

Environmental Sensitivity Index Maps

A Guide to Coastal Resources at Risk to Spilled Oil

Georgia: Volume 1



Office of Response and Restoration

June 2015

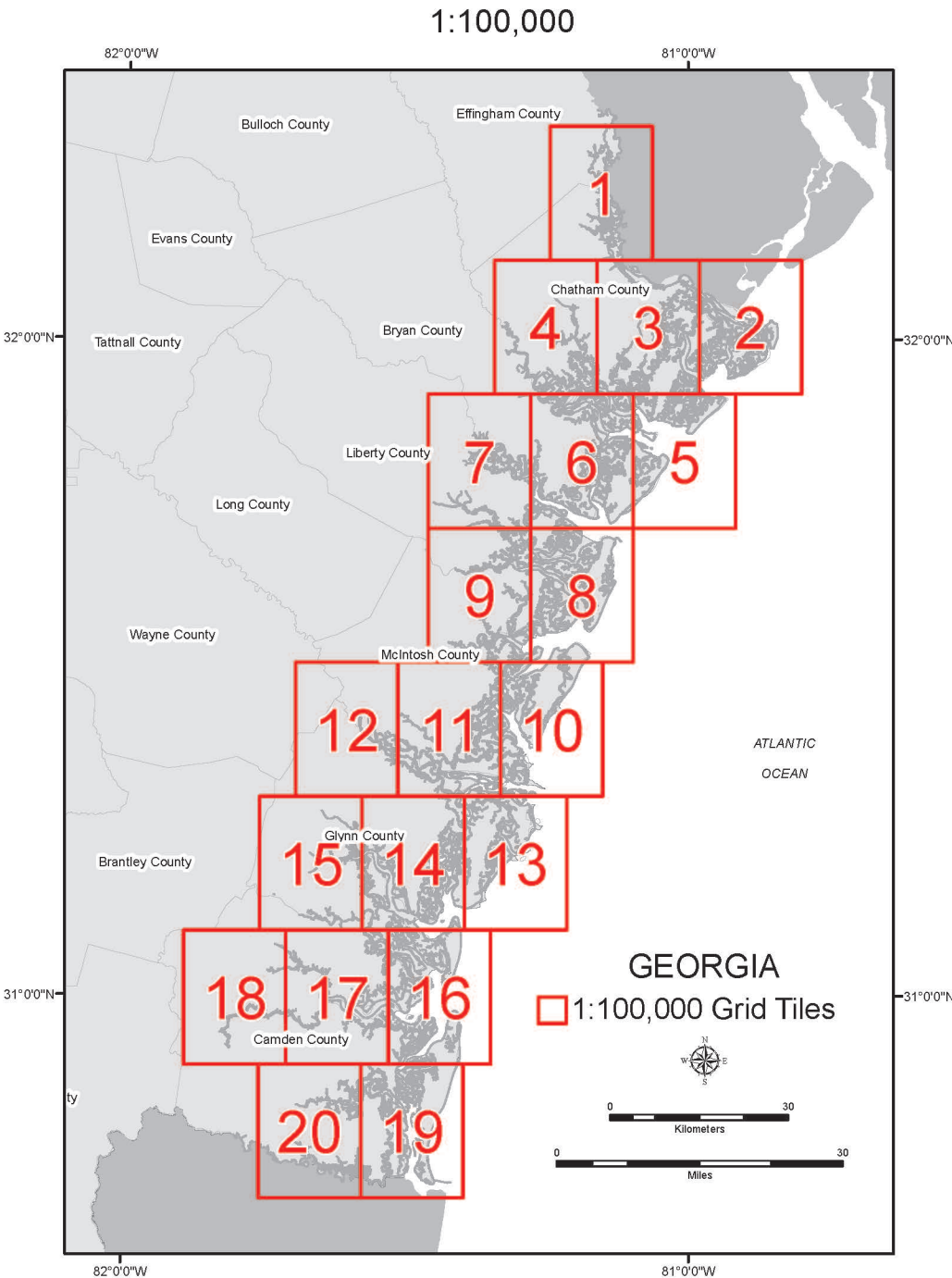
NOAA

Environmental Sensitivity

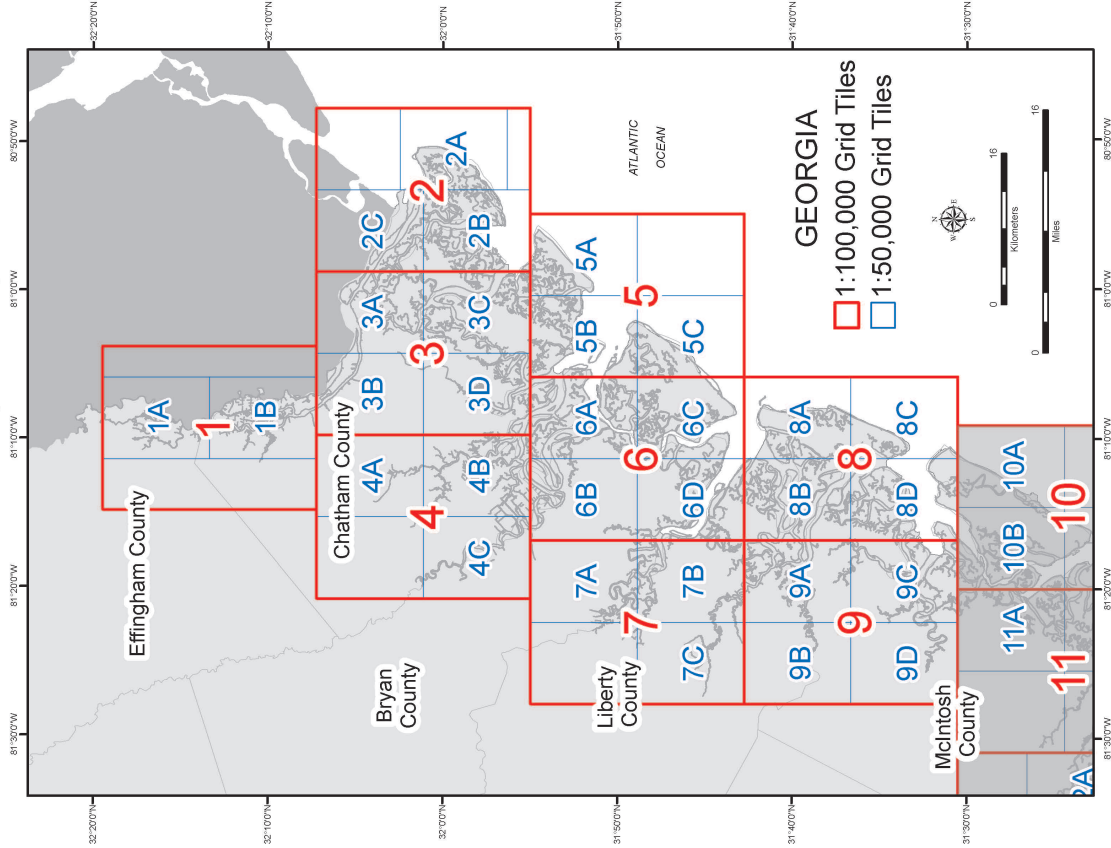
Index Maps

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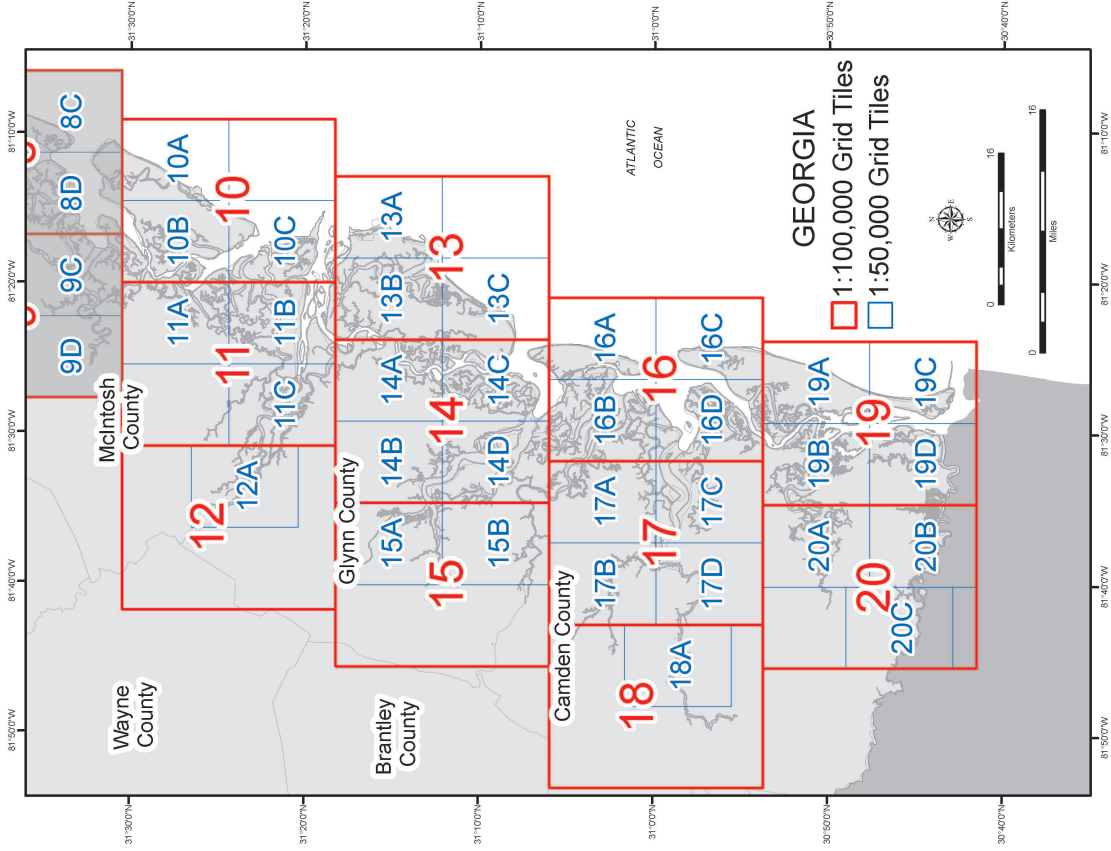
Georgia



1:50,000 (Volume 1)



1:50,000 (Volume 2)



ENVIRONMENTAL SENSITIVITY INDEX: GEORGIA

INTRODUCTION

This Environmental Sensitivity Index (ESI) atlas was developed for the marine and coastal areas of the state of Georgia. The inland extent of the study area includes lands and fresh waters to five nautical miles from the shoreline of tidal waters. The ESI atlas is a compilation of information from three main categories: shoreline habitats, sensitive biological resources, and human-use resources.

SHORELINE HABITAT MAPPING

The shoreline and classifications were fully updated using the following sources and methods. The Georgia shoreline was derived from the integration of the National Oceanic and Atmospheric Administration (NOAA) Continually Updated Shoreline Product (CUSP) (2001-2013); the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) dataset (1973-2007); and manual digitization at 1:4,000 from 2010-2012 Bing aerial imagery, ArcGIS Basemap World Imagery, and 2011- 2014 Google Earth aerial imagery. The most recent shoreline was utilized where available.

The intertidal shoreline habitats were classified based on 2010-2011 low-altitude oblique aerial photography from: BING Pictometry, 2010-2012 Bing aerial imagery, ArcGIS Basemap World Imagery, and 2011-2014 Google Earth aerial imagery.

Shoreline features of 10 meters (m) or greater in length were classified. In addition, wetland polygon datasets originally created by the United States Fish and Wildlife Service National Wetland Inventory (NWI) were modified and updated to be used in conjunction with the ESI shoreline. The data was visually reviewed and classified against the aerial imagery and adjusted where necessary to allow for proper classification.

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) | 3) Biological productivity and sensitivity |
| 2) Exposure to wave and tidal energy | 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 Long Island Sound presented in order of increasing sensitivity to spilled oil, are listed below.

1B) Exposed, Solid Man-made Structures	8B) Sheltered, Solid Man-made Structures
3A) Fine- to Medium-grained Sand Beaches	8C) Sheltered Riprap
3B) Scarps and Steep Slopes in Sand	9A) Sheltered Tidal Flats
5) Mixed Sand and Gravel Beaches	9B) Vegetated Low Banks
6A) Gravel Beaches	10A) Salt- and Brackish-water Marshes
6B) Riprap	10B) Freshwater Marshes
7) Exposed Tidal Flats	10C) Swamps
8A) Sheltered, Impermeable, Rocky Shores	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:

- Georgia Department of Natural Resources (GA DNR), Wildlife Resources Division (WRD)
- GA DNR, Coastal Resources Division (CRD)
- U.S. Fish and Wildlife Service (USFWS), Division of Migratory Bird Management (DMBD)
- USFWS Division of Biological Resources (DBR)
- U.S. National Park Service (NPS), Cumberland Island National Seashore
- Grays Reef National Marine Sanctuary (GRNMS)
- National Marine Fisheries Service (NMFS)
- National Oceanic and Atmospheric Administration (NOAA)
- Governors' South Atlantic Alliance (GSAA)

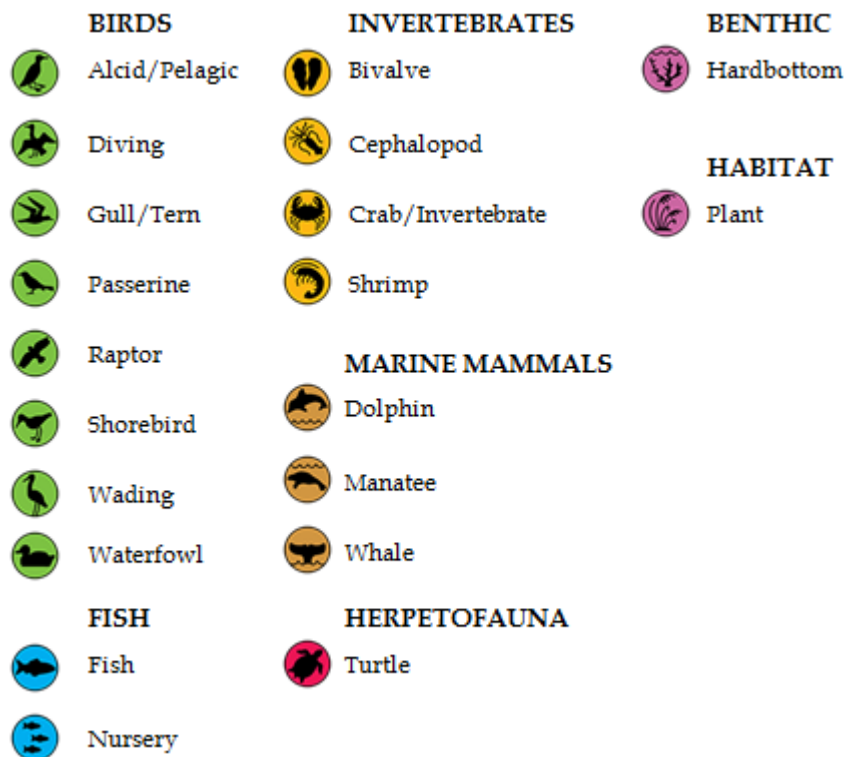
The above agencies provided the majority of information included in the atlas. Other participating agencies will be cited throughout the atlas and in the metadata accompanying the digital product.

