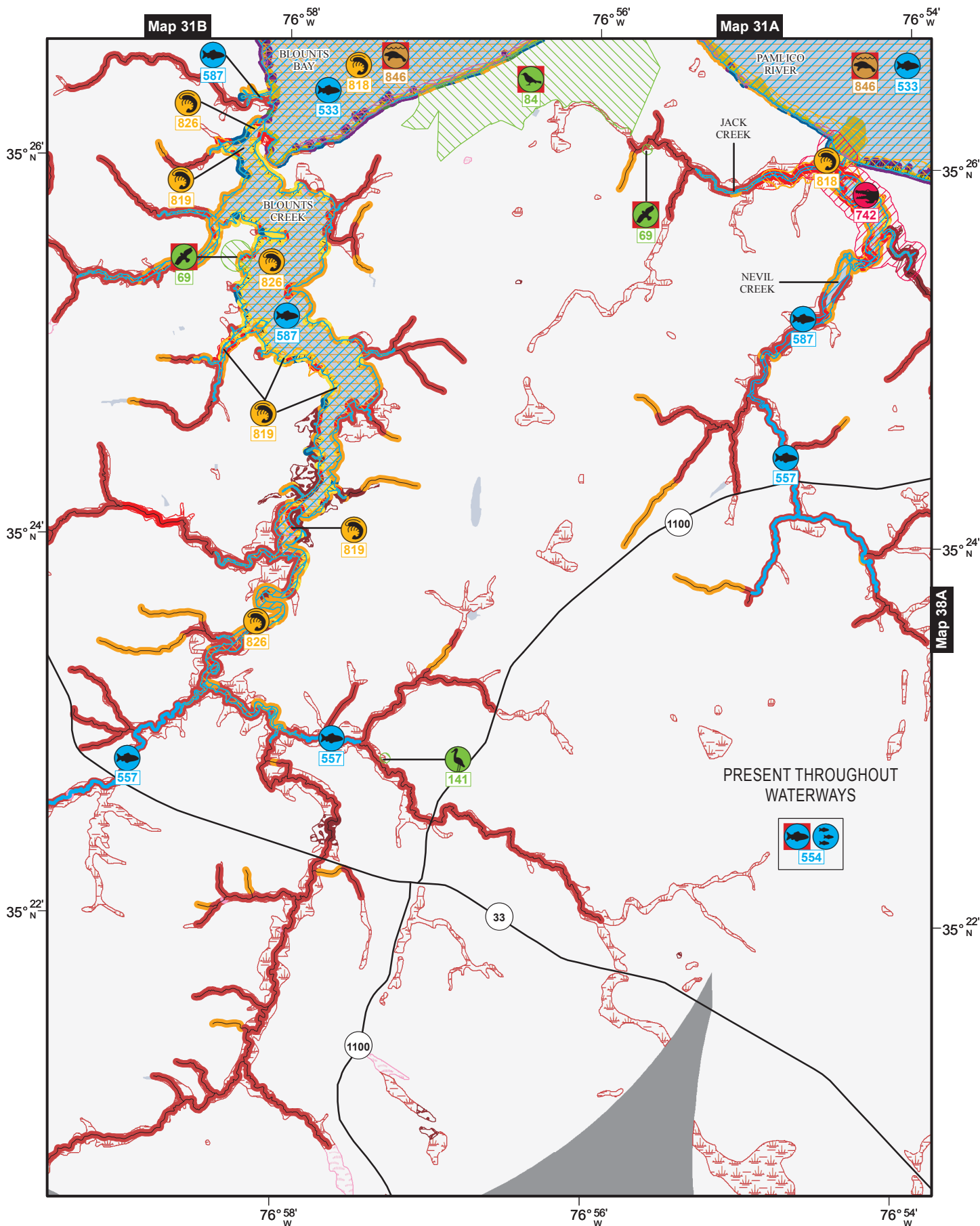
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	32,971.97	20.49	26%
10C	Swamps	32,733.51	20.34	26%
10D	Scrub-shrub wetlands	2,582.03	1.60	2%
9A	Sheltered tidal flats	7,307.02	4.54	6%
9B	Sheltered, vegetated low banks	17,167.62	10.67	14%
8B	Sheltered, solid man-made structures	330.21	0.21	< 1%
8C	Sheltered riprap	128.29	0.08	< 1%
7	Exposed tidal flats	12,215.22	7.59	10%
6B	Exposed riprap	2,668.57	1.66	2%
3A	Fine- to medium-grained sand beaches	7,713.09	4.79	6%
3B	Scarps and steep slopes in sand	1,506.00	0.94	1%
1B	Exposed, solid man-made structures	8,333.64	5.18	7%

Total ESI Shoreline: 125,657.15 Total ESI Shoreline: 78.08
 Total Shoreline: 94,323.43 Total Shoreline: 58.61

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 38B
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
SAV	Submerged aquatic veg	High Ecological Value			Present	J	F	M	A	M	J	J	A	S	O	N	D

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
69	Raptor	Bald eagle	Nesting	T		1 Pair	J	F	M	A	M	J	J	A	S	O	N	D
84	Passerine	Red-cockaded woodpecker	Vulnerable Occurrence	E	E	-												
141	Wading	Great blue heron	Nesting			2 Pairs	J	F	M	A	M	J	J	A	S	O	N	D

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
533	Diadromous	Alewife	Nursery Area			Present	J	F	M	A	M	J	J	A	S	O	N	D
554	Diadromous	Blueback herring	Nursery Area			Present												
	Diadromous	American shad	Spawning Area			Present												
	Diadromous	Atlantic sturgeon	General Distribution	C		-												
557	Diadromous	Atlantic sturgeon	Spawning Area	C		-												
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant												
	Diadromous	Alewife	Spawning Area			Present												
587	Diadromous	American shad	Spawning Area			Present												
	Diadromous	Blueback herring	Spawning Area			Present												
	Diadromous	Alewife	Spawning Area			Present												
	Diadromous	Blueback herring	Spawning Area			Present												

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
742	Alligator	American alligator	Vulnerable Occurrence			-	J	F	M	A	M	J	J	A	S	O	N	D

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
818	Shrimp	Brown shrimp	Nursery Area			Abundant	J	F	M	A	M	J	J	A	S	O	N	D
819	Shrimp	Pink shrimp	Nursery Area			Rare												
	Shrimp	White shrimp	Nursery Area			Common												
	Shrimp	Brown shrimp	Nursery Area			Abundant												
826	Shrimp	White shrimp	Nursery Area			Common												
	Shrimp	Brown shrimp	Nursery Area			-												

MARINE MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				



WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	American black duck	Wintering	-	-	100S													-	Feb-Mar	Oct-Nov	-
	American coot	Wintering	-	-	100S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering	-	-	100S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Black scoter	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering	-	-	1000S													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Canada goose	Wintering	-	-	100S													-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering	-	-	100S													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Greater scaup	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Lesser scaup	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Mergansers	Wintering	-	-	1000S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering	-	-	100S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering	-	-	100S													-	Feb-Mar	Oct-Nov	-
	Red-breasted merganser	Wintering	-	-	1000S													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Ring-necked duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Ruddy duck	Wintering	-	-	10000S													-	Feb-Mar	Oct-Nov	-
	Scaup	Wintering	-	-	1000S													-	Feb-Mar	Oct-Nov	-
	Scoters	Wintering	-	-	1000S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering	-	-	100S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Tundra swan	Wintering	-	-	100S													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-

BENTHIC

Subelement	Species	Monthly Presence											
SAV	Submerged aquatic veg	J	F	M	A	M	J	J	A	S	O	N	D



BIRDS

Subelement	Species	Monthly Presence											
Waterfowl	American black duck	J	F	M	A	M	J	J	A	S	O	N	D
	Wood duck												



FISH

Subelement	Species	Monthly Presence											
Diadromous	American eel	J	F	M	A	M	J	J	A	S	O	N	D
	American shad												
	Gizzard shad												
	Hickory shad												
	Striped bass												
Estuarine Nursery	Atlantic croaker												
	Atlantic menhaden												
	Bay anchovy												
	Black drum												
	Bluefish												
	Hogchoker												
	Ladyfish												
	Pinfish												
	Red drum												
	Sheepshead												
	Southern kingfish												
	Spot												
	Spotted seatrout												
	Striped mullet												
	Summer flounder												
	Weakfish												
	White mullet												
	White perch												
Estuarine Resident	Inland silverside												
	Silver perch												
	Striped killifish												
Freshwater	Bluegill												
	Largemouth bass												
	Longnose gar												
	Redfin pickerel												
	Yellow perch												

FISH (contained)

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Atlantic spadefish												
	Atlantic needlefish												
	Spanish mackerel												

INVERTEBRATES

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Blue crab												
	Brown shrimp												
	Pink shrimp												
	White shrimp												

MARINE MAMMALS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Bottlenose dolphin												

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	65.25	0.10
10B	Freshwater Marshes	28.71	0.04
10C	Swamps	1,653.91	2.58
10D	Scrub and Shrub Wetlands	86.50	0.14
9A	Sheltered Tidal Flats	0.10	0.00
7	Exposed Tidal Flats	91.71	0.14

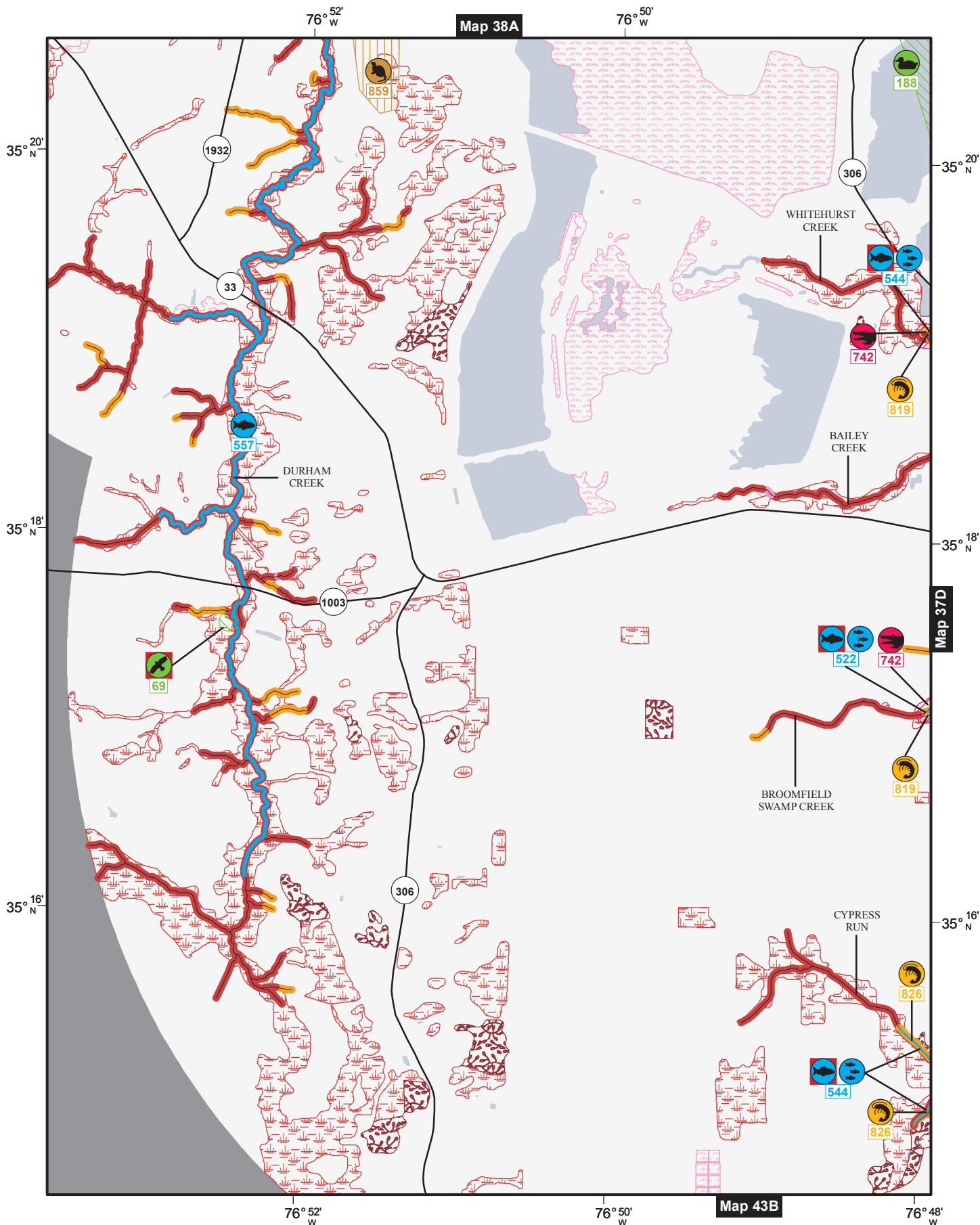
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	15,268.42	9.49	10%
10B	Freshwater marshes	442.52	0.27	< 1%
10C	Swamps	76,220.27	47.36	50%
10D	Scrub-shrub wetlands	5,798.74	3.60	4%
9A	Sheltered tidal flats	58.32	0.04	< 1%
9B	Sheltered, vegetated low banks	24,309.81	15.11	16%
8B	Sheltered, solid man-made structures	7,726.42	4.80	5%
7	Exposed tidal flats	7,524.70	4.68	5%
6B	Exposed riprap	1,093.66	0.68	1%
3A	Fine- to medium-grained sand beaches	4,897.35	3.04	3%
3B	Scarps and steep slopes in sand	3,080.20	1.91	2%
1B	Exposed, solid man-made structures	4,764.40	2.96	3%
Total ESI Shoreline:		151,184.82	93.94	
Total Shoreline:		130,742.60	81.24	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 38C

North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016

0 Not for Navigation 1 Miles
0 1 Kilometers

1:50,000



Map 38C
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
69	Raptor	Bald eagle	Nesting	T		1 Pair													Jan-Jun	-	-	-	-
188	Waterfowl	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	American coot	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	American wigeon	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Canada goose	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Mergansers	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Northern pintail	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Red-breasted merganser	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Ruddy duck	Wintering			10000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Scoters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Surf scoter	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Tundra swan	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
522	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
544	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
557	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
742	Alligator	American alligator	Vulnerable Occurrence			-													May-Jul	Jul-Sep	-	Jan-Dec	Jan-Dec

INVERTEBRATES


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
819	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
826	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-
	Shrimp	Brown shrimp	Nursery Area			-													-	-	Feb-Apr	Mar-Aug	-

TERRESTRIAL MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
859	Small Mammal	Dismal Swamp bog lemming	Vulnerable Occurrence			-																	


WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS





<div></div>	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
	Waterfowl	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
		American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-	

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt					
		J	F	M	A	M	J	J	A	S	O	N	D									
	Waterfowl																		Apr-May	-	-	-
	American black duck																					
	Wood duck																		Mar-Jun	-	-	-

FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Gizzard shad													-	-	-	Oct-Mar	-
	Hickory shad													-	-	-	-	Jan-Apr
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Dec-Feb	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Jan-Dec	Jun-Nov
	Bluefish													-	-	-	May-Oct	May-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	May-Oct	-
	Pinfish													-	-	Dec-May	Feb-Oct	Apr-Oct
	Red drum													-	-	Jul-Oct	Jan-Dec	-
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish													-	-	-	May-Dec	Jul-Nov
	Spot													-	-	Jan-Apr	Jan-Dec	Apr-Oct
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	-	Jan-Dec	Apr-Nov
	Summer flounder													-	-	-	Jan-Dec	-
	Weakfish													-	-	Oct-May	Jan-Dec	-
	White perch													Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Mar-Oct
	Inland silverside													-	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Silver perch													Mar-Aug	Mar-Aug	Jun-Sep	Jun-Nov	-
	Striped killifish													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Largemouth bass													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Longnose gar													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Redfin pickerel													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Yellow perch													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Atlantic spadefish													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic needlefish													-	-	-	Jun-Sep	-
	Spanish mackerel													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
														-	-	-	Jul-Nov	May-Aug

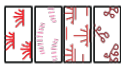
INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Crab													-	-	-	Jan-Dec	Jan-Dec
	Blue crab													-	-	-	Jan-Dec	Jan-Dec

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	2.86	0.00
10B	Freshwater Marshes	1,099.38	1.72
10C	Swamps	2,962.99	4.63
10D	Scrub and Shrub Wetlands	242.10	0.38



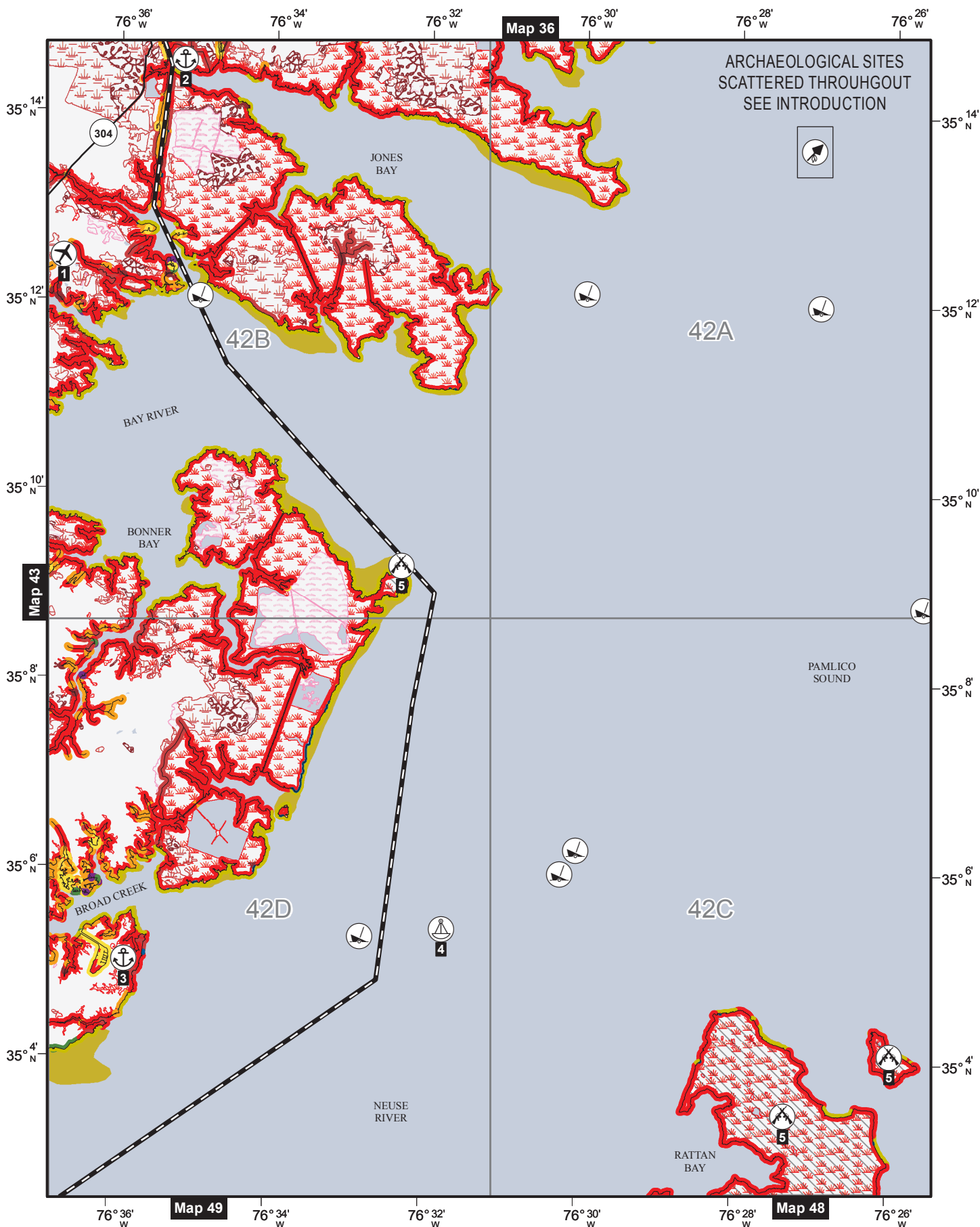
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	192.14	0.12	< 1%
10B	Freshwater marshes	204.87	0.13	< 1%
10C	Swamps	42,541.12	26.43	87%
9B	Sheltered, vegetated low banks	6,067.18	3.77	12%
Total ESI Shoreline:		49,005.31	30.45	
Total Shoreline:		49,005.31	30.45	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 42
North Carolina

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Phone
1	AIRPORT	BAY CREEK	252-745-3521
2	MARINA	R.E. MAYO SEAFOOD DOCKS	252-745-5331
3	MARINA	RIVER DUNES MARINA	252-249-4908
4	REPEATED MEASUREMENT SITE	MUSSEL WATCH SITE, NEUSE RIVER	

DISPLAYED ON MAP (POLYGONS)			
Map ID	Type	Name	Phone
5	MILITARY	MARINE CORPS AIR STATION CHERRY POINT	252-466-2811

ALSO PRESENT IN MAPPED AREA (POLYGONS)			
Type	Name	Contact	Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; COASTAL MIG. PELAGICS	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; CORAL	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SPINY LOBSTER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
STATE PROTECTED AREA	BLACK BEAR SANCTUARY	WEYERHAEUSER CO.	
STATE PROTECTED AREA	GAME LAND	NC WILDLIFE RESOURCES COMMISSION	
STATE PROTECTED AREA	OUTSTANDING RESOURCE AND/OR HIGH QUALITY WATERS	NC DENR WATER QUALITY DIVISION	
STATE PROTECTED AREA	WATERFOWL IMPOUNDMENT	NC WILDLIFE RESOURCES COMMISSION	

JURISDICTIONS			
COUNTY:	CARTERET, PAMLICO	FEMA:	REGION 1
COAST GUARD:	DISTRICT 5, SECTOR NORTH CAROLINA	EPA:	REGION 4
USACE:	SOUTH ATLANTIC DIVISION, WILMINGTON DISTRICT		

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	10,712.89	16.74
10B	Freshwater Marshes	1,133.63	1.77
10C	Swamps	2,286.28	3.57
10D	Scrub and Shrub Wetlands	971.05	1.52
9A	Sheltered Tidal Flats	27.92	0.04
7	Exposed Tidal Flats	2,040.04	3.19



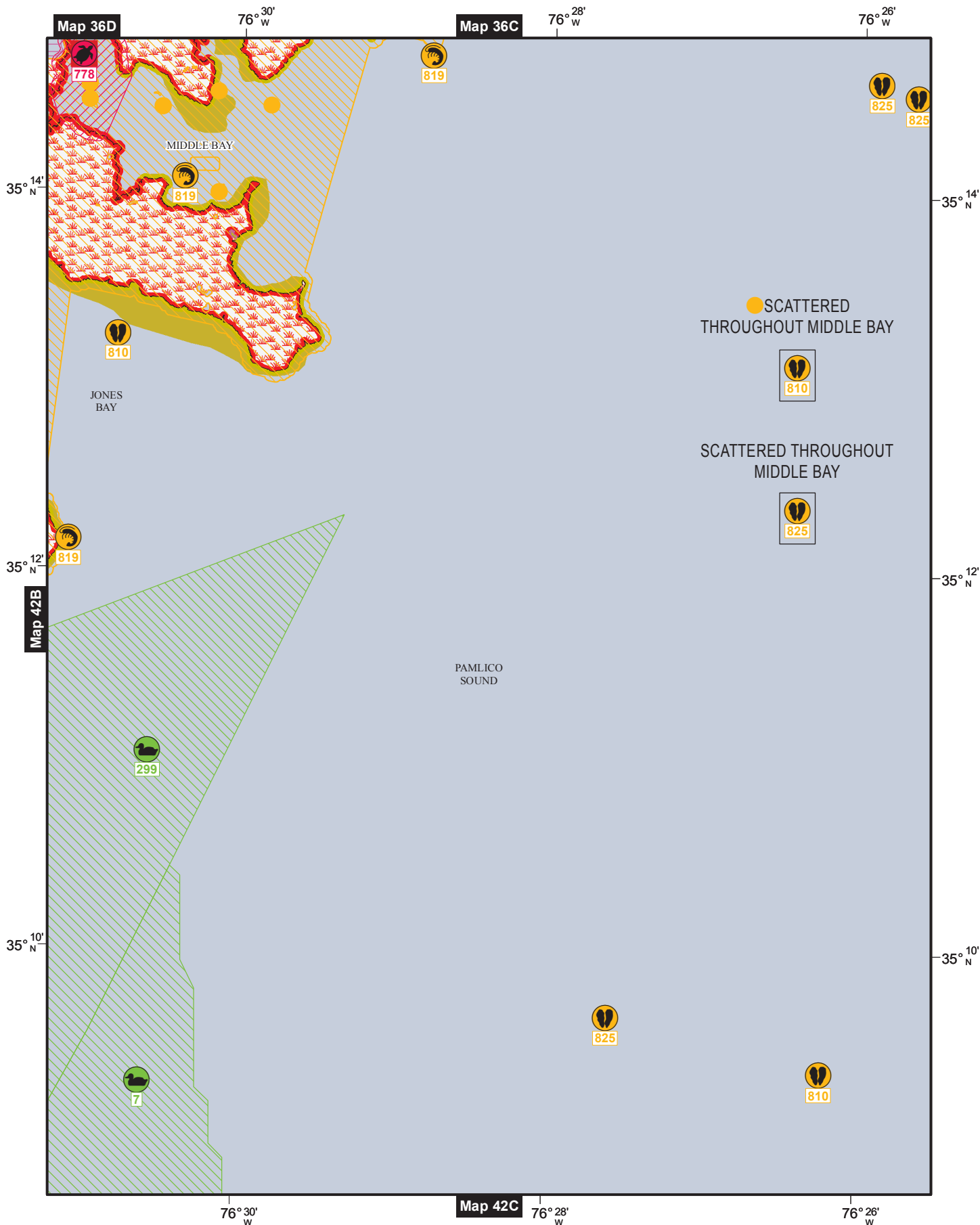
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	292,159.13	181.54	63%
10B	Freshwater marshes	35.27	0.02	< 1%
10C	Swamps	11,751.62	7.30	3%
10D	Scrub-shrub wetlands	1,632.37	1.01	< 1%
9A	Sheltered tidal flats	5,000.30	3.11	1%
9B	Sheltered, vegetated low banks	21,305.34	13.24	5%
8B	Sheltered, solid man-made structures	6,580.77	4.09	1%
8C	Sheltered riprap	1,644.28	1.02	< 1%
7	Exposed tidal flats	114,297.80	71.02	25%
6B	Exposed riprap	1,819.14	1.13	< 1%
3A	Fine- to medium-grained sand beaches	3,657.27	2.27	1%
3B	Scarps and steep slopes in sand	232.85	0.14	< 1%
1B	Exposed, solid man-made structures	1,058.88	0.66	< 1%
Total ESI Shoreline:		461,175.02	286.56	
Total Shoreline:		333,131.50	207.00	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov

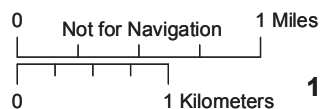




Map 42A North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



1:50,000



Map 42A
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence
SAV	Submerged aquatic veg	High Ecological Value			Present	J F M A M J J A S O N D

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence	Nest	Mig.(S)	Mig.(F)	Molt
7	Waterfowl	American black duck	Wintering			-		-	Feb-Mar	Oct-Nov	-
	Waterfowl	American wigeon	Wintering			-		-	Feb-Mar	Oct-Nov	-
	Waterfowl	Blue-winged teal	Wintering			-		-	Feb-Mar	Oct-Nov	-
	Waterfowl	Bufflehead	Wintering			-		-	Feb-Mar	Oct-Nov	-
	Waterfowl	Gadwall	Wintering			-		-	Feb-Mar	Oct-Nov	-
	Waterfowl	Greater scaup	Wintering			-		-	Feb-Mar	Oct-Nov	-
	Waterfowl	Green-winged teal	Wintering			-		-	Feb-Mar	Oct-Nov	-
299	Waterfowl	Lesser scaup	Wintering			-		-	Feb-Mar	Oct-Nov	-
	Waterfowl	Mallard	Wintering			-		-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern pintail	Wintering			-		-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern shoveler	Wintering			-		-	Feb-Mar	Oct-Nov	-
	Waterfowl	Ring-necked duck	Wintering			-		-	Feb-Mar	Oct-Nov	-
	Waterfowl	Wood duck	Wintering			-		-	Feb-Mar	Oct-Nov	-
	Waterfowl	Bufflehead	Wintering			1000S		-	Feb-Mar	Oct-Nov	-
	Waterfowl	Canvasback	Wintering			100S		-	Feb-Mar	Oct-Nov	-
	Waterfowl	Gadwall	Wintering			10000S		-	Feb-Mar	Oct-Nov	-
	Waterfowl	Green-winged teal	Wintering			100S		-	Feb-Mar	Oct-Nov	-
	Waterfowl	Mergansers	Wintering			100S		-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern shoveler	Wintering			100S		-	Feb-Mar	Oct-Nov	-
	Waterfowl	Scaup	Wintering			1000S		-	Feb-Mar	Oct-Nov	-



REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence	Nest	Hatch	Interest	Juveniles	Adults
778	Turtle	Diamondback terrapin	Vulnerable Occurrence	C		-	J F M A M J J A S O N D	Apr-May	Mar-Oct*	-	Jan-Dec	Jan-Dec



INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence	Spawn	Eggs	Larvae	Juveniles	Adults
810	Bivalve	Eastern oyster	Concentration Area			High	J F M A M J J A S O N D	Jun-Nov	Jun-Nov	Jun-Nov	Jan-Dec	Jan-Dec
819	Shrimp	Brown shrimp	Nursery Area			Abundant	J F M A M J J A S O N D	-	-	Feb-Apr	Mar-Aug	-
825	Shrimp	White shrimp	Nursery Area			Common	J F M A M J J A S O N D	-	-	Jun-Dec	Jul-Feb	-
	Bivalve	Eastern oyster	Concentration Area			Abundant	J F M A M J J A S O N D	May-Nov	May-Nov	May-Nov	Jan-Dec	Jan-Dec


BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Diving	Common loon			100S													-	-	-	-
		Horned grebe			10S													-	-	-	-
	Waterfowl	American black duck			100S													-	Feb-Mar	Oct-Nov	-
		American coot			1000S													-	Feb-Mar	Oct-Nov	-
		American coot			1000S													-	Feb-Mar	Oct-Nov	-
		American wigeon			1000S													-	Feb-Mar	Oct-Nov	-
		Black scoter			-													-	Feb-Mar	Oct-Nov	-
		Bufflehead			100S													-	Feb-Mar	Oct-Nov	-
		Canvasback			-													-	Feb-Mar	Oct-Nov	-
		Gadwall			1000S													-	Feb-Mar	Oct-Nov	-
		Green-winged teal			1000S													-	Feb-Mar	Oct-Nov	-
		Long-tailed duck			-													-	Feb-Mar	Oct-Nov	-
		Mallard			100S													-	Feb-Mar	Oct-Nov	-
		Northern pintail			1000S													-	Feb-Mar	Oct-Nov	-
		Red-breasted merganser			-													-	Feb-Mar	Oct-Nov	-
		Redhead			-													-	Feb-Mar	Oct-Nov	-
		Ruddy duck			100S													-	Feb-Mar	Oct-Nov	-
		Scaup			-													-	Feb-Mar	Oct-Nov	-
		Scaup			100S													-	Feb-Mar	Oct-Nov	-
		Scoters			100S													-	Feb-Mar	Oct-Nov	-
		Surf scoter			-													-	Feb-Mar	Oct-Nov	-
		Tundra swan			100S													-	Feb-Mar	Oct-Nov	-
		Waterfowl			100S													-	Feb-Mar	Oct-Nov	-
		White-winged scoter			-													-	Feb-Mar	Oct-Nov	-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous	Atlantic sturgeon			-													-	-	-	Jan-Dec	Jan-Dec
	Estuarine Nursery	Southern flounder			Abundant													-	-	Dec-Mar	Jan-Dec	-
		Summer flounder			Highly Abundant													-	-	Oct-May	Jan-Dec	May-Oct
	Marine Benthic	Spotted hake			-													-	-	-	Dec-Jun	-

REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Turtle	Green sea turtle			-													-	-	-	Apr-Dec	-
		Hawksbill sea turtle			Infrequent													-	-	-	Apr-Dec	-
		K. ridley sea turtle			-													-	-	-	Apr-Dec	-
		Loggerhead sea turtle			Occasional													-	-	-	Apr-Dec	-
		Loggerhead sea turtle			-													-	-	-	Apr-Dec	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
 Manatee	West Indian manatee	General Distribution	E	E	-													-	-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)



BENTHIC

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
 SAV	Submerged aquatic veg												





BIRDS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
 Waterfowl	American black duck												



FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife													-	-	-	Jul-Oct	-
	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Blueback herring													-	-	May-Jul	Jul-Mar	Oct-Mar
	Gizzard shad													-	-	-	Oct-Mar	-
	Hickory shad													-	-	-	-	Jan-Nov
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Sep-Apr	Jan-Dec	Jan-Dec
	Atlantic cutlassfish													-	-	-	Jul-Aug	-
	Atlantic menhaden													-	-	Nov-May	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													Apr-Jun	Apr-Jun	Jun-Jul	Jan-Dec	Jun-Nov
	Black sea bass													-	-	-	Jun-Sep	May-Dec
	Bluefish													-	-	-	Feb-Nov	Apr-Nov
	Gulf flounder													-	-	Dec-May	Jan-Dec	Mar-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	Sep-Apr	Jun-Oct	Jun-Oct
	Ladyfish													-	-	-	Sep-Oct	Sep-Oct
	Northern kingfish													-	-	May-Sep	Jul-Oct	Apr-Sep
	Northern puffer													Apr-Nov	Apr-Nov	-	Jul-Dec	Jul-Dec
	Pinfish													-	-	Dec-May	Jan-Dec	May-Oct
	Red drum													Aug-Oct	Aug-Oct	Sep-Apr	Jan-Dec	Jan-Dec
	Sheepshead													-	-	May-Jan	Jan-Dec	May-Oct
	Southern flounder													-	-	Dec-Mar	Jan-Dec	Feb-Dec
	Southern kingfish													-	-	Jun-Sep	May-Dec	May-Oct
	Spot													-	-	Jan-Mar	Jan-Dec	Mar-Dec
	Spotted seatrout													Apr-Sep	Apr-Sep	Apr-Nov	Jan-Dec	Jan-Dec

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Striped mullet													-	-	Sep-May	Jan-Dec	Jan-Dec
	Summer flounder													-	-	Oct-May	Jan-Dec	-
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Jan-Dec
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Triggerfish													-	-	-	-	Jul-Aug
	Yellow perch													-	-	-	Apr-Dec	Apr-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	May-Nov	-
	Florida pompano													-	-	-	-	Jul-Oct
	Little tunny													-	-	-	-	Jul-Aug
	Tautog													May-Aug	May-Aug	Jun-Aug	Jul-Sep	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Bluefin tuna													-	-	-	-	Jan-Dec
	Cobia													-	-	-	May-Sep	May-Oct
	Harvestfish													-	-	-	-	Jan-Dec
	King mackerel													-	-	-	-	Sep-Nov*
	Sharks													-	-	-	-	Jan-Dec
	Spanish mackerel													-	-	-	Jul-Nov	May-Oct

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Crab													-	-	Jan-Dec	Jan-Dec
	Blue crab													-	-	Jan-Dec	Jan-Dec
	Shrimp													-	-	Mar-Aug	-
	Brown shrimp													-	-	Mar-Aug	-
	Florida stone crab													May-Aug	May-Aug	-	-
	Pink shrimp													-	-	Jan-Dec	-
	White shrimp													-	-	Dec-Feb	-
														-	-	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Dolphin													Sep-Oct	Sep-Oct	-	-
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES		
ESI Rank	Habitat Classification	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	1.28
7	Exposed Tidal Flats	0.49

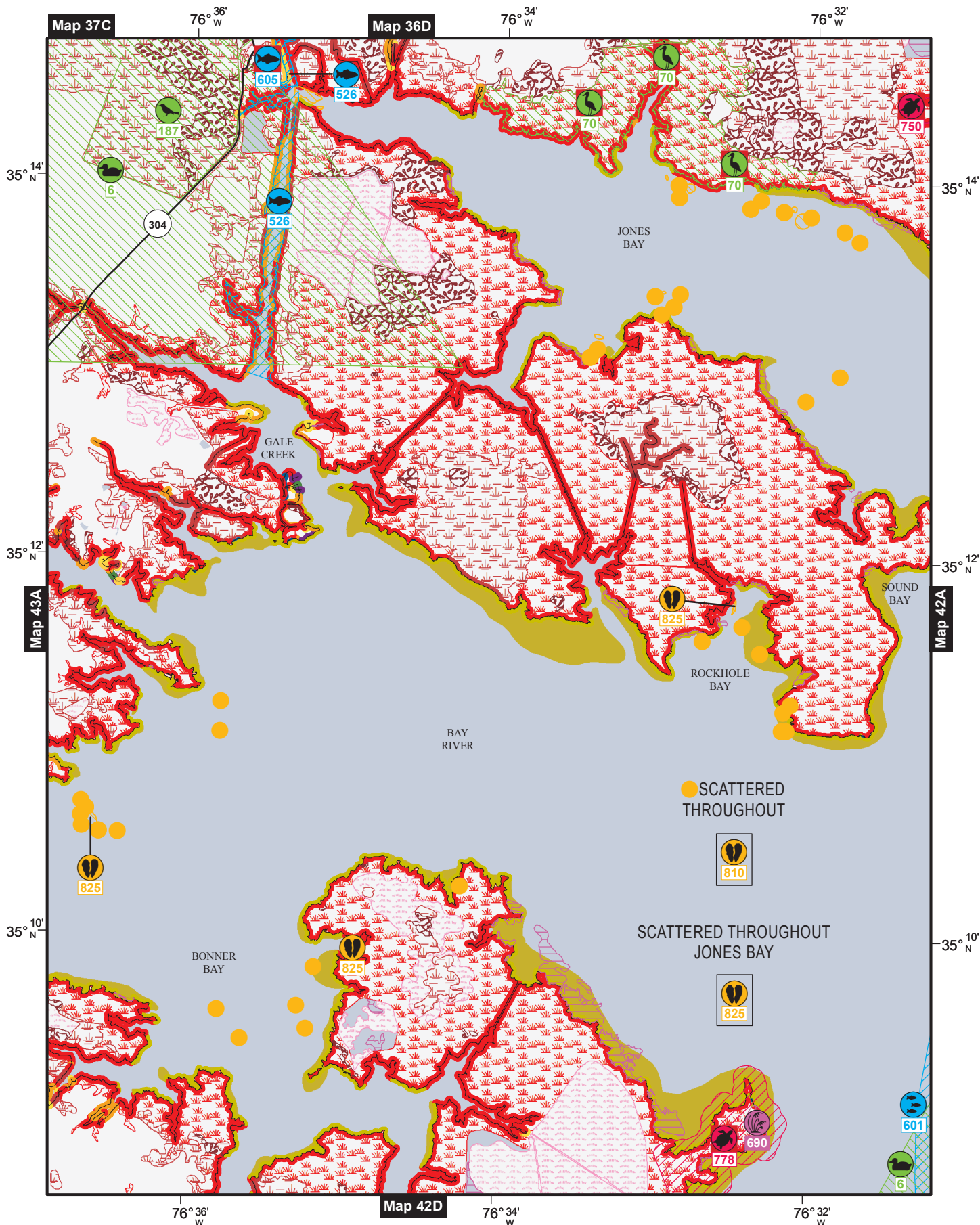
ESI SHORELINE HABITAT TYPES		
ESI Rank	Shoreline Habitat Classification	% of ESI Shoreline
10A	Salt- and brackish-water marshes	57%
7	Exposed tidal flats	43%

Total ESI Shoreline: 34,500.60
Total ESI Shoreline: 21.44

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
SAV	Submerged aquatic veg	High Ecological Value			Present	J	F	M	A	M	J	J	A	S	O	N	D

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig.(S)	Mig.(F)	Molt
6	Waterfowl	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
70	Waterfowl	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Wading	Black rail	Nesting			-													May-Aug	-	-	-
187	Passerine	Black-throated green warbler	Nesting			-													Apr-Aug	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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526	Diadromous	Alewife	Nursery Area			Present																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							</

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
690	Plant	Glowing nightshade	Vulnerable Occurrence			Current	J	F	M	A	M	J	J	A	S	O	N	D

REPTILES & AMPHIBIANS



Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
750	Turtle	Green sea turtle	General Distribution	T	T	-													-	-	-	Apr-Dec	-
	Turtle	Hawksbill sea turtle	General Distribution	E	E	Infrequent													-	-	-	Apr-Dec	-
	Turtle	K. ridley sea turtle	General Distribution	E	E	-													-	-	-	Apr-Dec	-
	Turtle	Leatherback sea turtle	General Distribution	E	E	Occasional													-	-	-	Apr-Dec	-
	Turtle	Loggerhead sea turtle	General Distribution	T	T	-													-	-	-	Apr-Dec	-
778	Turtle	Diamondback terrapin	Vulnerable Occurrence	C		-													Apr-May	Mar-Oct*	-	Jan-Dec	Jan-Dec

INVERTEBRATES




Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
810	Bivalve	Eastern oyster	Concentration Area			High													Jun-Nov	Jun-Nov	Jun-Nov	Jan-Dec	Jan-Dec
825	Bivalve	Eastern oyster	Concentration Area			Abundant													May-Nov	May-Nov	May-Nov	Jan-Dec	Jan-Dec