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 on these maps is "layered" in the PDF files. 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 June 2015.

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 NatureServe.
- 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.



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.
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 this atlas include whales, dolphins, and manatees. Species that are federally and state listed, and those that are vulnerable to oiling and response activities, are specifically emphasized. Marine mammal occurrence and seasonality information displayed in this atlas are based mainly on information gathered at workshops and via phone/email correspondence with local resource experts from GA DNR, GRNMS, NMFS, NOAA, and USFWS. Additional hardcopy and digital data sources are listed below and included in the metadata. The most sensitive cetacean mapped in this atlas is the North Atlantic right whale (federally and state endangered). The coast of Georgia is an extremely important habitat for wintering right whales and is the only known calving habitat for this species. Experts estimate that nearly $\frac{1}{4}$ of the right whale population winters off the coast of Georgia. The numbers vary between 30-150 animals during the months from November to April. Right whales tend to avoid waters shallower than about 10 m and are not typically found in depths greater than 25 m. Digital data provided by GA DNR were used to map North Atlantic right whale. Critical habitat data are

included in this atlas; however, they do not accurately represent the spatial extent of right whales in the Southeast (C. George, pers. comm.). NMFS is currently in the process of updating the Southeast right whale critical habitat boundaries. The proposed boundaries include a much larger area than the original critical habitat dataset. Unfortunately, the new critical habitat data will not likely be finalized until 2016, so the data could not be included in this atlas. Please check with NMFS on the latest critical habitat data for this species.

Digital data provided by GA DNR were also used to map the West Indian manatee (federally and state endangered). This species is frequently observed in the Intracoastal Waterway (low numbers), but may be present throughout all inshore waters and within a mile of the shoreline during the spring, summer, and fall months.

Other whales and dolphins were mapped using information provided by local marine mammal experts as well as reviewing literature and the data from the East Coast Biologically Important Areas (BIAs). Bottlenose dolphins are the only species likely to occur regularly in inshore and offshore areas and may be present year round. Other species of cetaceans that may occur in Georgia state and/or federal waters that were mapped in this atlas include: humpback whale (state and federally endangered), spotted dolphin, dwarf sperm whale, and pygmy sperm whale. Other pelagic cetacean species can occasionally move into the area without predictable occurrence. Species have been reported via stranding data or other observations, but are not included due to their relative rarity of occurrence within the mapped 'Area of Interest' (AOI) for this atlas.

Expert contacts for Georgia marine mammals*:

Name	Agency	City	Phone	Species
Clay George	GA DNR	Brunswick, GA	912-262-3336	Cetaceans
Sonny Emmert	GA DNR	Brunswick, GA	912-264-7218	Digital Data
Becky Shorthand	GRNMS	Savannah, GA	912-598-2381	Cetaceans
Bill Wikoff	USFWS	Townsend, GA	912-832-8739	West Indian Manatee

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

Major Data Sources Used: Marine Mammals

GA DNR. 2014. GADNR_Eco_LYRS - ManateeHabitat. Vector digital data.

GA DNR. 2014. GADNR_Eco_LYRS - RightWhaleHab. Vector digital data.

Keller, C.A., L. Garrison, R. Baumstark, L.I. Ward-Geiger, and E. Hines. 2012. Application of a habitat model to define calving habitat of the North Atlantic right whale in the southeastern United States. *Endangered Species Research*. 18: 73-87.

LaBrecque, E., C. Curtice, J. Harrison, S.M. Van Parijs, and P. Halpin. (Submitted). Biologically Important Areas for Cetaceans within the US Exclusive Economic Zone - East Coast Region.

Waring, G.T., E. Josephson, K. Maze-Foley, and P. Rosel (eds.), 2013. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments. Common Bottlenose Dolphin (*Tursiops truncatus*) Southern Georgia Estuarine System Stock. NOAA Technical Memorandum NMFS-NE-228. Northeast Fisheries Science Center, NMFS, NOAA, US Dept of Commerce. Woods Hole, MA. 475 pp.

BIRDS

Birds displayed in this atlas include: alcids, diving birds, gulls, terns, passerines, pelagic birds, raptors, shorebirds, wading birds, and waterfowl. Species that are federally and state listed, and coastal nesting, roosting, and migratory staging locations are specifically emphasized. Bird occurrence information displayed in this atlas is based on information gathered at workshops and via phone/email correspondence with local resource experts from GA DNR, USFWS, and NPS. Additional hardcopy and digital sources are listed below and included in the metadata.

Though nearly all of the inlets and sounds, dredge spoils, and smaller coastal islands serve as important nesting, roosting, and migratory staging locations for shorebirds, the most important area for shorebirds and waterfowl alike is at the mouth of the Altamaha River. Impoundments in the upper delta, which include the Altamaha Wildlife Management Area, host the majority of Georgia's wintering waterfowl. The lower end of the delta, including Little Egg Island and the northern beaches of Little St. Simons Island, hosts tens of thousands of shorebirds with the highest numbers present during peak months of spring (April- May) and fall (July-September) migration. This includes 5,000- 6,000 red knot (federally and state threatened) during fall migration and a flock of approximately 500 American oystercatchers foraging on oyster beds in the lower delta.

Breeding shorebirds, diving birds, gulls and terns – Survey data on locations of breeding shorebirds, diving birds, and terns were provided by GA DNR via shapefiles, spreadsheets, and expert local knowledge for the following species: brown pelican, black skimmer, gull-billed tern (state threatened), laughing gull, least tern (provided by NPS for Cumberland Island only), royal tern, sandwich tern, American oystercatcher, black-necked stilt, willet, and Wilson's plover (state threatened). Point data were converted to polygons by associating points to sections of the coast (i.e., shell rakes, beaches, and small coastal islands) and creating a 50 m onshore/offshore buffer, which in some areas was extended to include ESI polygons 7 and 9A (exposed and sheltered tidal flats, respectively) per expert opinion. Based on the data and expert information, concentrations were reported as "XX nests", "XX pairs", or "XX adults" from the maximum count across survey years, 2010-2013. Additional source information is provided in the accompanying data tables and metadata.

Migrating, roosting, and wintering shorebirds, diving birds, wading birds, gulls and terns – Migrating, roosting, and wintering shorebird, diving bird, and tern information was provided by USFWS Integrated Waterbird Monitoring and Management (IWMM) project surveys and GA DNR resource experts. IWMM surveys provided simple counts for impoundments from 2010 to 2012. GA DNR provided mid-winter shorebird surveys, non-breeding American oystercatcher observations from 2010, and extensive expert knowledge. Survey areas were compiled with expert knowledge to represent different sections of the coast (i.e., different beach habitats and small coastal islands). A 50 m onshore/offshore buffer was mapped along these coastal areas, and extended beyond the buffer to include ESI polygons 7 and 9A (exposed and sheltered tidal flats, respectively) per expert opinion. The maximum count across all survey years was used as an initial filter for the inclusion of species and concentrations from the IWMM data and GA DNR 2012-2015 mid-winter shorebird surveys into a given polygon. Species counts less than 100 were combined into a more general grouping (e.g. shorebirds, gulls, terns, etc.), while those equal to or greater than 100 have been listed by species. Counts were binned into 10s, 100s, 1,000s, or 10,000s. Federal and state listed threatened and endangered species and state listed rare species from these data are qualified as having a "vulnerable occurrence" in all areas where they occur in low numbers, and as a "concentration area" in areas where numbers were highest. Concentrations from expert opinion have been represented as they were known (i.e., quantitatively as an approximate flock size or qualitatively as "high" and "very high").

Breeding colonial wading birds and diving birds – Two sources of data, provided by GA DNR, were used to map nesting colonial wading birds. Locations of wood stork (federally threatened, state endangered)

colonies were mapped as points based on aerial surveys from 2004-2014. Wood stork nest counts reflect the maximum number of nests observed in the survey period. Wading bird colony locations represent those locations surveyed by GA DNR in 2013. The display of these data do not imply that points reflect current nest locations or counts, but rather points are best used as a guide to what species could be present and what counts have been observed at colonies over recent years (2004-2014). Wading bird and diving bird species that may be present at these locations include: doubled-crested cormorant, anhinga, great blue heron, snowy egret, little blue heron, tri-colored heron, cattle egret, black-crowned night heron, and white ibis. Wood stork and wading bird nest sites with the same site name were interpreted as a single location and have been shown as a single point.

Roseate spoonbill has one known nesting occurrence near the St. Mary's airport, first documented in 2011. This site was mapped, along with roseate spoonbill roosting areas, based on expert knowledge from GA DNR.

Wetland associated waterfowl – Waterfowl data for Georgia were mapped from USFWS 2010-2014 mid-winter waterfowl surveys and expert knowledge from GA DNR. Survey blocks were divided into two zones: 1) lower rivers and sounds, and 2) saltwater and brackish creeks. The delineation between the two zones was created using a shapefile of the Ecological Monitoring Trawl Survey zones, which were defined by GA DNR Coastal Resources Division Biologists using field knowledge, tidal nodes, and historical classification (see fish section). A third zone was added based on observations from GA DNR and 2010-2012 IWMM survey data and represents important freshwater and saltwater impoundments for waterfowl. Within a survey block, the maximum count across all survey years was used as an initial filter for the inclusion of a species into a given polygon. For reporting species and concentrations, species counts less than 100 were combined into a more general grouping (e.g. dabbling ducks, diving ducks, etc.), while those with counts equal to or greater than 100 have been listed by species. Counts were binned into 10s, 100s, 1,000s, or 10,000s. Species were assigned to a specific zone and concentrations of species or species groups were adjusted per expert opinion. Nesting distributions of waterfowl were determined using species' presence during USFWS mid-winter waterfowl surveys and GA DNR expert knowledge. Qualitative concentrations (i.e., "high" or "possible") are given for species at locations that were noted by GA DNR but were not included in IWMM or mid-winter survey data, or for noteworthy species not captured in survey data. These numbers are likely underestimates, since surveys do not necessarily occur during each species' months of peak abundance.

Atlantic Ocean seabirds – Distribution of nearshore and offshore pelagic birds, gulls, terns, diving birds, alcids, and waterfowl in the Atlantic Ocean were generated from discussions with resource experts, reports, and survey data. Alcids, diving birds, gulls, terns (except black tern), and northern gannet were mapped based on compiled survey data from USFWS that included USFWS Atlantic Coast Wintering Sea Duck Surveys (ACWSD; preliminary survey in 2008, full surveys 2009-11) and USFWS Atlantic Marine Assessment Program for Protected Species (AMAPPS) seabird surveys (preliminary survey in 2010, full-coast surveys in summer 2011, spring and fall 2012, winter 2014). Based on expert advice, data were first grouped into two offshore polygons (0-8 nautical miles [nm] from shore and 0-12 nm offshore). Species and species groups were placed into respective polygons based on their frequency of occurrence in these areas. Polygons representing rafting scoters, scaup, and canvasback were based on compilations of observations from ACWSD and AMAPPS surveys and expert knowledge from GA DNR. Nearshore species and species groups were mapped within 1 nm of the shore based on USFWS 2005-2014 mid-winter waterfowl surveys and expert knowledge from GA DNR. Pelagic birds (except northern gannet), black tern, and phalaropes were mapped based on information from Wigh (2007) and Beaton et al. (2003).

Bald eagles – Bald eagle (state threatened) nest locations were mapped based on 2010-2015 nesting survey data provided by GA DNR. To mask the exact locations, a randomized geographic shift was applied to nesting points within 50-100 m of the original nest location. Shifted points were buffered by 250 m to create a polygon. Overlapping buffers were merged to represent a single nest site, per expert instruction.

The display of this data does not imply that areas mapped reflect current nest locations, but rather are to be used as a guide to what has been observed over recent years (2010-2015). Resource experts should be contacted in the event of a spill.

Secretive marsh birds – Distributions of clapper rail, king rail, least bittern, and seaside sparrow were provided by GA DNR. Nesting areas for clapper rail and seaside sparrow were based on GA DNR expert opinion of preliminary model results showing areas of probable higher presence for these species (Elizabeth A. Hunter, M.S. thesis [in preparation]).

Note that locations of nesting, wintering, and/or migratory sites, species composition within polygons, and particularly concentration values, are based on a compilation of observations made over a multi-year period and are not meant to accurately reflect ‘current’ conditions in the case of an event. Survey limitations and adjustments in protocols over numerous years, changes in shoreline geomorphology (particularly on small/ ephemeral islands), weather, and numerous other ecological factors contribute to the condition of nesting colonies and migratory or other concentrations at any given time. Also, note that concentrations vary throughout the multi-month nesting, migratory, and wintering periods listed in the seasonality table. Please contact local resource experts in the event of a spill or if data are to be used for any reason other than spill preparedness or response.

Expert contacts for Georgia birds*:

Name	Agency	City	Phone	Species
Greg Balkcom	GA DNR WRD Game Management	Fort Valley, GA	478-825-6354	Waterfowl
Will Ricks	GA DNR WRD Game Management	Brunswick, GA	912-264-7218	Waterfowl
Tim Keyes	GA DNR WRD Nongame Conservation	Brunswick, GA	912-262-3191	Shorebirds and wading birds
Jim Ozier	GA DNR WRD Nongame Conservation	Forsyth, GA	478-994-1438	Bald eagles
Todd Schneider	GA DNR WRD Nongame Conservation	Social Circle, GA	478-994-1438	Marsh birds and wading birds
Tim Jones	USFWS DMBM	Laurel, MD	301-497-5674	Seabirds
Paul Padding	USFWS DMBM	Laurel, MD	301-497-5851	Waterfowl
Emily Silverman	USFWS DMBM	Laurel, MD	301-497-5801	Seabirds
John Stanton	USFWS DMBM	Columbia, NC	252-796-2400	Waterfowl and shorebirds
Doug Hoffman	USNPS, Cumberland Island	St. Mary's, GA	912-882-4336	Least tern

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

Major Data Sources Used: Birds

- Beaton, G., P.W. Sykes Jr., and J.W. Parrish, Jr. 2003. Annotated Checklist of Georgia Birds. 5th Ed. Georgia Ornithological Society.
- GA DNR. 2015. Bald eagle nesting sites, spreadsheet.
- GA DNR. 2010. American oystercatcher and Wilson's plover breeding surveys, spreadsheet.
- GA DNR. 2013. Seabird nesting colonies, spreadsheet.
- GA DNR. 2015. Winter shorebird count summaries, spreadsheets and hardcopy maps.
- GA DNR. 2013. Wading bird breeding survey, spreadsheet. GA DNR. 2014. Wood stork breeding surveys, spreadsheet.
- NOAA. Atlantic Marine Assessment Program and Protected Species surveys, vector digital data.
- Schneider, T.M., G. Beaton, T.S. Keyes, and N.A. Klaus. 2010. The Breeding Bird Atlas of Georgia. University of Georgia Press: Athens.
- USFWS DMBM. 2014. Mid-winter waterfowl surveys, vector digital data and spreadsheet.
- USFWS DBR. 2012. Integrated Waterfowl Monitoring and Management surveys, vector digital data and spreadsheet.
- USFWS DMBM. 2012. Atlantic coast wintering sea duck survey data, vector digital data.
- USFWS DMBM. 2014. Atlantic coast seabird survey data, vector digital data.
- Wigh, R. 2007. A Review of Bird Species on the South Atlantic Bight. Unpublished report.

HERPETOFAUNA

Herpetofauna depicted in this atlas include sea turtles. Sea turtle occurrence and seasonality information displayed in this atlas are based mainly on information provided by agencies and local resource experts from: GA DNR, GRNMS, GSAA, and USFWS. Additional hardcopy and digital data sources are listed below and included in the metadata.

Diamondback terrapins (subspecies: Carolina diamondback terrapin, *Malaclemys terrapin centrata*), were not mapped due to their widespread occurrence in salt- and brackish-water marshes (ESI 10A polygons) and associated creeks year round. All marshes and creeks seaward of Highway 17 may be considered potential habitat for terrapins, which are fairly abundant in coastal Georgia. Depending on water temperatures, it is likely that terrapins are buried in the mud from December through February during hibernation. State status for diamondback terrapins in Georgia is 'U': listed as unusual (and thus deserving of special consideration). Terrapins may nest on upland areas that border marshes on both sides of barrier islands, although mostly on the marsh side of the islands. Nesting in Georgia occurs from April through July.

Green (federally and state threatened), Kemp's ridley (federally and state endangered), leatherback (federally and state endangered) and loggerhead (federally threatened, state endangered) sea turtles were mapped in this atlas. Georgia's outer sand beaches are important nesting habitat for loggerhead sea turtle, and occasional nesting habitat for Kemp's ridley, leatherback, and green sea turtles. Nesting

typically occurs in Georgia from May to October. Data that represent documented nesting from 1999-2013 were provided by GA DNR. Using the last 10 years of nesting point data (2003-2013), and excluding false crawls, a polygonal dataset was created to include all shorelines with sand beach habitat where nesting has occurred and is likely to occur in the future. The concentration values (“high”, “medium”, “low”) were based on density data provided by the GSAA Ocean Portal and from GA DNR expert opinion.

Digital polygon data were provided by GA DNR to document sea turtle in-water presence for inshore waters for loggerhead, leatherback, green, and Kemp’s ridley sea turtles. Polygons were created to represent potential sea turtle in-water presence in offshore waters, including Grays Reef National Marine Sanctuary (GRNMS), based on information provided by local resource experts. Loggerhead, Kemp’s ridley, and leatherback sea turtles are present in GRNMS. GRNMS protects one of the largest near-shore areas of live-bottom reefs and ledges along the U.S. southeast coast. These ledges are often densely populated with fish and encrusting organisms, and are important nesting and foraging habitat for loggerheads year round.

Expert contacts for Georgia herpetofauna*:

Name	Agency	City	Phone	Species
Mark Dodd	GA DNR	Brunswick, GA	912-280-6892	Sea turtles and terrapins
Becky Shortland	GRNMS	Savannah, GA	912-598-2381	Sea turtles
Bill Wikoff	USFWS	Townsend, GA	912-832-8739	Sea turtles

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

Major Data Sources Used: Herpetofauna

Conant, T.A., P.H. Dutton, T. Eguchi, S.P. Epperly, C.C. Fahy,

M.H. Godfrey, S.L. MacPherson, E.E. Possardt, B.A. Schroeder,

J.A. Seminoff, M.L. Snover, C.M. Upite, and B.E. Witherington.

2009. Loggerhead sea turtle (*Caretta caretta*) 2009 status review under the U.S. Endangered Species Act. Report of the Loggerhead Biological Review Team to the National Marine Fisheries Service, August 2009. 222 pp.

GA DNR. 2014. GADNR_Eco_LYRS – SeaTurtlePriHab, Vector digital data.

GA DNR. 2014. Georgia Loggerhead Nesting Data 1999_2013, Excel spreadsheet.

FISH

Fish species depicted in this atlas include select 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 GA DNR, ASMFC, USFWS, GRNMS, and NOAA’s National Ocean Service.

Freshwater and Anadromous fish - Populations of shortnose and Atlantic sturgeon (both are federally and state endangered) are found in Georgia waters. The Altamaha River is believed to have the largest spawning population of Atlantic sturgeon in the southeast; however, actual spawning occurs upstream of the ESI area of interest. Juvenile and adult Atlantic sturgeon could occur throughout the study area at any

time during the year; however, they are more likely to occur in the large river systems (Savannah, Ogeechee, Altamaha, Satilla and St. Mary's). Shortnose sturgeon have a more restricted distribution, occurring primarily upriver of the freshwater/saltwater interface. Unlike Atlantic sturgeon, they do not make regular oceanic migrations. Both species' habitat is controlled by salinity and temperature; therefore, their actual distribution may vary quite a bit based on climactic conditions.

Sturgeon distributions were mapped as polygons based on expert input. Areas that serve as primary habitat are mapped with a concentration of 'high' and mapping qualifier 'concentration area'. A concentration of 'present' was assigned to areas where sturgeon have been observed but where they are less commonly found, and a concentration of 'rare' was assigned to areas where sturgeon could be present but are not typically found.

Other anadromous species were mapped to their respective habitats based on anecdotal information provided by GA DNR, including: American eel, striped bass, blueback herring, and shad. Unlike other portions of their range, striped bass in Georgia do not migrate into the ocean. A suite of recreationally targeted freshwater species (catfish, sunfish, and largemouth bass) were mapped to rivers within the area of interest based on anecdotal information by GA DNR. Robust redhorse (state endangered) are mapped to rivers in which the species is known to occur to indicate the potential range of this species.

Nearshore and Estuarine Fish Species – Nearshore marine and estuarine distributions of fishes were mapped primarily using data provided by the GA DNR and the Southeast Area Monitoring and Assessment Program (SEAMAP) of the ASMFC. These data sets were supplemented with information from the Estuarine Living Marine Resources program (ELMR; Nelson et al. 1991), Jennings and Weyers (2002), and expert knowledge from GA DNR.

Three fishery-independent data sets were provided by GA DNR staff. These were their Ecological Monitoring Trawl Survey, Marine Sportfish Population Health Survey, and the Red Drum and Coastal Sharks Longline Survey. Each dataset was summarized for the sampling years 2004-2013 and by sampling region. Summary statistics provided by GA DNR included the frequency of each species caught during each month for each sampling region, as well as the abundance of each species by month and sampling region. Sampling regions were provided as a shapefile by GA DNR staff, which fell into three categories: nearshore coastal areas, sounds, and streams and rivers. Species that were found to occur with a 10% frequency or higher in a given month for a given sampling region were marked as present for that month and sampling region. Additional life history seasonalities, such as larvae, eggs, and spawning months, were typically gathered from either USFWS Species Profiles or Distribution and Abundance of Fishes and Invertebrates in Southeast Estuaries (Nelson et al. 2001). Concentrations for each species were based on relative catch per unit effort (CPUE) abundances within sampling regions for all months and years. Quantiles of 10%, 50%, and 90% were used to divide concentrations into four categories: Rare, Common, Abundant, and Highly Abundant. These quantiles were calculated for each species using CPUEs averaged across all years for each month and sampling region. Final concentrations were based on where the average CPUE calculated in each sampling region for all years and months fell within the quantile splits.

The coverage of each sampling technique (longline, trawl, and gill net/trammel) was incomplete. As a result of this incomplete coverage, GA DNR staff recommended mapping species' distributions and seasonalities in un-surveyed areas by using the seasonalities found in 'like' areas. Following this advice, fish and invertebrate species' seasonalities from GA DNR trawls of the nearshore area at the inlet of Sapelo Sound were used as the source for the same species' seasonalities in the nearshore vicinity of Doboy and St. Catherines Sounds. Likewise, GA DNR seine data from the stream and tributaries of Sapelo River were used to populate fish and invertebrate species' seasonalities in the streams and tributaries of the St. Catherines Sound watershed. Similarly, seasonalities determined from GA DNR trawls surveys from the nearshore areas at the mouth of St. Simons Sound were used to populate fish and

invertebrate species' seasonalities in nearshore areas at the mouth of the Altamaha River. Finally, Ossabaw Sound trawl data was used to populate species' seasonalities in St. Catherines Sound. Concentration values for the reference areas were not assigned to the un-surveyed areas.

For the nearshore area out to 10 m depth, fish species distribution and seasonalities were supplemented with data from the SEAMAP program of the ASMFC. Fishery independent sampling data for the SEAMAP program is conducted in roughly three months out of the year, April, July, and October, however sampling in practice strays into many of the preceding and following months. Data used for the ESI included the years 2004-2013, and like with the GA DNR fishery independent sampling data, the frequencies of species caught were used to determine monthly presence/absence. Given the small number of sampling stations in each sampling region and the relatively infrequent temporal nature of the sampling, it was decided that concentrations should not be calculated from CPUE values in the SEAMAP data. Presence within a month was determined by the same 10% frequency cut-off as was used with GA DNR fishery independent sampling data (i.e. if a species was caught in 10% or more of all sampling events across years and within a sampling region, it was marked as present for that month). Sampling months were used as proxies for the season within which sampling occurred. Thus, if a species was found to be present in April, it was assumed to be present in March and May; likewise, this was done for June and August (July), and September and November (October).

In two of the larger river systems, the Savannah and Altamaha, data from Nelson et al. (1991) was used to map fish and invertebrate species and seasonalities. This data set was also used to add timing of spawning, eggs, and larvae for species in nearshore and inshore areas. In the Savannah River, data from Jennings and Weyers (2002) was used to determine distributions and seasonalities of species in higher reaches of the estuary, primarily areas that averaged less than 15 ppt salinity.

Information on shark presence in Georgia estuaries and nearshore waters was compiled by GA DNR from the red drum and coastal sharks longline survey and supplemented by expert knowledge. Information on life-history stages for sharks was provided by GA DNR. Please note, that the presence of young-of-year sharks is indicated in the 'larvae' column in the ESI tables.

In addition to the above datasets, anecdotal knowledge was used to define areas of high concentrations for Atlantic tripletail, cobia, and king mackerel.

Gray's Reef National Marine Sanctuary - Gray's Reef National Marine Sanctuary lies approximately 16 miles off the coast of Georgia and is comprised generally of three distinct bottom habitats: sandy and/or soft bottom, tall rocky ledges, and rocky hard bottom with minimal vertical relief. Of these three bottom types, the rocky ledges are the least common, despite having some of the most distinct species assemblages. Some of the fish species that are most common around rocky ledges are also species that have management concerns due to overfishing. In an effort to conceal the exact location of the rocky ledges and the valuable recreational species found there, the fish species of GRNMS were mapped to only two habitats, soft bottom and hard bottom, where hard bottom represented the combination of both rocky ledges and the rest of the hard bottom habitat. Fish species assemblages for each of these two habitat types were determined from reports, including Kendall et al. (2007) and Hare et al. (2015), as well as input from GRNMS staff and researchers. Two representative communities were selected using Kendall et al. (2007) data on abundance at various habitat types and input from GRNMS researchers. These species were marked as "Common" within the Sanctuary. There were also a number of other fish species that were mapped within GRNMS that did not fall into either of the representative species assemblages for soft and hard bottom habitats. These species were generally more pelagic in nature, e.g. cobia, king mackerel, and tiger shark. Atlantic sturgeon have also been detected in the sanctuary. No concentrations were included with these species. Seasonalities for GRNMS species were determined from either Hare et al. (2015), Kendall et al. (2007), SCDNR (2009), or expert knowledge of GA and SC DNR staff.

All of the marine and estuarine species mapped in the atlas were assigned a mapping qualifier of ‘general distribution’, with the exception of American eel migratory habitat and concentration areas for sturgeon and Atlantic tripletail.