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Common loon	Wintering			100S													-	-	-	
	Horned grebe	Wintering			10S													-	-	-	
	American black duck	Wintering			100S													-	-	-	
	American coot	Migration			1000S													-	-	-	
	American coot	Wintering			1000S													-	-	-	
	American wigeon	Wintering			1000S													-	-	-	
	Bufflehead	Wintering			100S													-	-	-	
	Bufflehead	Wintering			1000S													-	-	-	
	Canvasback	Wintering			100S													-	-	-	
	Gadwall	Wintering			10000S													-	-	-	
	Gadwall	Wintering			1000S													-	-	-	
	Green-winged teal	Wintering			1000S													-	-	-	
	Green-winged teal	Wintering			100S													-	-	-	
	Mallard	Wintering			100S													-	-	-	
	Mergansers	Wintering			100S													-	-	-	
	Northern pintail	Wintering			1000S													-	-	-	
	Northern shoveler	Wintering			100S													-	-	-	
	Ruddy duck	Wintering			100S													-	-	-	
	Scaup	Wintering			1000S													-	-	-	
	Scaup	Wintering			100S													-	-	-	
	Scoters	Wintering			100S													-	-	-	
	Tundra swan	Wintering			100S													-	-	-	
	Waterfowl	Wintering			100S													-	-	-	

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D				
 Diadromous	Atlantic sturgeon	General Distribution			-													-	-	Jan-Dec	Jan-Dec
 Estuarine Nursery	Southern flounder	Concentration Area	C		Abundant													-	Dec-Mar	Jan-Dec	-
 Marine Benthic	Spotted hake	Nursery Area			-													-	-	Dec-Jun	-

INVERTEBRATES

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D				
 Shrimp	Brown shrimp	Nursery Area			Abundant													-	Feb-Apr	Mar-Aug	-
	White shrimp	Nursery Area			Common													-	Jun-Dec	Jul-Feb	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
 Manatee	West Indian manatee	General Distribution			-													-	-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)



BENTHIC

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
 SAV	Submerged aquatic veg												

BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
 Waterfowl	American black duck													Apr-May	-	-	-
	Wood duck													Mar-Jun	-	-	-







FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Diadromous	Alewife													-	-	-	Jul-Oct	-
	American eel													-	-	Jan-Dec	Jan-Dec	Sep-Dec
	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Blueback herring													-	-	May-Jul	Jul-Mar	Oct-Mar
	Gizzard shad													-	-	-	Oct-Mar	-
	Hickory shad													-	-	-	-	Jan-Apr
	Hickory shad													-	-	-	-	Jan-Nov
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
 Estuarine Nursery	Atlantic croaker													-	-	Sep-Apr	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Sep-Mar	Jan-Dec	Feb-Dec
	Atlantic cutlassfish													-	-	-	-	Jul-Aug
	Atlantic menhaden													-	-	-	-	Feb-Dec*



FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Atlantic menhaden													-	-	Nov-May	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Jan-Dec	Jun-Nov
	Black drum													Apr-Jun	Apr-Jun	Jun-Jul	Jan-Dec	Jun-Nov
	Black sea bass													-	-	-	Jun-Sep	May-Dec
	Bluefish													-	-	-	Feb-Nov	Apr-Nov
	Bluefish													-	-	-	May-Oct	May-Nov
	Bluefish													-	-	-	Mar-Nov	-
	Gulf flounder													-	-	Dec-May	Jan-Dec	Mar-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	-	Sep-Oct
	Ladyfish													-	-	Sep-Apr	Jun-Oct	Jun-Oct
	Northern kingfish													-	-	May-Sep	Jul-Oct	Apr-Sep
	Northern puffer													Apr-Nov	Apr-Nov	-	-	Jul-Dec
	Pinfish													-	-	Jan-Jun	Jan-Dec	Jun-Oct
	Pinfish													-	-	Dec-May	Feb-Dec	Apr-Oct
	Pinfish													-	-	Dec-May	Jan-Dec	May-Oct
	Red drum													-	-	Jul-Oct	Jan-Dec	-
	Red drum													Aug-Oct	Aug-Oct	Sep-Apr	Jan-Dec	Jan-Dec
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Sheepshead													-	-	May-Jan	Jan-Dec	May-Oct
	Southern flounder													-	-	Dec-Mar	Jan-Dec	Feb-Dec
	Southern kingfish													-	-	-	May-Dec	Jul-Nov
	Southern kingfish													-	-	Jun-Sep	May-Dec	May-Oct
	Spot													-	-	Jan-Mar	Jan-Dec	Mar-Dec
	Spot													-	-	Jan-Apr	Jan-Dec	Apr-Oct
	Spot													-	-	Jan-May	Jun-Dec	-
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Spotted seatrout													May-Aug	May-Aug	Jun-Oct	Jun-Oct	-
	Spotted seatrout													Apr-Sep	Apr-Sep	Apr-Nov	Jan-Dec	Jan-Dec
	Striped mullet													-	-	-	Jan-Dec	Apr-Nov
	Striped mullet													-	-	-	Jan-Dec	-
	Striped mullet													-	-	Sep-May	Jan-Dec	Jan-Dec
	Summer flounder													-	-	Oct-May	Jan-Dec	-
	Weakfish													Mar-Oct	Mar-Oct	-	Jan-Dec	Jan-Dec
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Jan-Dec
	Weakfish													Mar-Oct	Mar-Oct	Mar-Oct	Jan-Dec	Mar-Oct
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White mullet													Mar-Jun	Mar-Jun	May-Aug	Jun-Oct	-
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	White perch													-	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Triggerfish													-	-	-	-	Jul-Aug
	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													-	-	-	Apr-Dec	Apr-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic spadefish													-	-	-	Jun-Aug	-
	Atlantic spadefish													-	-	-	May-Nov	-
	Florida pompano													-	-	-	-	Jul-Oct
	Little tunny													-	-	-	-	Jul-Aug
	Tautog													May-Aug	May-Aug	Jun-Aug	Jul-Sep	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Bluefin tuna													-	-	-	-	Jan-Dec
	Cobia													-	-	-	May-Sep	May-Oct
	Harvestfish													-	-	-	-	Jan-Dec
	King mackerel													-	-	-	-	Sep-Nov*
	Sharks													-	-	-	-	Jan-Dec
	Spanish mackerel													-	-	-	-	-
	Spanish mackerel													-	-	-	Jul-Nov	May-Oct
	Spanish mackerel													-	-	-	Jul-Nov	May-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Blue crab													-	-	May-Oct	-	Jan-Dec
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Florida stone crab													May-Aug	May-Aug	-	-	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-
	Bottlenose dolphin													-	-	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	5,769.41	9.01
10B	Freshwater Marshes	843.39	1.32
10C	Swamps	1,848.45	2.89
10D	Scrub and Shrub Wetlands	808.97	1.26
9A	Sheltered Tidal Flats	25.77	0.04
7	Exposed Tidal Flats	1,137.56	1.78

ESI SHORELINE HABITAT TYPES

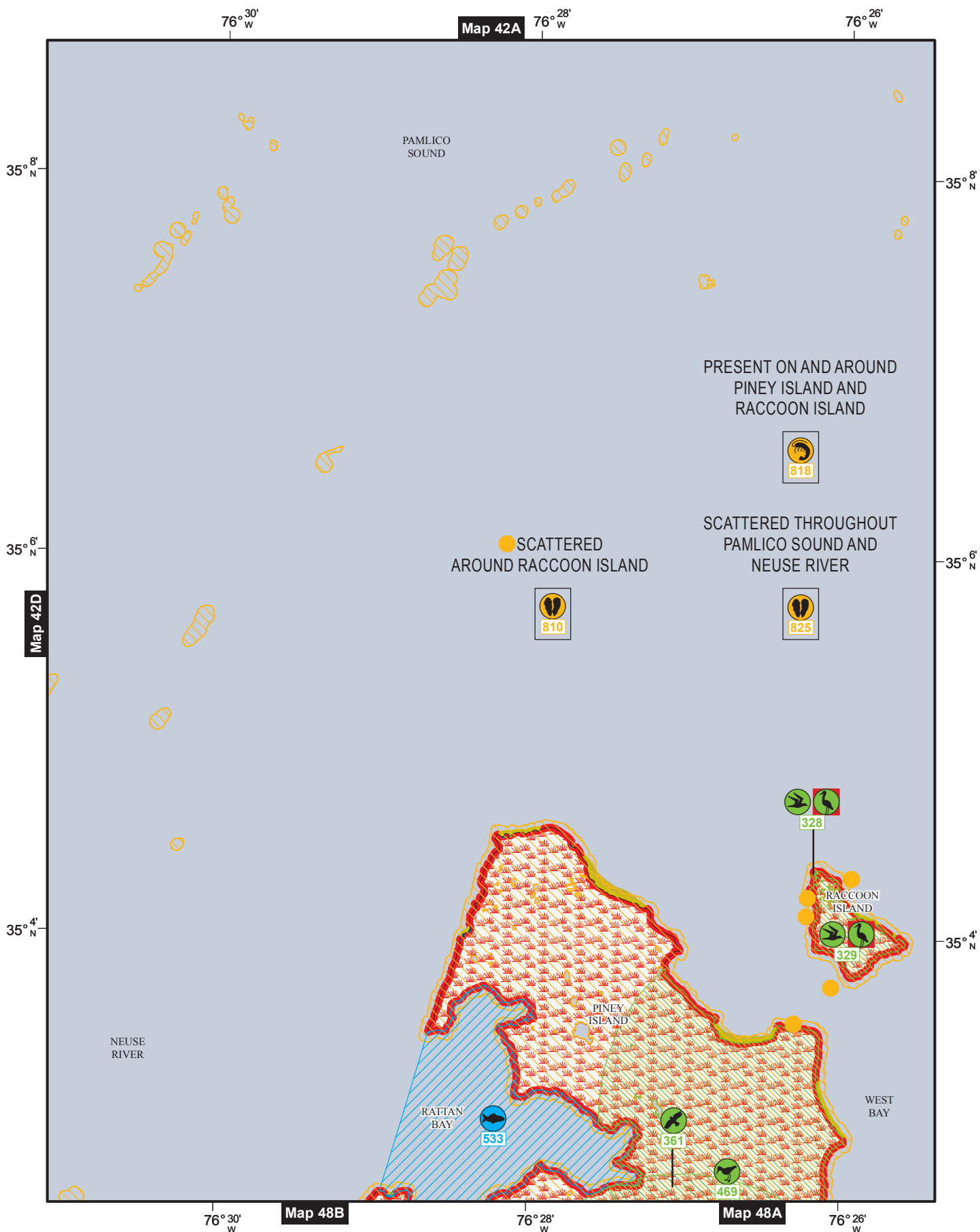
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	166,167.85	103.25	63%
10B	Freshwater marshes	35.27	0.02	< 1%
10C	Swamps	7,644.21	4.75	3%
10D	Scrub-shrub wetlands	1,184.97	0.74	< 1%
9A	Sheltered tidal flats	4,105.62	2.55	2%
9B	Sheltered, vegetated low banks	5,745.46	3.57	2%
8B	Sheltered, solid man-made structures	1,246.24	0.77	< 1%
8C	Sheltered riprap	806.72	0.50	< 1%
7	Exposed tidal flats	74,689.70	46.41	28%
6B	Exposed riprap	261.73	0.16	< 1%
3A	Fine- to medium-grained sand beaches	865.47	0.54	< 1%
3B	Scarps and steep slopes in sand	232.85	0.14	< 1%
1B	Exposed, solid man-made structures	433.24	0.27	< 1%

Total ESI Shoreline: 263,419.35 Total ESI Shoreline: 163.68
 Total Shoreline: 182,271.29 Total Shoreline: 113.26

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov



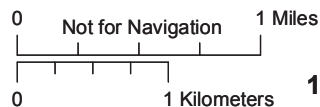


Map 42C

North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



1:50,000



Map 42C
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
328	Gull/Tern	Forster's tern	Nesting			25-103 Pairs													Apr-Aug	-	-	-
	Gull/Tern	G. black-backed gull	Nesting			10 Pairs													Mar-Aug	-	-	-
	Gull/Tern	Laughing gull	Nesting			5500-9000 Pairs													Apr-Jul	-	-	-
	Wading	BC night-heron	Nesting			3-5 Pairs													Apr-Aug	-	-	-
	Wading	Cattle egret	Nesting			17 Pairs													Apr-Oct	-	-	-
	Wading	Great egret	Nesting			6-33 Pairs													Mar-Aug	-	-	-
	Wading	Least bittern	Nesting	C		1 Pair													Apr-Aug	-	-	-
	Wading	Snowy egret	Nesting	C		4-117 Pairs													Mar-Jul	-	-	-
	Wading	Tricolored heron	Nesting	C		8-250 Pairs													Apr-Aug	-	-	-
	Wading	White ibis	Nesting	C		22-62 Pairs													Mar-Sep	-	-	-
329	Gull/Tern	Forster's tern	Nesting			25-103 Pairs													Apr-Aug	-	-	-
	Gull/Tern	G. black-backed gull	Nesting			10 Pairs													Mar-Aug	-	-	-
	Gull/Tern	Laughing gull	Nesting			5500-9000 Pairs													Apr-Jul	-	-	-
	Wading	BC night-heron	Nesting			3-5 Pairs													Apr-Aug	-	-	-
	Wading	Cattle egret	Nesting			17 Pairs													Apr-Oct	-	-	-
	Wading	Glossy ibis	Nesting	C		177 Pairs													Apr-Jul	-	-	-
	Wading	Great egret	Nesting			6-33 Pairs													Mar-Aug	-	-	-
	Wading	Least bittern	Nesting	C		1 Pair													Apr-Aug	-	-	-
	Wading	Little blue heron	Nesting	C		13 Pairs													Apr-Oct	-	-	-
	Wading	Snowy egret	Nesting	C		4-117 Pairs													Mar-Jul	-	-	-
361	Wading	Tricolored heron	Nesting	C		8-250 Pairs													Apr-Aug	-	-	-
	Wading	White ibis	Nesting			22-62 Pairs													Mar-Sep	-	-	-
	Raptor	Northern harrier	Nesting			1 Pair													Apr-Sep	-	-	-
469	Shorebird	Black-necked stilt	Nesting			1 Pair													May-Aug	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
533	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-

INVERTEBRATES


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
810	Bivalve	Eastern oyster	Concentration Area			High													Jun-Nov	Jun-Nov	Jun-Nov	Jan-Dec	Jan-Dec
818	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	Pink shrimp	Nursery Area			Rare													-	-	May-Nov	Jan-Dec	-

INVERTEBRATES (continued)




Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D				
825	Shrimp	White shrimp	Nursery Area			Common													-	Jun-Dec	Jul-Feb	-
	Bivalve	Eastern oyster	Concentration Area			Abundant													May-Nov	May-Nov	Jan-Dec	Jan-Dec

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)


BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Waterfowl	American black duck	Wintering			-												-	Feb-Mar	Oct-Nov	-
		American black duck	Wintering			100S												-	Feb-Mar	Oct-Nov	-
		American coot	Wintering			1000S												-	Feb-Mar	Oct-Nov	-
		American wigeon	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Black scoter	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Blue-winged teal	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Bufflehead	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Bufflehead	Wintering			1000S												-	Feb-Mar	Oct-Nov	-
		Bufflehead	Wintering			100S												-	Feb-Mar	Oct-Nov	-
		Canvasback	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Gadwall	Wintering			100S												-	Feb-Mar	Oct-Nov	-
		Gadwall	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Greater scaup	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Green-winged teal	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Lesser scaup	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Long-tailed duck	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Mallard	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Mergansers	Wintering			100S												-	Feb-Mar	Oct-Nov	-
		Northern pintail	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Northern shoveler	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Northern shoveler	Wintering			100S												-	Feb-Mar	Oct-Nov	-
		Red-breasted merganser	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Red-breasted merganser	Wintering			100S												-	Feb-Mar	Oct-Nov	-
		Redhead	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Redhead	Wintering			100S												-	Feb-Mar	Oct-Nov	-
		Ring-necked duck	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Ruddy duck	Wintering			1000S												-	Feb-Mar	Oct-Nov	-
		Scaup	Wintering			1000S												-	Feb-Mar	Oct-Nov	-
		Scaup	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Scooters	Wintering			1000S												-	Feb-Mar	Oct-Nov	-
		Surf scoter	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Tundra swan	Wintering			1000S												-	Feb-Mar	Oct-Nov	-
		White-winged scoter	Wintering			-												-	Feb-Mar	Oct-Nov	-
		Wood duck	Wintering			-												-	Feb-Mar	Oct-Nov	-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Larvae	Eggs	Spawn	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous	Alewife			Present																	
	American shad	Migration			Present																	
	Atlantic sturgeon	Spawning Area																				
	Atlantic sturgeon	General Distribution	C																			
	Blueback herring	Spawning Area	C																			
	Blueback herring	Migration			Present																	
	Southern flounder	Concentration Area			Abundant																	
	Summer flounder	Concentration Area			Highly Abundant																	
	Spotted hake	Nursery Area																				

REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Diamondback terrapin	Vulnerable Occurrence	C																			
	Green sea turtle	General Distribution	T																			
	Hawksbill sea turtle	General Distribution	E		Infrequent																	
	K. ridley sea turtle	General Distribution	E																			
	Leatherback sea turtle	General Distribution	E		Occasional																	
	Loggerhead sea turtle	General Distribution	T																			

MARINE MAMMALS


Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Manatee	West Indian manatee	E	E	-																
		General Distribution																			

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BENTHIC



Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
						J	F	M	A	M	J	J	A	S	O	N	D
	Submerged aquatic veg																

BIRDS








Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck																				
	Wood duck																				

FISH



Monthly Presence

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
	Alewife													-	-	-	Jul-Oct	-
	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Blueback herring													-	-	May-Jul	Jul-Mar	Oct-Mar
	Gizzard shad													-	-	-	Oct-Mar	-
	Hickory shad													-	-	-	-	Jan-Nov
	Hickory shad													-	-	-	-	Jan-Apr
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Sep-Apr	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Jan-Mar	Jan-Dec	Jan-Dec
	Atlantic cutlassfish													-	-	-	-	Jul-Aug
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Atlantic menhaden													-	-	Nov-May	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Mar-Nov	Jun-Nov
	Black drum													Apr-Jun	Apr-Jun	Jun-Jul	Jan-Dec	Jun-Nov
	Black sea bass													-	-	-	Jun-Sep	May-Dec
	Bluefish													-	-	-	Mar-Apr	May-Nov
	Bluefish													-	-	-	Feb-Nov	Apr-Nov
	Gulf flounder													-	-	Dec-May	Jan-Dec	Mar-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	Apr-Sep	-
	Ladyfish													-	-	Sep-Apr	Jun-Oct	Jun-Oct
	Northern kingfish													-	-	May-Sep	Jul-Oct	Apr-Sep
	Northern puffer													Apr-Nov	Apr-Nov	-	-	Jul-Dec
	Pinfish													-	-	Dec-May	Jan-Dec	May-Oct
	Pinfish													-	-	Jan-Jun	Jan-Dec	Jun-Oct
	Red drum													-	-	Aug-Dec	Jan-Dec	-
	Red drum													Aug-Oct	Aug-Oct	Sep-Apr	Jan-Dec	Jan-Dec
	Sheepshead													-	-	May-Jan	Jan-Dec	May-Oct
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Southern flounder													-	-	Dec-Mar	Jan-Dec	Feb-Dec
	Southern kingfish													-	-	Jun-Sep	May-Nov	Jul-Oct
	Southern kingfish													-	-	Jun-Sep	May-Dec	May-Oct
	Spot													-	-	Jan-Mar	Jan-Dec	Mar-Dec
	Spot													-	-	Dec-Feb	Jan-Dec	Mar-Sep
	Spotted seatrout													Apr-Sep	Apr-Sep	Apr-Nov	Jan-Dec	Jan-Dec
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	Nov-May	Jan-Dec	Apr-Nov
	Striped mullet													-	-	Sep-May	Jan-Dec	Jan-Dec
	Summer flounder													-	-	Oct-May	Jan-Dec	-
	Summer flounder													-	-	Oct-May	Jan-Dec	May-Oct
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Jan-Dec
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Mar-Oct

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Triggerfish													-	-	-	-	Jul-Aug
	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Chain pickerel													-	-	-	-	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Yellow perch													-	-	-	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	May-Nov	-
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Florida pompano													-	-	-	-	Jul-Oct
	Little tunny													-	-	-	-	Jul-Aug
	Tautog													May-Aug	May-Aug	Jun-Aug	Jul-Sep	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Bluefin tuna													-	-	-	-	Jan-Dec
	Cobia													-	-	-	May-Sep	May-Oct
	Harvestfish													-	-	-	-	Jan-Dec
	King mackerel													-	-	-	-	Sep-Nov*
	Sharks													-	-	-	-	Jan-Dec
	Spanish mackerel													-	-	-	Jul-Nov	May-Oct
	Spanish mackerel													-	-	-	Jul-Nov	Jun-Aug
	Spanish mackerel													-	-	-	-	-

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
 Crab	Blue crab													-	May-Oct	-	Jan-Dec
	Blue crab													-	-	Jan-Dec	Jan-Dec
 Shrimp	Brown shrimp													-	Feb-Apr	Mar-Aug	-
	Pink shrimp													-	May-Nov	Jan-Dec	-
	White shrimp													-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
 Dolphin	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	1,888.64	2.95
7	Exposed Tidal Flats	36.51	0.06

ESI SHORELINE HABITAT TYPES

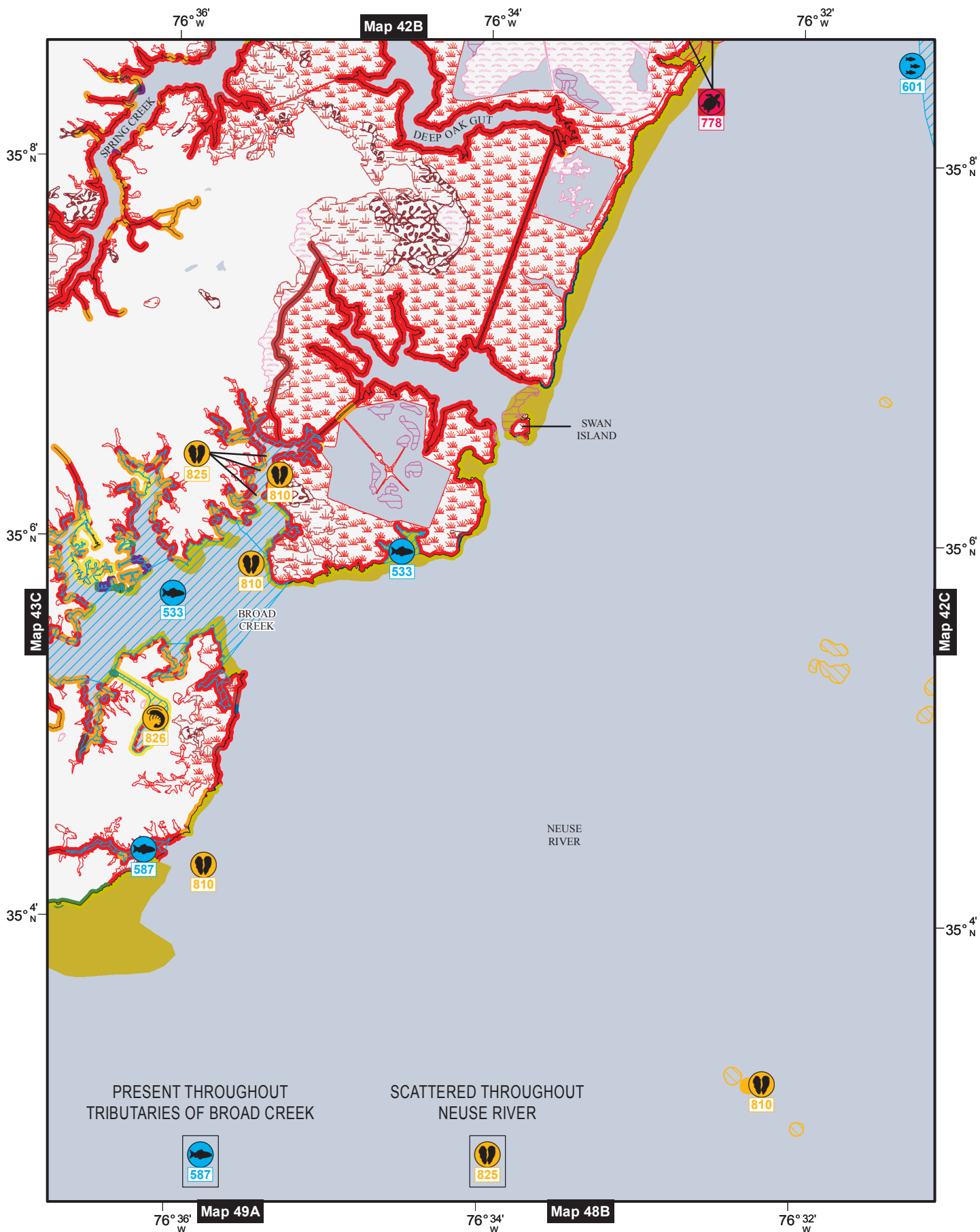
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	21,362.99	13.27	82%
7	Exposed tidal flats	4,278.91	2.66	16%
3A	Fine- to medium-grained sand beaches	361.53	0.22	1%

Total ESI Shoreline: 26,003.42 Total ESI Shoreline: 16.16
Total Shoreline: 21,362.99 Total Shoreline: 13.27

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
SAV	Submerged aquatic veg	High Ecological Value			Present	J	F	M	A	M	J	J	A	S	O	N	D

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
533	Diadromous	Alewife	Nursery Area			Present												-	-	May-Aug	Jul-Oct	-	
	Diadromous	Blueback herring	Nursery Area			Present												-	-	May-Jul	Jul-Oct	-	
587	Diadromous	Alewife	Spawning Area			Present												Mar-Jul	Mar-Jul	May-Aug	-	-	
	Diadromous	Blueback herring	Spawning Area			Present												Mar-Jul	Mar-Jul	May-Jul	-	-	
601	Estuarine Nursery	Summer flounder	Concentration Area			Highly Abundant												-	-	Oct-May	Jan-Dec	May-Oct	

REPTILES & AMPHIBIANS


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Interest	Juveniles	Adults	
							J	F	M	A	M	J	J	A	S	O	N	D						
778	Turtle	Diamondback terrapin	Vulnerable Occurrence	C		-													Apr-May	Mar-Oct*	-	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence																
							J	F	M	A	M	J	J	A	S	O	N	D					
810	Bivalve	Eastern oyster	Concentration Area			High													Jun-Nov	Jun-Nov	Jun-Nov	Jan-Dec	Jan-Dec
825	Bivalve	Eastern oyster	Concentration Area			Abundant													May-Nov	May-Nov	May-Nov	Jan-Dec	Jan-Dec
826	Shrimp	Brown shrimp	Nursery Area			-													-	-	Feb-Apr	Mar-Aug	-

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)



BIRDS

Subelement 	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
Waterfowl	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	American coot	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-

BIRDS (continued)

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Canvasback	Wintering			-												Feb-Mar	Oct-Nov	-		
	Canvasback	Wintering			100S												Feb-Mar	Oct-Nov	-		
	Gadwall	Wintering			10000S												Feb-Mar	Oct-Nov	-		
	Gadwall	Wintering			100S												Feb-Mar	Oct-Nov	-		
	Gadwall	Wintering			-												Feb-Mar	Oct-Nov	-		
	Greater scaup	Wintering			-												Feb-Mar	Oct-Nov	-		
	Green-winged teal	Wintering			100S												Feb-Mar	Oct-Nov	-		
	Green-winged teal	Wintering			-												Feb-Mar	Oct-Nov	-		
	Lesser scaup	Wintering			-												Feb-Mar	Oct-Nov	-		
	Mallard	Wintering			-												Feb-Mar	Oct-Nov	-		
	Mergansers	Wintering			100S												Feb-Mar	Oct-Nov	-		
	Northern pintail	Wintering			-												Feb-Mar	Oct-Nov	-		
	Northern pintail	Wintering			1000S												Feb-Mar	Oct-Nov	-		
	Northern shoveler	Wintering			100S												Feb-Mar	Oct-Nov	-		
	Northern shoveler	Wintering			-												Feb-Mar	Oct-Nov	-		
	Red-breasted merganser	Wintering			100S												Feb-Mar	Oct-Nov	-		
	Redhead	Wintering			-												Feb-Mar	Oct-Nov	-		
	Ring-necked duck	Wintering			-												Feb-Mar	Oct-Nov	-		
	Ruddy duck	Wintering			100S												Feb-Mar	Oct-Nov	-		
	Ruddy duck	Wintering			1000S												Feb-Mar	Oct-Nov	-		
	Scaup	Wintering			1000S												Feb-Mar	Oct-Nov	-		
	Scoters	Wintering			1000S												Feb-Mar	Oct-Nov	-		
	Scoters	Wintering			100S												Feb-Mar	Oct-Nov	-		
	Surf scoter	Wintering			-												Feb-Mar	Oct-Nov	-		
	Tundra swan	Wintering			100S												Feb-Mar	Oct-Nov	-		
	Wood duck	Wintering			-												Feb-Mar	Oct-Nov	-		

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D			
	Diadromous	Migration			Present													May-Aug	Jul-Mar	-
	American shad	Spawning Area			Present													Apr-Jun	May-Jul	-
	Atlantic sturgeon	General Distribution	C		-													-	Jan-Dec	-
	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	-
	Blueback herring	Migration			Present													May-Jul	Aug-Oct	-
	Southern flounder	Concentration Area			Abundant													-	Jan-Dec	-
	Spotted hake	Nursery Area			-													-	Dec-Jun	-

INVERTEBRATES

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D			
	Shrimp	Nursery Area			Abundant													Feb-Apr	Mar-Aug	-
	White shrimp	Nursery Area			Common													Jun-Dec	Jul-Feb	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier General Distribution	S	F	Concentration	Monthly Presence												Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D			
 Manatee	West Indian manatee		E	E	-													-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)




BENTHIC

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
 SAV	Submerged aquatic veg												

BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
 Waterfowl	American black duck													Apr-May	-	-	-
	Wood duck													Mar-Jun	-	-	-

FISH


Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Diadromous	Alewife													-	-	-	Jul-Oct	-
	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American eel													-	-	Jan-Dec	Jan-Dec	Sep-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Blueback herring													-	-	May-Jul	Jul-Mar	Oct-Mar
	Gizzard shad													-	-	-	Oct-Mar	-
	Hickory shad													-	-	-	-	Jan-Apr
	Hickory shad													-	-	-	-	Jan-Nov
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Sep-Mar	Jan-Dec	Feb-Dec
	Atlantic croaker													-	-	Sep-Apr	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Jan-Mar	Jan-Dec	Jan-Dec
 Estuarine Nursery	Atlantic cutlassfish													-	-	-	-	Jul-Aug
	Atlantic menhaden													-	-	Nov-May	Jan-Dec	Mar-Nov
	Atlantic menhaden													-	-	-	-	Feb-Dec*
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Mar-Nov	Jun-Nov
	Black drum													Apr-Jun	Apr-Jun	Jun-Jul	Jan-Dec	Jun-Nov
	Black sea bass													-	-	-	Jun-Sep	May-Dec
	Bluefish													-	-	-	Feb-Nov	Apr-Nov
	Bluefish													-	-	-	Mar-Apr	May-Nov
	Bluefish													-	-	-	Mar-Nov	-
	Gulf flounder													-	-	Dec-May	Jan-Dec	Mar-Nov
 Hogchoker	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	Sep-Apr	Jun-Oct	Jun-Oct

North Carolina: Map 42D



FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
Estuarine Resident	Ladyfish													-	-	-	Apr-Sep	-
	Ladyfish													-	-	-	-	Sep-Oct
	Northern kingfish													-	-	May-Sep	Jul-Oct	Apr-Sep
	Northern puffer													Apr-Nov	Apr-Nov	-	-	Jul-Dec
	Pinfish													-	-	Jan-Jun	Jan-Dec	Jun-Oct
	Pinfish													-	-	Dec-May	Jan-Dec	May-Oct
	Red drum													Aug-Oct	Aug-Oct	Sep-Apr	Jan-Dec	Jan-Dec
	Red drum													-	-	Aug-Dec	Jan-Dec	-
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Sheepshead													-	-	May-Jan	Jan-Dec	May-Oct
	Southern flounder													-	-	Dec-Mar	Jan-Dec	Feb-Dec
	Southern kingfish													-	-	Jun-Sep	May-Nov	Jul-Oct
	Southern kingfish													-	-	Jun-Sep	May-Dec	May-Oct
	Spot													-	-	Dec-Feb	Jan-Dec	Mar-Sep
Fish	Spot													-	-	Jan-Mar	Jan-Dec	Mar-Dec
	Spot													-	-	Jan-May	Jun-Dec	-
	Spotted seatrout													May-Aug	May-Aug	Jun-Aug	Jun-Oct	-
	Spotted seatrout													Apr-Sep	Apr-Sep	Apr-Nov	Jan-Dec	Jan-Dec
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	-	Jan-Dec	-
	Striped mullet													-	-	Sep-May	Jan-Dec	Jan-Dec
	Striped mullet													-	-	Nov-May	Jan-Dec	Apr-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	-
	Summer flounder													-	-	Oct-May	Jan-Dec	May-Oct
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Mar-Oct
	Weakfish													Mar-Oct	Mar-Oct	-	Jan-Dec	Jan-Dec
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Jan-Dec
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													Mar-Jun	Mar-Jun	May-Aug	Jun-Oct	-
Freshwater	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Nov	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Triggerfish													-	-	-	-	Jul-Aug
	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Chain pickerel													-	-	-	-	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													-	-	-	Apr-Dec	Apr-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic spadefish													-	-	-	Jun-Aug	-
	Atlantic spadefish													-	-	-	May-Nov	-

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Florida pompano													-	-	-	-	Jul-Oct
	Little tunny													-	-	-	-	Jul-Aug
	Tautog																	
	Atlantic needlefish													May-Aug	May-Aug	Jun-Aug	Jul-Sep	-
	Bluefin tuna													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Cobia													-	-	-	-	Jan-Dec
	Harvestfish													-	-	-	May-Sep	May-Oct
	King mackerel													-	-	-	-	Jan-Dec
	Sharks													-	-	-	-	Sep-Nov*
	Spanish mackerel													-	-	-	-	Jan-Dec
	Spanish mackerel													-	-	-	Jul-Nov	Jun-Aug
	Spanish mackerel													-	-	-	Jul-Nov	May-Oct
	Spanish mackerel													-	-	-	-	-

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Blue crab													-	-	May-Oct	-	Jan-Dec
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Florida stone crab													May-Aug	May-Aug	-	-	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-
	Bottlenose dolphin													-	-	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	2,238.89	3.50
10B	Freshwater Marshes	290.31	0.45
10C	Swamps	439.43	0.69
10D	Scrub and Shrub Wetlands	162.78	0.25
9A	Sheltered Tidal Flats	2.15	0.00
7	Exposed Tidal Flats	554.15	0.87

ESI SHORELINE HABITAT TYPES

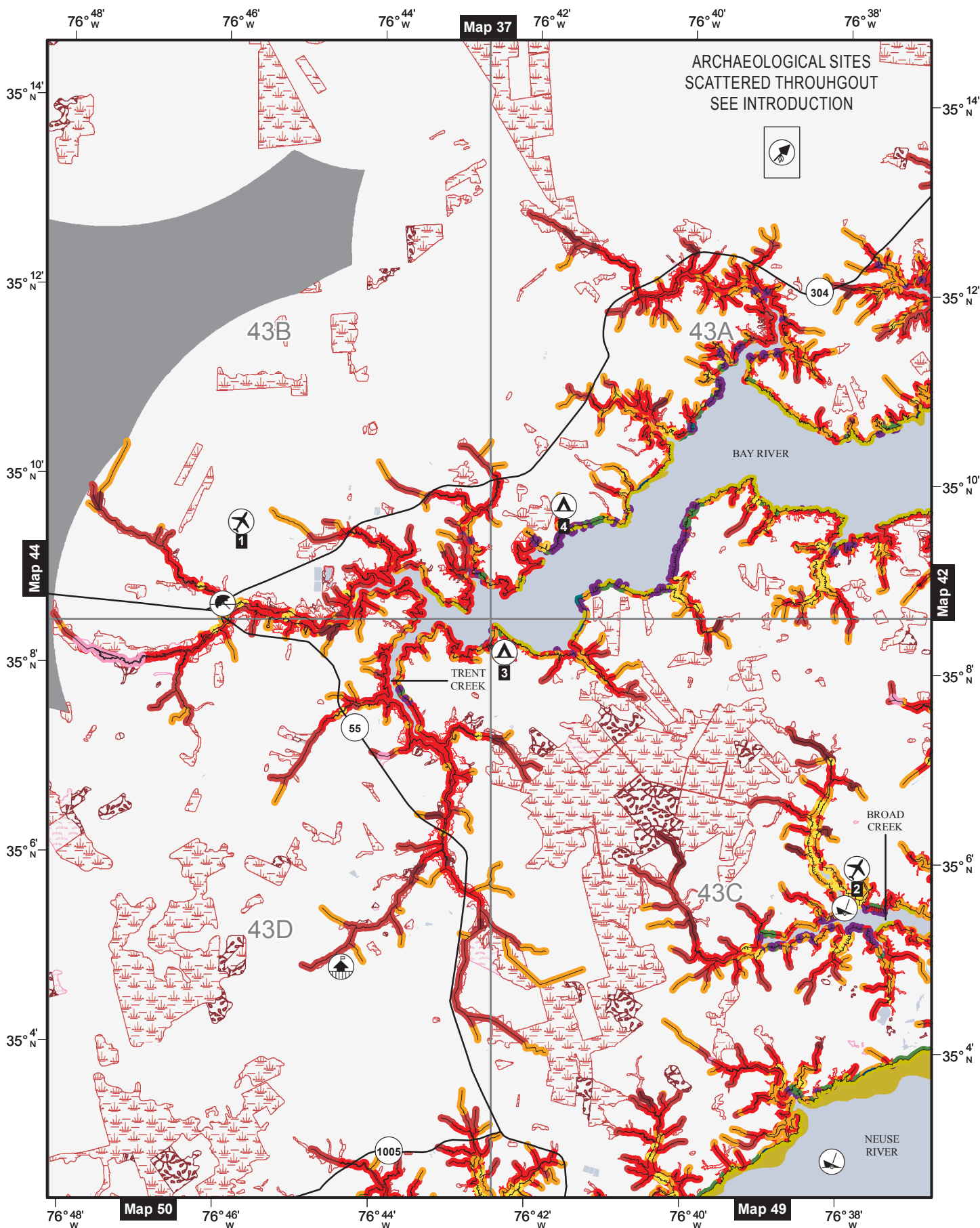
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	84,898.19	52.75	62%
10C	Swamps	4,112.49	2.56	3%
10D	Scrub-shrub wetlands	447.40	0.28	< 1%
9A	Sheltered tidal flats	894.68	0.56	1%
9B	Sheltered, vegetated low banks	15,562.89	9.67	11%
8B	Sheltered, solid man-made structures	5,336.63	3.32	4%
8C	Sheltered riprap	837.56	0.52	1%
7	Exposed tidal flats	20,622.64	12.81	15%
6B	Exposed riprap	1,557.29	0.97	1%
3A	Fine- to medium-grained sand beaches	2,430.27	1.51	2%
1B	Exposed, solid man-made structures	625.63	0.39	< 1%

Total ESI Shoreline: 137,325.68 Total ESI Shoreline: 85.33
 Total Shoreline: 109,777.19 Total Shoreline: 68.21

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 43
North Carolina

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)				
Map ID	Type	Name	Contact	Phone
1	AIRPORT	PAMLICO	DEWEY DIXON, MANAGER	919-745-3092
2	AIRPORT	BENTON FARM	CORNELIUS BOND, MANAGER	415-336-0558
3	CAMPGROUND	BAY RIVER CAMPGROUND-MARINA		252-745-4879
4	CAMPGROUND	RIVER'S EDGE FAMILY CAMPGROUND		252-559-3603

ALSO PRESENT IN MAPPED AREA (POLYGONS)			
Type	Name	Contact	Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; COASTAL MIG. PELAGICS	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; CORAL	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SNAPPER GROUPE	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SPINY LOBSTER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SNAPPER GROUPE	DAVID DALE, SOUTHEAST REGION	727-824-5317
STATE PROTECTED AREA	BLACK BEAR SANCTUARY	NC WILDLIFE RESOURCES COMMISSION	
STATE PROTECTED AREA	BLACK BEAR SANCTUARY	WEYERHAEUSER CO.	
STATE PROTECTED AREA	GAME LAND	NC WILDLIFE RESOURCES COMMISSION	
STATE PROTECTED AREA	GAME LAND	PCS PHOSPHATE COMPANY INC.	
STATE PROTECTED AREA	OUTSTANDING RESOURCE AND/OR HIGH QUALITY WATERS	NC DENR WATER QUALITY DIVISION	

JURISDICTIONS

COUNTY: BEAUFORT, PAMLICO
COAST GUARD: DISTRICT 5, SECTOR NORTH CAROLINA
USACE: SOUTH ATLANTIC DIVISION, WILMINGTON DISTRICT

FEMA: REGION I
EPA: REGION 4

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	2,302.43	3.60
10B	Freshwater Marshes	295.70	0.46
10C	Swamps	11,043.85	17.26
10D	Scrub and Shrub Wetlands	1,399.59	2.19
9A	Sheltered Tidal Flats	0.34	0.00
7	Exposed Tidal Flats	590.56	0.92



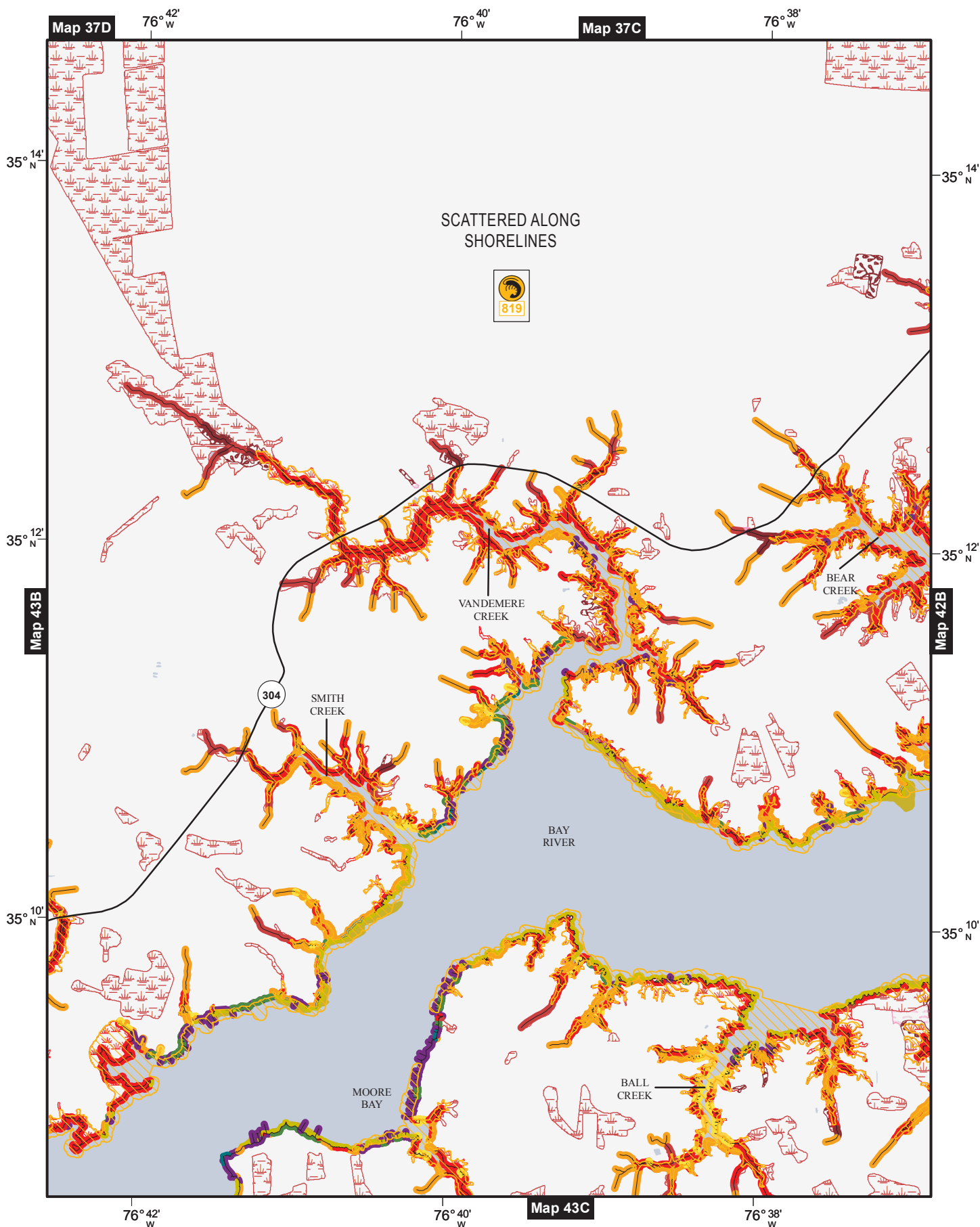
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	232,455.30	144.44	48%
10B	Freshwater marshes	4,320.12	2.68	1%
10C	Swamps	49,957.88	31.04	10%
10D	Scrub-shrub wetlands	11,357.92	7.06	2%
9A	Sheltered tidal flats	168.71	0.10	< 1%
9B	Sheltered, vegetated low banks	104,453.43	64.90	22%
8B	Sheltered, solid man-made structures	11,864.40	7.37	2%
8C	Sheltered riprap	3,859.30	2.40	1%
7	Exposed tidal flats	35,074.38	21.79	7%
6B	Exposed riprap	11,003.04	6.84	2%
3A	Fine- to medium-grained sand beaches	1,635.87	1.02	< 1%
1B	Exposed, solid man-made structures	14,730.03	9.15	3%
Total ESI Shoreline:		480,880.38	298.81	
Total Shoreline:		427,782.37	265.81	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov

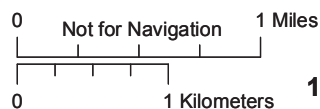




Map 43A North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



1:50,000



BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence
SAV	Submerged aquatic veg	High Ecological Value			Present	J F M A M J J A S O N D

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence	Spawn	Eggs	Larvae	Juveniles	Adults
819	Shrimp	Brown shrimp	Nursery Area			Abundant	J F M A M J J A S O N D	-	-	Feb-Apr	Mar-Aug	-
	Shrimp	White shrimp	Nursery Area			Common	J F M A M J J A S O N D	-	-	Jun-Dec	Jul-Feb	-

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)


BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence	Nest	Mig.(S)	Mig.(F)	Molt
Waterfowl	American black duck	Wintering			-	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	American black duck	Wintering			100S	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	American coot	Wintering			1000S	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			1000S	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			-	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	Black scoter	Wintering			-	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering			-	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			-	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			1000S	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering			100S	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering			-	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			10000S	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			-	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	Greater scaup	Wintering			-	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering			100S	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering			-	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	Lesser scaup	Wintering			-	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering			-	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	Mergansers	Wintering			100S	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			-	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			1000S	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			-	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			100S	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering			-	J F M A M J J A S O N D	-	Feb-Mar	Oct-Nov	-

BIRDS (continued)

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Ruddy duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Scoters	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Tundra swan	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-	-

FISH


Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous	General Distribution			-													-	-	-	Jan-Dec	Jan-Dec
	Estuarine flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Manatee	General Distribution			-													-	-	-	-
	West Indian manatee	General Distribution			-													-	-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)



BENTHIC

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	SAV												
	Submerged aquatic veg												

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Waterfowl	General Distribution			-													Apr-May	-	-	-
	Wood duck	General Distribution			-													Mar-Jun	-	-	-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife	General Distribution			-													-	-	-	Jul-Oct	-
	American eel	General Distribution			-													-	-	Jan-Dec	Jan-Dec	Sep-Dec
	American shad	General Distribution			-													-	-	Mar-Jul	May-Nov	-
	Blueback herring	General Distribution			-													-	-	May-Jul	Jul-Mar	Oct-Mar
	Hickory shad	General Distribution			-													-	-	-	-	Jan-Apr
	Striped bass	General Distribution			-													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker	General Distribution			-													-	-	Sep-Mar	Jan-Dec	Feb-Dec
	Atlantic menhaden	General Distribution			-													-	-	-	-	Feb-Dec*
	Bay anchovy	General Distribution			-													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
		General Distribution			-													-	-	-	-	-

North Carolina: Map 43A

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Bluefish													-	-	-	Mar-Nov	-
	Ladyfish													-	-	-	-	Sep-Oct
	Pinfish													-	-	Jan-Jun	Jan-Dec	Jun-Oct
	Red drum													Aug-Oct	Aug-Oct	Sep-Apr	Jan-Dec	Jan-Dec
	Spot													-	-	Jan-May	Jun-Dec	-
	Spotted seatrout													May-Aug	May-Aug	Jun-Aug	Jun-Oct	-
	Striped mullet													-	-	-	Jan-Dec	-
	Summer flounder													-	-	Oct-May	Jan-Dec	-
	Weakfish													Mar-Oct	Mar-Oct	-	Jan-Dec	Jan-Dec
	White perch													Mar-Jun	Mar-Jun	May-Aug	Jun-Oct	-
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Aug	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	-	-	-

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Florida stone crab													May-Aug	May-Aug	-	-	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

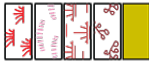
MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	702.69	1.10
10B	Freshwater Marshes	13.71	0.02
10C	Swamps	1,524.66	2.38
10D	Scrub and Shrub Wetlands	76.82	0.12
7	Exposed Tidal Flats	185.43	0.29



ESI SHORELINE HABITAT TYPES

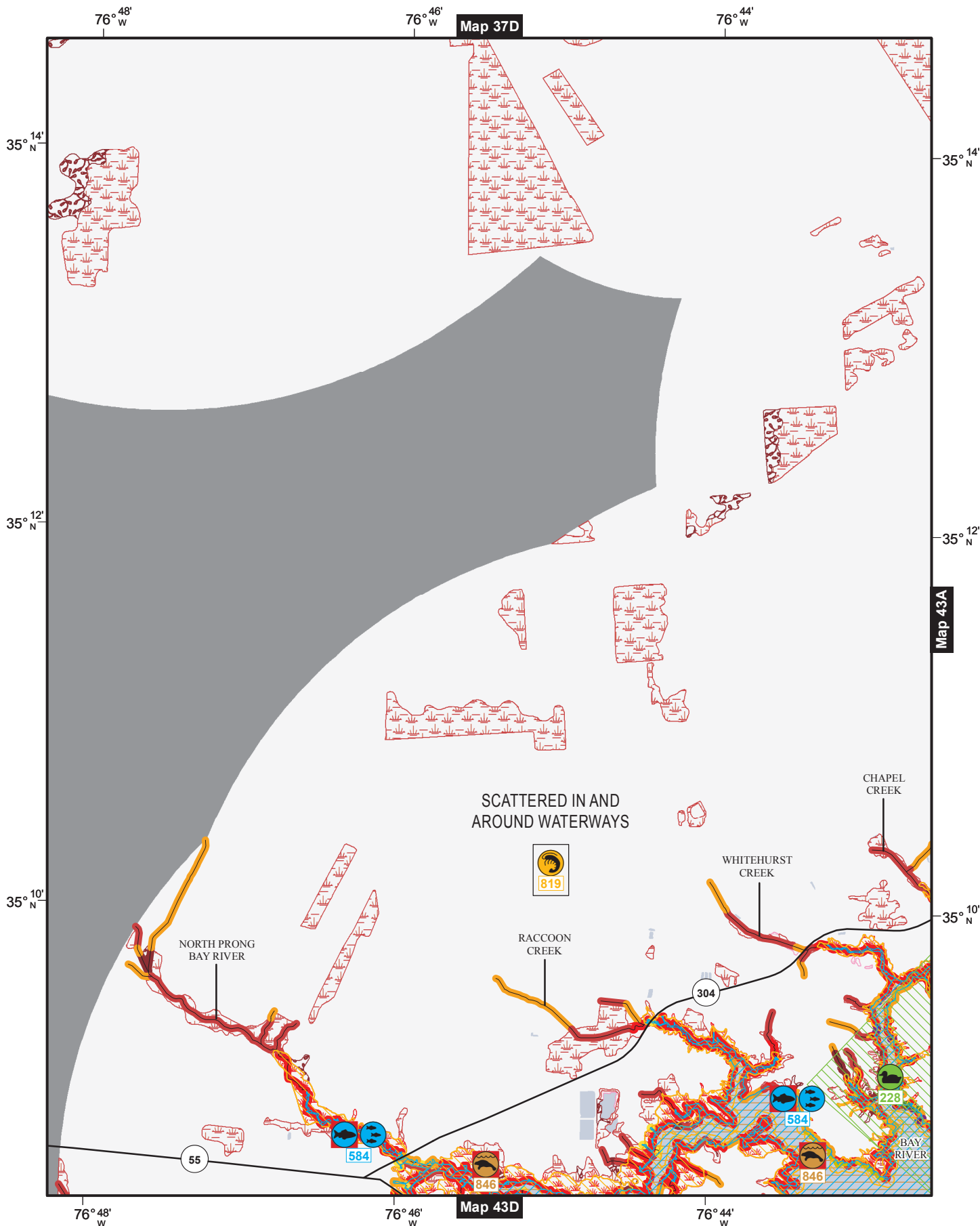
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	85,618.53	53.20	46%
10B	Freshwater marshes	94.17	0.06	< 1%
10C	Swamps	9,038.85	5.62	5%
10D	Scrub-shrub wetlands	1,978.61	1.23	1%
9B	Sheltered, vegetated low banks	42,100.09	26.16	23%
8B	Sheltered, solid man-made structures	4,089.09	2.54	2%
8C	Sheltered riprap	1,952.89	1.21	1%
7	Exposed tidal flats	22,240.10	13.82	12%
6B	Exposed riprap	6,300.32	3.91	3%
3A	Fine- to medium-grained sand beaches	809.80	0.50	< 1%
1B	Exposed, solid man-made structures	10,581.52	6.58	6%

Total ESI Shoreline: 184,803.98 Total ESI Shoreline: 114.83
 Total Shoreline: 154,380.30 Total Shoreline: 95.93

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 43B
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
228	Waterfowl	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	American coot	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	American wigeon	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Canvasback	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Gadwall	Wintering			10000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Green-winged teal	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Mergansers	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Northern pintail	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Ruddy duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Scoters	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Tundra swan	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
584	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-


INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
819	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-

MARINE MAMMALS


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
846	Manatee	West Indian manatee	General Distribution	E	E	-													-	-	-	-

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Black scoter	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Greater scaup	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Lesser scaup	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Ring-necked duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BENTHIC

Subelement
SAV 



Species
Submerged aquatic veg



BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck													Apr-May	-	-	-
	Wood duck													Mar-Jun	-	-	-

FISH

	Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
			J	F	M	A	M	J	J	A	S	O	N	D				
	Diadromous	Alewife													-	-	Jul-Oct	-
		American eel													-	Jan-Dec	Jan-Dec	Sep-Dec
		American shad													-	Mar-Jul	May-Nov	-
		Blueback herring													-	May-Jul	Jul-Mar	Oct-Mar
		Hickory shad													-	-	-	Jan-Apr
		Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec
		Atlantic croaker													-	-	Sep-Mar	Jan-Dec
		Atlantic menhaden													-	-	-	Feb-Dec*

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Bluefish													-	-	-	Mar-Nov	-
	Ladyfish													-	-	-	-	Sep-Oct
	Pinfish													-	-	Jan-Jun	Jan-Dec	Jan-Oct
	Red drum													Aug-Oct	Aug-Oct	Sep-Apr	Jan-Dec	Jan-Dec
	Spot													-	-	Jan-May	Jun-Dec	-
	Spotted seatrout													May-Aug	May-Aug	Jun-Aug	Jun-Oct	-
	Striped mullet													-	-	-	Jan-Dec	-
	Summer flounder													-	-	Oct-May	Jan-Dec	-
	Weakfish													Mar-Oct	Mar-Oct	-	Jan-Dec	Jan-Dec
	White perch													Mar-Jun	Mar-Jun	May-Aug	Jun-Oct	-
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Aug	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	-	-	-

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
Crab	Blue crab													-	-	-	Jan-Dec	Jan-Dec
Shrimp	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
Dolphin	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	379.95	0.59
10B	Freshwater Marshes	6.08	0.01
10C	Swamps	1,489.50	2.33
10D	Scrub and Shrub Wetlands	112.56	0.18
7	Exposed Tidal Flats	4.62	0.01

ESI SHORELINE HABITAT TYPES

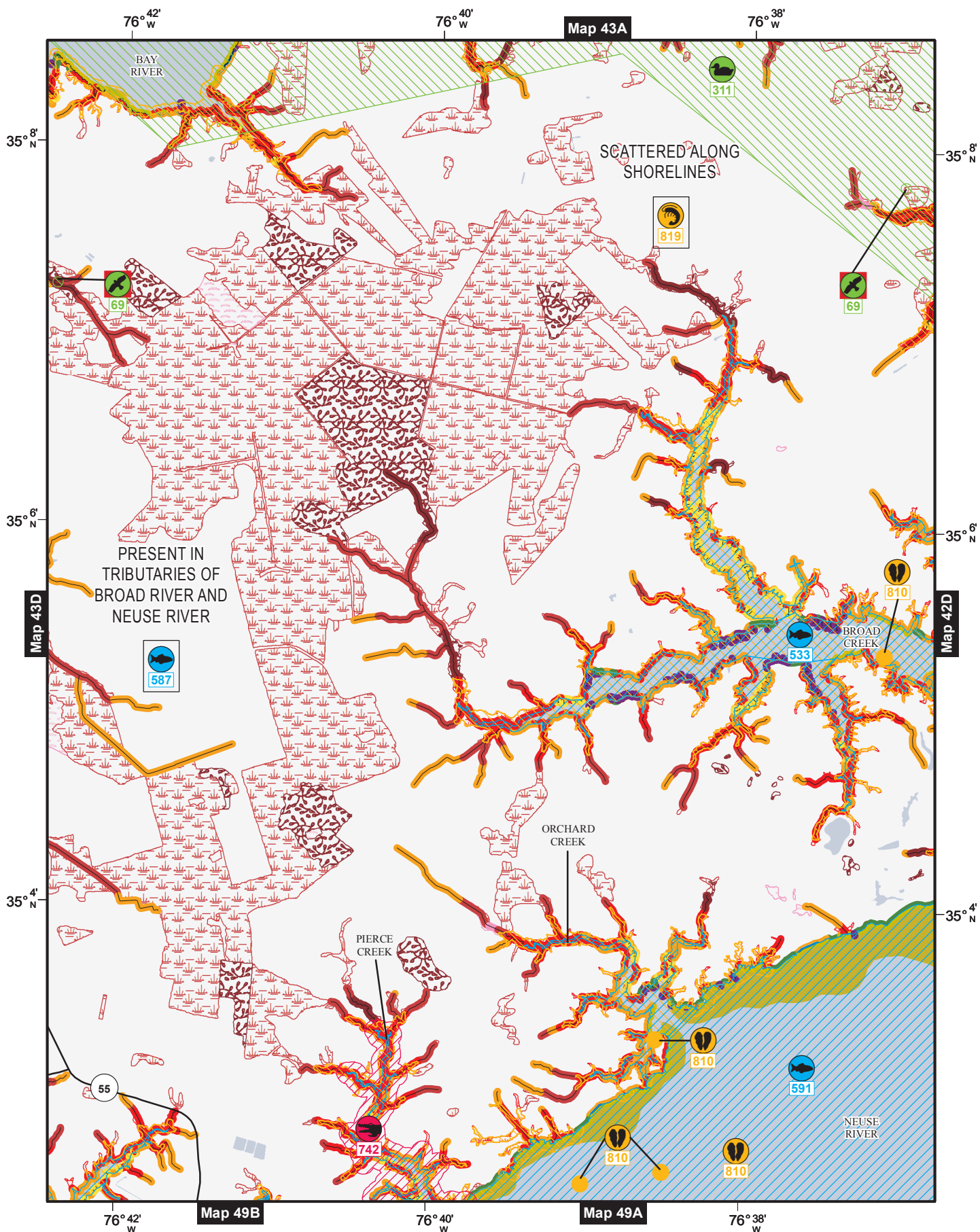
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	32,883.39	20.43	61%
10C	Swamps	8,247.14	5.12	15%
10D	Scrub-shrub wetlands	1,724.04	1.07	3%
9B	Sheltered, vegetated low banks	8,890.64	5.52	16%
8B	Sheltered, solid man-made structures	820.48	0.51	2%
8C	Sheltered riprap	23.01	0.01	< 1%
7	Exposed tidal flats	1,184.48	0.74	2%
6B	Exposed riprap	85.82	0.05	< 1%
1B	Exposed, solid man-made structures	309.03	0.19	1%

Total ESI Shoreline: 54,168.04 Total ESI Shoreline: 33.66
 Total Shoreline: 50,860.59 Total Shoreline: 31.60

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S T	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
69	Raptor	Bald eagle	Nesting			1 Pair													Jan-Jun	-	-	-	-
311	Waterfowl	American wigeon	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Canvasback	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Gadwall	Wintering			10000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Green-winged teal	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Northern pintail	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Ruddy duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Scoters	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Tundra swan	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
533	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
587	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
591	Diadromous	Alewife	Migration			Present													-	-	May-Aug	Jul-Mar	-
	Diadromous	Blueback herring	Migration			Present													-	-	May-Jul	Aug-Oct	-


REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
742	Alligator	American alligator	Vulnerable Occurrence			-													May-Jul	Jul-Sep	-	Jan-Dec	Jan-Dec



INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
810	Bivalve	Eastern oyster	Concentration Area			High													Jun-Nov	Jun-Nov	Jun-Nov	Jan-Dec	Jan-Dec
819	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Waterfowl	American black duck			-													-	Feb-Mar	Oct-Nov	-	-
		American black duck			100S													-	Feb-Mar	Oct-Nov	-	-
		American coot			1000S													-	Feb-Mar	Oct-Nov	-	-
		American wigeon			-													-	Feb-Mar	Oct-Nov	-	-
		Black scoter			-													-	Feb-Mar	Oct-Nov	-	-
		Blue-winged teal			-													-	Feb-Mar	Oct-Nov	-	-
		Bufflehead			1000S													-	Feb-Mar	Oct-Nov	-	-
		Bufflehead			-													-	Feb-Mar	Oct-Nov	-	-
		Canvasback			-													-	Feb-Mar	Oct-Nov	-	-
		Gadwall			-													-	Feb-Mar	Oct-Nov	-	-
		Gadwall			100S													-	Feb-Mar	Oct-Nov	-	-
		Greater scaup			-													-	Feb-Mar	Oct-Nov	-	-
		Green-winged teal			-													-	Feb-Mar	Oct-Nov	-	-
		Lesser scaup			-													-	Feb-Mar	Oct-Nov	-	-
		Mallard			-													-	Feb-Mar	Oct-Nov	-	-
		Mergansers			100S													-	Feb-Mar	Oct-Nov	-	-
		Northern pintail			-													-	Feb-Mar	Oct-Nov	-	-
		Northern shoveler			-													-	Feb-Mar	Oct-Nov	-	-
		Northern shoveler			100S													-	Feb-Mar	Oct-Nov	-	-
		Red-breasted merganser			100S													-	Feb-Mar	Oct-Nov	-	-
		Redhead			-													-	Feb-Mar	Oct-Nov	-	-
		Ring-necked duck			-													-	Feb-Mar	Oct-Nov	-	-
		Ruddy duck			1000S													-	Feb-Mar	Oct-Nov	-	-
		Scaup			1000S													-	Feb-Mar	Oct-Nov	-	-
		Sooters			1000S													-	Feb-Mar	Oct-Nov	-	-
		Surf scoter			-													-	Feb-Mar	Oct-Nov	-	-
		Wood duck			-													-	Feb-Mar	Oct-Nov	-	-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous	American shad			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
		Atlantic sturgeon	C		-													-	-	-	Jan-Dec	Jan-Dec
	Estuarine Nursery	Atlantic sturgeon	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
		Southern flounder			Abundant													-	-	Dec-Mar	Jan-Dec	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Manatee	General Distribution	E		-													-	-	-	-
		West Indian manatee			-													-	-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BENTHIC

[illegible]

BIRDS





	Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig.(S)	Mig.(F)	Molt
	Waterfowl	American black duck													Apr-May	-	-	-
		Wood duck													Mar-Jun	-	-	-

FISH



Subelement	Species	Month												Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D			
Diadromous	Alewife													-	-	-
	American eel													-	Jan-Jun	Aug-Dec
	American eel													-	Jan-Dec	Jan-Dec
	American shad													-	Mar-Jul	May-Nov
	Blueback herring													-	May-Jul	Jul-Mar
Estuarine Nursery	Hickory shad													-	-	Jan-Apr
	Striped bass													Mar-May	Apr-Jun	Jan-Dec
	Atlantic croaker													-	Jan-Mar	Jan-Dec
	Atlantic croaker													-	Sep-Mar	Jan-Dec
	Atlantic menhaden													-	-	Feb-Dec*
	Atlantic menhaden													-	Dec-Jun	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Oct	Jan-Dec
	Black drum													-	-	Mar-Nov
	Bluefish													-	-	Mar-Nov
	Bluefish													-	-	Mar-Apr
	Hogchoker													-	-	Jan-Dec
	Ladyfish													-	-	Jan-Dec
	Ladyfish													-	-	Sep-Oct
	Pinfish													-	-	Apr-Sep
	Red drum													-	Jan-Jun	Jan-Dec
	Red drum													Aug-Oct	Sep-Apr	Jan-Dec
	Sheepshead													-	-	Jun-Nov
	Southern kingfish													-	Jun-Nov	Jun-Oct
	Spot													-	Jun-Sep	Jul-Oct
	Spot													-	Dec-Feb	Mar-Sep
	Spotted seatrout													-	Jan-May	Jun-Dec
	Spotted seatrout													-	-	Jan-Dec
	Striped mullet													May-Aug	May-Aug	Jun-Oct
	Striped mullet													-	-	Jan-Dec
	Striped mullet													-	Nov-May	Jan-Dec
	Summer flounder													-	Oct-May	Jan-Dec
	Summer flounder													-	Oct-May	Jan-Dec

North Carolina: Map 43C

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Weakfish													Mar-Oct	Mar-Oct	-	Jan-Dec	Jan-Dec
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Mar-Oct
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	White perch													Mar-Jun	Mar-Jun	May-Aug	Jun-Oct	-
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Chain pickerel													-	-	-	-	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic spadefish													-	-	-	Jun-Aug	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	-	-	-
	Spanish mackerel													-	-	-	Jul-Nov	Jun-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Blue crab													-	-	May-Oct	-	Jan-Dec
	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

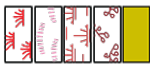
MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	521.97	0.82
10B	Freshwater Marshes	84.62	0.13
10C	Swamps	4,709.93	7.36
10D	Scrub and Shrub Wetlands	770.98	1.20
7	Exposed Tidal Flats	400.41	0.63



ESI SHORELINE HABITAT TYPES

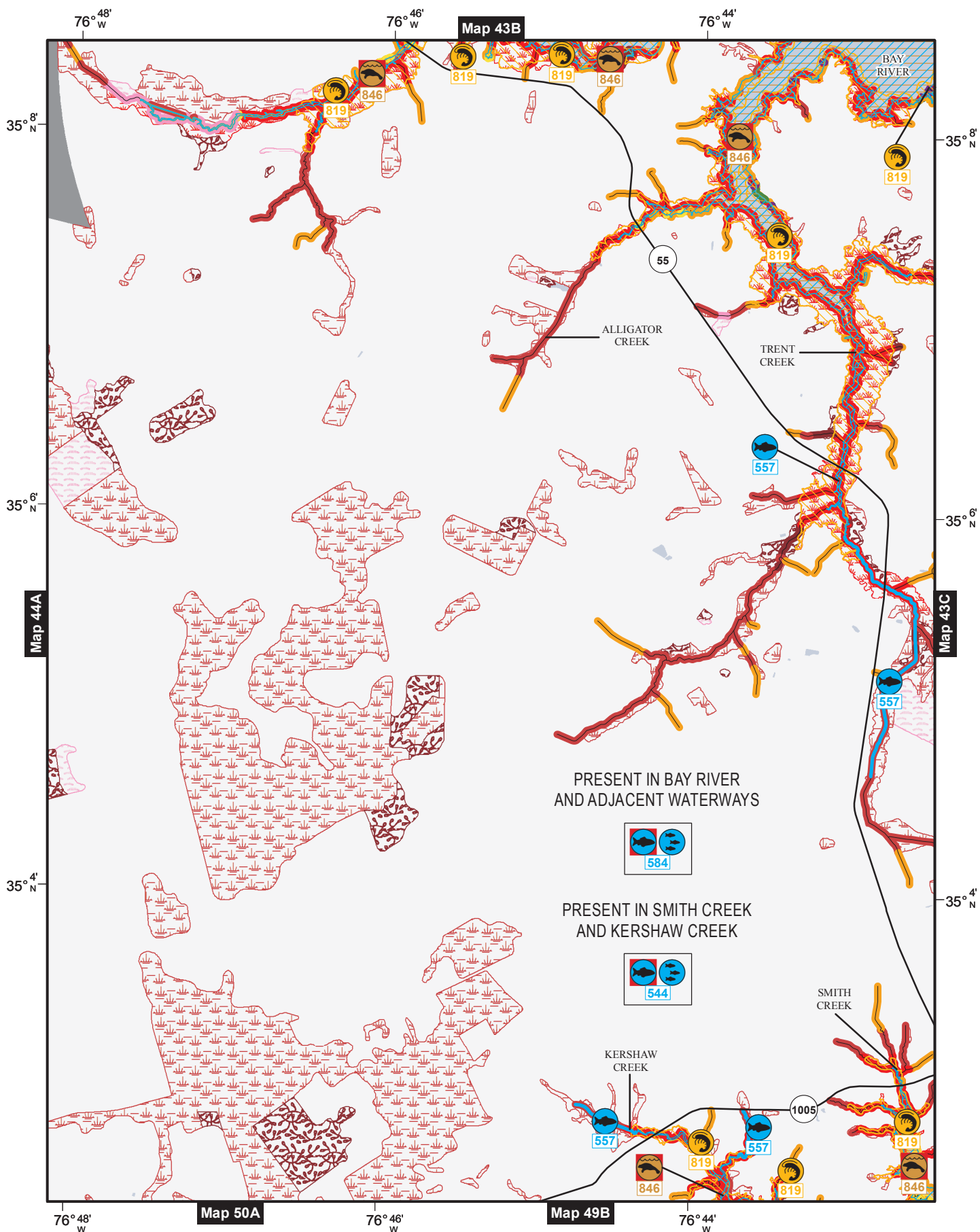
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	66,137.44	41.10	43%
10B	Freshwater marshes	315.12	0.20	< 1%
10C	Swamps	16,386.53	10.18	11%
10D	Scrub-shrub wetlands	5,554.03	3.45	4%
9B	Sheltered, vegetated low banks	39,282.10	24.41	25%
8B	Sheltered, solid man-made structures	5,715.13	3.55	4%
8C	Sheltered riprap	1,490.08	0.93	1%
7	Exposed tidal flats	11,649.55	7.24	8%
6B	Exposed riprap	4,317.22	2.68	3%
3A	Fine- to medium-grained sand beaches	812.06	0.50	1%
1B	Exposed, solid man-made structures	3,526.44	2.19	2%

Total ESI Shoreline: 155,185.71 Total ESI Shoreline: 96.43
 Total Shoreline: 137,788.12 Total Shoreline: 85.62

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 43D North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016

Map 43D
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
544	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
557	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
584	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
819	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-

MARINE MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
846	Manatee	West Indian manatee	General Distribution	E	E	-													-	-	-	-

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
846	Waterfowl	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
		American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
		Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
						-													-	Feb-Mar	Oct-Nov	-

BIRDS (continued)

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)



BENTHIC

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
 SAV	Submerged aquatic veg												

BIRDS





Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
 Waterfowl	American black duck													Apr-May	-	-	-
	Wood duck													Mar-Jun	-	-	-

FISH


Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Diadromous	Alewife													-	-	-	Jul-Oct	-
	American eel													-	-	Jan-Dec	Jan-Dec	Sep-Dec
	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Blueback herring													-	-	May-Jul	Jul-Mar	Oct-Mar
	Hickory shad													-	-	-	-	Jan-Apr
 Estuarine Nursery	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Sep-Mar	Jan-Dec	Feb-Dec
	Atlantic croaker													-	-	Jan-Mar	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	-	-	Feb-Dec*
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Mar-Nov	Jun-Nov
	Bluefish													-	-	-	Mar-Apr	May-Nov
	Bluefish													-	-	-	Mar-Nov	-
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	-	Sep-Oct
	Ladyfish													-	-	-	Apr-Sep	Jan-Dec
	Pinfish													-	-	Jan-Jun	Jan-Dec	Jun-Oct

North Carolina: Map 43D

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Red drum													Aug-Oct	Aug-Oct	Sep-Apr	Jan-Dec	Jan-Dec
	Red drum													-	-	Aug-Dec	Jan-Dec	-
	Sheepshead													-	-	-	Jan-Nov	Jun-Oct
	Southern kingfish													-	-	Jun-Sep	May-Nov	Jul-Oct
	Spot													-	-	Jan-May	Jun-Dec	-
	Spot													-	-	Dec-Feb	Jan-Dec	Mar-Sep
	Spotted seatrout													May-Aug	May-Aug	Jun-Aug	Jun-Oct	-
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	Nov-May	Jan-Dec	Apr-Nov
	Striped mullet													-	-	-	Jan-Dec	-
	Summer flounder													-	-	Oct-May	Jan-Dec	May-Oct
	Summer flounder													-	-	Oct-May	Jan-Dec	-
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Mar-Oct
	Weakfish													Mar-Oct	Mar-Oct	-	Jan-Dec	Jan-Dec
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	White perch													Mar-Jun	Mar-Jun	May-Aug	Jun-Oct	-
	Estuarine Resident													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Inland silverside													Jun-Aug	Jun-Aug	Jun-Sep	Jun-Nov	-
	Silver perch													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Freshwater													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Bowfin													-	-	-	-	Jan-Dec
	Chain pickerel													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Largemouth bass													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Longnose gar													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Marine Benthic													-	-	-	Jun-Aug	-
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic spadefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Marine Pelagic													-	-	-	-	-
	Atlantic needlefish													-	-	-	-	-
	Spanish mackerel													-	-	-	Jul-Nov	Jun-Aug
	Spanish mackerel													-	-	-	-	-

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Crab													-	-	-	Jan-Dec	Jan-Dec
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

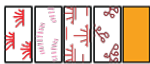
MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Dolphin													Sep-Oct	Sep-Oct	-	-
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	697.62	1.09
10B	Freshwater Marshes	191.30	0.30
10C	Swamps	3,321.62	5.19
10D	Scrub and Shrub Wetlands	439.17	0.69
9A	Sheltered Tidal Flats	0.34	0.00



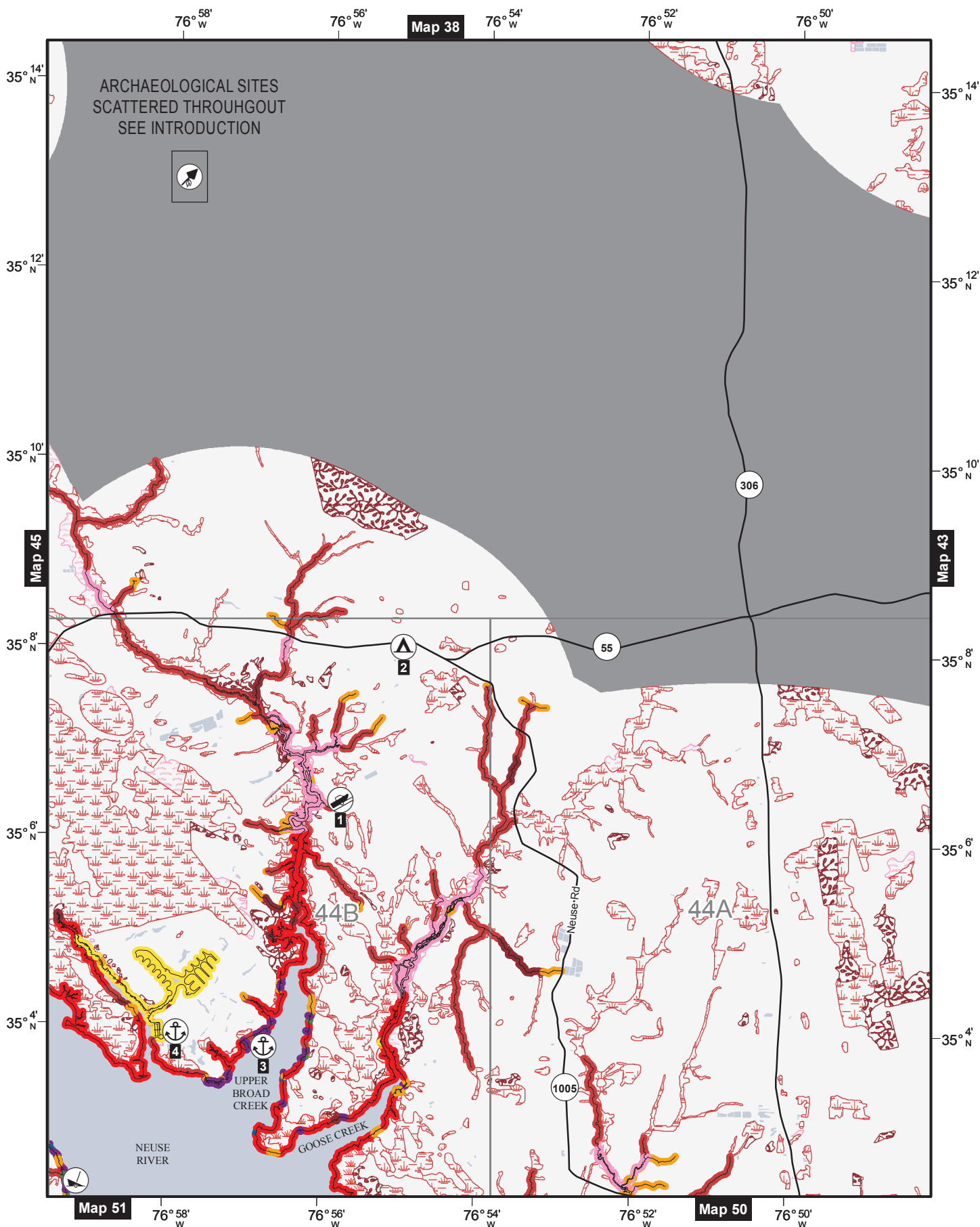
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	47,790.13	29.70	55%
10B	Freshwater marshes	3,910.82	2.43	5%
10C	Swamps	16,280.42	10.12	19%
10D	Scrub-shrub wetlands	2,101.23	1.31	2%
9A	Sheltered tidal flats	168.71	0.10	< 1%
9B	Sheltered, vegetated low banks	14,156.97	8.80	16%
8B	Sheltered, solid man-made structures	1,235.25	0.77	1%
8C	Sheltered riprap	393.31	0.24	< 1%
6B	Exposed riprap	297.02	0.18	< 1%
3A	Fine- to medium-grained sand beaches	14.01	0.01	< 1%
1B	Exposed, solid man-made structures	313.04	0.19	< 1%
Total ESI Shoreline:		86,660.91	53.85	
Total Shoreline:		84,695.02	52.63	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 44

North Carolina



SEE BACK OF MAP
for details about mapped resources and
other resources that occur in mapped area.
Data Published: November 2016

0 Not for Navigation 2 Miles
0 2 Kilometers

1:100,000



HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Phone
1	BOAT RAMP	LEES LANDING	252-514-6582
2	CAMPGROUND	MOONLIGHT LAKE RV PARK	252-745-9800
3	MARINA	BLACKBEARD SAILING CLUB	252-633-3900
4	MARINA	NORTHWEST CREEK MARINA AND FARIFIELD HARBOR	252-638-4133

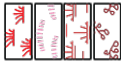
ALSO PRESENT IN MAPPED AREA (POLYGONS)			
Type	Name	Contact	Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; COASTAL MIG. PELAGICS	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SPINY LOBSTER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
STATE PROTECTED AREA	GAME LAND	NC WILDLIFE RESOURCES COMMISSION	
STATE PROTECTED AREA	OUTSTANDING RESOURCE AND/OR HIGH QUALITY WATERS	NC DENR WATER QUALITY DIVISION	

JURISDICTIONS

COUNTY:	BEAUFORT, CRAVEN, PAMLICO	FEMA:	REGION 1
COAST GUARD:	DISTRICT 5, SECTOR NORTH CAROLINA	EPA:	REGION 4
USACE:	SOUTH ATLANTIC DIVISION, WILMINGTON DISTRICT		

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	808.97	1.26
10B	Freshwater Marshes	752.13	1.18
10C	Swamps	8,852.50	13.83
10D	Scrub and Shrub Wetlands	1,683.74	2.63



ESI SHORELINE HABITAT TYPES

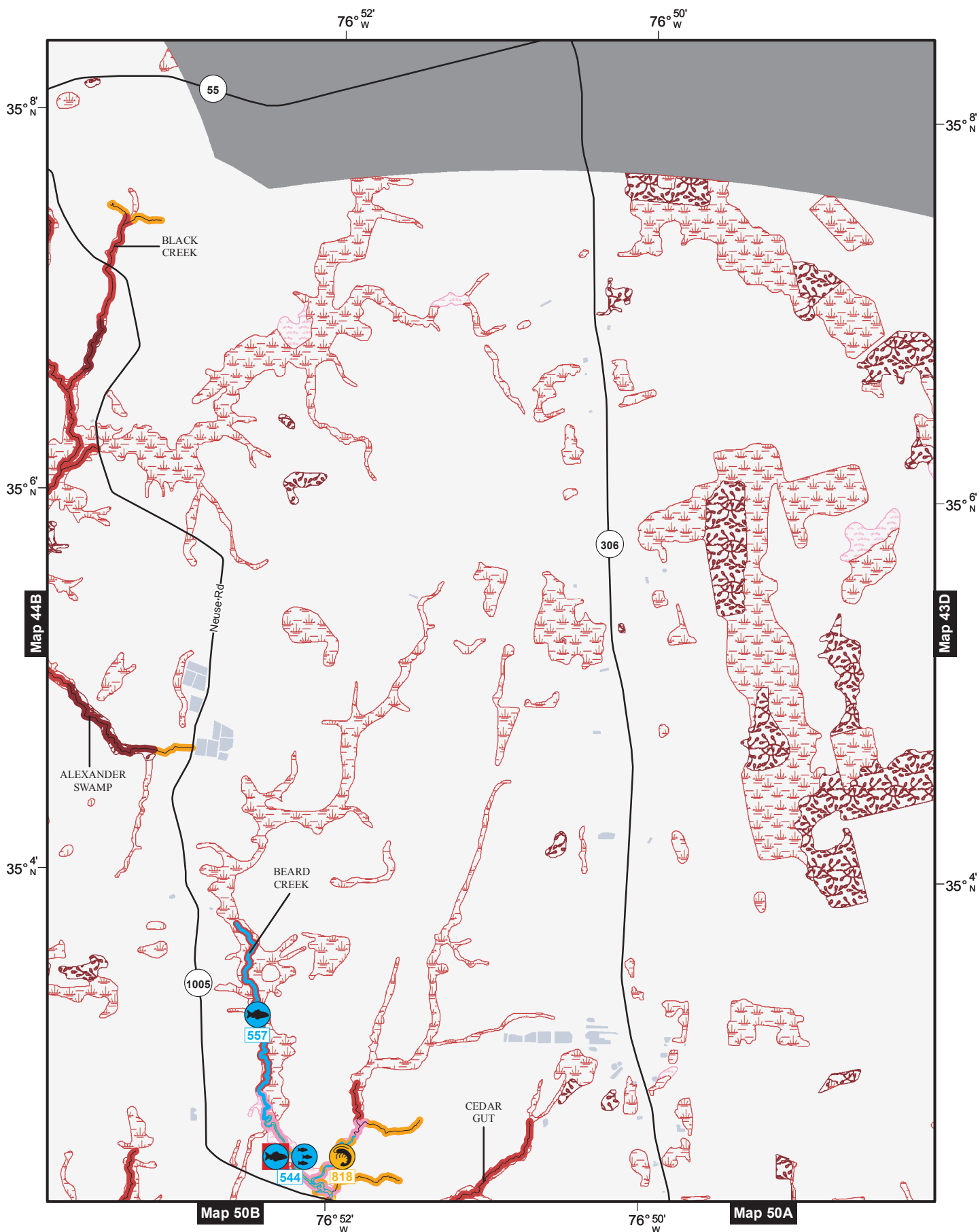
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	53,107.60	33.00	31%
10B	Freshwater marshes	35,575.30	22.11	21%
10C	Swamps	43,419.59	26.98	26%
10D	Scrub-shrub wetlands	7,046.27	4.38	4%
9B	Sheltered, vegetated low banks	13,042.61	8.10	8%
8B	Sheltered, solid man-made structures	12,751.35	7.92	8%
8C	Sheltered riprap	18.77	0.01	< 1%
6B	Exposed riprap	482.19	0.30	< 1%
3A	Fine- to medium-grained sand beaches	350.10	0.22	< 1%
1B	Exposed, solid man-made structures	4,007.67	2.49	2%