Expert contacts for Georgia fish*:

Name	Agency	City	Phone	Species
Pat Geer	GA DNR	Brunswick, GA	(912) 264-7218	Marine and estuarine fish
Sonny Emmert	GA DNR	Brunswick, GA	(912) 264-7218	Marine and estuarine fish
Matt Kendall	NOAA	Silver Spring, MD	(301) 713-3028	GRNMS fish
Roldan Munoz	NMFS	Beaufort, NC	(252) 728-8613	GRNMS fish
Sarah Fangman	NOAA	Savannah, GA	(912) 598-2428	GRNMS Superinten- dent
Becky Shortland	NOAA	Savannah, GA	(912) 598-2381	GRNMS Resource Protection
Jenny Vander Pluym	NOAA	Savannah, GA	(912) 598-2417	GRNMS Research Coordinator
Cecil Jennings	GA CFWRU	Atlanta, GA	(706) 542-4837	Savannah River Fish
Chris Kalinowsky	GA DNR	Richmond Hill, GA	(912) 258-2637	Marine and estuarine fish
Joel Fleming	GA DNR	Richmond Hill, GA	(912) 727-5578	Freshwater species and sturgeon
Tim Barrett	GA DNR	Richmond Hill, GA	(912) 727-2112	Freshwater species and sturgeon
Don Harrison	GA DNR	Waycross, GA	(912) 285-6483	Shad
Brett Albanese	GA DNR	Social Circle, GA	(706) 557-3223	Species of concern
Carolyn Belcher	GA DNR	Brunswick, GA	(912) 262-3118	Sharks

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

Major Data Sources Used: Fish

- Atlantic States Marine Fisheries Commission. 2015. Southeast area monitoring and assessment program, South Atlantic inner strata sampling data, 2004-2013. Arlington, VA. Online database.
- Geer, P. and S. Emmert. 2015. Life history, distribution, and seasonality of fishes and invertebrates of coastal Georgia. Personal communication.
- Georgia Department of Natural Resources. 2015. Ecological monitoring trawl survey, 2004-2013. Excel spreadsheet.
- Georgia Department of Natural Resources. 2015. Marine sportfish population health survey, 2004-2013. Excel spreadsheet.
- Georgia Department of Natural Resources. 2015. Red drum and coastal sharks longline survey, 2004-2013. Excel spreadsheet.
- Hare, J.A., H.J. Walsh, K.E. Marancik, D. Score, G.R. Sedberry, R.O. Parker Jr., and R.W. Mays. 2015. In Prep: Fish fauna of Gray's Reef National Marine Sanctuary and the implications for placed-based management. NOAA Fishery Bulletin. Seattle, WA.
- Jennings, C. and R.S. Weyers. 2002. Temporal and spatial distribution of estuarine-dependent species in the Savannah River estuary. Annual report prepared for Georgia Ports Authority, Project No.: 10-21-RR251-148, 48pp.
- Kendall, M.S., L.J. Bauer, and C.F.G. Jeffrey. 2007. Characterization of the benthos, marine debris, and bottom fish at Gray's Reef National Marine Sanctuary. NOAA Technical Memorandum, NOS NCCOS 50. 82 pp. NOAA/NOS Strategic Environmental Assessments Division. Silver Spring, MD.
- Nelson, D.M., E.A. Irlandi, L.R. Settle, M.E. Monaco, and L. Coston-Clements. 1991. Distribution and abundance of fishes and invertebrates in southeast estuaries. ELMR Report No. 9, 167pp. Silver Spring, MD.
- SCDNR. 2009. Seasonal and inter-annual changes in offshore reef fish assemblages associated with hydrographic, meteorological, and climatic conditions. Final project report to the state recreational fisheries advisory committee. SCDNR Marine Resources Division. Charleston, SC.

INVERTEBRATES

Invertebrates depicted in this atlas include selected marine and estuarine species of commercial, ecological, and/or conservation value. Crabs, oysters, and shrimp support valuable commercial and/or recreational shellfisheries along the Georgia coast. Additionally, Gray's Reef National Marine Sanctuary hosts ecologically important invertebrate marine communities of high conservation value, including densely colonized live bottom ledges with significant populations of gorgonians and sponges in addition to corals and macroalgae.

Nearshore and Estuarine Invertebrate Species – Nearshore marine and estuarine distributions of brown, white, and pink shrimp, as well as Atlantic brief squid, blue crab, cannonball jellyfish, and horseshoe crab were mapped primarily using data provided by GA DNR and the SEAMAP of the ASMFC. These data sets were supplemented with information from Nelson et al. (1991), Larson et al. (1989), and Muncy (1984). Distribution and life history information from Nelson et al. (1991) was used exclusively for blue crab, and brown, white, and pink shrimp species in the Altamaha and Savannah estuary systems.

Presence and absence by month and concentrations calculated from GA DNR and ASMFC data used the exact same methods as were used for fish species. See the above section "Nearshore and Estuarine Fish

Species” for more detailed methodology. Note that invertebrate species mapped from GA DNR data came solely from their fishery independent trawl survey.

Horseshoe crab spawning areas were mapped based on known red knot foraging areas, per direction of GA DNR staff. Timing of beach spawning was provided by Tim Keyes with GA DNR.

Oyster reefs were mapped using digital data provided by GA DNR. The minimum mapping unit of the Georgia Oyster Reef data set was 5 m², and the extent of mapping was restricted to recreational harvest areas. In order to minimize the number of polygons, ensure inclusion of smaller reefs not captured with the mapping methods, and create a more generalized distribution, polygons in the data set were buffered by 50 m and merged together. Oyster reefs mapped in the ESI are not the only reefs that could occur in coastal areas. Mapping was restricted to recreational harvest areas, and while these areas contain some of the larger and more productive reefs, oyster presence can be assumed in most tidal creeks and sounds.

Expert contacts for Georgia invertebrates*:

Name	Agency	City	Phone	Species/ Program
Pat Geer	GA DNR	Brunswick, GA	(912) 264-7218	Shellfish
Sonny Emmert	GA DNR	Brunswick, GA	(912) 264-7218	Shellfish
Tim Keyes	GA DNR	Brunswick, GA	(912) 262-3191	Horseshoe crabs

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

Major Data Sources Used: Invertebrates

Atlantic States Marine Fisheries Commission. 2015. Southeast area monitoring and assessment program, South Atlantic inner strata sampling data, 2004-2013. Arlington, VA. Online database.

Geer, P. and S. Emmert. 2015. Life history, distribution, and seasonality of fishes and invertebrates of coastal Georgia. Personal communication.

Georgia Department of Natural Resources. 2015. Ecological monitoring trawl survey, 2004-2013. Excel spreadsheet.

Georgia Department of Natural Resources. 2015. Marine sportfish population health survey, 2004-2013. Excel spreadsheet.

Georgia Department of Natural Resources. 2015. Red drum and coastal sharks longline survey, 2004-2013. Excel spreadsheet.

Larson, S.C., M.J. Van Den Avyle, and E.L. Bozeman Jr., 1989. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Atlantic) – brown shrimp. U.S. Fish and Wildlife Service Biological Report 82 (11.90). U.S. Army Corps of Engineers TR EL-82-4. 14 pp.

Muncy, R.J. 1984. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Atlantic) – white shrimp. U.S. Fish and Wildlife Service Biological Report 82 (11.27). U.S. Army Corps of Engineers TR EL-82-4. 19 pp.

Nelson, D.M., E.A. Irlandi, L.R. Settle, M.E. Monaco, and L. Coston-Clements. 1991. Distribution and abundance of fishes and invertebrates in southeast estuaries. ELMR Report No. 9, 167pp. Silver Spring, MD.

BENTHIC HABITATS

Benthic habitats mapped in the ESI atlas include sparsely and densely colonized live bottom communities in GRNMS. Live bottom community locations were provided as vector digital data by GRNMS staff. Densely and sparsely colonized areas contained similar species assemblages, i.e. gorgonians, corals, sponges, and macroalgae; however, densely colonized areas had percent areal coverage of corals, macroalgae, and sponges that were significantly higher than those found in other areas. Densely colonized hardbottom habitats are categorized as area of 'high ecological value' using the mapping qualifier, due to their importance to fish and sea turtles.

Expert contacts for Georgia benthic*:

Name	Agency	City	Phone	Species/ Program
Matt Kendall	NOAA	Silver Spring, MD	(301) 713-3028	Hardbottom communities
Sarah Fangman	NOAA	Savannah, GA	(912) 598-2428	GRNMS Super- intendent
Becky Shortland	NOAA	Savannah, GA	(912) 598-2381	GRNMS Resource Protection
Jenny Vander Pluym	NOAA	Savannah, GA	(912) 598-2417	GRNMS Research Coordinator

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

Major Data Sources Used: Benthic

Gray's Reef National Marine Sanctuary. 2011. Densely colonized live bottom habitat layer. Vector digital data.

Gray's Reef National Marine Sanctuary. 2011. Sparsely colonized live bottom habitat layer. Vector digital data.

Kendall, M.S., L.J. Bauer, and C.F.G. Jeffrey. 2007. Characterization of the benthos, marine debris, and bottom fish at Gray's Reef National Marine Sanctuary. NOAA Technical Memorandum, NOS NCCOS 50. 82 pp. NOAA/NOS Strategic Environmental Assessments Division. Silver Spring, MD.

HABITATS

Georgia Rare and Endangered Species Element Occurrence Data - GA DNR WRD Nongame Conservation provided records of state- listed endangered, threatened, and rare plants whose occurrence records fell within the atlas's area of interest. Per the request of the data provider, species names were generalized to "endangered plant", "threatened plant", or "rare plant" based on the state's protective status. Also, the exact locations of records were obscured by taking the centroid of a polygonal record and shifting the point arbitrarily to within 1-1.5 km of the original center of the record location. Shifted points were given a 3 km polygonal buffer and overlapping buffers from records with the same status were dissolved, then mapped. Resource experts should be contacted in the event of a spill. Mapped areas reflect one or more records from

the following species: Godfrey's wild privet (state endangered), climbing buckthorn (state threatened), corkwood (state threatened), floodplain tickseed (state threatened), Florida wild privet (rare), and soapberry (rare). The display of this data does not imply that areas reflect current plant locations, but rather are to be used as a guide to what has been observed historically and in recent years (mainly 1983-2015).

Expert contacts for Georgia habitats and rare plants*:

Name	Agency	City	Phone	Species/ Program
Jacob Thompson	GA DNR WRD Nongame Conservation	Brunswick GA	912- 280- 1423	T/E/rare plants
Greg Krakow	GA DNR WRD Nongame Conservation	Social Circle, GA	770- 918- 6411	T/E/rare plants

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































Major Data Sources Used: Habitats

GA DNR. 2015. Element occurrence records, vector digital data.

HUMAN-USE RESOURCES

The human-use resources shown in this atlas were extracted from the ESI GIS data compiled for this region. The extracted features were mapped at scale of 1:100,000 and appear on the maps referenced by a number. For example, Map 1 will show the human-use features in conjunction with the ESI shoreline.

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		Management Area
	Access		Marina
	Airport/Heliport		Marine Sanctuary
	Anchorage		Military Installation
	Army Corps of Engineers		National Estuarine Research Reserve
	Artificial Reef		National Park
	Beach		Nature Conservancy
	Boat Ramp		Park
	Coast Guard		Port
	Commercial Fishing		Recreational Fishing
	Critical Habitat		Renewable Energy
	EPA Facility		Repeated Measurement Site
	EPA Region		Washover
	FEMA Region		Water Intake
	Historical Site		Wildlife Refuge

Abandoned Vessel: Data on locations of abandoned and derelict vessels comes from NOAA's Office of Coast Survey Automated Wrecks and Obstructions Information System (AWOIS).

Access Site: Locations where it is possible to gain vehicular access to the shoreline or isolated coastal sites and islands were mapped from expert knowledge. For some areas, such as islands, vehicles and equipment would need to be transported to access sites on barges.

Airport/Heliport: Locations of airports, airfields, landing strips, heliports, etc. were downloaded from the National Transportation Atlas Databases maintained by the Federal Aviation Administration.

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

Army Corps of Engineers: U.S. Army Corps of Engineers (USACE) districts and divisions data were provided from the geospatial platform maintained by USACE.

Artificial Reef: Artificial reef data was provided by GA DNR Coastal Resources Division.

Beach: Locations of recreational beaches used for activities such as swimming, sun-bathing, fishing, etc. were mapped from expert knowledge.

Boat Ramp: Boat ramp location data was provided by the Governors' South Atlantic Alliance (GSAA).

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

Commercial Fishing: Commercial shad fishing areas were delineated based on personal information from Georgia DNR staff. Shad fishing is allowed from Jan 1 - Mar 30 as of May 2015; however,

regulations may change at any time. Commercial fishing for other species may occur anywhere in estuarine and nearshore waters.

County Boundary: Boundaries for counties were downloaded from the U.S. Census Bureau MAF/TIGER geographic database.

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

Environmental Protection Agency Facility: U.S. Environmental Protection Agency (EPA) facility locations represent facilities that maintain risk management plans describing their hazards and prevention activities as required by the EPA Risk Management Plan (RMP), facilities that manufacture, process, or use certain chemicals in amounts above established levels regulated by the EPA Toxic Release Inventory System (TRIS) program, facilities with permits from the National Pollutant Discharge Elimination System (NPDES), and facilities that the EPA has identified and monitors for storing certain quantities of oil (OIL). The data were provided by EPA to NOAA's Emergency Response Division.

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

Fishery Area: Commercial and recreational oyster areas were provided by GA DNR's Coastal Resource Division.

Historical Site: Historical sites were depicted from sites in the NPS National Register of Historic Places (2007) and the Natural Resources Spatial Analysis Laboratory's Conservation Lands of Georgia database.

Management Area: Management areas in this ESI atlas include: easements, wildlife management areas, natural areas, etc. These data were provided by GA DNR.

Marina: Marina location data were provided by GA DNR's Coastal Resource Division and National Transportation Atlas Database.

Marine Sanctuary: The Gray's Reef National Marine Sanctuary boundary was provided by the NOAA National Marine Sanctuaries Program.

Military Installation: Military installation data was provided by the U.S. Census Bureau's MAF/TIGER geographic database.

National Estuarine Research Reserve (NERR): NERR boundary data was provided by the Sapelo Island NERR.

National Guard: Army National Guard and Air National Guard base locations were digitized as points from address matching and verified with Google Earth imagery.

National Park: National park boundaries were provided by NPS.

Nature Conservancy: Boundaries of The Nature Conservancy (TNC) properties were obtained from TNC Lands database.

Park: State park boundaries were provided by GA DNR.

Port: Major port location data were compiled from ACE National Transportation Atlas databases.

Rail Route: Locations of railways were downloaded from the National Transportation Atlas Databases, maintained by the Department of Transportation.

Recreational Fishing: Recreational fishing locations were provided by GA DNR Coastal Resource Division.

Renewable Energy: Wind energy planning and development data were provided by the Bureau of Ocean Energy Management's Office of Renewable Energy. Coastal Energy Facilities provided by NOAA's Coastal Services Center depicts the locations of facilities that generate electricity from biomass.