Total ESI Shoreline: 169,801.46 Total ESI Shoreline: 105.51
 Total Shoreline: 167,150.26 Total Shoreline: 103.86

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
544	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													Sep-May*	Sep-May*	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Mar-Jul	Mar-Jul	May-Jul	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
557	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
818	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	Pink shrimp	Nursery Area			Rare													-	-	May-Nov	Jan-Dec	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

<div><div></div></div>	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt	
							J	F	M	A	M	J	J	A	S	O	N	D					
<div><div></div></div>	Waterfowl	American black duck	Wintering			-												-	Feb-Mar	Oct-Nov	-	-	
		American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
		Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
		Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
		Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
		Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
		Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
		Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
		Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
		Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
		Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
		Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
		Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
		Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
		Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-	-

BIRDS (continued)

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Surf scoter	Wintering	-															-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering	-															-	Feb-Mar	Oct-Nov	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)






BENTHIC

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Submerged aquatic veg												

BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck													Apr-May	-	-	-
	Wood duck													Mar-Jun	-	-	-

FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Hickory shad													-	-	-	-	Jan-Apr
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Jan-Mar	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Mar-Nov	Jun-Nov
	Bluefish													-	-	-	Mar-Apr	May-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	Apr-Sep	-
	Pinfish													-	-	Jan-Jun	Jan-Dec	Jun-Oct
	Red drum													-	-	Aug-Dec	Jan-Dec	-
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish													-	-	Jun-Sep	May-Nov	Jul-Oct
	Spot													-	-	Dec-Feb	Jan-Dec	Mar-Sep
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	Nov-May	Jan-Dec	Apr-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	May-Oct
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Mar-Oct
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Sep	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Bluegill													Apr-Oct	Apr-Oct	-	Jan-Dec	Jan-Dec

FISH (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bowfin													Mar-Jun	-	Jan-Dec	Jan-Dec
	Chain pickerel													-	-	-	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	Jun-Sep	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Oct	-
	Spanish mackerel													-	-	Jul-Nov	Jun-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
Crab	Blue crab													-	-	Jan-Dec	Jan-Dec
Shrimp	Brown shrimp													-	Feb-Apr	Mar-Aug	-
	Pink shrimp													-	May-Nov	Jan-Dec	-
	White shrimp													-	Jun-Dec	Dec-Feb	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES			Area (Sq. Miles)	
ESI Rank	Habitat Classification	Area (Acres)	Length (Meters)	Length (Miles)
10A	Salt and Brackish Water Marshes	0.55	9.18	0.01
10B	Freshwater Marshes	104.38	4,503.92	2.80
10C	Swamps	2,639.94	8,858.68	5.50
10D	Scrub and Shrub Wetlands	714.06	2,023.28	1.26

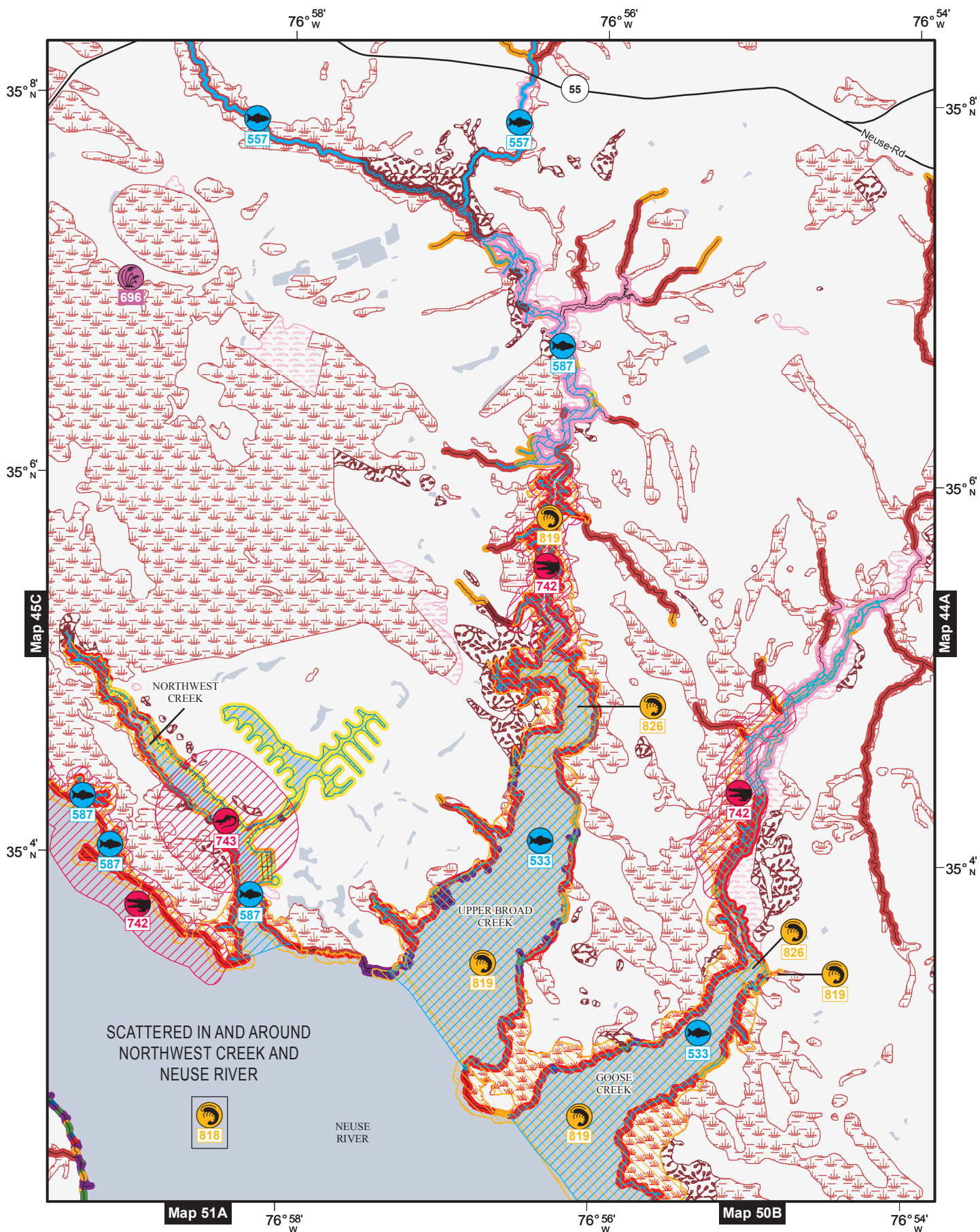
ESI SHORELINE HABITAT TYPES			Area (Sq. Miles)	
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	9.18	0.01	< 1%
10B	Freshwater marshes	4,503.92	2.80	24%
10C	Swamps	8,858.68	5.50	48%
10D	Scrub-shrub wetlands	2,023.28	1.26	11%
9B	Sheltered, vegetated low banks	3,154.61	1.96	17%
8B	Sheltered, solid man-made structures	28.06	0.02	< 1%

Total ESI Shoreline: 18,577.72 Total ESI Shoreline: 11.54
Total Shoreline: 18,577.72 Total Shoreline: 11.54

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
533	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
557	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
587	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
							J	F	M	A	M	J	J	A	S	O	N	D
696	Wetland	Rare wetland community	Vulnerable Occurrence			Current												



REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
742	Alligator	American alligator	Vulnerable Occurrence			-													May-Jul	Jul-Sep	-	Jan-Dec	Jan-Dec
743	Snake	Rainbow snake	Vulnerable Occurrence			-													May-Sep	Aug-Nov	-	Jan-Dec	Jan-Dec



INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
818	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	Pink shrimp	Nursery Area			Rare													-	-	May-Nov	Jan-Dec	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-
819	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-
826	Shrimp	Brown shrimp	Nursery Area			-													-	-	Feb-Apr	Mar-Aug	-

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	American coot	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Mergansers	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Red-breasted merganser	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Ruddy duck	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Scoters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife	Migration			Present													-	-	May-Aug	Jul-Mar	-
	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Blueback herring	Migration			Present													-	-	May-Jul	Aug-Oct	-
	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	West Indian manatee	General Distribution	E		-													-	-	-	-

BENTHIC

Subelement	Species
SAV	Submerged aquatic veg



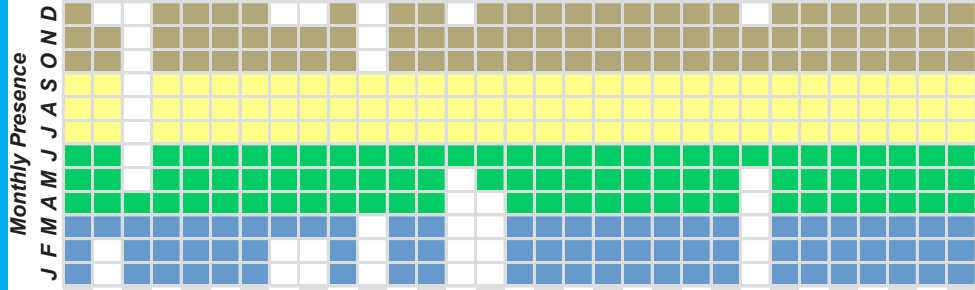
BIRDS

Subelement	Species
Waterfowl	American black duck
	Wood duck





FISH


Subelement	Species
Diadromous	American eel
	American shad
	Hickory shad
	Striped bass
Estuarine Nursery	Atlantic croaker
	Atlantic menhaden
	Bay anchovy
	Black drum
	Bluefish
	Hogchoker
	Ladyfish
	Pinfish
	Red drum
	Sheepshead
	Southern kingfish
	Spot
	Spotted seatrout
	Striped mullet
	Summer flounder
	Weakfish
	White mullet
Estuarine Resident	White perch
	Inland silverside
	Silver perch
Freshwater	Striped killifish
	Bluegill
	Bowfin
	Chain pickerel
	Largemouth bass
	Longnose gar
	Redfin pickerel



FISH (continued)

Subelement	Species	Monthly Presence												Eggs	Spawn	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Marine Benthic	Yellow perch																	
 Marine Pelagic	Atlantic spadefish																	
	Atlantic needlefish																	
	Spanish mackerel																	

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Spawn	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Crab	Blue crab																	
 Shrimp	Brown shrimp																	
	Pink shrimp																	
	White shrimp																	

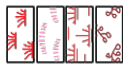
MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
 Dolphin	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	808.28	1.26
10B	Freshwater Marshes	497.43	0.78
10C	Swamps	5,440.93	8.50
10D	Scrub and Shrub Wetlands	530.77	0.83



ESI SHORELINE HABITAT TYPES

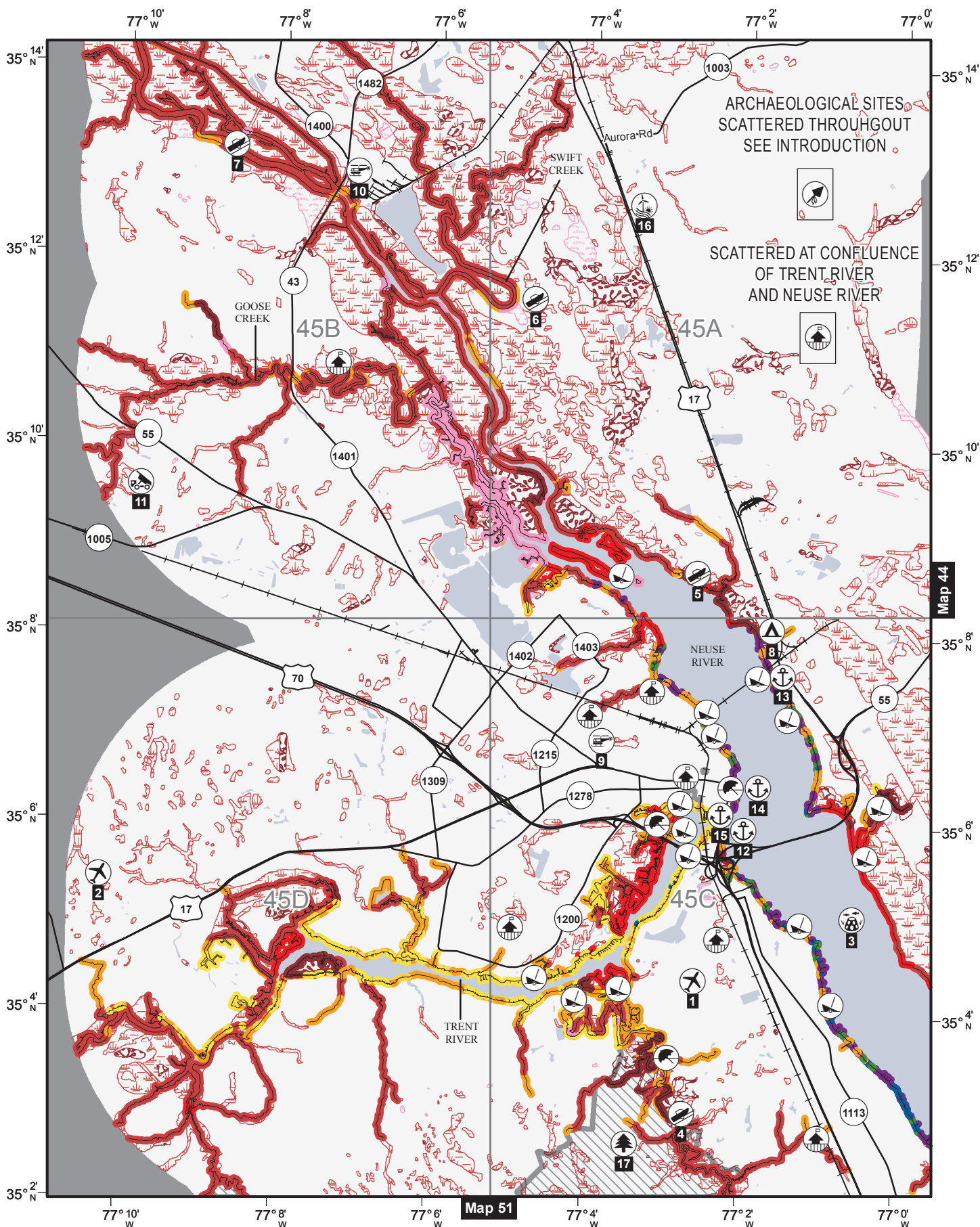
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	53,092.01	32.99	38%
10B	Freshwater marshes	29,956.78	18.61	21%
10C	Swamps	25,637.56	15.93	18%
10D	Scrub-shrub wetlands	5,022.99	3.12	4%
9B	Sheltered, vegetated low banks	9,453.55	5.87	7%
8B	Sheltered, solid man-made structures	12,723.29	7.91	9%
8C	Sheltered riprap	18.77	0.01	< 1%
6B	Exposed riprap	482.14	0.30	< 1%
3A	Fine- to medium-grained sand beaches	350.10	0.22	< 1%
1B	Exposed, solid man-made structures	4,007.60	2.49	3%

Total ESI Shoreline: 140,744.80 Total ESI Shoreline: 87.45
 Total Shoreline: 138,093.83 Total Shoreline: 85.81

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 45
North Carolina



SEE BACK OF MAP
for details about mapped resources and
other resources that occur in mapped area.
Data Published: November 2016

0 Not for Navigation 2 Miles
0 2 Kilometers

1:100,000

Map 45
North Carolina

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Phone
1	AIRPORT	COASTAL CAROLINA REGIONAL	252-638-8591
2	AIRPORT	CANAAN AIR BASE	252-671-7951
3	ARTIFICIAL REEF	AR-392 NEW BERN	
4	BOAT RAMP	BRICES CREEK	252-514-4734
5	BOAT RAMP	BRIDGETON	252-514-6582
6	BOAT RAMP	COOL SPRINGS	252-514-6582
7	BOAT RAMP	SPRING GARDEN	252-636-6606
8	CAMPGROUND	KOA NEW BERN CAMPGROUND	800-562-3341
9	HELIPORT	CRAVEN RGNL MEDICAL CENTER	252-633-8820
10	HELIPORT	STREET'S FERRY	252-633-7244
11	LANDFILL	CRAVEN LCID LANDFILL	252-670-6749
12	MARINA	BRIDGE POINTE MARINA	252-637-7372
13	MARINA	BRIDGETON HARBOR MARINA	252-349-1194
14	MARINA	GALLEY STORES MARINA	252-633-4648
15	MARINA	NEW BERN GRAND MARINA	252-638-0318
16	RENEWABLE ENERGY	NEW BERN FARM	
		NEW BERN FARM LLC	

DISPLAYED ON MAP (POLYGONS)			
Map ID	Type	Name	Phone
17	NATIONAL FOREST	CROATAN NATIONAL FOREST	828-257-4200

ALSO PRESENT IN MAPPED AREA (POLYGONS)			
Type	Name	Contact	Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SPINY LOBSTER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
STATE PROTECTED AREA	GAME LAND	NC WILDLIFE RESOURCES COMMISSION	
STATE PROTECTED AREA	GAME LAND	USDA FOREST SERVICE	

JURISDICTIONS

COUNTY: CRAVEN, JONES
COAST GUARD: DISTRICT 5, SECTOR NORTH CAROLINA
USACE: SOUTH ATLANTIC DIVISION, WILMINGTON DISTRICT


FEMA: REGION I
EPA: REGION 4

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

	<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
	10A	Salt and Brackish Water Marshes	438.83	0.69
	10B	Freshwater Marshes	673.94	1.05
	10C	Swamps	14,853.48	23.21
	10D	Scrub and Shrub Wetlands	1,590.18	2.48

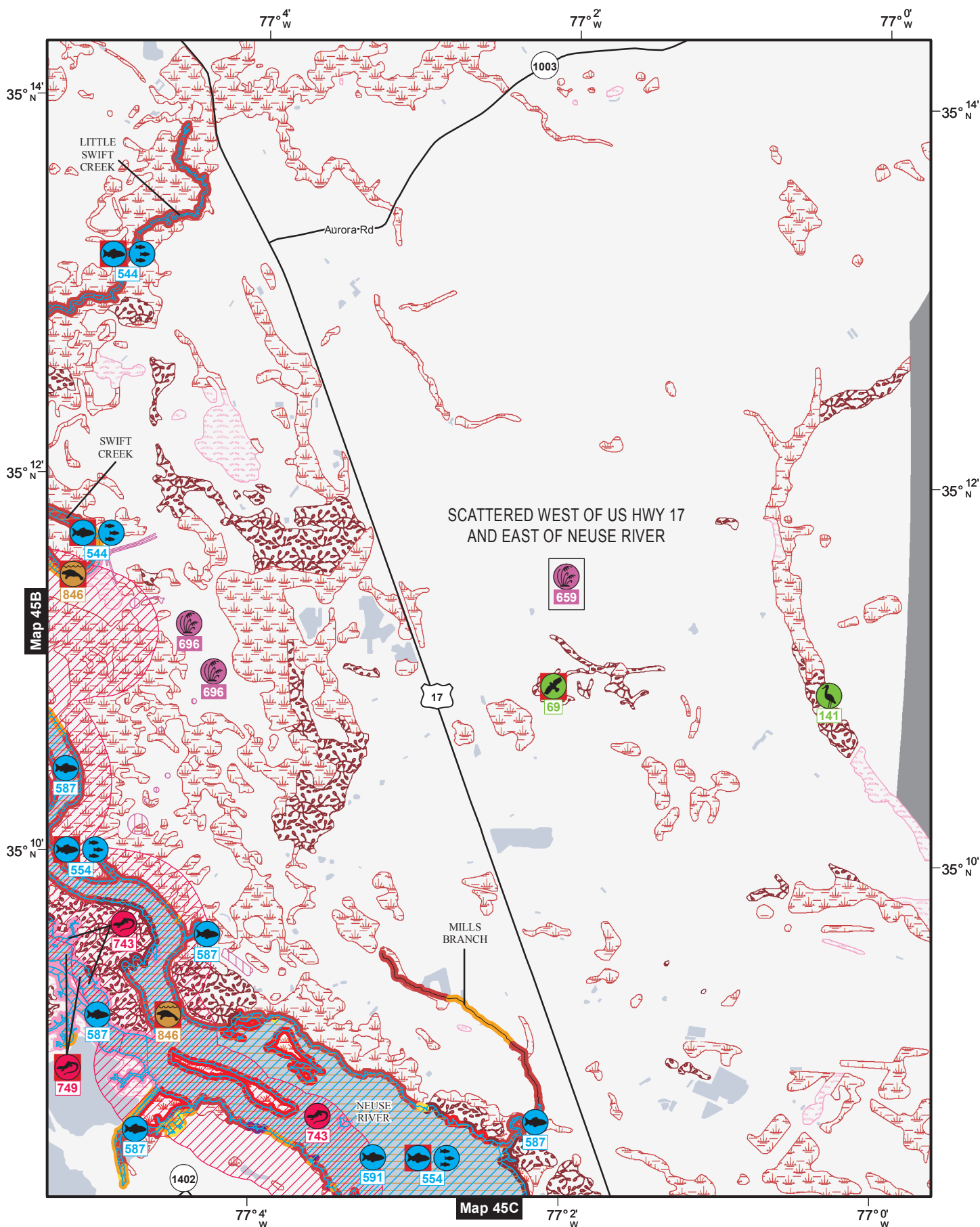
ESI SHORELINE HABITAT TYPES

	<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
	10A	Salt- and brackish-water marshes	40,589.60	25.22	9%
	10B	Freshwater marshes	23,297.68	14.48	5%
	10C	Swamps	245,606.75	152.61	54%
	10D	Scrub-shrub wetlands	22,686.32	14.10	5%
	9B	Sheltered, vegetated low banks	64,442.96	40.04	14%
	8B	Sheltered, solid man-made structures	38,162.64	23.71	8%
	8C	Sheltered riprap	1,990.95	1.24	< 1%
	6B	Exposed riprap	3,456.99	2.15	1%
	3A	Fine- to medium-grained sand beaches	4,679.97	2.91	1%
	3B	Scarps and steep slopes in sand	214.05	0.13	< 1%
	1B	Exposed, solid man-made structures	13,838.02	8.60	3%
Total ESI Shoreline:			458,965.94	285.19	
Total Shoreline:			452,028.58	280.88	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov

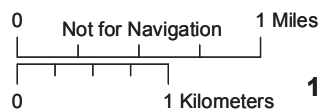




Map 45A North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



1:50,000



Map 45A
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
69	Raptor	Bald eagle	Nesting	T		1 Pair													Jan-Jun	-	-	-	-
141	Wading	Great blue heron	Nesting			2 Pairs													Mar-Aug	-	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
544	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	Jan-Dec
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	-	-
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
554	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													Mar-Jul	Mar-Jul	May-Aug	Jan-Dec	-
587	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
591	Diadromous	Alewife	Migration			Present													-	-	May-Aug	Jul-Mar	-
	Diadromous	Blueback herring	Migration			Present													-	-	May-Jul	Aug-Oct	-

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
							J	F	M	A	M	J	J	A	S	O	N	D
659	Plant	Hairy-seed goldenrod	Vulnerable Occurrence			Current												
696	Wetland	Rare wetland community	Vulnerable Occurrence			Current												


REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
743	Snake	Rainbow snake	Vulnerable Occurrence			-													May-Sep	Aug-Nov	-	Jan-Dec	Jan-Dec
749	Amphibian	Neuse River waterdog	Vulnerable Occurrence	C		-													Mar-May	Jun-Jul	-	Jan-Dec	Jan-Dec

MARINE MAMMALS


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
846	Manatee	West Indian manatee	General Distribution	E		-													-	-	-	-

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Black scoter	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Greater scaup	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Lesser scaup	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Ring-necked duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BENTHIC

Subelement
SAV 



Species
Submerged aquatic veg



BIRDS





Subelement	Species	Nest	Monthly Presence												Mig.(S)	Mig.(F)	Molt
			J	F	M	A	M	J	J	A	S	O	N	D			
	Wood duck	Mar-Jun													-	-	-
															-	-	-

FISH



Subelement	Species	Spawn	Monthly Presence												Eggs	Larvae	Juveniles	Adults
			J	F	M	A	M	J	J	A	S	O	N	D				
	American eel	-													-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad	-													-	Mar-Jul	May-Nov	-
	Hickory shad	-													-	-	-	Jan-Apr
	Striped bass	Mar-May													Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker	-													-	Jan-Mar	Jan-Dec	Jan-Dec
	Atlantic menhaden	-													-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy	Apr-Sep													Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum	-													-	-	Mar-Nov	Jun-Nov
	Bluefish	-													-	-	Mar-Apr	May-Nov

North Carolina: Map 45A

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	Apr-Sep	-
	Pinfish													-	-	Jan-Jun	Jan-Dec	Jun-Oct
	Red drum													-	-	Aug-Dec	Jan-Dec	-
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish													-	-	Jun-Sep	May-Nov	Jul-Oct
	Spot													-	-	Dec-Feb	Jan-Dec	Mar-Sep
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	Nov-May	Jan-Dec	Apr-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	May-Oct
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Mar-Oct
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Black crappie													Mar-May	Mar-May	Mar-May	Jan-Dec	Jan-Dec
	Bluegill													Apr-Oct	Apr-Oct	-	Jan-Dec	Jan-Dec
	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Chain pickerel													-	-	-	-	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	-	Jul-Nov	Jun-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

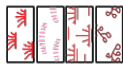
Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	88.42	0.14
10B	Freshwater Marshes	313.45	0.49
10C	Swamps	3,437.61	5.37
10D	Scrub and Shrub Wetlands	904.20	1.41



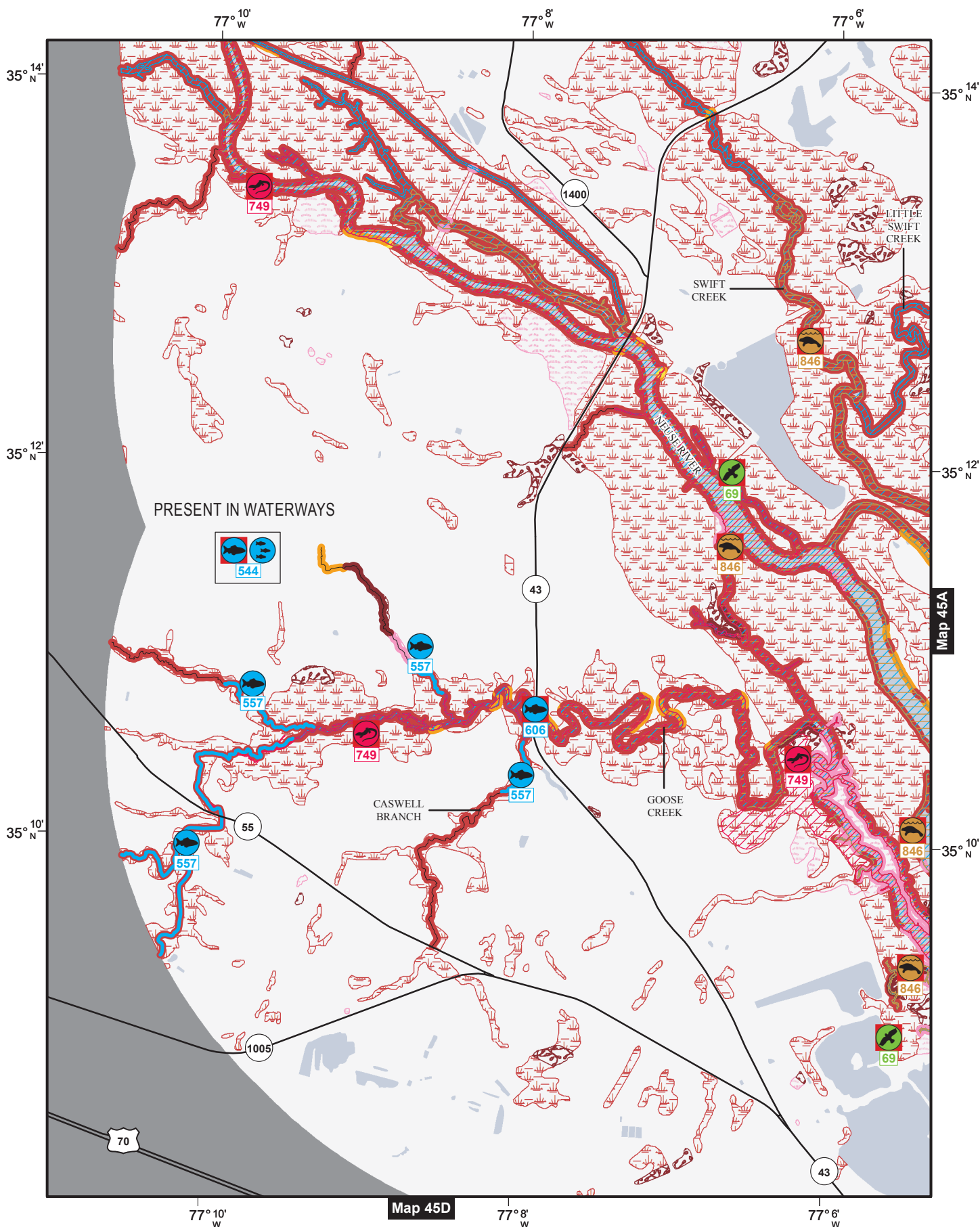
ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	9,037.07	5.62	17%
10B	Freshwater marshes	10,602.40	6.59	20%
10C	Swamps	25,467.66	15.82	47%
10D	Scrub-shrub wetlands	3,593.27	2.23	7%
9B	Sheltered, vegetated low banks	4,524.86	2.81	8%
8B	Sheltered, solid man-made structures	562.65	0.35	1%
8C	Sheltered riprap	73.51	0.05	< 1%
3A	Fine- to medium-grained sand beaches	16.81	0.01	< 1%
1B	Exposed, solid man-made structures	340.67	0.21	1%
Total ESI Shoreline:		54,218.90	33.69	
Total Shoreline:		54,129.99	33.63	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 45B
North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016

0 Not for Navigation 1 Miles
0 1 Kilometers

1:50,000



Map 45B
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
69	Raptor	Bald eagle	Nesting	T		1 Pair	J	F	M	A	M	J	J	A	S	O	N	D	Jan-Jun	-	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
544	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
557	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
606	Freshwater	Bridle shiner	General Distribution	E		-													May-Jun	May-Jun	-	Jan-Dec	Jan-Dec

REPTILES & AMPHIBIANS


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
749	Amphibian	Neuse River waterdog	Vulnerable Occurrence	C		-													Mar-May	Jun-Jul	-	Jan-Dec	Jan-Dec

MARINE MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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846	Manatee	West Indian manatee	General Distribution	E	E	-																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

Subelement	Species	Mapping Qualifier	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt			
			S	F	Concentration	J	F	M	A	M	J	J	A	S					O	N	D
 Waterfowl	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-

BIRDS (continued)

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-	-

REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
Snake	Rainbow snake	Vulnerable Occurrence			-													May-Sep	Aug-Nov	-	Jan-Dec	Jan-Dec

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BENTHIC

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
SAV	Submerged aquatic veg												

BIRDS




Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
Waterfowl	Wood duck													Mar-Jun	-	-	-

FISH



Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
Diadromous	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Hickory shad													-	-	-	-	Jan-Apr
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
Estuarine Nursery	Atlantic croaker													-	-	Jan-Mar	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Mar-Nov	Jun-Nov
	Bluefish													-	-	-	Mar-Apr	May-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	Apr-Sep	-
	Pinfish													-	-	Jan-Jun	Jan-Dec	Jun-Oct

North Carolina: Map 45B

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Red drum													-	-	Aug-Dec	Jan-Dec	-
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish													-	-	Jun-Sep	May-Nov	Jul-Oct
	Spot													-	-	Dec-Feb	Jan-Dec	Mar-Sep
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	Nov-May	Jan-Dec	Apr-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	May-Oct
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Mar-Oct
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Black crappie													Mar-May	Mar-May	Mar-May	Jan-Dec	Jan-Dec
	Bluegill													Apr-Oct	Apr-Oct	-	Jan-Dec	Jan-Dec
	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Chain pickerel													-	-	-	-	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	-	Jul-Nov	Jun-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10B	Freshwater Marshes	342.83	0.54
10C	Swamps	6,439.14	10.06
10D	Scrub and Shrub Wetlands	252.75	0.39



ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10B	Freshwater marshes	12,181.96	7.57	8%
10C	Swamps	127,224.64	79.05	86%
10D	Scrub-shrub wetlands	3,502.70	2.18	2%
9B	Sheltered, vegetated low banks	5,046.10	3.14	3%
8B	Sheltered, solid man-made structures	134.18	0.08	< 1%

Total ESI Shoreline: 148,089.58 Total ESI Shoreline: 92.02
 Total Shoreline: 147,672.92 Total Shoreline: 91.76

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov



BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
SAV	Submerged aquatic veg	High Ecological Value			Present	J	F	M	A	M	J	J	A	S	O	N	D

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
69	Raptor	Bald eagle	Nesting	T		1 Pair	J	F	M	A	M	J	J	A	S	O	N	D
84	Passerine	Red-cockaded woodpecker	Vulnerable Occurrence	E	E	-												
118	Gull/Tern	Least tern	Nesting	C	E	20 Pairs												
119	Gull/Tern	Least tern	Nesting	C	E	10-35 Pairs												
290	Waterfowl	Waterfowl	Wintering			-												

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
587	Diadromous	Alewife	Spawning Area			Present	J	F	M	A	M	J	J	A	S	O	N	D
	Diadromous	Blueback herring	Spawning Area			Present												

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
727	Wetland	Virginia jointvetch	Vulnerable Occurrence			Historical	J	F	M	A	M	J	J	A	S	O	N	D



REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
742	Alligator	American alligator	Vulnerable Occurrence			-	J	F	M	A	M	J	J	A	S	O	N	D
743	Snake	Rainbow snake	Vulnerable Occurrence			-												



INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
818	Shrimp	Brown shrimp	Nursery Area			Abundant	J	F	M	A	M	J	J	A	S	O	N	D
	Shrimp	Pink shrimp	Nursery Area			Rare												
	Shrimp	White shrimp	Nursery Area			Common												

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	American coot	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Mergansers	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Red-breasted merganser	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Ruddy duck	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Scoters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-


FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife	Migration			Present													-	-	May-Aug	Jul-Mar	-
	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Blueback herring	Migration			Present													-	-	May-Jul	Aug-Oct	-
	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-

MARINE MAMMALS


Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	West Indian manatee	General Distribution	E		-													-	-	-	-

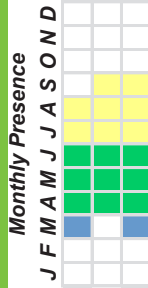
BENTHIC

Subelement SAV  **Species** Submerged aquatic veg







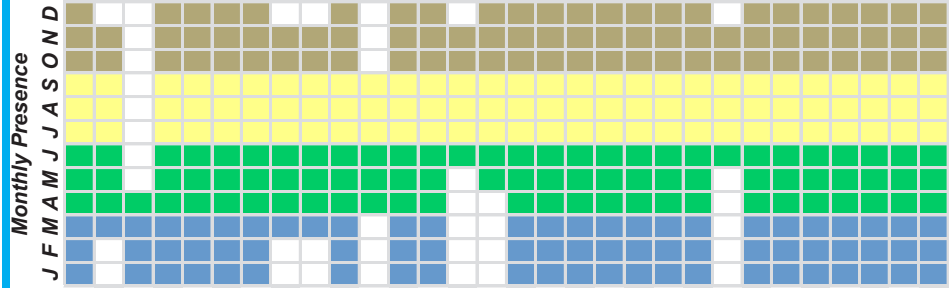
BIRDS

Subelement  Raptor **Species** Osprey
 Waterfowl **Species** American black duck
 Wood duck





FISH



Subelement  Diadromous **Species** American eel
 American shad
 Hickory shad
 Striped bass
 Estuarine Nursery **Species** Atlantic croaker
 Atlantic menhaden
 Bay anchovy
 Black drum
 Bluefish
 Hogchoker
 Ladyfish
 Pinfish
 Red drum
 Sheepshead
 Southern kingfish
 Spot
 Spotted seatrout
 Striped mullet
 Summer flounder
 Weakfish
 White perch
 Estuarine Resident **Species** Inland silverside
 Silver perch
 Striped killifish
 Black crappie
 Freshwater **Species** Bluegill
 Bowfin
 Chain pickerel
 Largemouth bass
 Longnose gar



FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jul-Oct	-
	Spanish mackerel													-	-	-	Jul-Nov	Jun-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

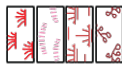
Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	292.66	0.46
10B	Freshwater Marshes	13.22	0.02
10C	Swamps	2,744.58	4.29
10D	Scrub and Shrub Wetlands	282.65	0.44



ESI SHORELINE HABITAT TYPES

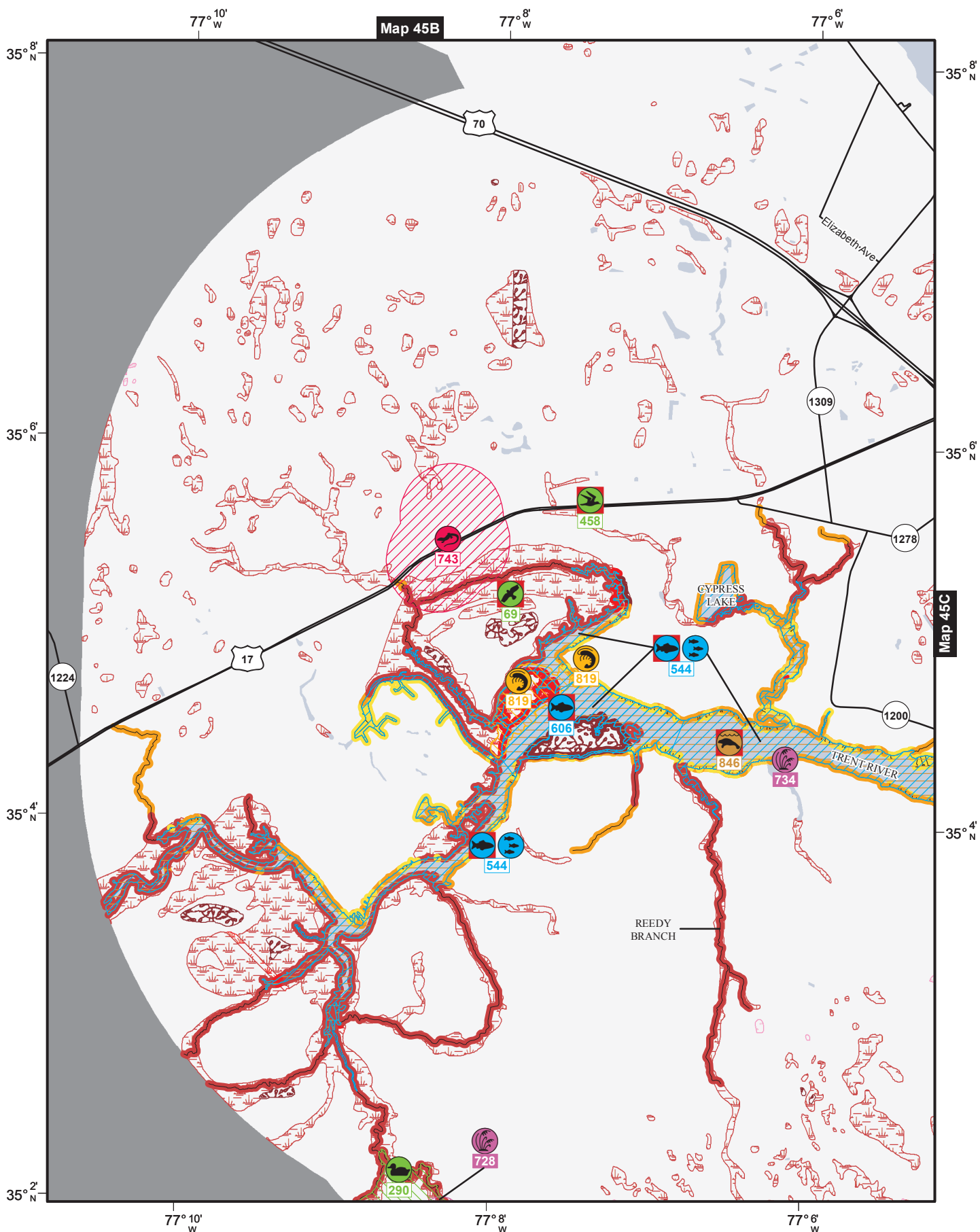
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	26,617.41	16.54	17%
10B	Freshwater marshes	513.32	0.32	< 1%
10C	Swamps	38,197.14	23.73	24%
10D	Scrub-shrub wetlands	12,089.83	7.51	8%
9B	Sheltered, vegetated low banks	36,126.95	22.45	23%
8B	Sheltered, solid man-made structures	23,478.60	14.59	15%
8C	Sheltered riprap	489.66	0.30	< 1%
6B	Exposed riprap	3,457.04	2.15	2%
3A	Fine- to medium-grained sand beaches	4,663.16	2.90	3%
3B	Scarps and steep slopes in sand	214.05	0.13	< 1%
1B	Exposed, solid man-made structures	13,497.43	8.39	8%

Total ESI Shoreline: 159,344.60 Total ESI Shoreline: 99.01
 Total Shoreline: 153,372.14 Total Shoreline: 95.30

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 45D North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016

0 Not for Navigation 1 Miles
0 1 Kilometers

1:50,000



Map 45D
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
69	Raptor	Bald eagle	Nesting	T		1 Pair													Jan-Jun	-	-	-	-
290	Waterfowl	Waterfowl	Wintering			-													-	Feb-Mar	Oct-Nov	-	-
458	Gull/Tern	Least tern	Nesting	C	E	15-104 Pairs													May-Aug	-	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
544	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
606	Freshwater	Bridle shiner	General Distribution	E		-													May-Jun	May-Jun	-	Jan-Dec	Jan-Dec

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
							J	F	M	A	M	J	J	A	S	O	N	D
728	Plant	Spreading sandwort	Vulnerable Occurrence			Current												
734	Wetland	Godfrey's sandwort	Vulnerable Occurrence			Current												

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Interest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
743	Snake	Rainbow snake	Vulnerable Occurrence			-													May-Sep	Aug-Nov	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
819	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-

MARINE MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
846	Manatee	West Indian manatee	General Distribution	E	E	-													-	-	-	

BENTHIC

Subelement
SAV

Species
Submerged aquatic veg



BIRDS

Subelement
Raptor



Species
Osprey





FISH

Subelement	Species	Spawn	Eggs	Larvae	Juveniles	Adults
Diadromous	American eel	-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad	-	-	Mar-Jul	May-Nov	-
	Hickory shad	-	-	-	-	Jan-Apr
	Striped bass	Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
Estuarine Nursery	Atlantic croaker	-	-	Jan-Mar	Jan-Dec	Jan-Dec
	Atlantic menhaden	-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy	Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum	-	-	-	Mar-Nov	Jun-Nov
	Bluefish	-	-	-	Mar-Apr	May-Nov
	Hogchoker	-	-	-	Jan-Dec	Jan-Dec
	Ladyfish	-	-	-	Apr-Sep	-
	Pinfish	-	-	Jan-Jun	Jan-Dec	Jun-Oct
	Red drum	-	-	Aug-Dec	Jan-Dec	-
	Sheepshead	-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish	-	-	Jun-Sep	May-Nov	Jul-Oct
	Spot	-	-	Dec-Feb	Jan-Dec	Mar-Sep
	Spotted seatrout	-	-	-	Jan-Dec	Mar-Dec
	Striped mullet	-	-	Nov-May	Jan-Dec	Apr-Nov
	Summer flounder	-	-	Oct-May	Jan-Dec	May-Oct
	Weakfish	Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Mar-Oct
	White perch	Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
Estuarine Resident	Inland silverside	Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch	Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish	May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Black crappie	Mar-May	Mar-May	Mar-May	Jan-Dec	Jan-Dec
Freshwater	Bluegill	Apr-Oct	Apr-Oct	-	Jan-Dec	Jan-Dec
	Bowfin	Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Chain pickerel	-	-	-	-	Jan-Dec
	Largemouth bass	May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar	Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel	Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch	Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Marine Benthic	Atlantic spadefish													-	-	-	Jun-Sep	-
 Marine Pelagic	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	-	Jul-Nov	Jun-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Crab	Blue crab													-	-	-	Jan-Dec	Jan-Dec
 Shrimp	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
 Dolphin	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	57.75	0.09
10B	Freshwater Marshes	4.83	0.01
10C	Swamps	2,233.40	3.49
10D	Scrub and Shrub Wetlands	150.66	0.24

ESI SHORELINE HABITAT TYPES

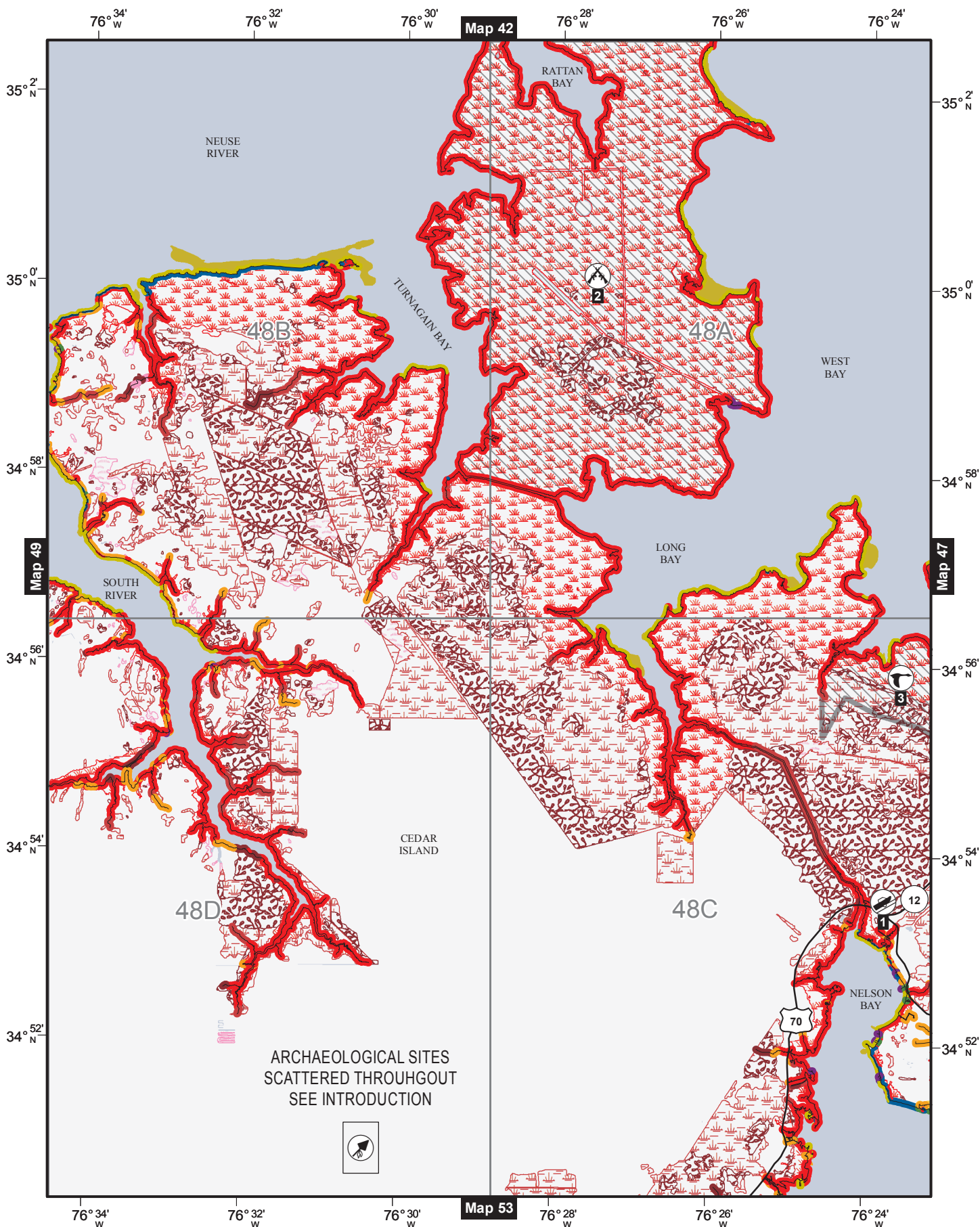
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	4,935.35	3.07	5%
10C	Swamps	54,740.81	34.01	56%
10D	Scrub-shrub wetlands	3,500.52	2.18	4%
9B	Sheltered, vegetated low banks	18,745.04	11.65	19%
8B	Sheltered, solid man-made structures	13,987.20	8.69	14%
8C	Sheltered riprap	1,427.78	0.89	1%

Total ESI Shoreline: 97,336.71 Total ESI Shoreline: 60.48
Total Shoreline: 96,877.13 Total Shoreline: 60.20

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 48
North Carolina



SEE BACK OF MAP
for details about mapped resources and
other resources that occur in mapped area.
Data Published: November 2016

0 2 Miles
Not for Navigation
0 2 Kilometers

1:100,000

Map 48
North Carolina

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Phone
1	BOAT RAMP	SALTERS CREEK, SEALEVEL	252-514-4734

DISPLAYED ON MAP (POLYGONS)			
Map ID	Type	Name	Phone
2	MILITARY	MARINE CORPS AIR STATION CHERRY POINT	252-466-2811
3	WILDLIFE REFUGE	CEDAR ISLAND NATIONAL WILDLIFE REFUGE	252-926-4021

ALSO PRESENT IN MAPPED AREA (POLYGONS)			
Type	Name	Contact	Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; COASTAL MIG. PELAGICS	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; CORAL	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SPINY LOBSTER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
STATE PROTECTED AREA	GAME LAND	NC WILDLIFE RESOURCES COMMISSION	
STATE PROTECTED AREA	OUTSTANDING RESOURCE AND/OR HIGH QUALITY WATERS	NC DENR WATER QUALITY DIVISION	

JURISDICTIONS			
COUNTY:	CARTERET	FEMA:	REGION I
COAST GUARD:	DISTRICT 5, SECTOR NORTH CAROLINA	EPA:	REGION 4
USACE:	SOUTH ATLANTIC DIVISION, WILMINGTON DISTRICT		

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	17,611.91	27.52
10B	Freshwater Marshes	456.00	0.71
10C	Swamps	9,186.21	14.35
10D	Scrub and Shrub Wetlands	6,958.98	10.87
9A	Sheltered Tidal Flats	1.73	0.00
7	Exposed Tidal Flats	741.38	1.16



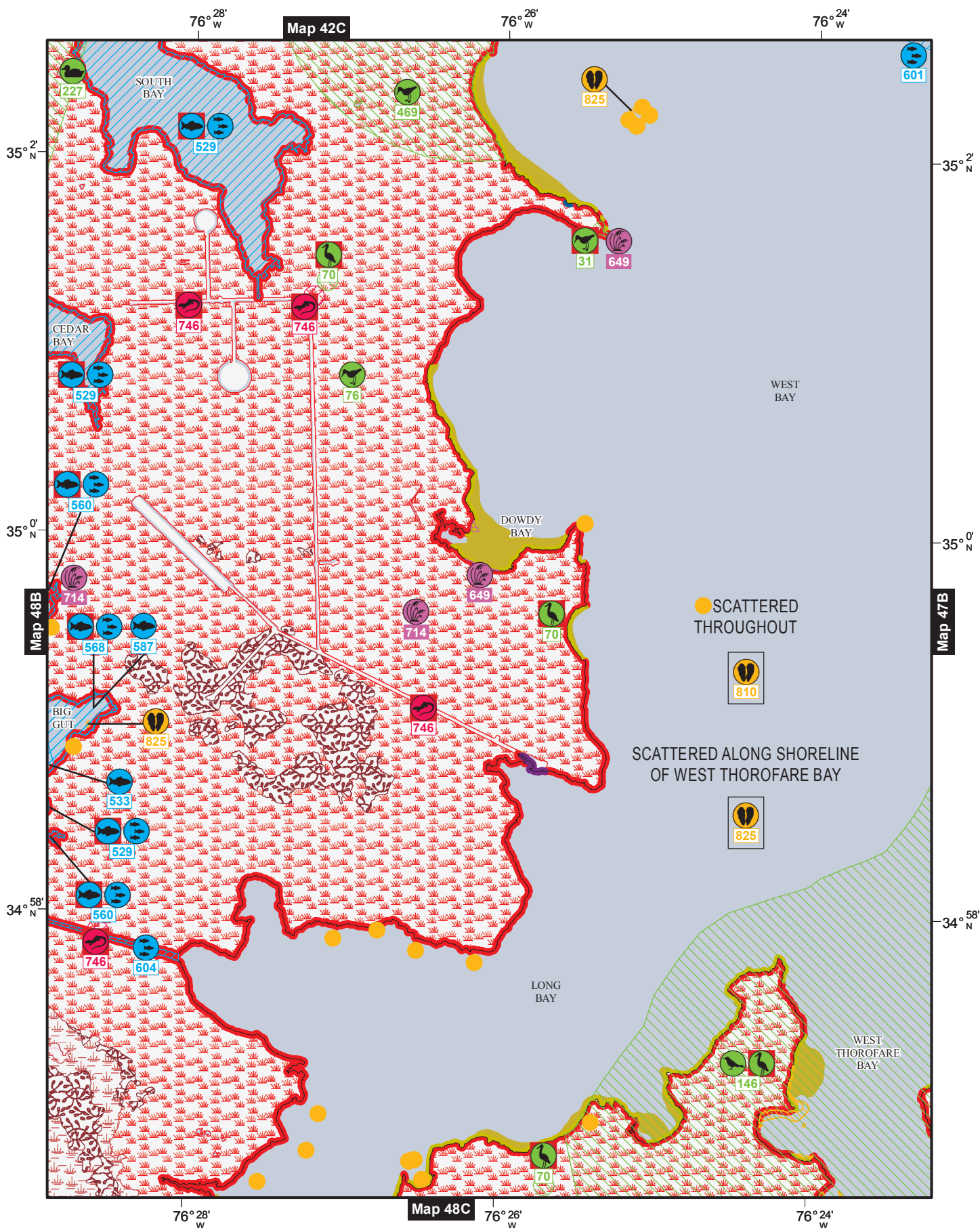
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	244,548.69	151.96	71%
10B	Freshwater marshes	175.64	0.11	< 1%
10C	Swamps	13,242.57	8.23	4%
10D	Scrub-shrub wetlands	8,530.31	5.30	2%
9A	Sheltered tidal flats	46.70	0.03	< 1%
9B	Sheltered, vegetated low banks	18,214.17	11.32	5%
8B	Sheltered, solid man-made structures	422.53	0.26	< 1%
8C	Sheltered riprap	159.64	0.10	< 1%
7	Exposed tidal flats	47,583.71	29.57	14%
6B	Exposed riprap	1,134.09	0.70	< 1%
3A	Fine- to medium-grained sand beaches	10,637.47	6.61	3%
1B	Exposed, solid man-made structures	1,348.65	0.84	< 1%
Total ESI Shoreline:		346,044.16	215.02	
Total Shoreline:		290,222.86	180.34	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov

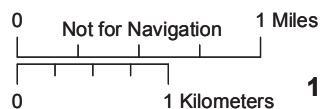




Map 48A
North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



1:50,000

Map 48A
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
SAV	Submerged aquatic veg	High Ecological Value			Present	J	F	M	A	M	J	J	A	S	O	N	D

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig.(S)	Mig.(F)	Juveniles	Adults	Molt
31	Shorebird	American oystercatcher	Nesting	C		1 Pair													Mar-Jul	-	-	-	-	-
70	Wading	Black rail	Nesting	C		-													May-Aug	-	-	-	-	-
76	Shorebird	Black-necked stilt	Nesting			-													May-Aug	-	-	-	-	-
146	Passerine	Seaside sparrow	Nesting			-													May-Aug	-	-	-	-	-
	Wading	Black rail	Concentration Area	C		High													-	-	-	-	-	-
227	Waterfowl	American coot	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-	-
	Waterfowl	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-	-
	Waterfowl	Mergansers	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-	-
	Waterfowl	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-	-
	Waterfowl	Red-breasted merganser	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-	-
	Waterfowl	Ruddy duck	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-	-
	Waterfowl	Scooters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-	-
469	Shorebird	Black-necked stilt	Nesting			1 Pair													May-Aug	-	-	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
529	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
533	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
560	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
568	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-

FISH (continued)

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D				
587	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	May-Jul	-	-
601	Estuarine Nursery	Summer flounder	Concentration Area			Highly Abundant													-	Oct-May	Jan-Dec	May-Oct
604	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	Dec-Mar	Jan-Dec	-

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D				
649	Wetland	Seashore paspalum	Vulnerable Occurrence			Current																
714	Plant	Gulf Coast spikerush	Vulnerable Occurrence			Current																

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
746	Snake	Carolina water snake	Vulnerable Occurrence	C		-													Aug-Oct	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
810	Bivalve	Eastern oyster	Concentration Area			High													Jun-Nov	Jun-Nov	Jun-Nov	Jan-Dec	Jan-Dec
825	Bivalve	Eastern oyster	Concentration Area			Abundant													May-Nov	May-Nov	May-Nov	Jan-Dec	Jan-Dec

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)


BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
	Raptor	Northern harrier	Nesting			1 Pair													Apr-Sep	-	-	-
	Waterfowl	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
		Bufflehead	Wintering			100S													-	Feb-Mar	Oct-Nov	-
		Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-
		Redhead	Wintering			100S													-	Feb-Mar	Oct-Nov	-
		Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
		Tundra swan	Wintering			1000S													-	Feb-Mar	Oct-Nov	-


FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Marine Benthic	Spotted hake	Nursery Area			-													-	-	-	Dec-Jun	-

REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Diamondback terrapin	Vulnerable Occurrence	C	T	-													Apr-May	Mar-Oct*	-	Jan-Dec	Jan-Dec
	Green sea turtle	General Distribution	T	T	-													-	-	-	Apr-Dec	-
	Hawksbill sea turtle	General Distribution	E	E	Infrequent													-	-	-	Apr-Dec	-
	K. ridley sea turtle	General Distribution	E	E	-													-	-	-	Apr-Dec	-
	Leatherback sea turtle	General Distribution	E	E	Occasional													-	-	-	Apr-Dec	-
	Loggerhead sea turtle	General Distribution	T	T	-													-	-	-	Apr-Dec	-

INVERTEBRATES


Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Pink shrimp	Nursery Area			Rare													-	-	May-Nov	Jan-Dec	-
	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	West Indian manatee	General Distribution	E	E	-													-	-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)



BENTHIC

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Submerged aquatic veg												

BIRDS




Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck													Apr-May	-	-	-
	Wood duck													Mar-Jun	-	-	-

FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife													-	-	-	Jul-Oct	-
	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Blueback herring													-	-	May-Jul	Jul-Mar	Oct-Mar
	Gizzard shad													-	-	-	Oct-Mar	-
	Hickory shad													-	-	-	-	Jan-Nov
	Hickory shad													-	-	-	-	Jan-Apr
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Sep-Apr	Jan-Dec	Jan-Dec

North Carolina: Map 48A

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Atlantic croaker													-	-	Jan-Mar	Jan-Dec	Jan-Dec
	Atlantic cutlassfish													-	-	-	-	Jul-Aug
	Atlantic menhaden													-	-	Nov-May	Jan-Dec	Mar-Nov
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Mar-Nov	Jun-Nov
	Black drum													Apr-Jun	Apr-Jun	Jun-Jul	Jan-Dec	Jun-Nov
	Black sea bass													-	-	-	Jun-Sep	May-Dec
	Bluefish													-	-	-	Mar-Apr	May-Nov
	Bluefish													-	-	-	Feb-Nov	Apr-Nov
	Gulf flounder													-	-	Dec-May	Jan-Dec	Mar-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	Apr-Sep	-
	Ladyfish													-	-	Sep-Apr	Jun-Oct	Jun-Oct
	Northern kingfish													-	-	May-Sep	Jul-Oct	Apr-Sep
	Northern puffer													Apr-Nov	Apr-Nov	-	-	Jul-Dec
	Pinfish													-	-	Dec-May	Jan-Dec	May-Oct
	Pinfish													-	-	Jan-Jun	Jan-Dec	Jun-Oct
	Red drum													-	-	Aug-Dec	Jan-Dec	-
	Red drum													Aug-Oct	Aug-Oct	Sep-Apr	Jan-Dec	Jan-Dec
	Sheepshead													-	-	May-Jan	Jan-Dec	May-Oct
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Southern flounder													-	-	Dec-Mar	Jan-Dec	Feb-Dec
	Southern kingfish													-	-	Jun-Sep	May-Nov	Jul-Oct
	Southern kingfish													-	-	Jun-Sep	May-Dec	May-Oct
	Spot													-	-	Dec-Feb	Jan-Dec	Mar-Sep
	Spot													-	-	Jan-Mar	Jan-Dec	Mar-Dec
	Spotted seatrout													Apr-Sep	Apr-Sep	Apr-Nov	Jan-Dec	Jan-Dec
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	Sep-May	Jan-Dec	Jan-Dec
	Striped mullet													-	-	Nov-May	Jan-Dec	Apr-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	-
	Summer flounder													-	-	Oct-May	Jan-Dec	May-Oct
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Jan-Dec
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Mar-Oct
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
 Estuarine Resident	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
 Fish	Triggerfish													-	-	-	-	Jul-Aug
 Freshwater	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Chain pickerel													-	-	-	-	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Jan-Dec	Apr-Dec
	Yellow perch													-	-	-	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	May-Nov	-
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Florida pompano													-	-	-	-	-
	Little tunny													-	-	-	-	Jul-Oct
	Tautog													May-Aug	May-Aug	Jun-Aug	Jul-Sep	Jul-Aug
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Bluefin tuna													-	-	-	-	Jan-Dec
	Cobia													-	-	-	May-Sep	May-Oct
	Harvestfish													-	-	-	-	Jan-Dec
	King mackerel													-	-	-	-	Sep-Nov*
	Sharks													-	-	-	-	Jan-Dec
	Spanish mackerel													-	-	-	Jul-Nov	Jun-Aug
	Spanish mackerel													-	-	-	Jul-Nov	May-Oct
	Spanish mackerel													-	-	-	Jul-Nov	May-Oct

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
Bivalve	Eastern oyster													May-Nov	May-Nov	May-Nov	Jan-Dec	Jan-Dec
	Quahog													May-Nov	May-Nov	May-Nov	Jan-Dec	Jan-Dec
Crab	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Blue crab													-	-	May-Oct	-	Jan-Dec
Shrimp	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Florida stone crab													May-Aug	May-Aug	-	-	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

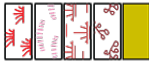
MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
Dolphin	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	10,172.83	15.90
10B	Freshwater Marshes	6.10	0.01
10C	Swamps	175.65	0.27
10D	Scrub and Shrub Wetlands	498.86	0.78
7	Exposed Tidal Flats	287.82	0.45



ESI SHORELINE HABITAT TYPES

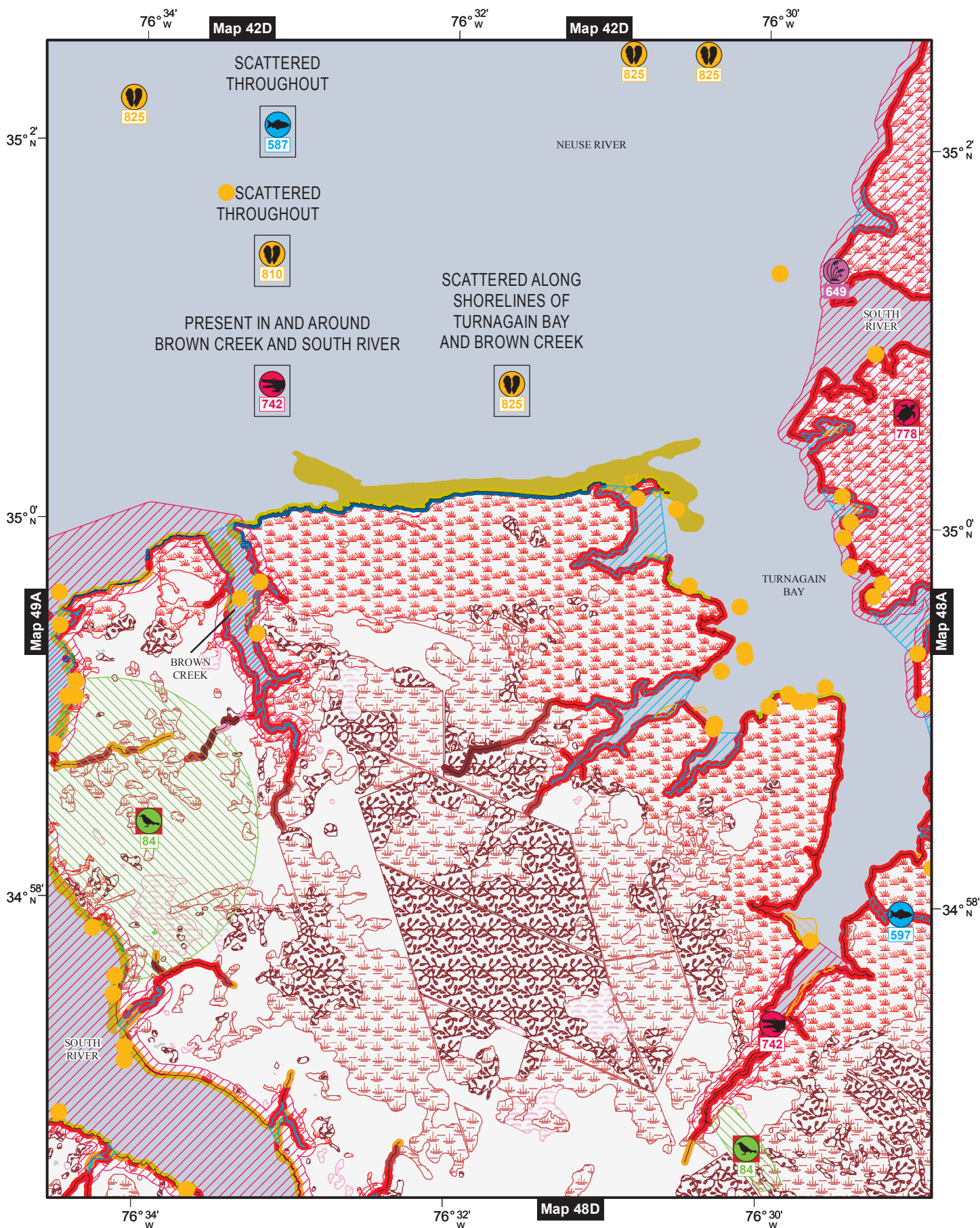
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	64,105.51	39.83	79%
9B	Sheltered, vegetated low banks	49.13	0.03	< 1%
7	Exposed tidal flats	16,593.95	10.31	20%
3A	Fine- to medium-grained sand beaches	115.68	0.07	< 1%
1B	Exposed, solid man-made structures	386.92	0.24	< 1%

Total ESI Shoreline: 81,251.19 Total ESI Shoreline: 50.49
 Total Shoreline: 64,609.67 Total Shoreline: 40.15

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 48B
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
84	Passerine	Red-cockaded woodpecker	Vulnerable Occurrence	E	E	-	J	F	M	A	M	J	J	A	S	O	N	D	Apr-Jul	-	-	Jun-Nov	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
587	Diadromous	Alewife	Spawning Area			Present	J	F	M	A	M	J	J	A	S	O	N	D	Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
597	Marine Benthic	Spotted hake	Nursery Area			-	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Dec-Jun	-

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence																
649	Wetland	Seashore paspalum	Vulnerable Occurrence			Current	J	F	M	A	M	J	J	A	S	O	N	D					



REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
742	Alligator	American alligator	Vulnerable Occurrence			-	J	F	M	A	M	J	J	A	S	O	N	D	May-Jul	Jul-Sep	-	Jan-Dec	Jan-Dec
778	Turtle	Diamondback terrapin	Vulnerable Occurrence	C		-	J	F	M	A	M	J	J	A	S	O	N	D	Apr-May	Mar-Oct*	-	Jan-Dec	Jan-Dec



INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
810	Bivalve	Eastern oyster	Concentration Area			High	J	F	M	A	M	J	J	A	S	O	N	D	Jun-Nov	Jun-Nov	Jun-Nov	Jan-Dec	Jan-Dec
825	Bivalve	Eastern oyster	Concentration Area			Abundant	J	F	M	A	M	J	J	A	S	O	N	D	May-Nov	May-Nov	May-Nov	Jan-Dec	Jan-Dec


BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	American black duck	Wintering	100S	-	100S													-	Feb-Mar	Oct-Nov	-
	American coot	Wintering	1000S	-	1000S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Black scoter	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering	1000S	-	1000S													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering	100S	-	100S													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering	100S	-	100S													-	Feb-Mar	Oct-Nov	-
	Greater scaup	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Lesser scaup	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Mergansers	Wintering	100S	-	100S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering	100S	-	100S													-	Feb-Mar	Oct-Nov	-
	Red-breasted merganser	Wintering	100S	-	100S													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering	100S	-	100S													-	Feb-Mar	Oct-Nov	-
	Ring-necked duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Ruddy duck	Wintering	1000S	-	1000S													-	Feb-Mar	Oct-Nov	-
	Scaup	Wintering	1000S	-	1000S													-	Feb-Mar	Oct-Nov	-
	Scoters	Wintering	1000S	-	1000S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-
	Tundra swan	Wintering	1000S	-	1000S													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering	-	-	-													-	Feb-Mar	Oct-Nov	-

FISH


Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife	Migration	-	-	Present													-	-	May-Aug	Jul-Mar	-
	Alewife	Nursery Area	-	-	Present													-	-	May-Aug	Jul-Oct	-
	American shad	Spawning Area	-	-	Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Atlantic sturgeon	General Distribution	C	-	-													-	-	-	Jan-Dec	Jan-Dec
	Atlantic sturgeon	Spawning Area	C	-	-													Sep-May*	Sep-May*	Sep-May*	-	-
	Blueback herring	Migration	-	-	Present													-	-	May-Jul	Aug-Oct	-
	Blueback herring	Nursery Area	-	-	Present													-	-	May-Jul	Jul-Oct	-
	Southern flounder	Concentration Area	-	-	Abundant													-	-	Dec-Mar	Jan-Dec	-

INVERTEBRATES

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D				
	Brown shrimp	Nursery Area			Abundant													-	Feb-Apr	Mar-Aug	-
	Pink shrimp	Nursery Area			Rare													-	May-Nov	Jan-Dec	-
	White shrimp	Nursery Area			Common													-	Jun-Dec	Jul-Feb	-

MARINE MAMMALS


MARINE MAMMALS

	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
Manatee		West Indian manatee	General Distribution	E	E	-	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-


ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)




BENTHIC

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Submerged aquatic veg												

BIRDS






Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck													Apr-May	-	-	-
	Wood duck													Mar-Jun	-	-	-

FISH




Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife													-	-	-	Jul-Oct	-
	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Blueback herring													-	-	May-Jul	Jul-Mar	Oct-Mar
	Gizzard shad													-	-	-	Oct-Mar	-
	Hickory shad													-	-	-	-	Jan-Apr
	Hickory shad													-	-	-	-	Jan-Nov
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Jan-Mar	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	-	-	Jul-Aug
	Atlantic croaker													-	-	-	-	Mar-Nov
	Atlantic croaker													-	-	Nov-May	Jan-Dec	Mar-Nov
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Atlantic menhaden													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Bay anchovy													Apr-Jun	Apr-Jun	Jun-Jul	Jan-Dec	Jun-Nov
	Black drum													-	-	-	Mar-Nov	Jun-Nov
	Black drum													-	-	-	Mar-Nov	May-Nov
	Bluefish													-	-	-	Mar-Apr	Apr-Nov
	Bluefish													-	-	-	Feb-Nov	Mar-Nov
	Gulf flounder													-	-	Dec-May	Jan-Dec	Mar-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec

North Carolina: Map 48B

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Ladyfish													-	-	Sep-Apr	Jun-Oct	Jun-Oct
	Ladyfish													-	-	-	Apr-Sep	-
	Northern kingfish													-	-	May-Sep	Jul-Oct	Apr-Sep
	Pinfish													-	-	Dec-May	Jan-Dec	May-Oct
	Pinfish													-	-	Jan-Jun	Jan-Dec	Jun-Oct
	Red drum													-	-	Aug-Dec	Jan-Dec	-
	Red drum													Aug-Oct	Aug-Oct	Sep-Apr	Jan-Dec	Jan-Dec
	Sheepshead													-	-	May-Jan	Jan-Dec	May-Oct
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish													-	-	Jun-Sep	May-Nov	Jul-Oct
	Southern kingfish													-	-	Jun-Sep	May-Dec	May-Oct
	Spot													-	-	Dec-Feb	Jan-Dec	Mar-Sep
	Spot													-	-	Jan-Mar	Jan-Dec	Mar-Dec
	Spotted seatrout													Apr-Sep	Apr-Sep	Apr-Nov	Jan-Dec	Jan-Dec
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	Nov-May	Jan-Dec	Apr-Nov
	Striped mullet													-	-	Sep-May	Jan-Dec	Jan-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	May-Oct
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Jan-Dec
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Mar-Oct
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
 Estuarine Resident	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
 Fish	Triggerfish													-	-	-	-	Jul-Aug
	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
 Freshwater	Chain pickerel													-	-	-	-	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
 Marine Benthic	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic spadefish													-	-	-	May-Nov	-
	Florida pompano													-	-	-	-	Jul-Oct
	Tautog													May-Aug	May-Aug	Jun-Aug	Jul-Sep	-
 Marine Pelagic	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Harvestfish													-	-	-	-	Jan-Dec
	Sharks													-	-	-	-	Jan-Dec
	Spanish mackerel													-	-	-	Jul-Nov	Jan-Aug
	Spanish mackerel													-	-	-	Jul-Nov	May-Oct

INVERTEBRATES

	Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults	
			J F M A M J J A S O N D																
			J	F	M	A	M	J	J	A	S	O	N	D					
	Bivalve	Eastern oyster																	
	Crab	Blue crab																	
	Shrimp	Blue crab																	
		Brown shrimp																	
		Florida stone crab																	
		Pink shrimp																	
		White shrimp																	

MARINE MAMMALS

	Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
			J F M A M J J A S O N D															
			J	F	M	A	M	J	J	A	S	O	N	D	Sep-Oct	Sep-Oct	-	-
	Dolphin	Bottlenose dolphin												Sep-Oct	Sep-Oct	-	-	

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	3,949.12	6.17
10B	Freshwater Marshes	270.56	0.42
10C	Swamps	2,835.00	4.43
10D	Scrub and Shrub Wetlands	1,846.90	2.89
7	Exposed Tidal Flats	348.66	0.54

ESI SHORELINE HABITAT TYPES

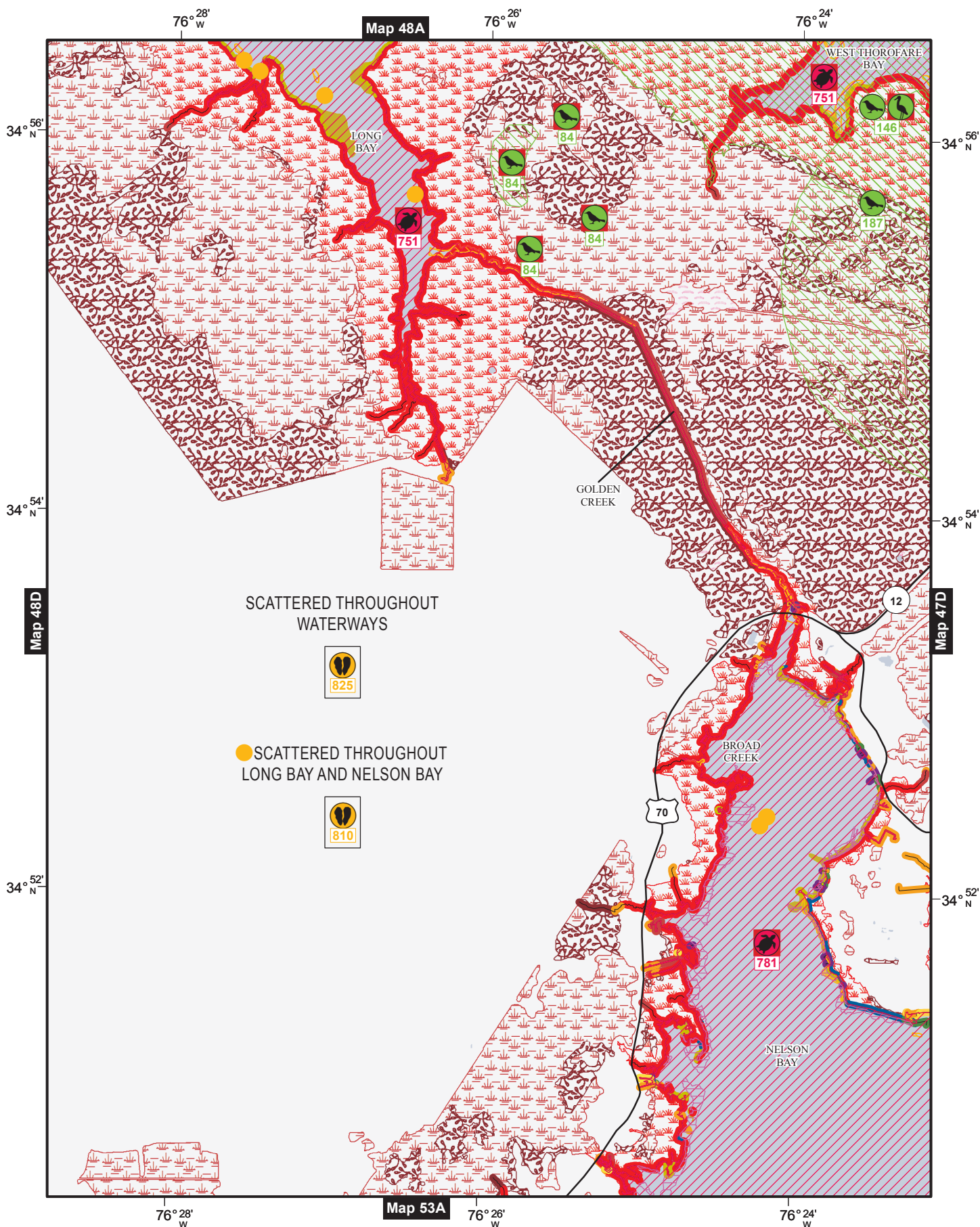
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	68,483.18	42.55	63%
10B	Freshwater marshes	175.64	0.11	< 1%
10C	Swamps	3,470.38	2.16	3%
10D	Scrub-shrub wetlands	1,546.51	0.96	1%
9B	Sheltered, vegetated low banks	8,068.42	5.01	7%
7	Exposed tidal flats	19,551.06	12.15	18%
6B	Exposed riprap	200.87	0.12	< 1%
3A	Fine- to medium-grained sand beaches	6,807.01	4.23	6%
1B	Exposed, solid man-made structures	94.42	0.06	< 1%

Total ESI Shoreline: 108,397.48
Total Shoreline: 84,876.10
Total ESI Shoreline: 67.36
Total Shoreline: 52.74

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov



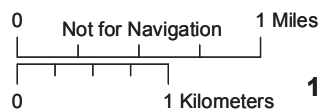


Map 48C

North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



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BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence
SAV	Submerged aquatic veg	High Ecological Value			Present	J F M A M J J A S O N D

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence	Nest	Mig.(S)	Mig.(F)	Molt
84	Passerine	Red-cockaded woodpecker	Vulnerable Occurrence	E	E	-		Apr-Jul	-	-	Jun-Nov
146	Passerine	Seaside sparrow	Nesting			-		May-Aug	-	-	-
	Wading	Black rail	Concentration Area	C		High		-	-	-	-
187	Passerine	Black-throated green warbler	Nesting			-		Apr-Aug	-	-	-


REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence	Nest	Hatch	Internest	Juveniles	Adults
751	Turtle	Green sea turtle	General Distribution	T	T	-		-	-	-	Apr-Dec	-
	Turtle	K. ridley sea turtle	General Distribution	E	E	-		-	-	-	Apr-Dec	-
	Turtle	Loggerhead sea turtle	General Distribution	T	T	-		-	-	-	Apr-Dec	-
781	Turtle	Green sea turtle	Concentration Area	T	T	High		-	-	-	Apr-Dec	-
	Turtle	K. ridley sea turtle	Concentration Area	E	E	High		-	-	-	Apr-Dec	-
	Turtle	Loggerhead sea turtle	Concentration Area	T	T	High		-	-	-	Apr-Dec	-

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence	Spawn	Eggs	Larvae	Juveniles	Adults
810	Bivalve	Eastern oyster	Concentration Area			High		Jun-Nov	Jun-Nov	Jun-Nov	Jan-Dec	Jan-Dec
825	Bivalve	Eastern oyster	Concentration Area			Abundant		May-Nov	May-Nov	May-Nov	Jan-Dec	Jan-Dec

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Waterfowl	American black duck			100S													-	Feb-Mar	Oct-Nov	-
		American coot			10000S													-	Feb-Mar	Oct-Nov	-
		American wigeon			100S													-	Feb-Mar	Oct-Nov	-
		Bufflehead			100S													-	Feb-Mar	Oct-Nov	-
		Bufflehead			1000S													-	Feb-Mar	Oct-Nov	-
		Gadwall			1000S													-	Feb-Mar	Oct-Nov	-
		Gadwall			100S													-	Feb-Mar	Oct-Nov	-
		Green-winged teal			100S													-	Feb-Mar	Oct-Nov	-
		Mergansers			100S													-	Feb-Mar	Oct-Nov	-
		Red-breasted merganser			100S													-	Feb-Mar	Oct-Nov	-
		Redhead			10000S													-	Feb-Mar	Oct-Nov	-
		Redhead			100S													-	Feb-Mar	Oct-Nov	-
		Ruddy duck			100S													-	Feb-Mar	Oct-Nov	-
		Scaup			100S													-	Feb-Mar	Oct-Nov	-
		Scaup			1000S													-	Feb-Mar	Oct-Nov	-
		Tundra swan			1000S													-	Feb-Mar	Oct-Nov	-
		Tundra swan			10000S													-	Feb-Mar	Oct-Nov	-


FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous	Atlantic sturgeon			-													-	-	-	Jan-Dec	Jan-Dec
	Marine Benthic	Spotted hake			-													-	-	-	Dec-Jun	-

REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Turtle	Hawksbill sea turtle			Infrequent													-	-	-	Apr-Dec	-
		Leatherback sea turtle			Occasional													-	-	-	Apr-Dec	-

INVERTEBRATES

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Shrimp	Brown shrimp			Abundant													-	-	Feb-Apr	Mar-Aug	-
		Pink shrimp			Rare													-	-	May-Nov	Jan-Dec	-
		White shrimp			Common													-	-	Jun-Dec	Jul-Feb	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Manatee	West Indian manatee			-													-	-	-	

BENTHIC

Subelement	Species
SAV	Submerged aquatic veg



BIRDS

Subelement	Species
Waterfowl	American black duck



FISH

Subelement	Species	Spawn	Eggs	Larvae	Juveniles	Adults
Diadromous	Alewife	-	-	-	Jul-Oct	-
	American eel	-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American eel	-	-	Jan-Dec	Jan-Dec	Sep-Dec
	American shad	-	-	Mar-Jul	May-Nov	-
	Blueback herring	-	-	May-Jul	Jul-Mar	Oct-Mar
	Gizzard shad	-	-	-	Oct-Mar	-
	Hickory shad	-	-	-	-	Jan-Apr
	Hickory shad	-	-	-	-	Jan-Nov
	Striped bass	Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
Estuarine Nursery	Atlantic croaker	-	-	Sep-Apr	Jan-Dec	Jan-Dec
	Atlantic croaker	-	-	Sep-May	Jan-Dec	Jan-Dec
	Atlantic cutlassfish	-	-	-	-	Jul-Aug
	Atlantic menhaden	-	-	Nov-May	Jan-Dec	Mar-Nov
	Atlantic menhaden	-	-	-	-	Jan-Dec
	Bay anchovy	Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum	Apr-Jun	Apr-Jun	Jun-Jul	Jun-Sep	Jan-Dec
	Black drum	Apr-Jun	Apr-Jun	Jun-Jul	Jan-Dec	Jun-Nov
	Black sea bass	-	-	-	Mar-Dec	-
	Bluefish	-	-	-	Feb-Nov	Apr-Nov
	Bluefish	-	-	-	Mar-Jan	-
	Gulf flounder	-	-	Dec-May	Jan-Dec	Mar-Nov
	Gulf flounder	-	-	-	Jan-Apr	-
	Hogchoker	-	-	-	Jan-Dec	Jan-Dec
	Ladyfish	-	-	-	-	Sep-Oct
	Ladyfish	-	-	Sep-Apr	Jun-Oct	Jun-Oct
	Northern kingfish	-	-	May-Sep	Jul-Oct	Apr-Sep
	Northern puffer	Apr-Nov	Apr-Nov	-	-	Mar-Dec
	Pinfish	-	-	Oct-Apr	Jan-Dec	Mar-Dec
	Pinfish	-	-	Dec-May	Jan-Dec	May-Oct
	Red drum	Aug-Oct	Aug-Oct	Sep-Apr	Jan-Dec	Jan-Dec
	Scup	-	-	-	-	Jul-Aug
	Sheepshead	-	-	May-Jan	Jan-Dec	May-Oct

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Sheepshead													-	-	-	-	-
	Southern flounder													-	-	Dec-Mar	Jan-Dec	Feb-Dec
	Southern kingfish													-	-	Jun-Sep	May-Dec	May-Oct
	Southern kingfish													-	-	May-Sep	Mar-Dec	Mar-Dec
	Spot													-	-	Jan-Mar	Jan-Dec	Mar-Dec
	Spot													-	-	Jan-May	Jun-Dec	-
	Spotted seatrout													Apr-Sep	Apr-Sep	Apr-Nov	Jan-Dec	Jan-Dec
	Spotted seatrout													May-Aug	May-Aug	Jun-Aug	Jun-Oct	-
	Striped mullet													-	-	-	Jan-Dec	-
	Striped mullet													-	-	Sep-May	Jan-Dec	Jan-Dec
	Summer flounder													-	-	Oct-May	Jan-Dec	May-Oct
	Summer flounder													-	-	Oct-May	Jan-Dec	-
	Weakfish													Mar-Oct	Mar-Oct	-	Jan-Dec	Jan-Dec
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Jan-Dec
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													-	-	-	Jan-Dec	Jul-Feb
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
Estuarine Resident	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
Fish	Triggerfish													-	-	-	-	Jul-Aug
Freshwater	Yellow perch													-	-	-	Apr-Dec	Apr-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
Marine Benthic	Atlantic spadefish													-	-	-	May-Nov	-
	Florida pompano													-	-	-	-	Jul-Oct
	Little tunny													-	-	-	-	May-Aug
	Tautog													May-Aug	May-Aug	Jun-Aug	Jul-Sep	-
Marine Pelagic	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Cobia													-	-	-	-	Mar-Oct
	Harvestfish													-	-	-	-	Jan-Dec
	King mackerel													-	-	-	-	Oct
	Sharks													-	-	-	-	Jan-Dec
	Spanish mackerel													-	-	-	Jul-Nov	May-Oct
	Spanish mackerel													-	-	-	-	-

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
Bivalve	Eastern oyster													May-Nov	May-Nov	May-Nov	Jan-Dec	Jan-Dec
	Quahog													May-Nov	May-Nov	May-Nov	Jan-Dec	Jan-Dec
Crab	Blue crab													-	-	-	Jan-Dec	Jan-Dec
Shrimp	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Florida stone crab													May-Aug	May-Aug	-	-	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

North Carolina: Map 48C

MARINE MAMMALS

Monthly Presence

Subelement	Species	Monthly Presence												Calving	Pupping	Molt
Dolphin	Bottlenose dolphin	J	F	M	A	M	J	J	A	S	O	N	D	Mating Sep-Oct		

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	2,691.27	4.21
10B	Freshwater Marshes	47.12	0.07
10C	Swamps	4,358.81	6.81
10D	Scrub and Shrub Wetlands	3,537.50	5.53
9A	Sheltered Tidal Flats	1.73	0.00
7	Exposed Tidal Flats	98.53	0.15

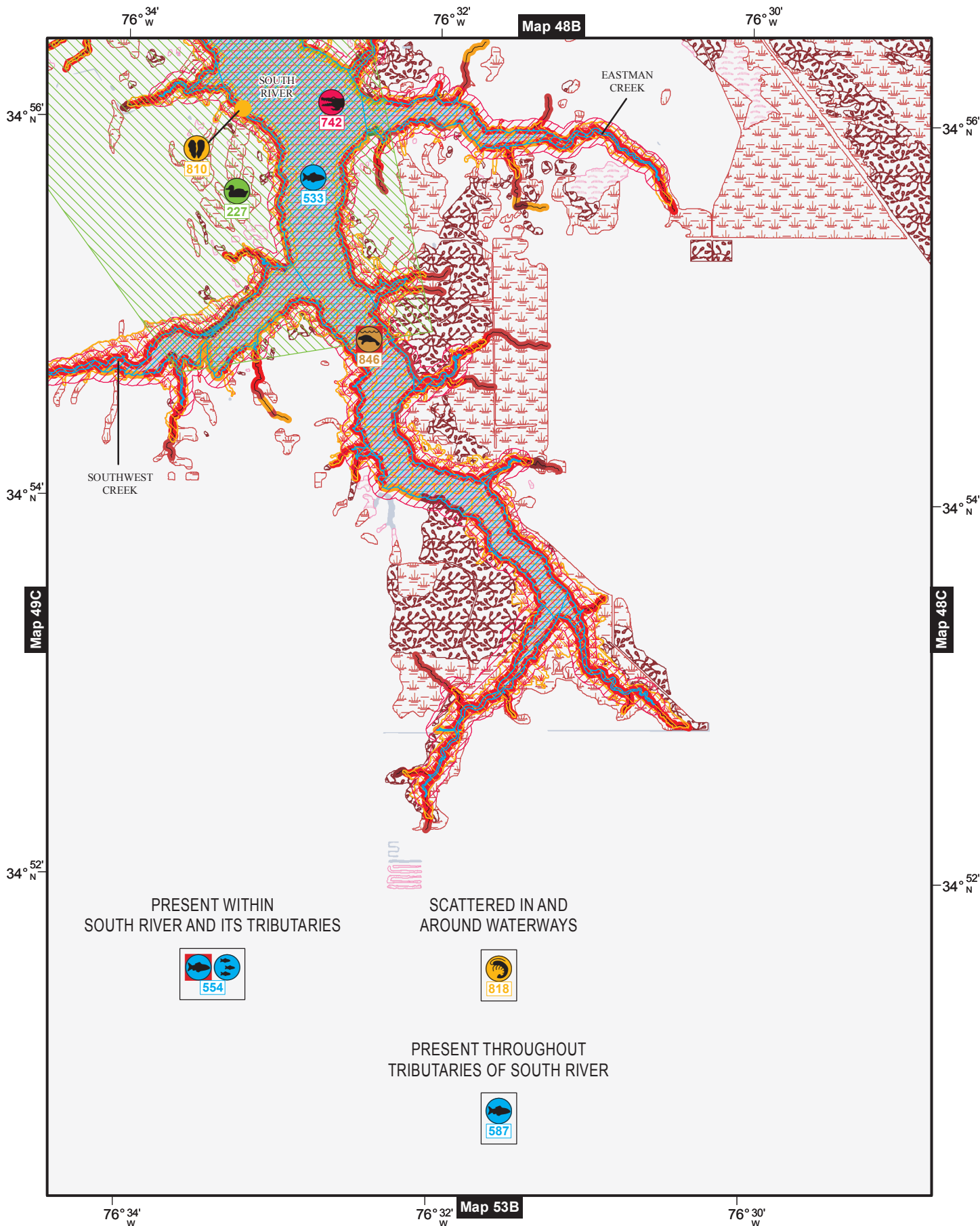
ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	61,723.31	38.35	67%
10C	Swamps	4,645.46	2.89	5%
10D	Scrub-shrub wetlands	4,408.54	2.74	5%
9A	Sheltered tidal flats	46.70	0.03	< 1%
9B	Sheltered, vegetated low banks	4,854.79	3.02	5%
8B	Sheltered, solid man-made structures	378.53	0.24	< 1%
8C	Sheltered riprap	159.71	0.10	< 1%
7	Exposed tidal flats	10,193.24	6.33	11%
6B	Exposed riprap	851.93	0.53	1%
3A	Fine- to medium-grained sand beaches	3,713.27	2.31	4%
1B	Exposed, solid man-made structures	779.38	0.48	1%
Total ESI Shoreline:		91,754.84	Total ESI Shoreline:	57.01
		Total Shoreline:	Total Shoreline:	48.91

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
227	Waterfowl	American coot	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Mergansers	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Red-breasted merganser	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Ruddy duck	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Scooters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
533	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
554	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
587	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
742	Alligator	American alligator	Vulnerable Occurrence			-													May-Jul	Jul-Sep	-	Jan-Dec	Jan-Dec



INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
810	Bivalve	Eastern oyster	Concentration Area			High													Jun-Nov	Jun-Nov	Jun-Nov	Jan-Dec	Jan-Dec
818	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	Pink shrimp	Nursery Area			Rare													-	-	May-Nov	Jan-Dec	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-

MARINE MAMMALS


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
846	Manatee	West Indian manatee	General Distribution	E	E	-													-	-	-	-

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Black scoter	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Greater scaup	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Lesser scaup	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Ring-necked duck	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering	-		-													-	Feb-Mar	Oct-Nov	-
	Tundra swan	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering	-		-													-	Feb-Mar	Oct-Nov	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BENTHIC

Subelement	Species
 SAV	Submerged aquatic veg









BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck																	Apr-May	-	-	-
	Wood duck																	Mar-Jun	-	-	-



FISH

Monthly Presence

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Hickory shad													-	-	-	-	Jan-Apr
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Jan-Mar	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Mar-Nov	Jun-Nov
	Bluefish													-	-	-	Mar-Apr	May-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	Apr-Sep	-
	Pinfish													-	-	Jan-Jun	Jan-Dec	Jun-Oct
	Red drum													-	-	Aug-Dec	Jan-Dec	-
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish													-	-	Jun-Sep	May-Nov	Jul-Oct
	Spot													-	-	Dec-Feb	Jan-Dec	Mar-Sep
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	Nov-May	Jan-Dec	Apr-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	May-Oct
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Mar-Oct
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Chain pickerel													-	-	-	-	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
 	Spanish mackerel													-	-	-	Jul-Nov	Jun-Aug

INVERTEBRATES

Monthly Presence

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Florida stone crab													May-Aug	May-Aug	-	-	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

Monthly Presence

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

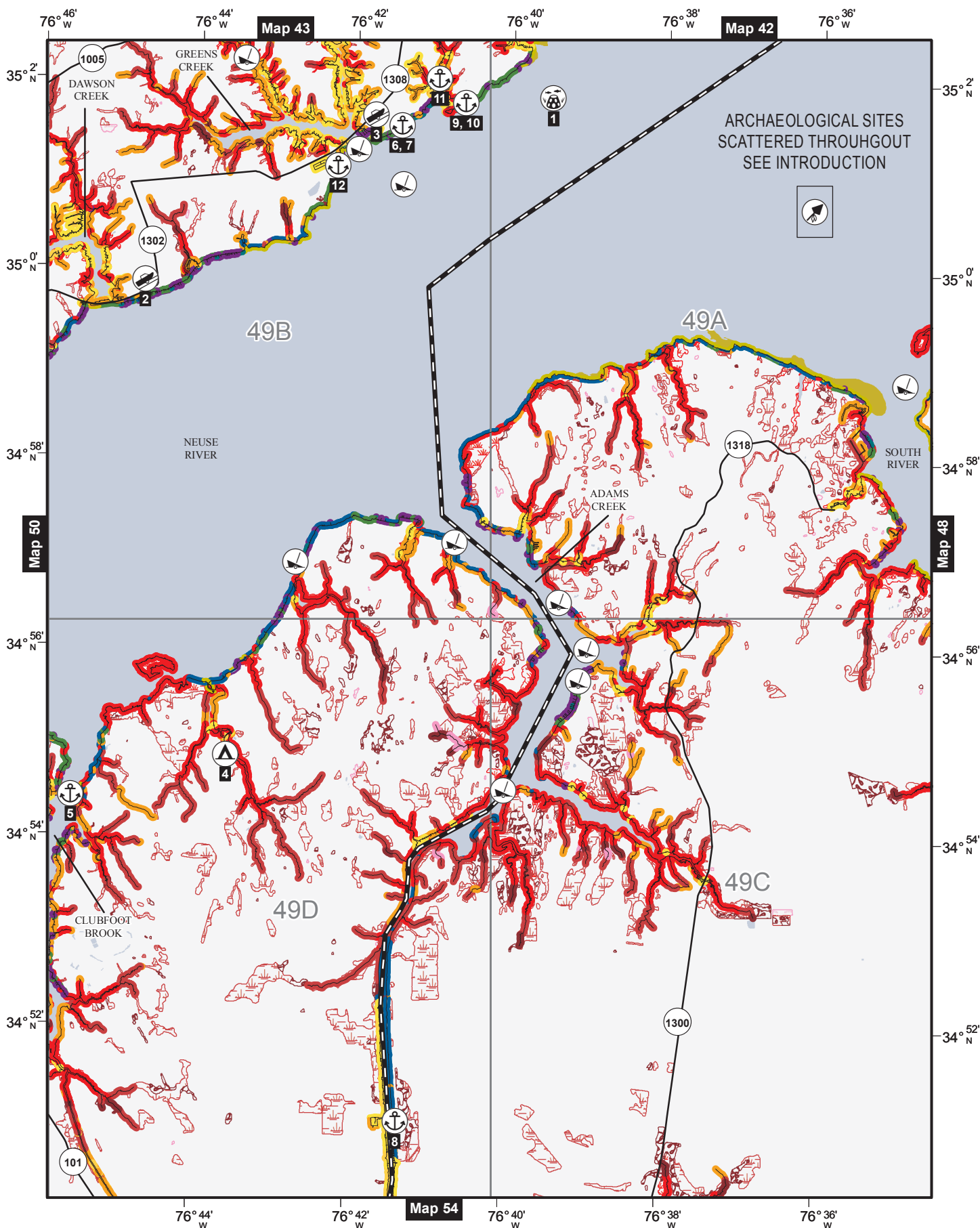
ESI POLYGON HABITAT TYPES

ESI SHORELINE HABITAT TYPES

Total ESI Shoreline:	64,643.19	Total ESI Shoreline:	40.17
Total Shoreline:	62,036.34	Total Shoreline:	38.55

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 49
North Carolina



SEE BACK OF MAP
for details about mapped resources and
other resources that occur in mapped area.
Data Published: November 2016

0 2 Miles
Not for Navigation
0 2 Kilometers

1:100,000



HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Contact Phone
1	ARTIFICIAL REEF	AR-396 ORIENTAL	
2	BOAT RAMP	DAWSON CREEK	NEW BERN DEPOT 252-514-4734
3	BOAT RAMP	ORIENTAL, SMITH'S CREEK	NEW BERN DEPOT 252-514-4734
4	CAMPGROUND	LONG CREEK FAMILY CAMPGROUND	252-447-7076
5	MARINA	MATTHEW'S POINT MARINA	252-444-1805
6	MARINA	ORIENTAL HARBOR MARINA	252-671-9692
7	MARINA	ORIENTAL MARINA AND INN	252-249-1818
8	MARINA	SEA GATE MARINA	252-728-4126
9	MARINA	WHITTAKER CREEK YACHT HARBOR	252-670-3759
10	MARINA	WHITTAKER POINTE MARINA	252-249-1750
11	MARINA	DEATON YACHT SERVICE	252-249-0090
12	MARINA	PECAN GROVE MARINA	252-249-2532

ALSO PRESENT IN MAPPED AREA (POLYGONS)			
Type	Name	Contact	Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; COASTAL MIG. PELAGICS	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SPINY LOBSTER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
STATE PROTECTED AREA	GAME LAND	NC WILDLIFE RESOURCES COMMISSION	
STATE PROTECTED AREA	OUTSTANDING RESOURCE AND/OR HIGH QUALITY WATERS	NC DENR WATER QUALITY DIVISION	

JURISDICTIONS			
COUNTY:	CARTERET, CRAVEN, PAMLICO	FEMA:	REGION I
COAST GUARD:	DISTRICT 5, SECTOR NORTH CAROLINA	EPA:	REGION 4
USACE:	SOUTH ATLANTIC DIVISION, WILMINGTON DISTRICT		

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	1,905.72	2.98
10B	Freshwater Marshes	129.21	0.20
10C	Swamps	5,054.34	7.90
10D	Scrub and Shrub Wetlands	1,008.04	1.58
9A	Sheltered Tidal Flats	3.16	0.00
7	Exposed Tidal Flats	251.44	0.39

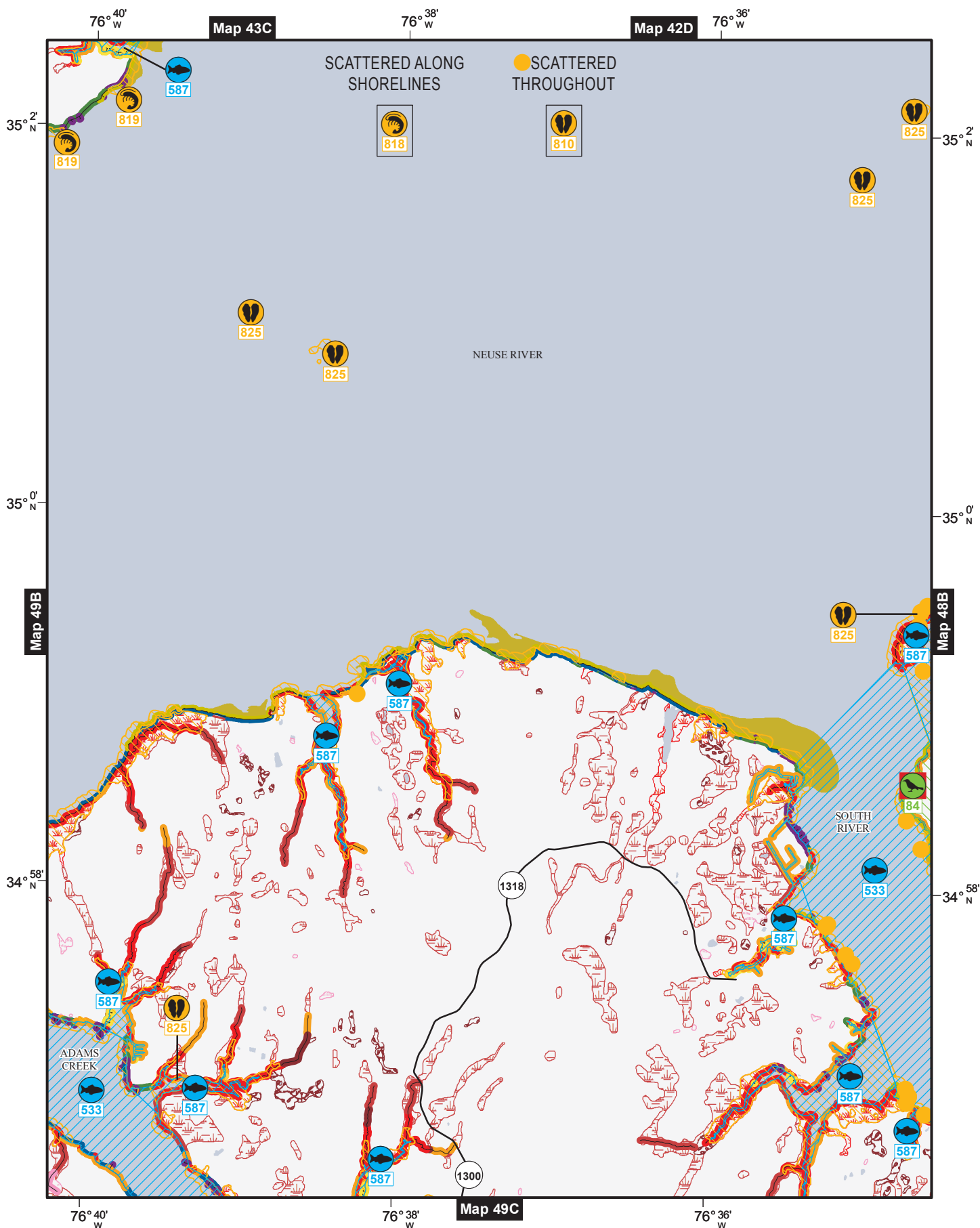
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	185,419.40	115.21	40%
10B	Freshwater marshes	1,932.80	1.20	< 1%
10C	Swamps	65,289.31	40.57	14%
10D	Scrub-shrub wetlands	10,500.79	6.52	2%
9A	Sheltered tidal flats	275.45	0.17	< 1%
9B	Sheltered, vegetated low banks	79,018.83	49.10	17%
8B	Sheltered, solid man-made structures	30,276.22	18.81	6%
8C	Sheltered riprap	7,684.27	4.77	2%
7	Exposed tidal flats	18,378.98	11.42	4%
6B	Exposed riprap	17,714.20	11.01	4%
3A	Fine- to medium-grained sand beaches	30,310.73	18.83	6%
3B	Scarps and steep slopes in sand	4,126.01	2.56	1%
1B	Exposed, solid man-made structures	16,794.95	10.44	4%
Total ESI Shoreline:		467,721.95	290.63	
Total Shoreline:		412,431.65	256.27	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov

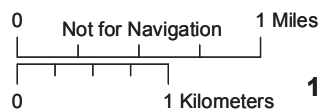




Map 49A
North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



1:50,000

Map 49A
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults	Molt
84	Passerine	Red-cockaded woodpecker	Vulnerable Occurrence	E	E	-	J	F	M	A	M	J	J	A	S	O	N	D	Apr-Jul	-	-	Jun-Oct	Jun-Nov	-

FISH


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
533	Diadromous	Alewife	Nursery Area			Present																	
	Diadromous	Blueback herring	Nursery Area			Present																	
587	Diadromous	Alewife	Spawning Area			Present																	
	Diadromous	Blueback herring	Spawning Area			Present																	

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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810	Bivalve	Eastern oyster	Concentration Area			High																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)



BIRDS

Subelement	Species	Mapping Qualifier	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt			
			S	F	Concentration	J	F	M	A	M	J	J	A	S					O	N	D
 Waterfowl	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American black duck	Wintering			-														-	Oct-Nov	-
	American coot	Wintering			1000S														-	Feb-Mar	-
	American wigeon	Wintering			-														-	Oct-Nov	-
	Black scoter	Wintering			-														-	Feb-Mar	-
	Blue-winged teal	Wintering			-														-	Oct-Nov	-
	Bufflehead	Wintering			-														-	Feb-Mar	-
	Bufflehead	Wintering			1000S														-	Oct-Nov	-
	Canvasback	Wintering			-														-	Feb-Mar	-
	Gadwall	Wintering			-														-	Feb-Mar	-
Gadwall	Wintering			100S														-	Feb-Mar	Oct-Nov	-

BIRDS (continued)

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Molt
						J	F	M	A	M	J	J	A	S	O	N	D	
	Greater scaup	Wintering	-	-	-													-
	Green-winged teal	Wintering	-	-	-													-
	Lesser scaup	Wintering	-	-	-													-
	Mallard	Wintering	-	-	-													-
	Mergansers	Wintering	100S	-	-													-
	Northern pintail	Wintering	-	-	-													-
	Northern shoveler	Wintering	-	-	-													-
	Northern shoveler	Wintering	100S	-	-													-
	Red-breasted merganser	Wintering	100S	-	-													-
	Redhead	Wintering	-	-	-													-
	Ring-necked duck	Wintering	-	-	-													-
	Ruddy duck	Wintering	1000S	-	-													-
	Scaup	Wintering	1000S	-	-													-
	Scoters	Wintering	1000S	-	-													-
	Surf scoter	Wintering	-	-	-													-
	Wood duck	Wintering	-	-	-													-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Adults
						J	F	M	A	M	J	J	A	S	O	N	D	
	Diadromous Alewife	Migration	-	-	Present													-
	American shad	Spawning Area	-	-	Present													-
	Atlantic sturgeon	General Distribution	C	-	-													-
	Atlantic sturgeon	Spawning Area	C	-	-													-
	Blueback herring	Migration	-	-	Present													-
	Estuarine Nursery Southern flounder	Concentration Area	-	-	Abundant													-

REPTILES & AMPHIBIANS


Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Adults
						J	F	M	A	M	J	J	A	S	O	N	D	
	Alligator	Vulnerable Occurrence	-	-	-													-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Molt
						J	F	M	A	M	J	J	A	S	O	N	D	
	Manatee	General Distribution	E	-	-													-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)






BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Molt
						J	F	M	A	M	J	J	A	S	O	N	D	
	SAV	Submerged aquatic veg	-	-	-													-

BIRDS

Subelement	Species	Monthly Presence												Nest	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	American black duck													Apr-May	-	Jan-Jun	Jan-Dec	Aug-Dec
	Wood duck													Mar-Jun	-	-	-	-

FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	American eel													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Hickory shad													-	-	-	-	Jan-Apr
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Jan-Mar	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Mar-Nov	Jun-Nov
	Bluefish													-	-	-	May-Apr	May-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	Apr-Sep	-
	Pinfish													-	-	Jan-Jun	Jan-Dec	Jun-Oct
	Red drum													-	-	Aug-Dec	Jan-Dec	-
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish													-	-	Jun-Sep	May-Nov	Jul-Oct
	Spot													-	-	Dec-Feb	Jan-Dec	Mar-Sep
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	Nov-May	Jan-Dec	Apr-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	May-Oct
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Mar-Oct
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Sep	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Chain pickerel													-	-	-	-	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	-	Jul-Nov	Jun-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
Crab	Blue crab													-	-	Jan-Dec	Jan-Dec
	Blue crab													-	May-Oct	-	Jan-Dec
Shrimp	Brown shrimp													-	Feb-Apr	Mar-Aug	-
	Florida stone crab													May-Aug	May-Aug	-	-
	Pink shrimp													-	-	Jan-Dec	-
	White shrimp													-	May-Nov	Jan-Dec	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
Dolphin	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	454.72	0.71
10B	Freshwater Marshes	42.35	0.07
10C	Swamps	939.82	1.47
10D	Scrub and Shrub Wetlands	111.80	0.17
7	Exposed Tidal Flats	243.03	0.38

ESI SHORELINE HABITAT TYPES

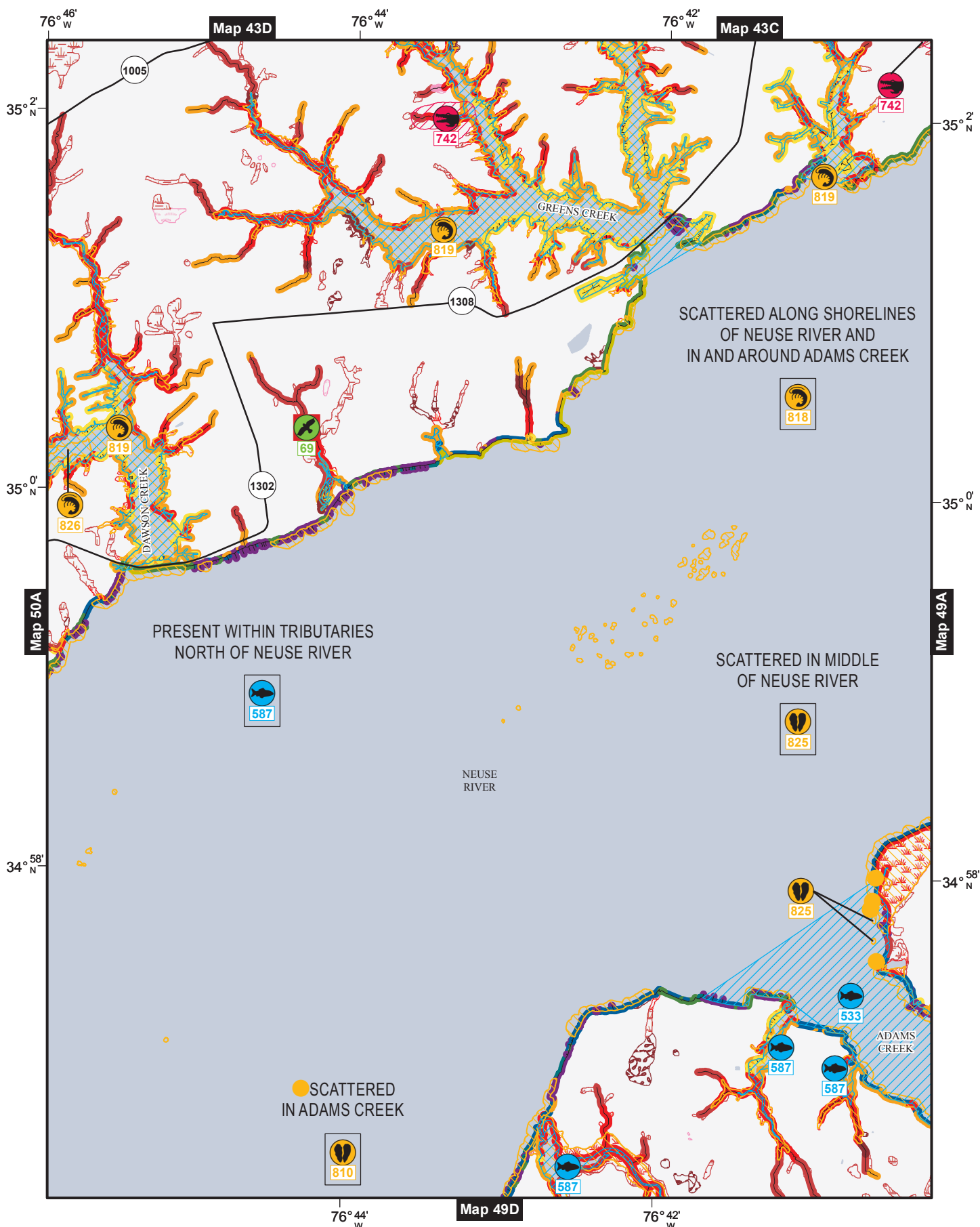
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	39,333.00	24.44	41%
10B	Freshwater marshes	245.12	0.15	< 1%
10C	Swamps	7,611.00	4.73	8%
10D	Scrub-shrub wetlands	760.73	0.47	1%
9B	Sheltered, vegetated low banks	16,233.38	10.09	17%
8B	Sheltered, solid man-made structures	2,630.08	1.63	3%
8C	Sheltered riprap	10.78	0.01	< 1%
7	Exposed tidal flats	12,048.28	7.49	13%
6B	Exposed riprap	3,959.54	2.46	4%
3A	Fine- to medium-grained sand beaches	9,984.25	6.20	10%
3B	Scarps and steep slopes in sand	107.93	0.07	< 1%
1B	Exposed, solid man-made structures	2,916.95	1.81	3%

Total ESI Shoreline: 95,841.04
Total ESI Shoreline: 59.55
Total Shoreline: 74,703.64
Total Shoreline: 46.42

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 49B
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
69	Raptor	Bald eagle	Nesting	T		1 Pair													Jan-Jun	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
533	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
587	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-



REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
742	Alligator	American alligator	Vulnerable Occurrence			-													May-Jul	Jul-Sep	-	Jan-Dec	Jan-Dec



INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
810	Bivalve	Eastern oyster	Concentration Area			High													Jun-Nov	Jun-Nov	Jun-Nov	Jan-Dec	Jan-Dec
818	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	Pink shrimp	Nursery Area			Rare													-	-	May-Nov	Jan-Dec	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-
819	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-
825	Bivalve	Eastern oyster	Concentration Area			Abundant													May-Nov	May-Nov	May-Nov	Jan-Dec	Jan-Dec
826	Shrimp	Brown shrimp	Nursery Area			-													-	-	Feb-Apr	Mar-Aug	-

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	American coot	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Mergansers	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Red-breasted merganser	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Ruddy duck	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Scoters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife	Migration			Present													-	-	May-Aug	Jul-Mar	-
	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Blueback herring	Migration			Present													-	-	May-Jul	Aug-Oct	-
	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	West Indian manatee	General Distribution	E		-													-	-	-	-

BENTHIC

Subelement
SAV

Species
Submerged aquatic veg



Monthly Presence



BIRDS

Subelement
Waterfowl

Species
American black duck
Wood duck



Monthly Presence



FISH

Subelement
Diadromous

Species
American eel
American shad
Hickory shad
Striped bass
Atlantic croaker
Atlantic menhaden
Bay anchovy
Black drum
Bluefish
Hogchoker
Ladyfish
Pinfish
Red drum
Sheepshead
Southern kingfish
Spot
Spotted seatrout
Striped mullet
Summer flounder
Weakfish

Subelement
Estuarine Resident

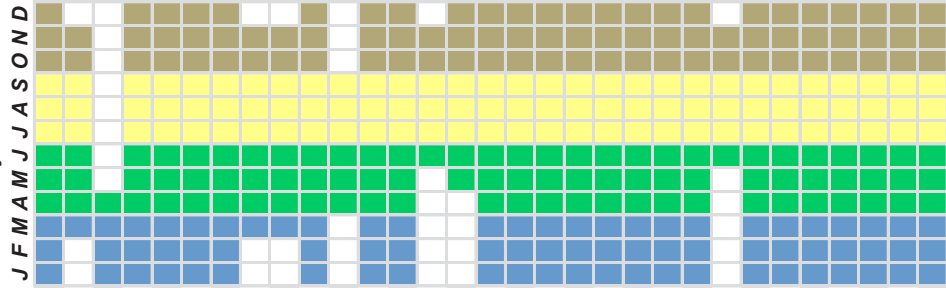
Species
White mullet
White perch
Inland silverside
Silver perch
Striped killifish
Bowfin

Subelement
Freshwater



Species
Chain pickerel
Largemouth bass
Longnose gar
Redfin pickerel
Yellow perch





Monthly Presence



FISH (continued)

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
 Marine Benthic	Atlantic spadefish												
 Marine Pelagic	Atlantic needlefish												
	Spanish mackerel												

INVERTEBRATES

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
 Crab	Blue crab												
	Blue crab												
 Shrimp	Brown shrimp												
	Florida stone crab												
	Pink shrimp												
	White shrimp												

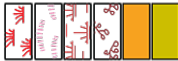
MARINE MAMMALS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
 Dolphin	Bottlenose dolphin												

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	405.20	0.63
10B	Freshwater Marshes	12.85	0.02
10C	Swamps	309.59	0.48
10D	Scrub and Shrub Wetlands	76.00	0.12
9A	Sheltered Tidal Flats	3.16	0.00
7	Exposed Tidal Flats	4.66	0.01



ESI SHORELINE HABITAT TYPES

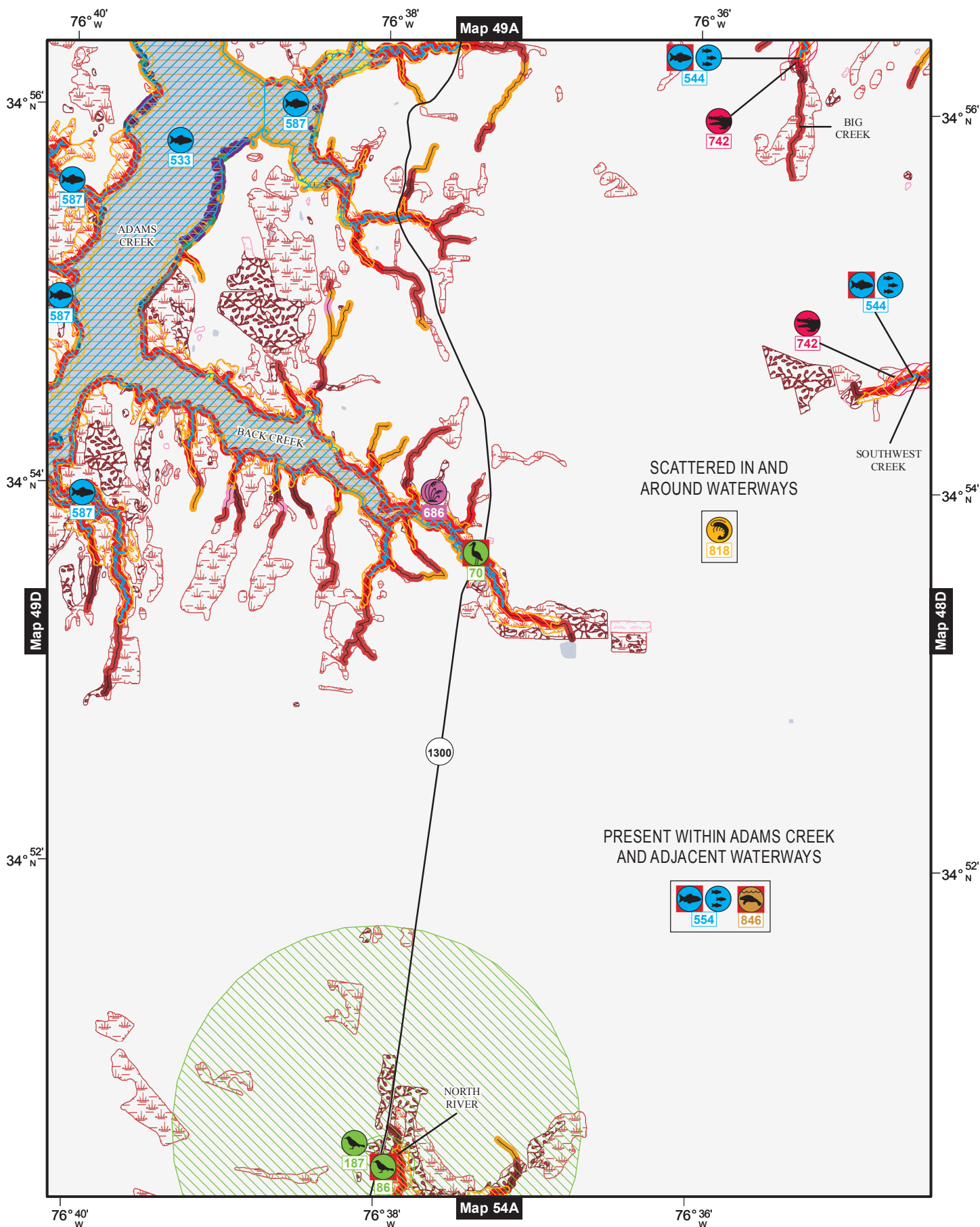
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	48,519.80	30.15	31%
10B	Freshwater marshes	116.51	0.07	< 1%
10C	Swamps	10,577.99	6.57	7%
10D	Scrub-shrub wetlands	2,717.84	1.69	2%
9A	Sheltered tidal flats	275.45	0.17	< 1%
9B	Sheltered, vegetated low banks	39,245.73	24.39	25%
8B	Sheltered, solid man-made structures	20,529.81	12.76	13%
8C	Sheltered riprap	2,097.08	1.30	1%
7	Exposed tidal flats	4,999.02	3.11	3%
6B	Exposed riprap	10,027.32	6.23	6%
3A	Fine- to medium-grained sand beaches	9,363.97	5.82	6%
1B	Exposed, solid man-made structures	8,966.59	5.57	6%