Repeated Measurement Site: Repeated measurement sites represent NOAA national data buoy locations, NOAA Mussel Watch monitoring sites, NOAA's Tides and Current's tide prediction gauges, and beach water monitoring program locations. Repeated measurement site data were provided by NOAA and GA DNR Coastal Resources Division.

River Mile: Locations of sequential river mile markers were derived from the USACE Waterway Mile Marker database.

Shipping Lane: Shipping lanes in U.S. Waters were provided by NOAA's Coastal and Marine Spatial Planning office.

Washover: A washover, or washover fan, is a relatively flat surface on the top of a barrier spit complex that slopes gently landward. It is usually created when water, forced landward by breaking waves, flows across the top of the barrier spit during high spring tides or storms. This process creates a flattened-off surface along which sand is transported across the top of the spit into the standing water (lagoon) or marsh landward of the spit. The resulting deposit usually has a fan-like shape. Washover locations are represented by points that were digitized from ESRI World Imagery by Research Planning, Inc. at a scale of 1:8,000.

Waste Disposal: Locations represent ocean disposal sites of dredged material removed from the bottom of waterbodies in order to maintain navigation channels and berthing areas. Data were provided by NOAA's Ocean Service, Office of Coastal Management.

Water Intake: Location of the fish hatchery water intake was provided by Natural Resources Spatial Analysis Laboratory.

Wildlife Refuge: Five National Wildlife Refuges (NWR) fall within the ESI atlas area: Blackbeard Island NWR, Harris Neck NWR, Savannah NWR, Wassaw NWR, and Wolf Island NWR. Locations of NWRs were provided by the USFWS.

GEOGRAPHIC INFORMATION SYSTEM

All maps were produced using the ESI Geographic Information System (GIS) data compiled for this region. These data are stored 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), scrub-shrub wetlands (ESI=10D), exposed tidal flats (ESI=7), and sheltered tidal flats (ESI=9A) are also stored as polygons.

SENSITIVE BIOLOGICAL RESOURCES

Biological resources are stored as points, lines 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

This project was supported by the NOAA Office of Response and Restoration, Hazardous Materials Response Division, under the direction of Jill Petersen, NOAA's ESI Program Manager. The development of this atlas was part of a larger effort to update much of the Atlantic coast after the destruction caused by Hurricane Sandy in October 2012.

Brad Benggio (NOAA ERD) assisted greatly in all aspects of the project's completion.

The biological and human-use data included on the maps were provided by numerous individuals and agencies, including: USFWS, USGS, NPS, GA DNR, NOAA, GRNMS, FAA, USACE, GSAA, USCG, EPA, FEMA, NPS, NERR, TNC, and others. Staff at these organizations contributed a vast amount of information to this effort, including first-hand expertise, publications, maps, and digital data.

At Research Planning, Inc. in Columbia, South Carolina, numerous scientific, GIS, and graphic staff were involved with different phases of the project. Mark White, GIS Director, and Christine Boring, Biology Dept. Manager, were co-Project Managers. The ESI shoreline was classified by Jennifer Horsman and Thomas Minter. The biological and human-use data were collected and compiled onto base maps by Christine Boring, Jennifer Weaver, Lincoln Smith, Michael Bauman, Heidi Dunagan, and Emily Watson. Lee Diveley, Katy Beckham, Jeff Dahlin, Emily Watson, Chris Locke, and Bryan Thom processed and produced the GIS data. Joe Holmes produced the final documents.

Cover photo credit: Jim Couch, Georgia Department of Natural Resources. (Nanny Goat Beach)

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 any contributing 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*

BENTHIC

HARDBOTTOM

Hardbottom community

-

BIRDS

ALCID

Alcids

-

DIVING

American white pelican

Pelecanus erythrorhynchos

Brown pelican

Pelecanus occidentalis

Diving birds

Double-crested cormorant

Phalacrocorax auritus

Loons

Gavia spp.

GULL_TERN

Black skimmer

Rynchops niger

Black tern

Chlidonias niger

Gull-billed tern

Gelochelidon nilotica

Gulls

-

Laughing gull

Larus atricilla

Least tern

Sternula antillarum

Royal tern

Thalasseus maximus

Sandwich tern

Thalasseus sandwicensis

Terns

-

PASSERINE

Seaside sparrow

Ammodramus maritimus

PELAGIC

Black-capped petrel

Pterodroma hasitata

Jaegers

Stercorarius spp.

Northern gannet

Morus bassanus

Shearwaters

-

Storm-petrels

-

RAPTOR

Bald eagle

Haliaeetus leucocephalus

SHOREBIRD

American oystercatcher

Haematopus palliatus

Black-bellied plover

Pluvialis squatarola

Black-necked stilt

Himantopus mexicanus

Dunlin

Calidris alpina

Least sandpiper

Calidris minutilla

Marbled godwit

Limosa fedoa

Phalaropes

Phalaropus spp.

Piping plover

Charadrius melodus

Red knot

Calidris canutus

Ruddy turnstone

Arenaria interpres

Sanderling

Calidris alba

Semipalmated plover

Charadrius semipalmatus

Shorebirds

-

Short-billed dowitcher

Limnodromus griseus

Western sandpiper

Calidris mauri

Whimbrel

Numenius phaeopus

Willet

Tringa semipalmata

Wilson's plover

Charadrius wilsonia

Yellowlegs

Tringa spp.

WADING

Clapper rail

Rallus longirostris

Great egret

Ardea alba

King rail

Rallus elegans

Least bittern

Ixobrychus exilis

Roseate spoonbill

Platalea ajaja

Wading birds

White ibis

Eudocimus albus

Wood stork

Mycteria americana

WATERFOWL

American coot

Fulica americana

American wigeon

Anas americana

Black-bellied whistling-duck

Dendrocygna autumnalis

Blue-winged teal

Anas discors

Bufflehead

Bucephala albeola

Canada goose

Branta canadensis

Canvasback

Aythya valisineria

Common moorhen

Gallinula chloropus

Dabbling ducks

-

Diving ducks

Anas strepera

Gadwall

Anser albifrons

Greater white-fronted goose

Anas crecca

Green-winged teal

Lophodytes cucullatus

Hooded merganser

Clangula hyemalis

Long-tailed duck

Anas platyrhynchos

Mallard

-

Mergansers

Anas fulvigula

Mottled duck

Anas clypeata

Northern shoveler

Aythya americana

Redhead

Aythya collaris

Ring-necked duck

Oxyura jamaicensis

Ruddy duck

Aythya spp.

Scaup

Melanitta spp.

Scoters

Anas sp.

Teals

Aix sponsa

Wood duck

Common Name*

Scientific Name*

FISH

FISH

Amberjacks

Seriola spp.

American eel

Anguilla rostrata

American shad

Alosa sapidissima

Atlantic croaker

Micropogonias undulatus

Atlantic menhaden

Brevoortia tyrannus

Atlantic sharpnose shark

Rhizoprionodon terraenovae

Atlantic spadefish

Chaetodipterus faber

Atlantic sturgeon

Acipenser oxyrinchus

Atlantic tripletail

Lobotes surinamensis

Bar jack

Caranx ruber

Black drum

Pogonias cromis

Black sea bass

Centropristis striata

Blacknose shark

Carcharhinus acronotus

Blacktip shark

Carcharhinus limbatus

Blue runner

Caranx crysos

Blueback herring

Alosa aestivalis

Bluefish

Pomatomus saltatrix

Bonnethead

Sphyrna tiburo

Bull shark

Carcharhinus leucas

Catfish

Ictalurus spp.

Cobia

Rachycentron canadum

Cubbyu

Equetus umbrosus

Finetooth shark

Carcharhinus isodon

Florida pompano

Trachinotus carolinus

Gag

Mycteroperca microlepis

Giant manta

Manta birostris

Gray triggerfish

Balistes capricus

Great barracuda

Sphyrna barracuda

Great hammerhead

Sphyrna mokarran

Gulf flounder

Paralichthys albigutta

Jack

Caranx spp.

King mackerel

Scomberomorus cavalla

Ladyfish

Elops saurus

SPECIES LIST

Common Name*	Scientific Name*	Rare plant	
<u>FISH, cont.</u>		<u>Threatened plant</u>	-
Largemouth bass	<i>Micropterus salmoides</i>	Common Name*	Scientific Name*
Lemon shark	<i>Negaprion brevirostris</i>	HERPETOFAUNA	
Mackerel scad	<i>Decapterus macarellus</i>	TURTLE	
Porgies	<i>Stenotomus spp.</i>	<u>Green sea turtle</u>	<u><i>Lepidochelys kempii</i></u>
Red drum	<i>Sciaenops ocellatus</i>	<u>Leatherback sea turtle</u>	<u><i>Dermochelys coriacea</i></u>
Red porgy	<i>Pagrus pagrus</i>	<u>Loggerhead sea turtle</u>	<u><i>Caretta caretta</i></u>
Red snapper	<i>Lutjanus campechanus</i>	Common Name*	Scientific Name*
<u>Robust redhorse</u>	<u><i>Moxostoma robustum</i></u>	INVERTEBRATES	
Sand perch	<i>Diplectrum formosum</i>	BIVALVE	
Sandbar shark	<i>Carcharhinus plumbeus</i>	Eastern oyster	<i>Crassostrea virginica</i>
Scalloped hammerhead	<i>Sphyrna lewini</i>	CEPHALOPOD	
Scamp grouper	<i>Mycteroperca phenax</i>	Atlantic brief squid	<i>Loliguncula brevis</i>
Sheepshead	<i>Archosargus probatocephalus</i>	CRAB	
<u>Shortnose sturgeon</u>	<u><i>Acipenser brevirostrum</i></u>	Blue crab	<i>Callinectes sapidus</i>
Smooth dogfish	<i>Mustelus canis</i>	Horseshoe crab	<i>Limulus polyphemus</i>
Southern flounder	<i>Paralichthys lethostigma</i>	INVERTEBRATE	
Southern kingfish	<i>Menticirrhus americanus</i>	Cannonball jellyfish	<i>Stomolophus meleagris</i>
Spanish mackerel	<i>Scomberomorus maculatus</i>	SHRIMP	
Spinner shark	<i>Carcharhinus brevipinna</i>	Brown shrimp	<i>Farfantepenaeus aztecus</i>
Spiny dogfish	<i>Squalus acanthias</i>	Pink shrimp	<i>Farfantepenaeus duorarum</i>
Spot	<i>Leiostomus xanthurus</i>	White shrimp	<i>Litopenaeus setiferus</i>
Spottail pinfish	<i>Diplodus holbrooki</i>	Common Name*	Scientific Name*
Spotted seatrout	<i>Cynoscion nebulosus</i>	MARINE MAMMALS	
Star drum	<i>Stellifer lanceolatus</i>	DOLPHIN	
Striped bass	<i>Morone saxatilis</i>	Atlantic spotted dolphin	<i>Stenella frontalis</i>
Striped mullet	<i>Mugil cephalus</i>	Bottlenose dolphin	<i>Tursiops truncatus</i>
Sunfish	<i>Lepomis spp.</i>	MANATEE	
Tiger shark	<i>Galeocerdo cuvier</i>	<u>West Indian manatee</u>	<u><i>Trichechus manatus</i></u>
Tomtate	<i>Haemulon aurolineatum</i>	WHALE	
Weakfish	<i>Cynoscion regalis</i>	Dwarf sperm whale	<i>Kogia simus</i>
White shark	<i>Carcharodon carcharias</i>	<u>Humpback whale</u>	<u><i>Megaptera novaeangliae</i></u>
Yellow jack	<i>Caranx bartholomaei</i>	<u>North Atlantic right whale</u>	<u><i>Eubalaena glacialis</i></u>
Common Name*	Scientific Name*	<u>Pygmy sperm whale</u>	<u><i>Kogia breviceps</i></u>
HABITATS			
PLANT			
<u>Endangered plant</u>	-		

*Underlined species are listed as either threatened or endangered under the federal ESA, and/or are listed as threatened, endangered, or special concern by the state of Georgia.

SHORELINE DESCRIPTIONS

POSED, 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 are variable in cover, with sparse biota in fresh/brackish areas and higher biota in salt water areas



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 quartz sand and shell fragments and are common along the outer barrier island coastline
- There can be heavy accumulations of wrack present
- They are utilized by birds for nesting, foraging, and loafing and by turtles for nesting
- Upper beach fauna include ghost crabs and amphipods; lower beach fauna can be moderate, but highly variable



PREDICTED OIL BEHAVIOR

- Light oil accumulations will be deposited as oily swashes or bands along the upper intertidal zone
- 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 the sediment into the surf zone may be used as a final polishing step for stained sand treatment without sediment removal

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
- They normally form along embankments of sandy dredge- spoil material and at cutbanks in rivers; they also form where tidal creeks intercept old sandy beach ridge deposits
- 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



PREDICTED OIL BEHAVIOR

- Any stranded oil will concentrate at the high-water line and
- may penetrate sandy sediments if a beach is present
- 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

- 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
- Large woody debris may be wiped down with sorbents to reduce contact hazards by wildlife; smaller debris can be cut into smaller pieces for removal

SHORELINE DESCRIPTIONS

MIXED SAND AND GRAVEL BEACHES ESI = 5

DESCRIPTION

- These are moderately sloping beaches composed of a mixture of sand and gravel (which can include shell fragments)
- Because of the mixed sediment sizes, there may be some areas on the beach of pure sand, pebbles, or cobbles
- Sediment desiccation and mobility on exposed beaches can cause low densities of animals and plants
- There can be large-scale changes in the sediment distribution patterns depending on the season, due to the transport of the sand fraction offshore during storm events
- The presence of attached algae and barnacles indicates beaches that are relatively sheltered, with the more stable substrate supporting richer biota



PREDICTED OIL BEHAVIOR

- During small spills, oil will be deposited along and above the high-tide swash
- Large spills will spread across the entire intertidal area
- Oil penetration into the beach sediments may be up to 50 cm; however, the sand fraction can be quite mobile, and oil behavior is much like on a sand beach if the sand fraction exceeds about 40 percent
- Burial of oil may be deep at and above the high-tide line, where oil tends to persist, particularly where beaches are only intermittently exposed to waves
- In sheltered pockets on the beach, pavements of asphalted sediments can form if there is no removal of heavy oil accumulations because most of the oil remains on the surface
- Once formed, these asphalt pavements can persist for years