Total ESI Shoreline: 157,437.11 Total ESI Shoreline: 97.83
 Total Shoreline: 138,105.35 Total Shoreline: 85.81

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov

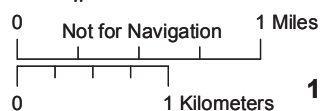




Map 49C North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



1:50,000



Map 49C
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
70	Wading	Black rail	Nesting	C		-													May-Aug	-	-	-	-
86	Passerine	Painted bunting	Nesting	C		-													Apr-Aug	-	-	-	-
187	Passerine	Black-throated green warbler	Nesting			-													Apr-Aug	-	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
533	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
544	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
554	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
587	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
							J	F	M	A	M	J	J	A	S	O	N	D
686	Plant	Beaked spikerush	Vulnerable Occurrence			Current												

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
742	Alligator	American alligator	Vulnerable Occurrence			-													May-Jul	Jul-Sep	-	Jan-Dec	Jan-Dec

INVERTEBRATES


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
818	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	Pink shrimp	Nursery Area			Rare													-	-	May-Nov	Jan-Dec	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-

MARINE MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Calving	Pupping	Molt
846	Manatee	West Indian manatee	General Distribution	E	E	-	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-


WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck	Wintering	-	-	-												Feb-Mar	Oct-Nov	-		
	American black duck	Wintering	-	-	100S												Feb-Mar	Oct-Nov	-		
	American coot	Wintering	-	-	1000S												Feb-Mar	Oct-Nov	-		
	American wigeon	Wintering	-	-	-												Feb-Mar	Oct-Nov	-		
	Black scoter	Wintering	-	-	-												Feb-Mar	Oct-Nov	-		
	Blue-winged teal	Wintering	-	-	-												Feb-Mar	Oct-Nov	-		
	Bufflehead	Wintering	-	-	100S												Feb-Mar	Oct-Nov	-		
	Bufflehead	Wintering	-	-	1000S												Feb-Mar	Oct-Nov	-		
	Bufflehead	Wintering	-	-	-												Feb-Mar	Oct-Nov	-		
	Canvasback	Wintering	-	-	-												Feb-Mar	Oct-Nov	-		
	Gadwall	Wintering	-	-	-												Feb-Mar	Oct-Nov	-		
	Gadwall	Wintering	-	-	100S												Feb-Mar	Oct-Nov	-		
	Greater scaup	Wintering	-	-	-												Feb-Mar	Oct-Nov	-		
	Green-winged teal	Wintering	-	-	-												Feb-Mar	Oct-Nov	-		
	Lesser scaup	Wintering	-	-	-												Feb-Mar	Oct-Nov	-		
	Mallard	Wintering	-	-	-												Feb-Mar	Oct-Nov	-		
	Mergansers	Wintering	-	-	100S												Feb-Mar	Oct-Nov	-		
	Northern pintail	Wintering	-	-	-												Feb-Mar	Oct-Nov	-		
	Northern shoveler	Wintering	-	-	100S												Feb-Mar	Oct-Nov	-		
	Northern shoveler	Wintering	-	-	-												Feb-Mar	Oct-Nov	-		
Red-breasted merganser	Wintering	-	-	100S												Feb-Mar	Oct-Nov	-			
Redhead	Wintering	-	-	100S												Feb-Mar	Oct-Nov	-			
Redhead	Wintering	-	-	-												Feb-Mar	Oct-Nov	-			
Ring-necked duck	Wintering	-	-	-												Feb-Mar	Oct-Nov	-			
Ruddy duck	Wintering	-	-	1000S												Feb-Mar	Oct-Nov	-			
Scaup	Wintering	-	-	1000S												Feb-Mar	Oct-Nov	-			
Scoters	Wintering	-	-	1000S												Feb-Mar	Oct-Nov	-			
Surf scoter	Wintering	-	-	-												Feb-Mar	Oct-Nov	-			
Tundra swan	Wintering	-	-	1000S												Feb-Mar	Oct-Nov	-			
Wood duck	Wintering	-	-	-												Feb-Mar	Oct-Nov	-			

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
	Submerged aquatic veg	General Distribution	-	-	-	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-






BIRDS

Monthly Presence

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
	American black duck													Apr-May	-	-	Jan-Dec	Aug-Dec
	Wood duck													Mar-Jun	-	-	May-Nov	-

FISH

Monthly Presence

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
	American eel													-	-	Jan-Jun	Jan-Dec	Jan-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Hickory shad													-	-	-	-	Jan-Apr
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Jan-Mar	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Mar-Nov	Jun-Nov
	Bluefish													-	-	-	May-Apr	May-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	Apr-Sep	-
	Pinfish													-	-	Jan-Jun	Jan-Dec	Jun-Oct
	Red drum													-	-	Aug-Dec	Jan-Dec	-
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish													-	-	Jun-Sep	May-Nov	Jul-Oct
	Spot													-	-	Dec-Feb	Jan-Dec	Mar-Sep
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	Nov-May	Jan-Dec	Apr-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	May-Oct
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Mar-Oct
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Chain pickerel													-	-	-	-	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	-	Jul-Nov	Jun-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
Crab	Blue crab												
Shrimp	Brown shrimp												
	Pink shrimp												
	White shrimp												

MARINE MAMMALS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
Dolphin	Bottlenose dolphin												

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	589.94	0.92
10B	Freshwater Marshes	38.43	0.06
10C	Swamps	1,429.40	2.23
10D	Scrub and Shrub Wetlands	483.84	0.76

ESI SHORELINE HABITAT TYPES

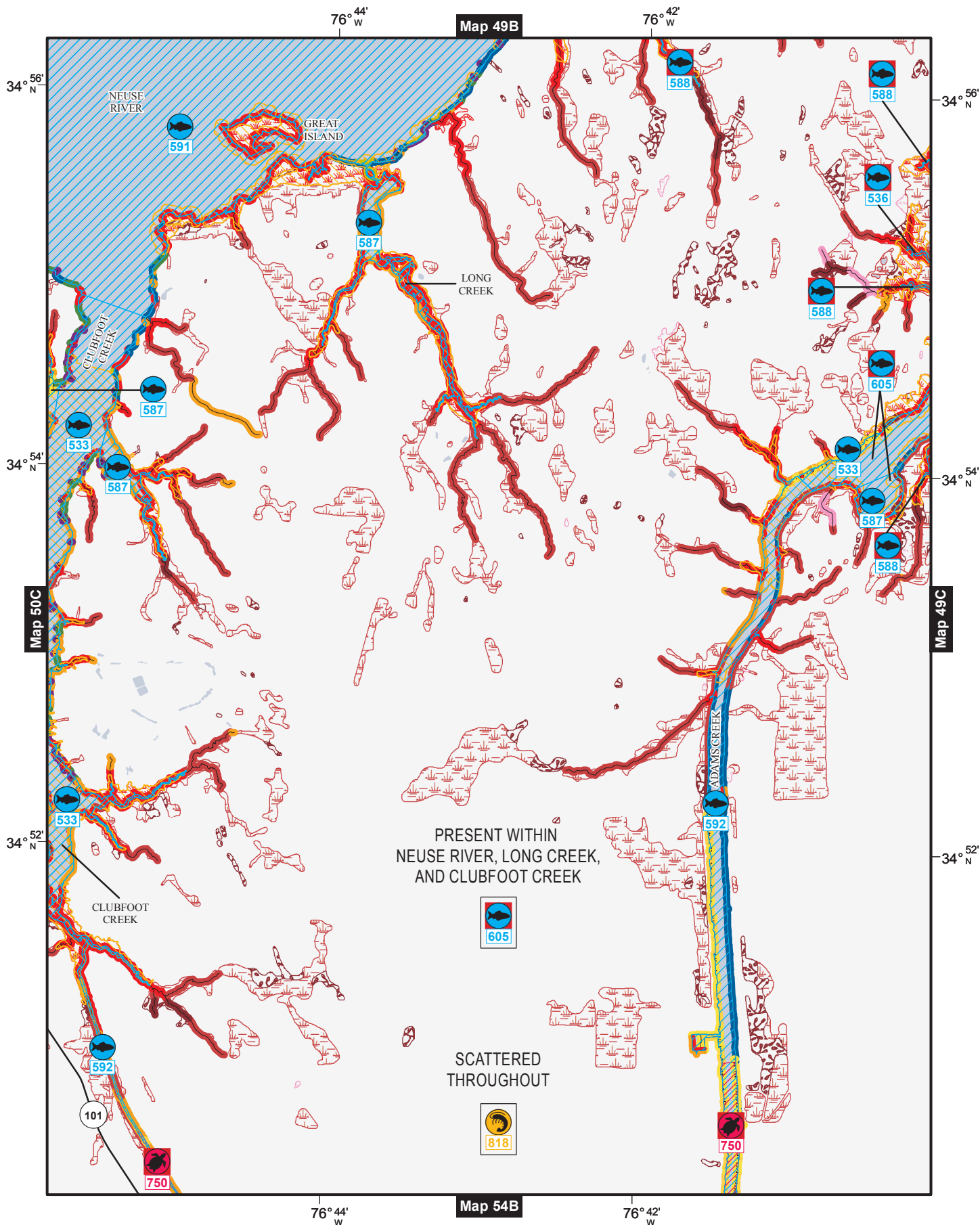
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	47,446.91	29.48	59%
10B	Freshwater marshes	550.08	0.34	1%
10C	Swamps	12,327.89	7.66	15%
10D	Scrub-shrub wetlands	3,527.27	2.19	4%
9B	Sheltered, vegetated low banks	10,574.61	6.57	13%
8B	Sheltered, solid man-made structures	1,210.67	0.75	1%
8C	Sheltered riprap	137.76	0.09	< 1%
6B	Exposed riprap	1,116.74	0.69	1%
3A	Fine- to medium-grained sand beaches	1,322.45	0.82	2%
1B	Exposed, solid man-made structures	2,619.60	1.63	3%

Total ESI Shoreline: 80,833.98
Total Shoreline: 78,800.73
Total ESI Shoreline: 50.23
Total Shoreline: 48.96

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 49D
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
533	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
536	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
587	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
588	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
591	Diadromous	Alewife	Migration			Present													-	-	May-Aug	Jul-Mar	-
	Diadromous	Blueback herring	Migration			Present													-	-	May-Jul	Aug-Oct	-
592	Diadromous	Alewife	Migration			Present													-	-	May-Aug	Jul-Mar	-
	Diadromous	Blueback herring	Migration			Present													-	-	May-Jul	Aug-Oct	-
	Marine Benthic	Spotted hake	Nursery Area			-													-	-	-	Dec-Jun	-
605	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-



REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
750	Turtle	Green sea turtle	General Distribution	T	T	-													-	-	-	Apr-Dec	-
	Turtle	Hawksbill sea turtle	General Distribution	E	E	Infrequent													-	-	-	Apr-Dec	-
	Turtle	K. ridley sea turtle	General Distribution	E	E	-													-	-	-	Apr-Dec	-
	Turtle	Leatherback sea turtle	General Distribution	E	E	Occasional													-	-	-	Apr-Dec	-
	Turtle	Loggerhead sea turtle	General Distribution	T	T	-													-	-	-	Apr-Dec	-



INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
818	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	Pink shrimp	Nursery Area			Rare													-	-	May-Nov	Jan-Dec	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Waterfowl	American black duck	Wintering		100S													-	Feb-Mar	Oct-Nov	-	-
		American black duck	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		American coot	Wintering		1000S													-	Feb-Mar	Oct-Nov	-	-
		American wigeon	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Black scoter	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Blue-winged teal	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Bufflehead	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Bufflehead	Wintering		1000S													-	Feb-Mar	Oct-Nov	-	-
		Canvasback	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Gadwall	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Gadwall	Wintering		100S													-	Feb-Mar	Oct-Nov	-	-
		Greater scaup	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Green-winged teal	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Lesser scaup	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Mallard	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Mergansers	Wintering		100S													-	Feb-Mar	Oct-Nov	-	-
		Northern pintail	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Northern shoveler	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Northern shoveler	Wintering		100S													-	Feb-Mar	Oct-Nov	-	-
		Red-breasted merganser	Wintering		100S													-	Feb-Mar	Oct-Nov	-	-
	Diadromous	American shad	Spawning Area		Present													Apr-Jun	May-Jul	Feb-May	-	-
		Atlantic sturgeon	General Distribution	C	-													-	-	-	Jan-Dec	Jan-Dec
	Estuarine Nursery	Southern flounder	Concentration Area		Abundant													-	-	Dec-Mar	Jan-Dec	-
		Scaup	Wintering		1000S													-	Feb-Mar	Oct-Nov	-	-
		Scooters	Wintering		1000S													-	Feb-Mar	Oct-Nov	-	-
		Surf scoter	Wintering		-													-	Feb-Mar	Oct-Nov	-	-
		Wood duck	Wintering		-													-	Feb-Mar	Oct-Nov	-	-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous	American shad	Spawning Area		Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Estuarine Nursery	Atlantic sturgeon	General Distribution	C	-													-	-	-	Jan-Dec	Jan-Dec
	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Manatee	General Distribution	E	E	-													-	-	-	-

BENTHIC

Monthly Presence

J F M A M J J A S O N D

Subelement

Species

SAV Submerged aquatic veg

BIRDS

Monthly Presence

J F M A M J J A S O N D

Subelement

Species

Raptor Osprey
Waterfowl American black duck
Wood duck

FISH

Monthly Presence

J F M A M J J A S O N D

Subelement

Species

Diadromous American eel
American eel
American shad
Hickory shad

Striped bass

Atlantic croaker

Atlantic croaker

Atlantic cutlassfish

Atlantic menhaden

Atlantic menhaden

Bay anchovy

Black drum

Black drum

Bluefish

Bluefish

Gulf flounder

Hogchoker

Hogchoker

Ladyfish

Ladyfish

Northern kingfish

Pinfish

Pinfish

Red drum

Red drum

Sheepshead

Sheepshead

Southern flounder

Southern kingfish

Southern kingfish

Subelement

Species

American eel
American eel
American shad
Hickory shad

Striped bass

Atlantic croaker

Atlantic croaker

Atlantic cutlassfish

Atlantic menhaden

Atlantic menhaden

Bay anchovy

Black drum

Black drum

Bluefish

Bluefish

Gulf flounder

Hogchoker

Hogchoker

Ladyfish

Ladyfish

Northern kingfish

Pinfish

Pinfish

Red drum

Red drum

Sheepshead

Sheepshead

Southern flounder

Southern kingfish

Southern kingfish

Subelement

Species

American eel
American eel
American shad
Hickory shad

Striped bass

Atlantic croaker

Atlantic croaker

Atlantic cutlassfish

Atlantic menhaden

Atlantic menhaden

Bay anchovy

Black drum

Black drum

Bluefish

Bluefish

Gulf flounder

Hogchoker

Hogchoker

Ladyfish

Ladyfish

Northern kingfish

Pinfish

Pinfish

Red drum

Red drum

Sheepshead

Sheepshead

Southern flounder

Southern kingfish

Southern kingfish

Subelement

Species

American eel
American eel
American shad
Hickory shad

Striped bass

Atlantic croaker

Atlantic croaker

Atlantic cutlassfish

Atlantic menhaden

Atlantic menhaden

Bay anchovy

Black drum

Black drum

Bluefish

Bluefish

Gulf flounder

Hogchoker

Hogchoker

Ladyfish

Ladyfish

Northern kingfish

Pinfish

Pinfish

Red drum

Red drum

Sheepshead

Sheepshead

Southern flounder

Southern kingfish

Southern kingfish

Subelement

Species

American eel
American eel
American shad
Hickory shad

Striped bass

Atlantic croaker

Atlantic croaker

Atlantic cutlassfish

Atlantic menhaden

Atlantic menhaden

Bay anchovy

Black drum

Black drum

Bluefish

Bluefish

Gulf flounder

Hogchoker

Hogchoker

Ladyfish

Ladyfish

Northern kingfish

Pinfish

Pinfish

Red drum

Red drum

Sheepshead

Sheepshead

Southern flounder

Southern kingfish

Southern kingfish

Subelement

Species

American eel
American eel
American shad
Hickory shad

Striped bass

Atlantic croaker

Atlantic croaker

Atlantic cutlassfish

Atlantic menhaden

Atlantic menhaden

Bay anchovy

Black drum

Black drum

Bluefish

Bluefish

Gulf flounder

Hogchoker

Hogchoker

Ladyfish

Ladyfish

Northern kingfish

Pinfish

Pinfish

Red drum

Red drum

Sheepshead

Sheepshead

Southern flounder

Southern kingfish

Southern kingfish

Subelement

Species

American eel
American eel
American shad
Hickory shad

Striped bass

Atlantic croaker

Atlantic croaker

Atlantic cutlassfish

Atlantic menhaden

Atlantic menhaden

Bay anchovy

Black drum

Black drum

Bluefish

Bluefish

Gulf flounder

Hogchoker

Hogchoker

Ladyfish

Ladyfish

Northern kingfish

Pinfish

Pinfish

Red drum

Red drum

Sheepshead

Sheepshead

Southern flounder

Southern kingfish

Southern kingfish

Subelement

Species

American eel
American eel
American shad
Hickory shad

Striped bass

Atlantic croaker

Atlantic croaker

Atlantic cutlassfish

Atlantic menhaden

Atlantic menhaden

Bay anchovy

Black drum

Black drum

Bluefish

Bluefish

Gulf flounder

Hogchoker

Hogchoker

Ladyfish

Ladyfish

Northern kingfish

Pinfish

Pinfish

Red drum

Red drum

Sheepshead

Sheepshead

Southern flounder

Southern kingfish

Southern kingfish

Subelement

Species

American eel
American eel
American shad
Hickory shad

Striped bass

Atlantic croaker

Atlantic croaker

Atlantic cutlassfish

Atlantic menhaden

Atlantic menhaden

Bay anchovy

Black drum

Black drum

Bluefish

Bluefish

Gulf flounder

Hogchoker

Hogchoker

Ladyfish

Ladyfish

Northern kingfish

Pinfish

Pinfish

Red drum

Red drum

Sheepshead

Sheepshead

Southern flounder

Southern kingfish

Southern kingfish

Subelement

Species

American eel
American eel
American shad
Hickory shad

Striped bass

Atlantic croaker

Atlantic croaker

Atlantic cutlassfish

Atlantic menhaden

Atlantic menhaden

Bay anchovy

Black drum

Black drum

Bluefish

Bluefish

Gulf flounder

Hogchoker

Hogchoker

Ladyfish

Ladyfish

Northern kingfish

Pinfish

Pinfish

Red drum

Red drum

Sheepshead

Sheepshead

Southern flounder

Southern kingfish





Southern kingfish

Subelement



Species

American eel
American eel
American shad
Hickory shad

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Spot													-	-	Jan-May	Jun-Dec	-
	Spot													-	-	Dec-Feb	Jan-Dec	Mar-Sep
	Spotted seatrout													May-Aug	May-Aug	Jun-Aug	Jan-Oct	-
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	Nov-May	Jan-Dec	Apr-Nov
	Striped mullet													-	-	-	Jan-Dec	-
	Summer flounder													-	-	Oct-May	Jan-Dec	May-Oct
	Weakfish													-	-	-	Jan-Dec	Jan-Dec
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Mar-Oct
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Chain pickerel													-	-	-	-	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Florida pompano													-	-	-	-	Jul-Oct
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Sharks													-	-	-	-	Jan-Dec
	Spanish mackerel													-	-	-	-	-
	Spanish mackerel													-	-	-	Jul-Nov	Jun-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Quahog													May-Nov	May-Nov	May-Nov	Jan-Dec	Jan-Dec
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	455.77	0.71
10B	Freshwater Marshes	35.59	0.06
10C	Swamps	2,375.36	3.71
10D	Scrub and Shrub Wetlands	336.15	0.53
7	Exposed Tidal Flats	3.88	0.01



ESI SHORELINE HABITAT TYPES

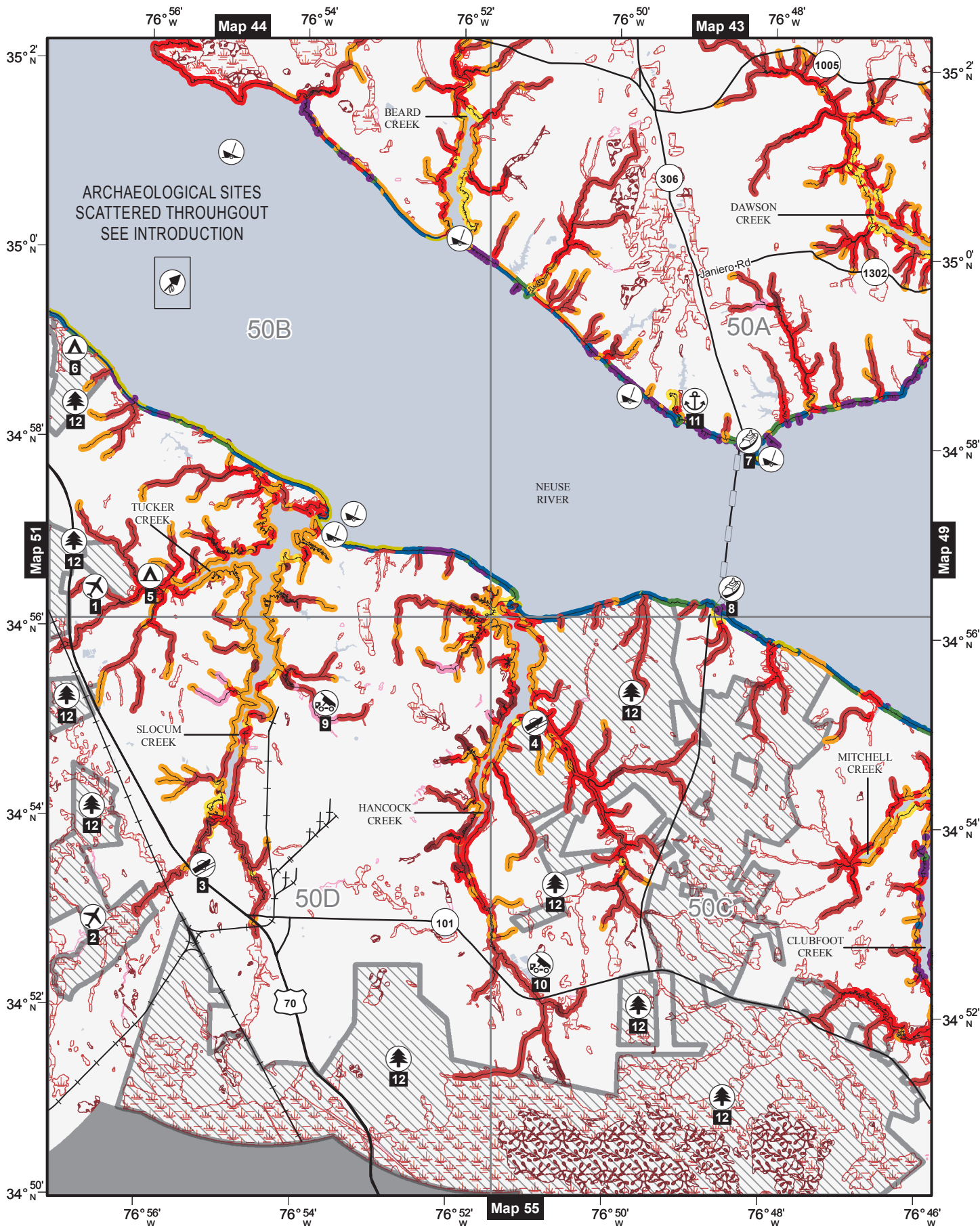
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	50,134.80	31.15	38%
10B	Freshwater marshes	1,021.09	0.63	1%
10C	Swamps	34,775.18	21.61	26%
10D	Scrub-shrub wetlands	3,494.65	2.17	3%
9B	Sheltered, vegetated low banks	12,980.70	8.07	10%
8B	Sheltered, solid man-made structures	5,898.72	3.67	4%
8C	Sheltered riprap	5,432.32	3.38	4%
7	Exposed tidal flats	1,337.19	0.83	1%
6B	Exposed riprap	2,611.82	1.62	2%
3A	Fine- to medium-grained sand beaches	9,641.56	5.99	7%
3B	Scarps and steep slopes in sand	4,018.08	2.50	3%
1B	Exposed, solid man-made structures	2,290.24	1.42	2%

Total ESI Shoreline: 133,636.37 Total ESI Shoreline: 83.04
Total Shoreline: 120,838.57 Total Shoreline: 75.09

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 50 North Carolina



SEE BACK OF MAP
for details about mapped resources and
other resources that occur in mapped area.
Data Published: November 2016

0 Not for Navigation 2 Miles
0 2 Kilometers

1:100,000



Map 50
North Carolina

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)				
Map ID	Type	Name	Contact	Phone
1	AIRPORT	HICKORY HILL	JERRY A. JACKSON, MANAGER	252-670-8500
2	AIRPORT	DOGWOOD FARM	HUPERT C. PULLEY, MANAGER	252-671-2695
3	BOAT RAMP	SLOCUM CREEK	NEW BERN DEPOT	252-514-4734
4	BOAT RAMP	HANCOCK CREEK; HANCOCK CREEK	NEW BERN DEPOT	252-514-4734
5	CAMPGROUND	PAUL'S RV PARK AND BOAT RAMP		252-229-6421
6	CAMPGROUND	NEUSE RIVER - FLANNER BEACH	CROATAN NATIONAL FOREST	252-638-5628
7	FERRY	MINNESOTT BEACH FERRY TERMINAL		252-447-1055
8	FERRY	CHERRY BRANCH TERMINAL		252-447-1055
9	LANDFILL	CHERRY POINT LCID	NATHAN ARNETT	252-466-5271
10	LANDFILL	CIESZKO LCID	MARTIN CIESZKO	252-447-2096
11	MARINA	WAYFARERS COVE MARINA		252-249-1424

DISPLAYED ON MAP (POLYGONS)				
Map ID	Type	Name	Contact	Phone
12	NATIONAL FOREST	CROATAN NATIONAL FOREST	U.S. FOREST SERVICE	828-257-4200

ALSO PRESENT IN MAPPED AREA (POLYGONS)			
Type	Name	Contact	Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; COASTAL MIG. PELAGICS	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SPINY LOBSTER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
STATE PROTECTED AREA	ARCHERY ZONE	USDA FOREST SERVICE	
STATE PROTECTED AREA	BLACK BEAR SANCTUARY	USDA FOREST SERVICE	
STATE PROTECTED AREA	GAME LAND	USDA FOREST SERVICE	
STATE PROTECTED AREA	OUTSTANDING RESOURCE AND/OR HIGH QUALITY WATERS	NC DENR WATER QUALITY DIVISION	

JURISDICTIONS

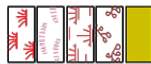
COUNTY: CARTERET, CRAVEN, PAMLICO
COAST GUARD: DISTRICT 5, SECTOR NORTH CAROLINA
USACE: SOUTH ATLANTIC DIVISION, WILMINGTON DISTRICT

FEMA: REGION I
EPA: REGION 4

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	1,015.93	1.59
10B	Freshwater Marshes	201.08	0.31
10C	Swamps	9,129.30	14.26
10D	Scrub and Shrub Wetlands	2,295.96	3.59
7	Exposed Tidal Flats	28.36	0.04



ESI SHORELINE HABITAT TYPES

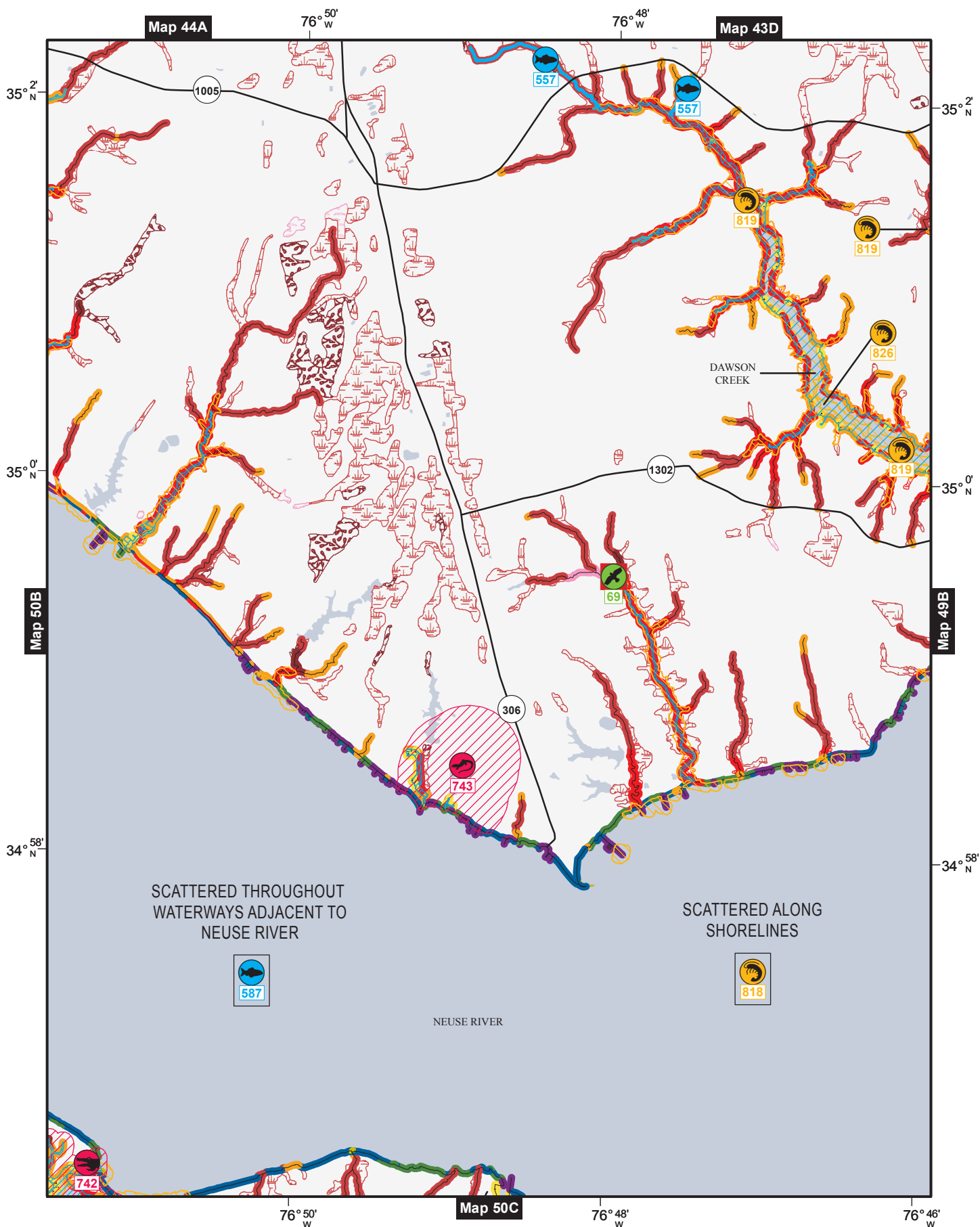
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt- and brackish-water marshes	130,512.23	81.10	31%
10B	Freshwater marshes	3,017.17	1.87	1%
10C	Swamps	120,762.04	75.04	28%
10D	Scrub-shrub wetlands	9,948.87	6.18	2%
9B	Sheltered, vegetated low banks	95,065.03	59.07	22%
8B	Sheltered, solid man-made structures	8,952.31	5.56	2%
8C	Sheltered riprap	272.99	0.17	< 1%
7	Exposed tidal flats	10,831.13	6.73	3%
6B	Exposed riprap	10,267.95	6.38	2%
3A	Fine- to medium-grained sand beaches	23,084.33	14.34	5%
3B	Scarps and steep slopes in sand	532.22	0.33	< 1%
1B	Exposed, solid man-made structures	12,404.19	7.71	3%

Total ESI Shoreline: 425,650.45 Total ESI Shoreline: 264.49
 Total Shoreline: 390,653.76 Total Shoreline: 242.74

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 50A North Carolina

Map 50A
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults	Molt
				T			J	F	M	A	M	J	J	A	S	O	N	D	Jan-Jun					
69	Raptor	Bald eagle	Nesting			1 Pair																		

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D	Mar-Jul	Mar-Jul	May-Aug		
557	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
587	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-



REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D	May-Jul	Jul-Sep		Jan-Dec	Jan-Dec
742	Alligator	American alligator	Vulnerable Occurrence			-																	
743	Snake	Rainbow snake	Vulnerable Occurrence			-													May-Sep	Aug-Nov			



INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D	-	-	Feb-Apr	Mar-Aug	-
818	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-			
	Shrimp	Pink shrimp	Nursery Area			Rare													-	-	May-Nov	Jan-Dec	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-
819	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-
826	Shrimp	Brown shrimp	Nursery Area			-													-	-	Feb-Apr	Mar-Aug	-

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	American coot	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Mergansers	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Red-breasted merganser	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Ruddy duck	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Scoters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife	Migration			Present													-	-	May-Aug	Jul-Mar	-
	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Blueback herring	Migration			Present													-	-	May-Jul	Aug-Oct	-
	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	West Indian manatee	General Distribution	E		-													-	-	-	-

BENTHIC

Subelement	Species
SAV	Submerged aquatic veg



BIRDS

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Eggs	Larvae	Juveniles	Adults
Raptor	Osprey													Mar-Aug	-	-	Jan-Dec	Aug-Dec
Waterfowl	American black duck													Apr-May	-	-	Jan-Dec	-
	Wood duck													Mar-Jun	-	-	Jan-Dec	-



FISH

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
Diadromous	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	Hickory shad													-	-	Mar-Jul	May-Nov	Jan-Apr
Estuarine Nursery	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Jan-Mar	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Mar-Nov	Jun-Nov
	Bluefish													-	-	-	Mar-Apr	May-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	Apr-Sep	-
	Pinfish													-	-	Jan-Jun	Jan-Dec	Jun-Oct
	Red drum													-	-	Aug-Dec	Jan-Dec	-
	Sheepshead													-	-	-	Jan-Nov	Jun-Oct
	Southern kingfish													-	-	Jun-Sep	May-Nov	Jul-Oct
	Spot													-	-	Dec-Feb	Jan-Dec	Mar-Sep
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	Nov-May	Jan-Dec	Apr-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	May-Oct
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Mar-Oct
	White mullet													-	-	-	Jan-Dec	Jan-Dec
Estuarine Resident	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
Freshwater	Bluegill													Apr-Oct	Apr-Oct	-	Jan-Dec	Jan-Dec
	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Chain pickerel													-	-	-	-	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	-	Jul-Nov	Jun-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Blue crab													-	-	May-Oct	-	Jan-Dec
	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	291.88	0.46
10B	Freshwater Marshes	25.83	0.04
10C	Swamps	1,352.80	2.11
10D	Scrub and Shrub Wetlands	201.31	0.31
7	Exposed Tidal Flats	1.04	0.00

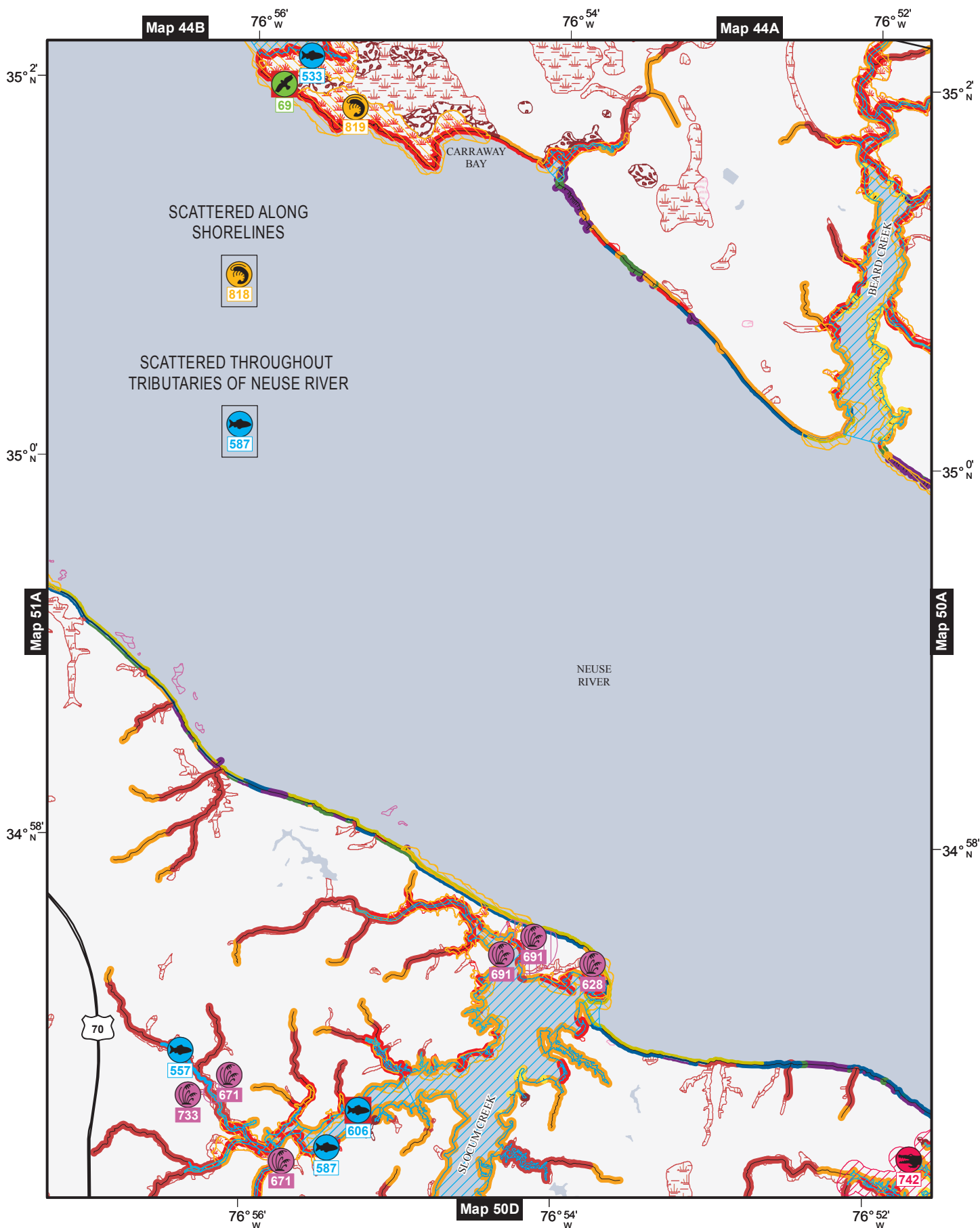
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	38,707.96	24.05	34%
10B	Freshwater marshes	530.84	0.33	< 1%
10C	Swamps	33,352.17	20.72	29%
10D	Scrub-shrub wetlands	1,047.13	0.65	1%
9B	Sheltered, vegetated low banks	15,460.93	9.61	14%
8B	Sheltered, solid man-made structures	3,209.85	1.99	3%
8C	Sheltered riprap	58.82	0.04	< 1%
7	Exposed tidal flats	335.55	0.21	< 1%
6B	Exposed riprap	5,954.77	3.70	5%
3A	Fine- to medium-grained sand beaches	8,833.42	5.49	8%
1B	Exposed, solid man-made structures	6,078.70	3.78	5%
Total ESI Shoreline:		113,570.14	Total ESI Shoreline: 70.57	
		Total Shoreline:	106,380.42	Total Shoreline: 66.10

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 50B
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence
SAV	Submerged aquatic veg	High Ecological Value			Present	J F M A M J J A S O N D

BIRDS

<i>Map ID</i>	<i>Subelement</i>	<i>Species</i>	<i>Mapping Qualifier</i>	S	F	T	Concentration	J	M	A	M	J	J	A	S	O	N	D	Nest	Mig.(S)	Mig.(F)	Molt
69	Raptor	Bald eagle	Nesting				1 Pair												Jan-Jun	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
533	Diadromous	Alewife	Nursery Area			Present	■	■	■	■	■	■	■	■	■	■	-	-	-				
	Diadromous	Blueback herring	Nursery Area			Present											May-Jul	Jul-Oct	-				
557	Diadromous	Alewife	Spawning Area			Present	■	■	■	■	■	■	■			Mar-Jul	May-Aug	-	-				
	Diadromous	American shad	Spawning Area			Present	■	■	■	■	■	■	■			Apr-Jun	May-Jul	Feb-May	-				
587	Diadromous	Blueback herring	Spawning Area			Present	■	■	■	■	■	■	■			Mar-Jul	May-Jul	-	-				
	Diadromous	Alewife	Spawning Area			Present	■	■	■	■	■	■	■			Mar-Jul	May-Aug	-	-				
	Diadromous	Blueback herring	Spawning Area			Present										Mar-Jul	May-Jul	-	-				
606	Freshwater	Bridle shiner	General Distribution	E		-	■	■	■	■	■	■	■	■	■	May-Jun	-	Jan-Dec	Jan-Dec				

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration
628	Plant	Virginia wildrye	Vulnerable Occurrence			Current
671	Plant	Winged primrose-willow	Vulnerable Occurrence			Current
691	Upland	Rare upland community	Vulnerable Occurrence			Current
733	Plant	Florida adder's-mouth orchid	Vulnerable Occurrence			Current

REPTILES & AMPHIBIANS


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Interest	Juveniles	Adults	
742	Alligator	American alligator	Vulnerable Occurrence				J	F	M	A	M	J	J	A	S	O	N	D	May-Jul	Jul-Sep	-	-	Jan-Dec	Jan-Dec

INVERTEBRATES



Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D				
818	Shrimp	Brown shrimp	Nursery Area			Abundant													-	Feb-Apr	Mar-Aug	-
	Shrimp	Pink shrimp	Nursery Area			Rare													-	May-Nov	Jan-Dec	-
	Shrimp	White shrimp	Nursery Area			Common													-	Jun-Dec	Jul-Feb	-
819	Shrimp	Brown shrimp	Nursery Area			Abundant													-	Feb-Apr	Mar-Aug	-
	Shrimp	White shrimp	Nursery Area			Common													-	Jun-Dec	Jul-Feb	-

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	American coot	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Mergansers	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Red-breasted merganser	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Ruddy duck	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Scoters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D				
	Diadromous	Alewife			Present													-	May-Aug	Jul-Mar	-
		American shad			Present													Apr-Jun	May-Jul	Feb-May	-
		Atlantic sturgeon	C		-													-	-	Jan-Dec	Jan-Dec
		Atlantic sturgeon	C		-													Sep-May*	Sep-May*	-	-
	Blueback herring	Migration			Present													-	May-Jul	Aug-Oct	-
	Southern flounder	Concentration Area			Abundant													-	Dec-Mar	Jan-Dec	-

MARINE MAMMALS



Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D			
	Manatee	West Indian manatee	E	E	-													-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)



BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
						J	F	M	A	M	J	J	A	S	O	N	D
	SAV	Submerged aquatic veg															

BIRDS





Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Raptor	Osprey																Mar-Aug	-	-	-
	Waterfowl	American black duck																Apr-May	-	-	-
		Wood duck																Mar-Jun	-	-	-

FISH



Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous	American eel																-	-	Jan-Jun	Jan-Dec	Aug-Dec
		American shad																-	-	Mar-Jul	May-Nov	-
		Hickory shad																-	-	-	-	Jan-Apr
	Estuarine Nursery	Striped bass																Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
		Atlantic croaker																-	-	Jan-Mar	Jan-Dec	Jan-Dec
		Atlantic menhaden																-	-	Dec-Jun	Jan-Dec	Mar-Nov
		Bay anchovy																Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
		Black drum																-	-	-	Mar-Nov	Jun-Nov
		Bluefish																-	-	-	Mar-Apr	May-Nov
		Hogchoker																-	-	-	Jan-Dec	Jan-Dec
		Ladyfish																-	-	-	Apr-Sep	-
		Pinfish																-	-	Jan-Jun	Jan-Dec	Jun-Oct
		Red drum																-	-	Aug-Dec	Jan-Dec	-
		Sheepshead																-	-	-	Jun-Nov	Jun-Oct
		Southern kingfish																-	-	Jun-Sep	May-Nov	Jul-Oct

North Carolina: Map 50B

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Spot													-	-	Dec-Feb	Jan-Dec	Mar-Sep
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	Nov-May	Jan-Dec	Apr-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	May-Oct
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Mar-Oct
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Bluegill													Apr-Oct	Apr-Oct	-	Jan-Dec	Jan-Dec
	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Chain pickerel													-	-	-	-	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	-	Jul-Nov	Jun-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	392.16	0.61
10B	Freshwater Marshes	10.20	0.02
10C	Swamps	705.29	1.10
10D	Scrub and Shrub Wetlands	120.29	0.19
7	Exposed Tidal Flats	24.56	0.04

ESI SHORELINE HABITAT TYPES

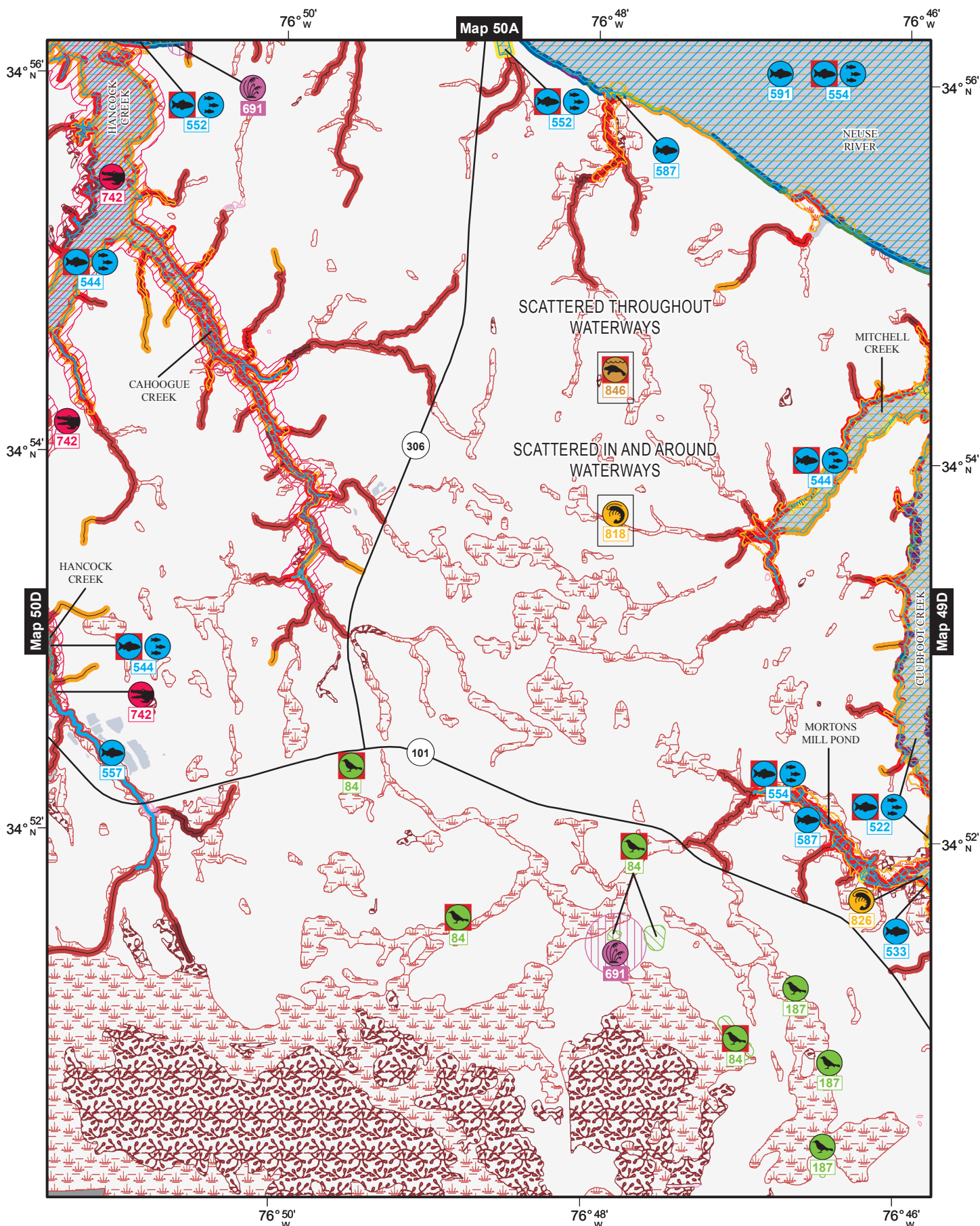
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	37,578.21	23.35	28%
10C	Swamps	23,764.14	14.77	18%
10D	Scrub-shrub wetlands	831.89	0.52	1%
9B	Sheltered, vegetated low banks	38,726.92	24.06	29%
8B	Sheltered, solid man-made structures	3,046.28	1.89	2%
8C	Sheltered riprap	187.58	0.12	< 1%
7	Exposed tidal flats	9,709.89	6.03	7%
6B	Exposed riprap	2,601.42	1.62	2%
3A	Fine- to medium-grained sand beaches	10,216.73	6.35	8%
3B	Scarps and steep slopes in sand	531.95	0.33	< 1%
1B	Exposed, solid man-made structures	4,697.24	2.92	4%

Total ESI Shoreline: 131,892.25 Total ESI Shoreline: 81.95
 Total Shoreline: 111,647.99 Total Shoreline: 69.37

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 50C
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
84	Passerine	Red-cockaded woodpecker	Vulnerable Occurrence	E	E	-													Apr-Jul	-	-	Jun-Nov
187	Passerine	Black-throated green warbler	Nesting			-													Apr-Aug	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
522	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
533	Diadromous	Alewife	Nursery Area			Present													-	-	May-Aug	Jul-Oct	-
	Diadromous	Blueback herring	Nursery Area			Present													-	-	May-Jul	Jul-Oct	-
544	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
552	Diadromous	Alewife	Migration			Present													-	-	May-Aug	Jul-Mar	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Diadromous	Blueback herring	Migration			Present													-	-	May-Jul	Aug-Oct	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
554	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Diadromous	Blueback herring	Migration			Present													-	-	May-Jul	Aug-Oct	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
554	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
557	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	Jan-Dec	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	Jul-Mar	-
591	Diadromous	Alewife	Migration			Present													-	-	May-Aug	Jul-Mar	-
	Diadromous	Blueback herring	Migration			Present													-	-	May-Jul	Aug-Oct	-

North Carolina: Map 50C

Monthly Presence

100%

MARINE MAMMALS

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

Monthly Presence

039

BIRDS (contained)

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Molt
						J	F	M	A	M	J	J	A	S	O	N	D	
	Red-breasted merganser	Wintering			100S													-
	Redhead	Wintering			-													-
	Ring-necked duck	Wintering			-													-
	Ruddy duck	Wintering			1000S													-
	Scaup	Wintering			1000S													-
	Scoters	Wintering			1000S													-
	Surf scoter	Wintering			-													-
	Waterfowl	Wintering			-													-
	Wood duck	Wintering			-													-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BENTHIC

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
SAV	Submerged aquatic veg												

BIRDS

Subelement	Species	Monthly Presence												Molt
		J	F	M	A	M	J	J	A	S	O	N	D	
Raptor	Osprey													-
Waterfowl	American black duck													-
	Wood duck													-

FISH

Subelement	Species	Monthly Presence												Eggs	Spawn	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
Diadromous	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Hickory shad													-	-	-	-	Jan-Apr
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
Estuarine Nursery	Atlantic croaker													-	-	Jan-Mar	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Mar-Nov	Jun-Nov
	Bluefish													-	-	-	Mar-Apr	May-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	Apr-Sep	-
	Pinfish													-	-	Jan-Jun	Jan-Dec	Jun-Oct
	Red drum													-	-	Aug-Dec	Jan-Dec	-
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish													-	-	Jun-Sep	May-Nov	Jul-Oct
	Spot													-	-	Dec-Feb	Jan-Dec	Mar-Sep
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec

North Carolina: Map 50C

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Striped mullet													-	-	Nov-May	Jan-Dec	Apr-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	May-Oct
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Mar-Oct
	White mullet													-	-	-	Jan-Dec	Jan-Dec
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
Estuarine Resident	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
Freshwater	Bluegill													Apr-Oct	Apr-Oct	-	Jan-Dec	Jan-Dec
	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Chain pickerel													-	-	-	-	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
Marine Benthic	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
Marine Pelagic	Spanish mackerel													-	-	-	Jul-Nov	Jun-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
Crab	Blue crab													-	-	-	Jan-Dec	Jan-Dec
Shrimp	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
Dolphin	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	270.88	0.42
10B	Freshwater Marshes	12.06	0.02
10C	Swamps	3,849.56	6.01
10D	Scrub and Shrub Wetlands	1,729.86	2.70
7	Exposed Tidal Flats	2.76	0.00

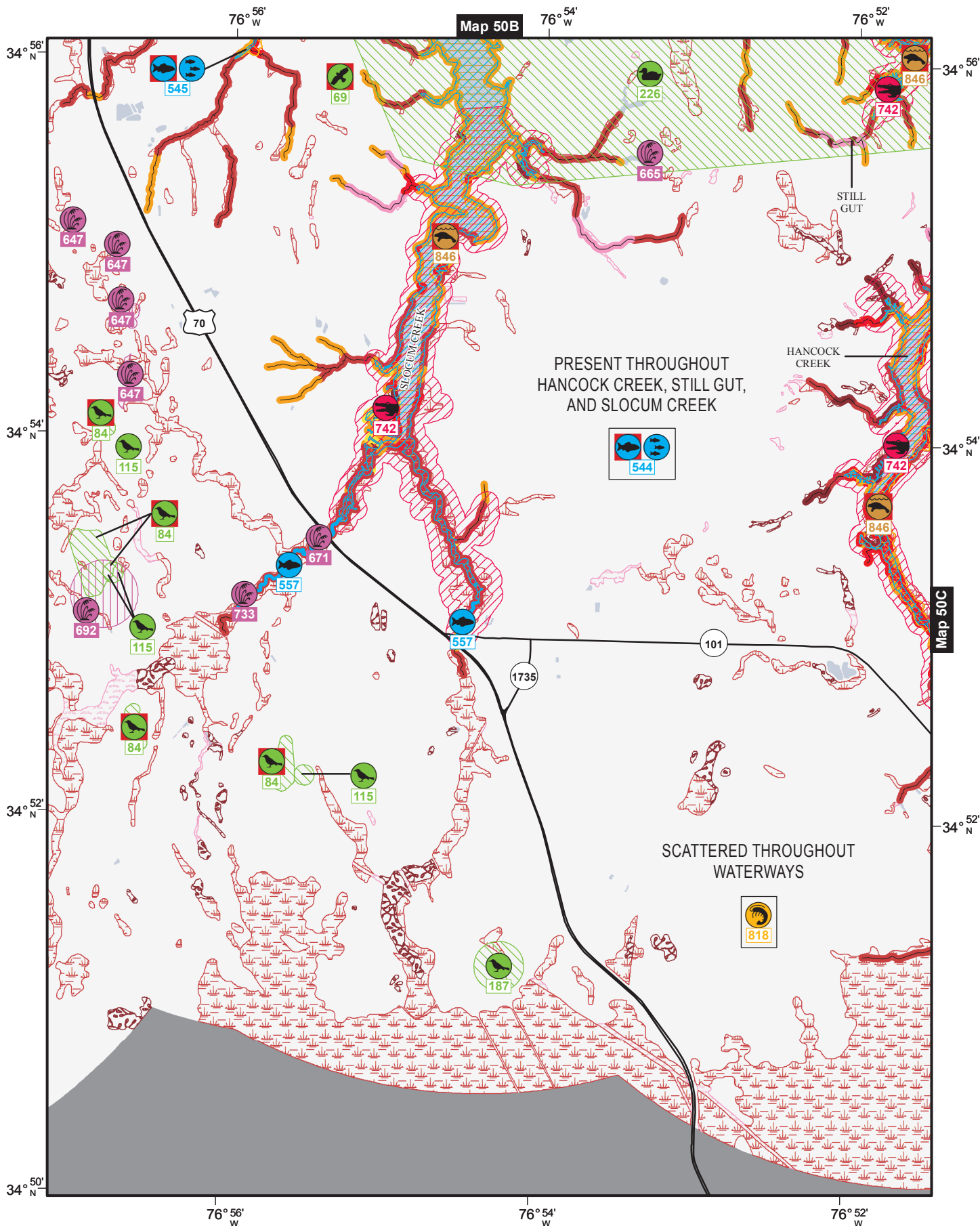
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	41,088.09	25.53	39%
10B	Freshwater marshes	218.93	0.14	< 1%
10C	Swamps	34,209.88	21.26	33%
10D	Scrub-shrub wetlands	3,411.96	2.12	3%
9B	Sheltered, vegetated low banks	16,649.51	10.35	16%
8B	Sheltered, solid man-made structures	1,369.38	0.85	1%
7	Exposed tidal flats	785.41	0.49	1%
6B	Exposed riprap	1,713.32	1.06	2%
3A	Fine- to medium-grained sand beaches	4,033.91	2.51	4%
1B	Exposed, solid man-made structures	1,629.82	1.01	2%
Total ESI Shoreline:		105,110.22	65.31	
Total Shoreline:		99,978.28	62.12	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 50D
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
69	Raptor	Bald eagle	Nesting	T	E	1 Pair													Jan-Jun	-	-	-	-
84	Passerine	Red-cockaded woodpecker	Vulnerable Occurrence	E	E	-													Apr-Jul	-	-	-	Jun-Nov
115	Passerine	Bachman's sparrow	Nesting			-													May-Sep	-	-	-	-
187	Passerine	Black-throated green warbler	Nesting			-													Apr-Aug	-	-	-	-
226	Waterfowl	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	American coot	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Mergansers	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Red-breasted merganser	Wintering			100S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Ruddy duck	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-
	Waterfowl	Scooters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
544	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	Jan-Dec
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	-	-
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
545	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Atlantic sturgeon	General Distribution	C		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	Spawning Area	C		-													Sep-May*	Sep-May*	Sep-May*	-	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-
	Estuarine Nursery	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-
	Freshwater	Bridle shiner	General Distribution	E		-													May-Jun	May-Jun	-	Jan-Dec	Jan-Dec
557	Diadromous	Alewife	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Aug	-	-
	Diadromous	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Diadromous	Blueback herring	Spawning Area			Present													Mar-Jul	Mar-Jul	May-Jul	-	-

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D				
647	Plant	Mudbank crowngrass	Vulnerable Occurrence			Current																
665	Plant	Chapman's tridens	Vulnerable Occurrence			Current																
671	Plant	Winged primrose-willow	Vulnerable Occurrence			Current																
692	Upland Wetland	Rare upland community	Vulnerable Occurrence			Current																
		Rare wetland community	Vulnerable Occurrence			Current																
733	Plant	Florida adder's-mouth orchid	Vulnerable Occurrence			Current																

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
742	Alligator	American alligator	Vulnerable Occurrence			-													May-Jul	Jul-Sep	-	Jan-Dec	Jan-Dec

INVERTEBRATES


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
818	Shrimp	Brown shrimp	Nursery Area			Abundant													-	-	Feb-Apr	Mar-Aug	-
	Shrimp	Pink shrimp	Nursery Area			Rare													-	-	May-Nov	Jan-Dec	-
	Shrimp	White shrimp	Nursery Area			Common													-	-	Jun-Dec	Jul-Feb	-

MARINE MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
846	Manatee	West Indian manatee	General Distribution			-													-	-	-	-

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
 Waterfowl	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-



BIRDS (continued)

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Waterfowl	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)																					




BENTHIC

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Submerged aquatic veg												




BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Osprey													Mar-Aug	-	-	-
	American black duck													Apr-May	-	-	-
	Wood duck													Mar-Jun	-	-	-


FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Hickory shad													-	-	-	-	Jan-Apr
	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Jan-Mar	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Mar-Nov	Jun-Nov
	Bluefish													-	-	-	Mar-Apr	May-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	Apr-Sep	-
	Pinfish													-	-	Jan-Jun	Jan-Dec	Jun-Oct
	Red drum													-	-	Aug-Dec	Jan-Dec	-
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish													-	-	Jun-Sep	May-Nov	Jul-Oct
	Spot													-	-	Dec-Feb	Jan-Dec	Mar-Sep
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	Nov-May	Jan-Dec	Apr-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	May-Oct
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Mar-Oct
	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
	Bluegill													Apr-Oct	Apr-Oct	-	Jan-Dec	Jan-Dec
	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Chain pickerel													-	-	-	-	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec
	Longnose gar													Mar-Sep	Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	-	Jun-Sep	-
	Atlantic needlefish													May-Jul	May-Jul	Jun-Aug	Jun-Oct	-
	Spanish mackerel													-	-	-	Jul-Nov	Jun-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Brown shrimp													-	-	Feb-Apr	Mar-Aug	-
	Pink shrimp													-	-	May-Nov	Jan-Dec	-
	White shrimp													-	-	Jun-Dec	Dec-Feb	-

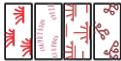
MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	61.19	0.10
10B	Freshwater Marshes	152.99	0.24
10C	Swamps	3,220.04	5.03
10D	Scrub and Shrub Wetlands	243.74	0.38



ESI SHORELINE HABITAT TYPES

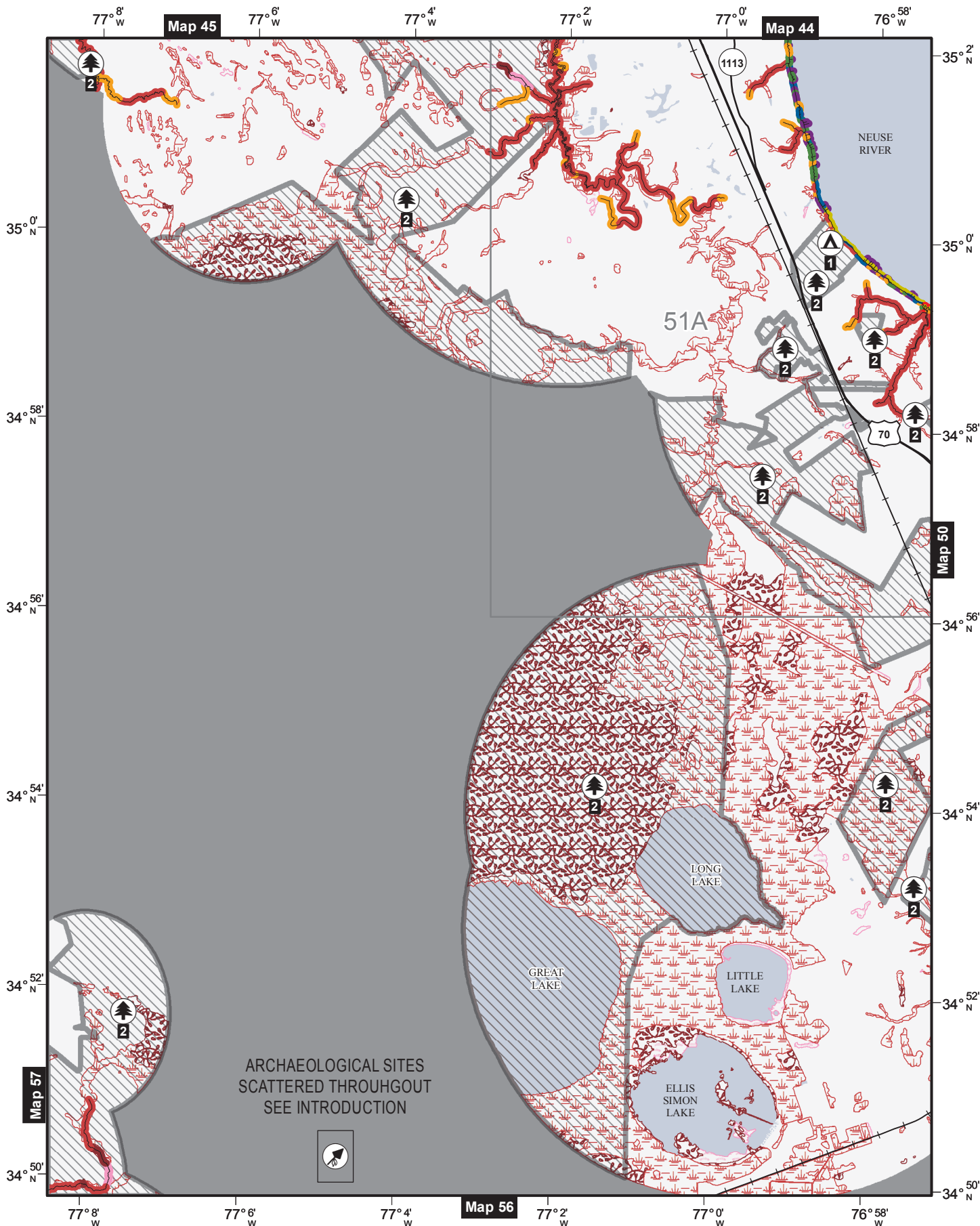
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	13,162.96	8.18	18%
10B	Freshwater marshes	2,267.40	1.41	3%
10C	Swamps	29,445.09	18.30	39%
10D	Scrub-shrub wetlands	4,658.19	2.89	6%
9B	Sheltered, vegetated low banks	24,243.36	15.06	32%
8B	Sheltered, solid man-made structures	1,327.15	0.82	2%
8C	Sheltered riprap	26.59	0.02	< 1%

Total ESI Shoreline: 75,130.75 Total ESI Shoreline: 46.68
 Total Shoreline: 72,700.26 Total Shoreline: 45.17

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov





Map 51
North Carolina

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Phone
1	CAMPGROUND	FISHER LANDING	252-638-5628

DISPLAYED ON MAP (POLYGONS)			
Map ID	Type	Name	Phone
2	NATIONAL FOREST	CROATAN NATIONAL FOREST	828-257-4200

ALSO PRESENT IN MAPPED AREA (POLYGONS)			
Type	Name	Contact	Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT; SPINY LOBSTER	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SHRIMP	DAVID DALE, SOUTHEAST REGION	727-824-5317
ESSENTIAL HABITAT	HAPC; SNAPPER GROUPER	DAVID DALE, SOUTHEAST REGION	727-824-5317
STATE PROTECTED AREA	BLACK BEAR SANCTUARY	USDA FOREST SERVICE	
STATE PROTECTED AREA	GAME LAND	USDA FOREST SERVICE	

JURISDICTIONS

COUNTY:	CRAVEN, JONES, PAMLICO	FEMA:	REGION 1
COAST GUARD:	DISTRICT 5, SECTOR NORTH CAROLINA	EPA:	REGION 4
USACE:	SOUTH ATLANTIC DIVISION, WILMINGTON DISTRICT		

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	6.17	0.01
10B	Freshwater Marshes	393.42	0.61
10C	Swamps	13,446.45	21.01
10D	Scrub and Shrub Wetlands	6,083.76	9.51
7	Exposed Tidal Flats	8.69	0.01

ESI SHORELINE HABITAT TYPES

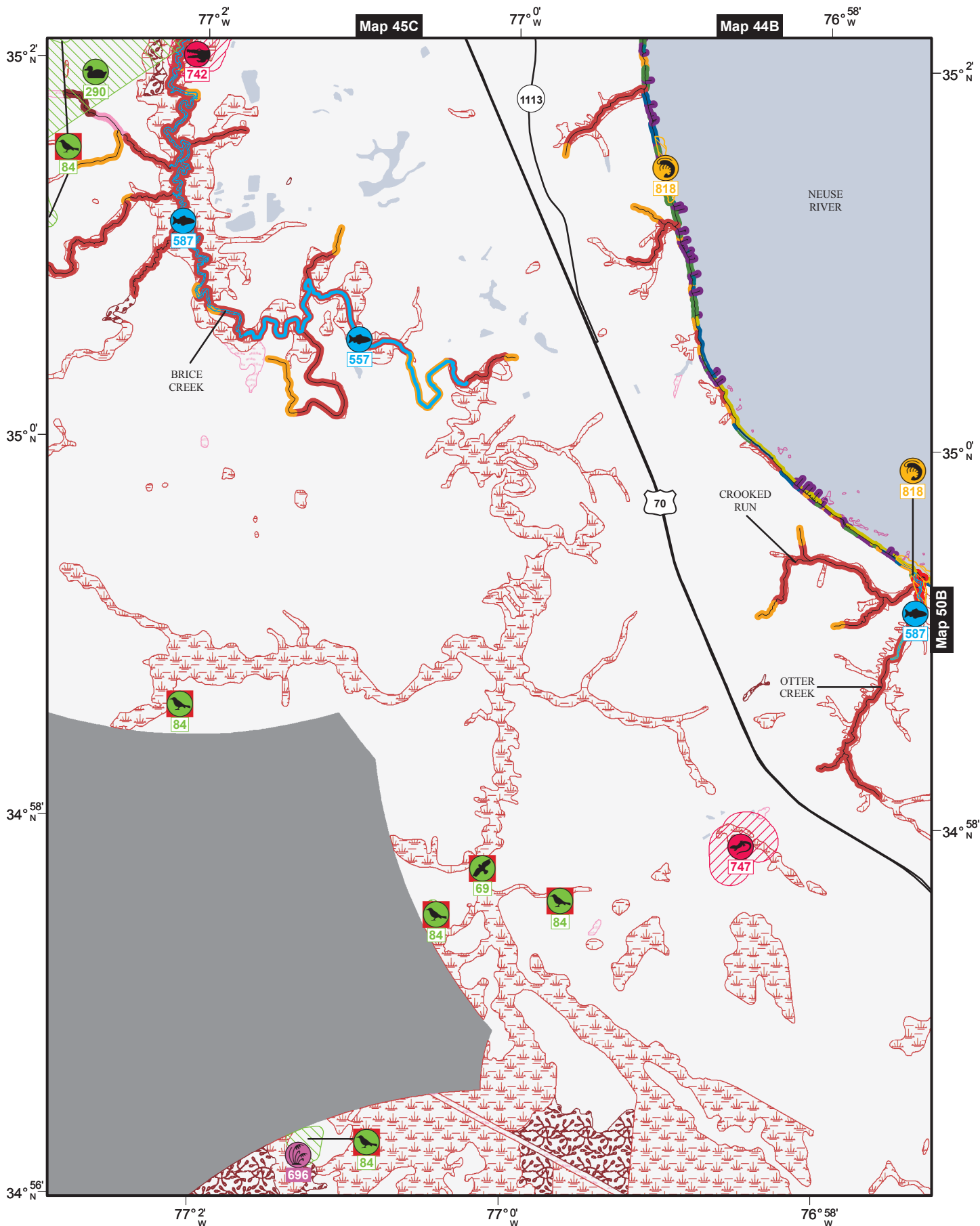
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	1,128.37	0.70	2%
10B	Freshwater marshes	1,013.22	0.63	2%
10C	Swamps	37,177.37	23.10	62%
10D	Scrub-shrub wetlands	1,037.87	0.64	2%
9B	Sheltered, vegetated low banks	7,514.68	4.67	13%
7	Exposed tidal flats	3,211.45	2.00	5%
6B	Exposed riprap	2,393.05	1.49	4%
3A	Fine- to medium-grained sand beaches	2,494.19	1.55	4%
3B	Scarps and steep slopes in sand	121.61	0.08	< 1%
1B	Exposed, solid man-made structures	3,574.29	2.22	6%

Total ESI Shoreline: 59,666.09 Total ESI Shoreline: 37.07
 Total Shoreline: 53,983.84 Total Shoreline: 33.54

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%



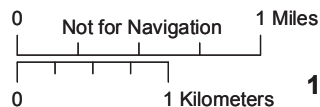
All underlying GIS data can be obtained from response.restoration.noaa.gov



Map 51A North Carolina



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: November 2016



1:50,000



Map 51A
North Carolina

BIOLOGICAL RESOURCES

Note: An asterisk (*) indicates that life stage occurs in this range but not in all months included

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
SAV	Submerged aquatic veg	High Ecological Value			Present	J	F	M	A	M	J	J	A	S	O	N	D

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
69	Raptor	Bald eagle	Nesting	T		1 Pair	J	F	M	A	M	J	J	A	S	O	N	D
84	Passerine	Red-cockaded woodpecker	Vulnerable Occurrence	E	E	-												
290	Waterfowl	Waterfowl	Wintering			-												

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
557	Diadromous	Alewife	Spawning Area			Present	J	F	M	A	M	J	J	A	S	O	N	D
	Diadromous	American shad	Spawning Area			Present												
	Diadromous	Blueback herring	Spawning Area			Present												
587	Diadromous	Alewife	Spawning Area			Present												
	Diadromous	Blueback herring	Spawning Area			Present												

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
696	Wetland	Rare wetland community	Vulnerable Occurrence			Current	J	F	M	A	M	J	J	A	S	O	N	D



REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
742	Alligator	American alligator	Vulnerable Occurrence			-	J	F	M	A	M	J	J	A	S	O	N	D
747	Snake	Rare snake	Vulnerable Occurrence			-												



INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
818	Shrimp	Brown shrimp	Nursery Area			Abundant	J	F	M	A	M	J	J	A	S	O	N	D
	Shrimp	Pink shrimp	Nursery Area			Rare												
	Shrimp	White shrimp	Nursery Area			Common												

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
 	Black-throated green warbler	Nesting			-													Apr-Aug	-	-	-
	American black duck	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	American black duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	American coot	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	American wigeon	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Black scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Blue-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Bufflehead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Canvasback	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Gadwall	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Greater scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Green-winged teal	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Lesser scaup	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Mallard	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Mergansers	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Northern pintail	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Northern shoveler	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Red-breasted merganser	Wintering			100S													-	Feb-Mar	Oct-Nov	-
	Redhead	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Ring-necked duck	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Ruddy duck	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Scaup	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Scoters	Wintering			1000S													-	Feb-Mar	Oct-Nov	-
	Surf scoter	Wintering			-													-	Feb-Mar	Oct-Nov	-
	Wood duck	Wintering			-													-	Feb-Mar	Oct-Nov	-

FISH



Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife	Migration			Present													-	-	May-Aug	Jul-Mar	-
	American shad	Spawning Area			Present													Apr-Jun	Apr-Jun	May-Jul	Feb-May	-
	Atlantic sturgeon	General Distribution		C	-													-	-	-	Jan-Dec	Jan-Dec
	Atlantic sturgeon	Spawning Area		C	-													Sep-May*	Sep-May*	Sep-May*	-	-
	Blueback herring	Migration			Present													-	-	May-Jul	Aug-Oct	-
	Southern flounder	Concentration Area			Abundant													-	-	Dec-Mar	Jan-Dec	-

MARINE MAMMALS





Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
 Manatee	West Indian manatee	General Distribution	E	E	-													-	-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BIRDS



Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
 Raptor	Osprey													Mar-Aug	-	-	-
 Waterfowl	American black duck													Apr-May	-	-	-
	Wood duck													Mar-Jun	-	-	-

FISH



Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Diadromous	American eel													-	-	Jan-Jun	Jan-Dec	Aug-Dec
	American shad													-	-	Mar-Jul	May-Nov	-
	Hickory shad													-	-	-	-	Jan-Apr
 Estuarine Nursery	Striped bass													Mar-May	Mar-May	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	Jan-Mar	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-Jun	Jan-Dec	Mar-Nov
	Bay anchovy													Apr-Sep	Apr-Sep	Apr-Oct	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Mar-Nov	Jun-Nov
	Bluefish													-	-	-	Mar-Apr	May-Nov
	Hogchoker													-	-	-	Jan-Dec	Jan-Dec
	Ladyfish													-	-	-	Apr-Sep	-
	Pinfish													-	-	Jan-Jun	Jan-Dec	Jun-Oct
	Red drum													-	-	Aug-Dec	Jan-Dec	-
	Sheepshead													-	-	-	Jun-Nov	Jun-Oct
	Southern kingfish													-	-	Jun-Sep	May-Nov	Jul-Oct
	Spot													-	-	Dec-Feb	Jan-Dec	Mar-Sep
	Spotted seatrout													-	-	-	Jan-Dec	Mar-Dec
	Striped mullet													-	-	Nov-May	Jan-Dec	Apr-Nov
	Summer flounder													-	-	Oct-May	Jan-Dec	May-Oct
	Weakfish													Mar-Oct	Mar-Oct	Mar-Nov	Jan-Dec	Mar-Oct
	White mullet													-	-	-	Jan-Dec	Jan-Dec
 Estuarine Resident	White perch													Apr-Jul	Apr-Jul	Apr-Aug	Jan-Dec	Jan-Dec
	Inland silverside													Mar-Aug	Mar-Aug	Jun-Sep	-	-
	Silver perch													Jun-Aug	Jun-Aug	Jun-Aug	Jun-Nov	-
	Striped killifish													May-Sep	May-Sep	Jun-Sep	Jun-Apr	-
 Freshwater	Black crappie													Mar-May	Mar-May	Mar-May	Jan-Dec	Jan-Dec
	Bluegill													Apr-Oct	Apr-Oct	-	Jan-Dec	Jan-Dec
	Bowfin													Mar-Jun	Mar-Jun	-	Jan-Dec	Jan-Dec
	Chain pickerel													-	-	-	-	Jan-Dec
	Largemouth bass													May-Jun	May-Jun	May-Jun	-	Jan-Dec

North Carolina: Map 51A

FISH (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Longnose gar													Mar-Sep	-	Jan-Dec	Jan-Dec
	Redfin pickerel													Mar-Dec*	-	Jan-Dec	Jan-Dec
	Yellow perch													Jan-Mar	Jan-Mar	Apr-Dec	Apr-Dec
	Atlantic spadefish													-	-	Jun-Sep	-
	Atlantic needlefish													May-Jul	Jun-Aug	Jul-Nov	-
	Spanish mackerel													-	-	-	Jun-Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Blue crab													-	-	Jan-Dec	Jan-Dec
	Brown shrimp													-	Feb-Apr	Mar-Aug	-
	Pink shrimp													-	May-Nov	Jan-Dec	-
	White shrimp													-	Jun-Dec	Dec-Feb	-

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bottlenose dolphin													Sep-Oct	Sep-Oct	-	-

For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	6.17	0.01
10B	Freshwater Marshes	60.73	0.09
10C	Swamps	2,955.14	4.62
10D	Scrub and Shrub Wetlands	266.04	0.42
7	Exposed Tidal Flats	8.70	0.01

ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt- and brackish-water marshes	1,128.37	0.70	2%
10B	Freshwater marshes	489.83	0.30	1%
10C	Swamps	31,426.68	19.53	61%
10D	Scrub-shrub wetlands	413.50	0.26	1%
9B	Sheltered, vegetated low banks	6,144.05	3.82	12%
7	Exposed tidal flats	3,211.71	2.00	6%
6B	Exposed riprap	2,393.05	1.49	5%
3A	Fine- to medium-grained sand beaches	2,494.45	1.55	5%
3B	Scarps and steep slopes in sand	121.88	0.08	< 1%
1B	Exposed, solid man-made structures	3,574.29	2.22	7%
Total ESI Shoreline:		51,397.82	31.94	
Total Shoreline:		45,715.03	28.41	

Note: A shoreline segment may include multiple shoreline habitats. If any segments include multiple habitats, the combined length of all habitats may exceed the length of the mapped shoreline, and the percent of ESI shoreline values will sum to greater than 100%

All underlying GIS data can be obtained from response.restoration.noaa.gov



Human-Use Features

	Abandoned Vessel		Repeated Measurement Site
	Access		Staging
	Airport		State Protected Area
	Anchorage		Waste Disposal
	Archaeological Site		Water Intake
	Army Corp of Engineers		Wildlife Refuge
	Artificial Reef		Map ID
	Beach		US Highway
	Boat Ramp		State Highway or Route
	Campground		Interstate
	Critical Habitat		Road
	EPA Facility		Pipeline
	Ferry		Rail Route
	Heliport		Shipping Lane
	Historical Site		Management Area
	Landfill		
	Management Area		
	Marina		
	Military		
	National Estuarine Research Reserve		
	National Forest		
	National Park		
	Nature Conservancy		
	Oil Facility		
	Park		
	Port		
	Recreational Fishing		
	Renewable Energy		

ESI Shoreline and Habitat Ranking

		1B) Exposed, Solid Man-Made Structures
		3A) Fine to Medium Grained Sand Beaches 3B) Scarps and Steep Slopes (Sand)
		4) Coarse-Grained Sand Beaches
		6B) Riprap
		7) Exposed Tidal Flats
		8B) Sheltered, Solid Man-Made Structures
		8C) Sheltered Riprap
		9A) Sheltered Tidal Flats 9B) Vegetated Low Banks
		10A) Salt and Brackish Water Marshes
		10B) Freshwater Marshes
		10C) Swamps
		10D) Scrub and Shrub Wetlands



































Examples of Double and Triple Shoreline Rankings:

10D & 2A

10C & 10A & 4

Shorelines often contain varied geomorphology, and therefore may require two or three ESI types to describe. These symbols will look similar to the examples above. The first shoreline type listed is the most landward shore type.

Sensitive Biological Resources

 Birds	 Invertebrates	 Reptiles & Amphibians
 Alcids/Pelagic	 Bivalve/Barnacle/Chordate	 Alligator
 Diving	 Crab/Invertebrate/Shellfish	 Amphibian/Frog/Snake
 Gull/Tern	 Crayfish	 Turtle
 Passerine	 Insect	 Habitats
 Raptor	 Shrimp	 Habitats
 Wading	 Marine Mammals	 Upland/Wetland/Plant
 Waterfowl	 Dolphin	 Threatened or Endangered Species
 Fish	 Manatee	
 Fish	 Pinniped	
 Nursery	 Whale	 Map ID
	 Terrestrial Mammal	
	 Small Mammal	
	 Ungulate	

Guidelines for Interpreting Environmental Sensitivity Index (ESI) Maps

The following guidelines may help map users interpret the ESI maps. Additional information about resources mapped for this atlas can be found in the ESI Intro pages and associated metadata.

Sensitive Biological Resources (1:50,000 scale maps): Species are arranged into eight major categories or "elements" and further subdivided into "subelement" groupings representing species that share similar lifestyle characteristics and risks to oiling.

Biological resources may be mapped as points, lines, and/or polygons. Each element is represented by a unique color and/or hatch pattern, and icons illustrate the subelement(s) found within each feature. If a species is state or federally listed as threatened or endangered, a solid red square is placed behind the icon. When multiple elements occur in the same location, overlapping hatch patterns will be shown.

The associated Map ID "links" to the map report where the species and attributes are listed. To maximize readability, biological polygons covering more than 10 square km are not displayed on the map. Instead, these species are listed in the "Widespread in Mapped Area" section of the report. Occurrences of non-listed species assigned a "General Distribution" mapping qualifier are listed under "Also Present in Mapped Area" regardless of polygon size.

Shoreline Habitat Resources (all maps): The shoreline was mapped at mean-high water, then classified based on vulnerability to spilled oil and ease of clean-up. Shorelines are ranked on a scale from 1 (least vulnerable) to 10 (most vulnerable). Cooler colors represent less vulnerable shoreline types; warm and hot colors indicate increased vulnerability. A shoreline may have more than one habitat type present. When this happens, the most landward shoreline type is mapped on the shoreline, and the more seaward type(s) are mapped adjacent to the water. The areal extent of intertidal and marsh habitats may also be mapped as polygons. Most often these polygons represent tidal flats and marshes, though in particularly rocky shored areas, these may include exposed, wave-cut platforms and sand and gravel beaches.

Human-Use Features (1:100,000 scale maps): Locations of human-use features and jurisdictional boundaries are mapped as points, lines, or polygons. As with biological features, the human-use features appearing on the map include Map ID which "links" to a description of the feature in the map report. Additional features, particularly jurisdictional and management boundaries that cover the majority or entirety of the mapped area, are listed in the report, but not shown on the map.