RESPONSE CONSIDERATIONS

- Remove heavy accumulations of pooled oil as soon as possible
- All oiled debris should be removed
- Sediment removal should be limited as much as possible
- Low-pressure flushing can be used to float liquid oil away from the sediments for recovery by skimmers or sorbents. High-pressure spraying should be avoided because of potential for transporting contaminated finer sediments (sand) to the lower intertidal or subtidal zones
- Mechanical reworking of lightly oiled sediments from the high-tide zone to the middle intertidal zone can be effective in areas regularly exposed to wave activity (as evidenced by storm berms)
- In-place tilling/excavation may be used to reach deeply buried oil in layers in the middle zone on exposed beaches

SHORELINE DESCRIPTIONS

GRAVEL BEACHES ESI = 6A

DESCRIPTION

- Gravel beaches in Georgia are composed almost entirely of shell
- They can be very steep, with multiple wave-built berms forming the upper beach
- Shell beaches are common near oyster reefs and along the Intracoastal waterway where spoil mounds have been reworked by boat wakes into steep shell berms
- There are low densities of infauna because the coarse sediments dry out during low tide
- They can occur as perched berms and washovers of shell atop wave-cut mud and marsh platforms and scarps
- They are important roosting areas for shorebirds, especially when high tide floods the marshes



PREDICTED OIL BEHAVIOR

- Deep penetration of stranded oil is likely on wave-built gravel beaches and shell berms because of their high permeability
- There is less risk of oil penetration in the shell formed as lag deposits because of the lower permeability of the finer-grained sediments below
- Deeply penetrated oil can leach out for long periods, thick oil layers can harden into asphalt pavements
- Along sheltered portions of the shorelines, chronic sheening and the formation of asphalt pavements is likely where accumulations are heavy

RESPONSE CONSIDERATIONS

- Heavy accumulations of pooled oil should be removed quickly from the upper beach
- All oiled debris should be removed
- Sediment removal should be limited as much as possible
- Low-pressure flushing can be used to float fresh oil away from the sediments for recovery by skimmers or sorbents
- Mechanical reworking of oiled sediments from the high-tide line to the lower beachface can be effective in areas regularly exposed to wave activity; the presence of multiple storm berms is evidence of wave activity
- In-place tilling may be used to reach deeply buried oil layers along the mid-intertidal zone on exposed beaches

SHORELINE DESCRIPTIONS

RIPRAP ESI = 6B

DESCRIPTION

- Riprap structures are composed of cobble- to boulder-sized blocks of granite, limestone, or concrete
- Riprap structures are common along shorelines exposed to wave action (outer coasts, large bays and harbors, navigable channels) and are used for shoreline protection and tidal- inlet stabilization (jetties)
- Attached biota are sparse to moderate on exposed riprap



PREDICTED OIL BEHAVIOR

- Oil adheres readily to the rough surfaces of the blocks
- Deep penetration of oil between the blocks is likely
- 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 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 and are found at meander bends in large tidal creeks/river channels
- Biological utilization can be very high, with large numbers of infauna, heavy use by birds for roosting and foraging, and by foraging fish
- They are also highly utilized for recreational fishing



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, but can penetrate into the tops of the bars and burrows when they dry out at low tide
- 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 SCARPS IN CLAY OR MUD ESI = 8A

DESCRIPTION

- Sheltered scarps form by boat wake erosion of marsh fronts or muddy substrates along navigable channels
- There may be some fringing marsh at the base of the scarp along the edge of the water



PREDICTED OIL BEHAVIOR

- Oil will not adhere to the wet sediment surface, but could penetrate root cavities and burrows if they drain at low tide
- Oil will coat vegetation at the water line
- Stranded oil will persist because of low energy setting

RESPONSE CONSIDERATIONS

- Low-pressure flushing at ambient temperatures is most
- effective when the oil is fresh and still liquid
- Where the high-tide area is accessible, it may be feasible to remove heavy oil accumulations and oiled debris
- The muddy substrate cannot support heavy equipment, and even foot traffic could disrupt the sediments and mix oil deeper

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 are constructed of concrete, wood, or metal
- These structures are found inside harbors and bays in highly developed areas, sheltered from direct exposure to waves
- Often there is no exposed beach at low tide, but multiple habitats are indicated if present
- Attached animal and plant life can be sparse
- They can have high recreational use, particularly in public 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
- High-pressure, hot-water flushing will be required for heavy and weathered oil

SHORELINE DESCRIPTIONS

SHELTERED RIPRAP ESI = 8C

DESCRIPTION

- Riprap structures are composed of cobble- to boulder-sized blocks of granite, limestone, or concrete
- These structures are found inside harbors and bays in developed areas, sheltered from direct exposure to waves
- Attached biota are highly variable in cover, with sparse biota in fresh/brackish areas and higher biota in salt water areas



PREDICTED OIL BEHAVIOR

- Oil adheres readily to the rough surfaces
- Deep penetration of oil between the blocks is likely
- 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 and replace heavily oiled riprap 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 and fish for feeding



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 may 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 low eroding banks with trees and tree roots exposed to the water
- They are flooded occasionally by high water
- These shorelines are generally found in fresh or brackish water settings

PREDICTED OIL BEHAVIOR

- During low water stages, the oil could strand as a narrow band of sediment at the water level
- During high water stages, the oil could cover and coat the vegetation
- Oiling 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 is 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 areas of high-use by humans or wildlife

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
- Sediments are composed of organic-rich mud except on the margins of barrier islands and other exposed areas where sand is abundant
- Exposed areas are located along bays with wide fetches and along heavily trafficked waterways
- Sheltered areas and tidal creeks 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



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 1 meter)

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 through the use of walking boards
- 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 along major rivers and tributary creeks
- Those along major channels are exposed to strong currents and boat wakes; smaller channels tend to be sheltered
- The sediment substrate is seldom exposed because daily water level changes are low; greater changes result from floods and wind-generated tides
- Resident flora and fauna are abundant and diverse, with high utilization by birds and fish



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
- 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 through the use of walking boards
- 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, 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



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
- 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
- There can be large amounts of oily debris
- 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; use walking boards or restrict foot traffic
- Live woody vegetation should not be cut; flushing or wiping with sorbents can be used to reduce contact hazards by wildlife and humans

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
- They are common in disturbed/modified areas such as dredge spoil mounds and along the edges of right-of-ways (utilities, pipelines, etc.) that cross channels
- 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 and diverse



PREDICTED OIL BEHAVIOR

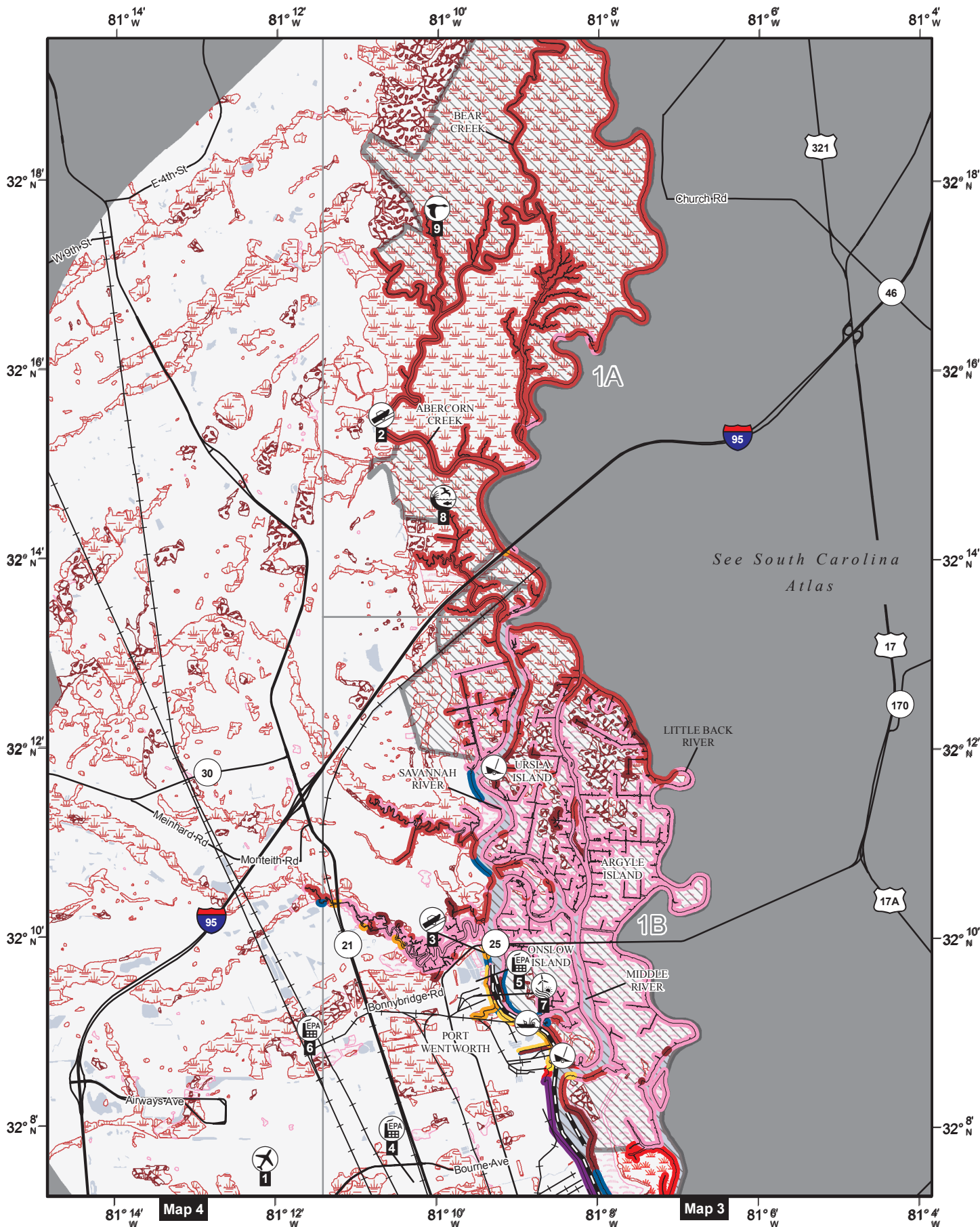
- Oil behavior depends on water level
- During high water, most of the oil passes through the wetland, coating the vegetation above the waterline
- Woody vegetation is less sensitive than grasses to oil
- Some oil can be trapped and pooled on the surface as water levels drop
- Penetration into the soils is usually limited because of high water levels, muddy composition, surface organic debris, and vegetation cover
- There can be large amounts of oily debris
- 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 through the use of walking boards or restricting foot traffic
- Live woody vegetation should not be cut; flushing or wiping with sorbents can be used to reduce contact hazards by wildlife and humans

ENVIRONMENTAL SENSITIVITY INDEX MAPS





Map 1
Georgia



SEE BACK OF MAP
for details about mapped resources and
other resources that occur in mapped area.
Data Published: June 2015

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	AIRPORT	SAVANNAH/HILTON HEAD INTL	
2	BOAT RAMP	ABERCORN CREEK BOAT RAMP	
3	BOAT RAMP	HOULIHAN PARK BOAT RAMP	
4	EPA FACILITY	RINCHEM COMPANY INC. - SAVANNAH EXPORT CSC 40	912-964-9313
5	EPA FACILITY	WEYERHAEUSER NR PORT WENTWORTH	912-966-4372
6	EPA FACILITY	INDUSTRIAL & DOMESTIC WATER TREATMENT PLANT	912-964-0698
7	RENEWABLE ENERGY	PORT WENTWORTH MILL	

DISPLAYED ON MAP (POLYGONS)			
Map ID	Type	Name	Phone
8	MANAGEMENT AREA	SAVANNAH RIVER STATE NATURAL AREA	
9	WILDLIFE REFUGE	SAVANNAH NATIONAL WILDLIFE REFUGE	843/784-2468

JURISDICTIONS

COUNTY: CHATHAM COUNTY, EFFINGHAM COUNTY
COAST GUARD: COAST GUARD DISTRICT 7, COAST GUARD SECTOR CHARLESTON
USACE: SOUTH ATLANTIC DIVISION, SAVANNAH DISTRICT

FEMA: REGION IV
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	196.15	0.31
10B	Freshwater Marshes	4,882.98	7.63
10C	Swamps	17,084.92	26.70
10D	Scrub and Shrub Wetlands	2,632.51	4.11



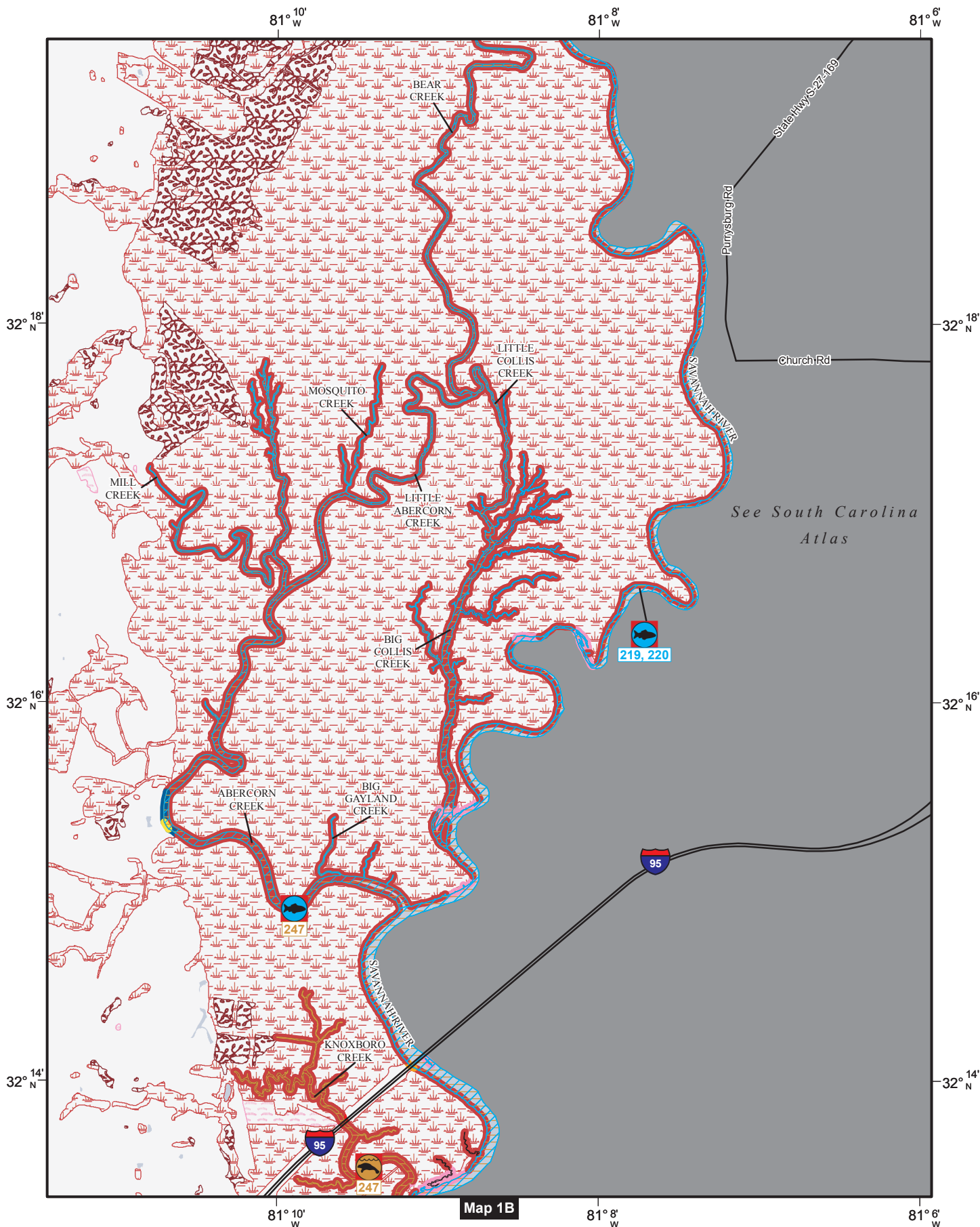
ESI SHORELINE HABITAT TYPES

<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	5,267.00	3.27	1%
10B	Freshwater Marshes	207,689.38	129.05	54%
10C	Swamps	146,853.46	91.25	38%
10D	Scrub and Shrub Wetlands	9,178.43	5.70	2%
9B	Vegetated Low Banks	1,159.83	0.72	< 1%
8A	Sheltered, Impermeable, Rocky Shores	198.00	0.12	< 1%
8B	Sheltered, Solid Man-Made Structures	644.78	0.40	< 1%
8C	Sheltered Riprap	3,012.84	1.87	1%
3B	Scarps and Steep Slopes (Sand)	5,254.14	3.26	1%
1B	Exposed, Solid Man-Made Structures	2,612.86	1.62	1%
Total ESI Shoreline:		381,870.71	237.28	
Total Shoreline:		376,371.50	233.87	

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 1A
Georgia

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					
218	Freshwater	Robust redbreast	Vulnerable Occurrence	E		-													-	-	-	-	-
219	Diadromous	Shortnose sturgeon	Concentration Area	E	E	High													-	-	-	Jan-Dec	Jan-Dec
220	Diadromous	American shad	Migration			High													-	-	Apr-Jun	May-Dec	Jan-Apr
	Diadromous	Atlantic sturgeon	Concentration Area	E	E	High													-	-	-	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				
247	Manatee	West Indian manatee	General Distribution	E	E	Low													-	-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

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-May	Jan-Dec
	Blueback herring													-	-	-	Jun-Aug	Mar-Jul
	Striped bass													-	-	-	Apr-Sep	Jan-Dec
 Estuarine Nursery	Southern flounder													-	-	-	-	-
	Spot													-	-	-	-	-
 Freshwater	Catfish													-	-	-	-	-
	Largemouth bass													-	-	-	-	-
	Sunfish													-	-	-	-	-

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)
10B	Freshwater Marshes	65.36	0.10
10C	Swamps	9,946.56	15.54
10D	Scrub and Shrub Wetlands	743.10	1.16



ESI SHORELINE HABITAT TYPES

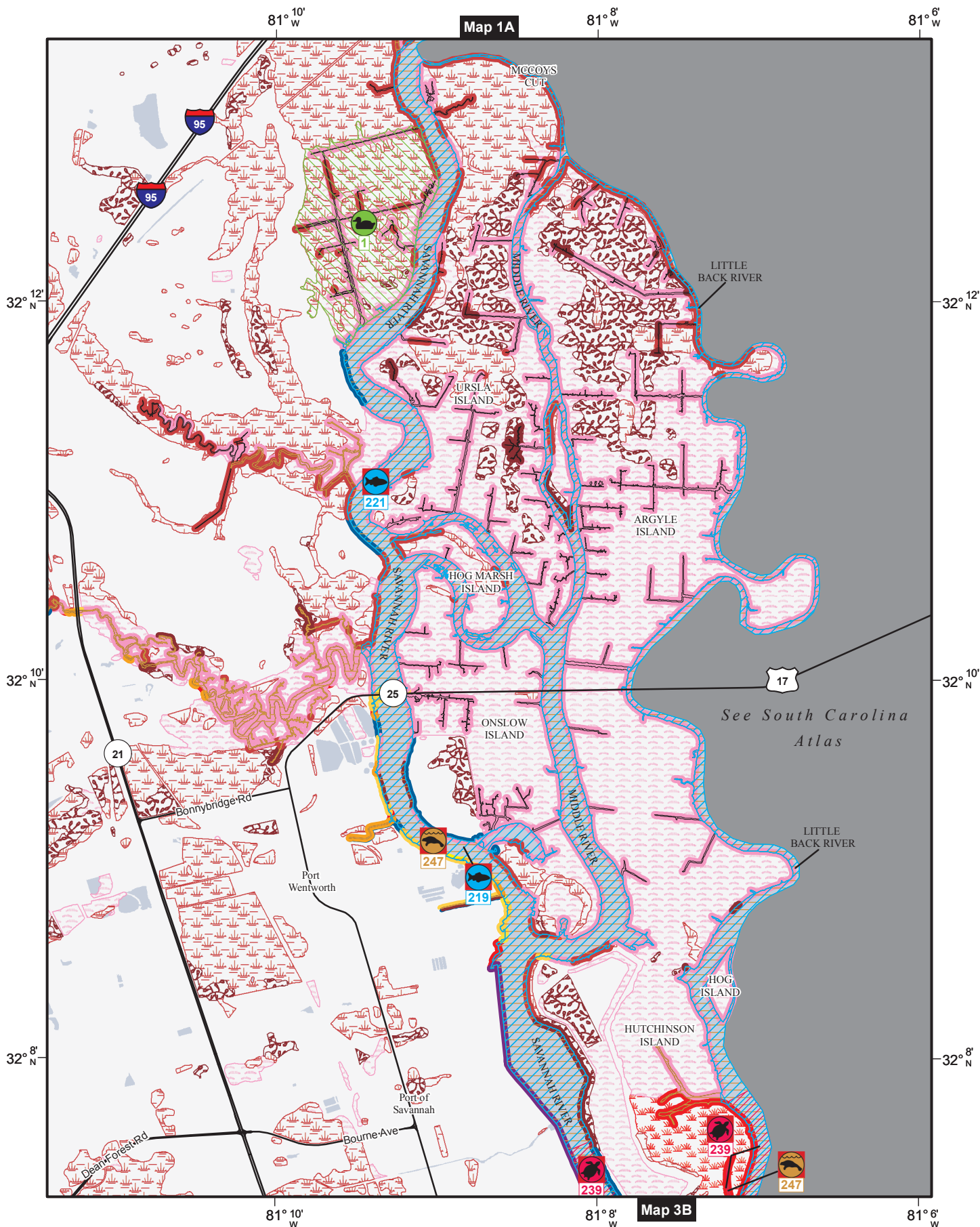
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	203.49	0.13	< 1%
10B	Freshwater Marshes	5,140.50	3.19	4%
10C	Swamps	118,104.74	73.39	95%
10D	Scrub and Shrub Wetlands	13.01	0.01	< 1%
9B	Vegetated Low Banks	104.98	0.07	< 1%
8B	Sheltered, Solid Man-Made Structures	80.00	0.05	< 1%
3B	Scarps and Steep Slopes (Sand)	403.82	0.25	< 1%

Total ESI Shoreline: 124,050.54 Total ESI Shoreline: 77.08
 Total Shoreline: 124,050.54 Total Shoreline: 77.08

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

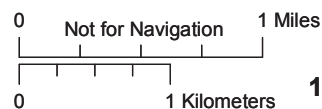




Map 1B
Georgia



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: June 2015



1:50,000



Map 1B
Georgia

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
1	Waterfowl	Gadwall	Wintering			100S	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-	-
	Waterfowl	Hooded merganser	Nesting			-												Feb-Jun	-	-	-	-	-	-
	Waterfowl	Hooded merganser	Wintering			High												-	-	-	-	-	-	-
	Waterfowl	Northern shoveler	Wintering			100S												-	-	-	-	-	-	-
	Waterfowl	Teals	Wintering			1,000S												-	-	-	-	-	-	-
	Waterfowl	Wood duck	Nesting			-												Jan-Jul	-	-	-	-	-	-
	Waterfowl	Wood duck	Wintering			100S												-	-	-	-	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
219	Diadromous	Shortnose sturgeon	Concentration Area	E	E	High	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Jan-Dec	Jan-Dec
221	Diadromous	American shad	Migration			High												-	-	-	Apr-Jun	May-Dec	Jan-Apr
	Diadromous	Atlantic sturgeon	Concentration Area	E	E	High												-	-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Robust rehorse	Vulnerable Occurrence	E		-												-	-	-	-	-	-

REPTILES & AMPHIBIANS


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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239	Turtle	Green sea turtle	General Distribution	T	T	-																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

MARINE MAMMALS




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

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				
	Passerine																
	Seaside sparrow													-	-	-	-

FISH

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Diadromous													-	-	-	Jan-Dec
	American eel													-	-	-	Jan-Dec
	Blueback herring													-	-	-	Mar-Jul
	Blueback herring													-	-	-	Mar-Jul
	Striped bass													-	-	-	Mar-Jul
	Estuarine Nursery													-	-	-	Jan-Dec
	Atlantic croaker													-	-	-	Jan-Dec
	Atlantic menhaden													-	-	-	Jan-Dec
	Southern flounder													-	-	-	-
	Spot													-	-	-	-
	Striped mullet													-	-	-	-
	Catfish													-	-	-	-
	Freshwater													-	-	-	-
	Largemouth bass													-	-	-	-
	Sunfish													-	-	-	-

MARINE MAMMALS

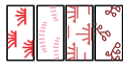
Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Dolphin													-	-	-	-
	Bottlenose dolphin													-	-	-	-

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	195.90	0.31
10B	Freshwater Marshes	4,619.76	7.22
10C	Swamps	2,851.63	4.46
10D	Scrub and Shrub Wetlands	996.42	1.56



ESI SHORELINE HABITAT TYPES

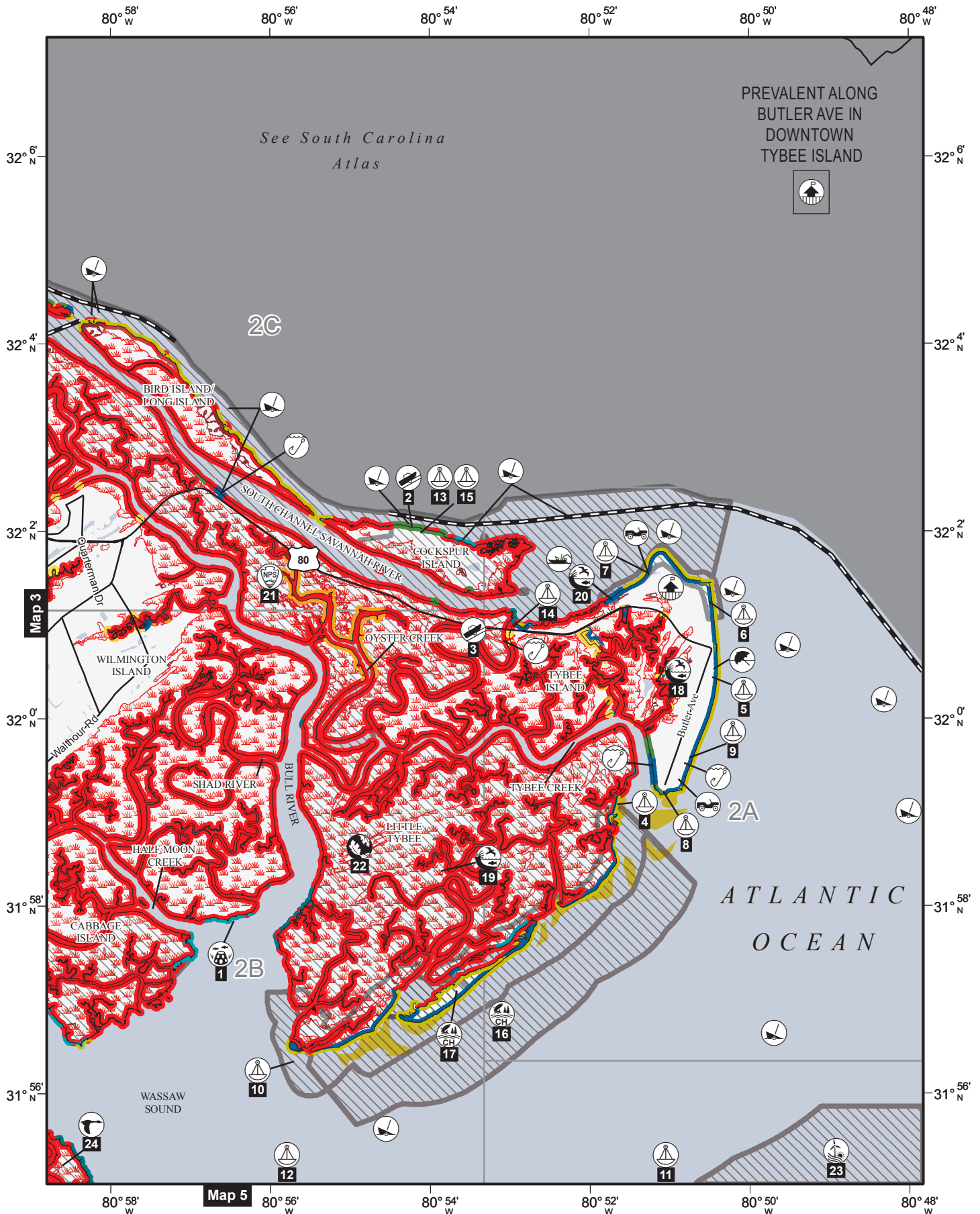
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	5,055.73	3.14	2%
10B	Freshwater Marshes	202,404.84	125.77	79%
10C	Swamps	27,597.92	17.15	11%
10D	Scrub and Shrub Wetlands	9,165.42	5.70	4%
9B	Vegetated Low Banks	1,054.85	0.66	< 1%
8A	Sheltered, Impermeable, Rocky Shores	198.00	0.12	< 1%
8B	Sheltered, Solid Man-Made Structures	564.78	0.35	< 1%
8C	Sheltered Riprap	3,012.84	1.87	1%
3B	Scarps and Steep Slopes (Sand)	4,772.56	2.97	2%
1B	Exposed, Solid Man-Made Structures	2,609.74	1.62	1%

Total ESI Shoreline: 256,436.67 Total ESI Shoreline: 159.34
 Total Shoreline: 250,937.45 Total Shoreline: 155.93

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 2
Georgia



SEE BACK OF MAP
for details about mapped resources and
other resources that occur in mapped area.
Data Published: June 2015

0 Not for Navigation 2 Miles
0 2 Kilometers

1:100,000

Map 2 Georgia

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)				
Map ID	Type	Name	Contact	Phone
1	ARTIFICIAL REEF	HALFMOON REEF		
2	BOAT RAMP	FORT PULASKI BOAT RAMP		
3	BOAT RAMP	LAZARETTO CREEK BOAT RAMP		
4	REPEATED MEASUREMENT SITE	BMS - LTL TYBEE ISL		
5	REPEATED MEASUREMENT SITE	BMS - TYBEE ISL MID		
6	REPEATED MEASUREMENT SITE	BMS - TYBEE ISL N.		
7	REPEATED MEASUREMENT SITE	BMS - TYBEE ISL PLK ST		
8	REPEATED MEASUREMENT SITE	BMS - TYBEE ISL S		
9	REPEATED MEASUREMENT SITE	BMS - TYBEE ISL STR		
10	REPEATED MEASUREMENT SITE	BMS - WILLIAMSON ISL.		
11	REPEATED MEASUREMENT SITE	DB - NDBC 41021		
12	REPEATED MEASUREMENT SITE	DB - NDBC 41023		
13	REPEATED MEASUREMENT SITE	DB - NOS FPKG1		
14	REPEATED MEASUREMENT SITE	MWS - SRTI		
15	REPEATED MEASUREMENT SITE	TG - NWLON - FORT PULASKI		

DISPLAYED ON MAP (POLYGONS)				
Map ID	Type	Name	Contact	Phone
16	CRITICAL HABITAT	LOGGERHEAD TURTLE CRITICAL HABITAT		
17	CRITICAL HABITAT	PIPING PLOVER CRITICAL HABITAT		
18	MANAGEMENT AREA	BRADY TRACT	GEORGIA DEPARTMENT OF NATURAL RESOURCES	
19	MANAGEMENT AREA	LITTLE TYBEE-CABBAGE ISLAND NATURAL AREA	GEORGIA DEPARTMENT OF NATURAL RESOURCES	
20	MANAGEMENT AREA	TYBEE ISLAND TRACT	GEORGIA DEPARTMENT OF NATURAL RESOURCES	
21	NATIONAL PARK	FORT PULASKI NATIONAL MONUMENT	MONUMENT HEADQUARTERS	912/786-5787
22	NATURE CONSERVANCY	LITTLE TYBEE RIVER MACROSITE EASEMENT	THE NATURE CONSERVANCY	
23	RENEWABLE ENERGY	SOUTHERN COMPANY IP PROPOSED LEASE 6074		404/506-1357
24	WILDLIFE REFUGE	WASSAW NATIONAL WILDLIFE REFUGE	US FISH AND WILDLIFE SERVICE	912/598-3200

ALSO PRESENT IN MAPPED AREA (POINTS)		
Type	Name	Contact
COAST GUARD	STA TYBEE ISLAND	912/786-5440

JURISDICTIONS	
COUNTY:	CHATHAM COUNTY
COAST GUARD:	COAST GUARD DISTRICT 7, COAST GUARD SECTOR CHARLESTON
USACE:	SOUTH ATLANTIC DIVISION, SAVANNAH DISTRICT
FEMA:	REGION IV
EPA:	REGION 4

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	18,747.35	29.29
10B	Freshwater Marshes	2.40	0.00
10C	Swamps	52.49	0.08
10D	Scrub and Shrub Wetlands	119.46	0.19
7	Exposed Tidal Flats	410.63	0.64

ESI SHORELINE HABITAT TYPES

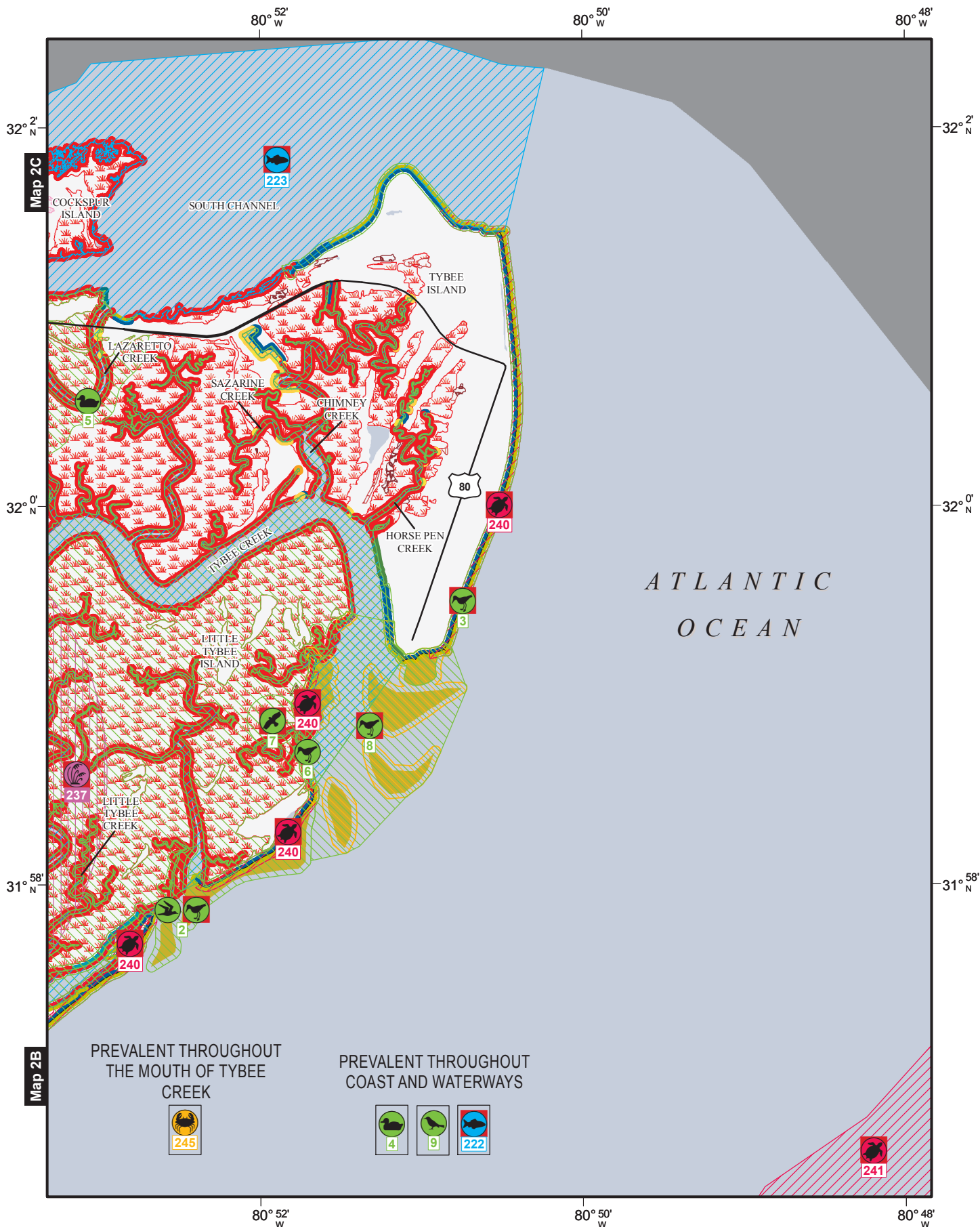
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	531,644.82	330.35	86%
10C	Swamps	1,438.44	0.89	< 1%
10D	Scrub and Shrub Wetlands	1,580.24	0.98	< 1%
9A	Sheltered Tidal Flats	10,139.61	6.30	2%
9B	Vegetated Low Banks	130.86	0.08	< 1%
8A	Sheltered, Impermeable, Rocky Shores	57.95	0.04	< 1%
8B	Sheltered, Solid Man-Made Structures	1,026.61	0.64	< 1%
8C	Sheltered Riprap	2,393.47	1.49	< 1%
7	Exposed Tidal Flats	31,106.46	19.33	5%
6A	Gravel Beaches	3,901.80	2.42	1%
6B	Riprap	2,905.56	1.81	< 1%
5	Mixed Sand and Gravel Beaches	6,069.20	3.77	1%
3A	Fine to Medium Grained Sand Beaches	21,145.68	13.14	3%
3B	Scarps and Steep Slopes (Sand)	1,591.10	0.99	< 1%

Total ESI Shoreline: 615,131.78 Total ESI Shoreline: 382.23
 Total Shoreline: 556,943.64 Total Shoreline: 346.07

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 2A

Georgia



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: June 2015

0 Not for Navigation 1 Miles
0 1 Kilometers

1:50,000



Map 2A
Georgia

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				
2	Gull/Tern	Least tern	Nesting			15 Nests													Apr-Aug	-	-	-
	Shorebird	American oystercatcher	Nesting			12 Adults													Mar-Aug	-	-	-
	Shorebird	American oystercatcher	Wintering			10S													-	-	-	-
	Shorebird	Black-bellied plover	Wintering			1,000S													-	-	-	-
	Shorebird	Dunlin	Wintering			1,000S													-	-	-	-
	Shorebird	Piping plover	Wintering	T	T	10S													-	-	-	-
	Shorebird	Red knot	Wintering		T	100S													-	-	-	-
	Shorebird	Semipalmated plover	Wintering			1,000S													-	-	-	-
	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
	Shorebird	Wilson's plover	Nesting	T		96 Birds													Mar-Jul	-	-	-
	Shorebird	Wilson's plover	Vulnerable Occurrence	T		10S													-	-	-	-
3	Shorebird	American oystercatcher	Nesting			2 Adults													Mar-Aug	-	-	-
	Shorebird	American oystercatcher	Wintering			100S													-	-	-	-
	Shorebird	Piping plover	Wintering	T	T	-													-	-	-	-
	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
4	Waterfowl	Blue-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Diving ducks	Wintering			100S													-	-	-	-
5	Waterfowl	Mottled duck	Nesting			Possible													Feb-Jun	-	-	Jul-Aug
6	Shorebird	American oystercatcher	Nesting			2 Adults													Mar-Aug	-	-	-
7	Raptor	Bald eagle	Nesting	T		1 Nest													Sep-Apr	-	-	-
8	Shorebird	Red knot	Migration		T	~500 Birds													-	Apr-Jun	Jul-Oct	-
9	Passerine	Seaside sparrow	Nesting			High													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					
222	Diadromous	Atlantic sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Shortnose sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec
223	Diadromous	American shad	Migration			High													-	-	Apr-Jun	May-Dec	Jan-Apr
	Diadromous	Atlantic sturgeon	Concentration Area	E	E	High													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Shortnose sturgeon	General Distribution	E	E	Present													-	-	-	Nov-Mar	Jan-Dec

HABITATS & RARE PLANTS

[illegible]

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S		Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
				F	T	J	F	M	A	M	J	J	A	S	O	N	D					
240	Turtle	Green sea turtle	Nesting	T	T													May-Oct	Jul-Oct	-	-	May-Oct
	Turtle	K. ridley sea turtle	Nesting	E	E													May-Oct	Jul-Oct	-	-	May-Oct
	Turtle	Leatherback sea turtle	Nesting	E	E													May-Oct	Jul-Oct	-	-	May-Oct
	Turtle	Loggerhead sea turtle	Nesting	E	T													May-Oct	Jul-Oct	-	-	May-Oct
241	Turtle	Green sea turtle	General Distribution	T	T													-	-	Apr-Aug	-	Apr-Sep
	Turtle	K. ridley sea turtle	General Distribution	E	E													-	-	Apr-Aug	Nov-Apr	Nov-Aug
	Turtle	Loggerhead sea turtle	General Distribution	E	T													-	-	Apr-Aug	Nov-Apr	Nov-Aug

INVERTEBRATES

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
245	Crab	Horseshoe crab	Spawning Area			High													Apr-Jun	Apr-Jun	-	-	Apr-Jun

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

[illegible]


FISH

[illegible]



HABITATS & RARE PLANTS

[illegible]

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	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Oct
	K. ridley sea turtle	General Distribution	E	E	-													-	-	Apr-Aug	Jan-Dec	-
	Leatherback sea turtle	General Distribution	E	E	High													-	-	Apr-Aug	-	Nov-Aug
	Loggerhead sea turtle	General Distribution	E	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Sep

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	Low													-	-	-	-
	Humpback whale	General Distribution	E	E	Low													-	-	-	-
	N.A. right whale	Calving	E	E	30-150													-	Nov-Apr	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

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				
 	Alcids																	-	-	-	-
	Brown pelican																	-	-	-	-
	D. crested cormorant																	-	-	-	-
	Loons																	-	-	-	-
	Black tern																	-	-	-	-
	Gulls																	-	-	-	-
	Least tern																	-	-	-	-
	Terns																	-	-	-	-
	Seaside sparrow																	-	Oct-May	-	-
	Seaside sparrow																	-	-	-	-
	Black-capped petrel																	-	-	-	-
	Jaegers																	-	-	-	-
	Northern gannet																	-	-	-	-
	Shearwaters																	-	-	-	-
  	Storm-petrels																	-	-	-	-
	Phalaropes																	-	-	-	-
	Clapper rail																	-	-	-	-
	Dabbling ducks																	-	-	-	-

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-May	Jan-Dec
	Blueback herring																	-	-	-	Jan-Dec	Mar-Jul
	Striped bass																	-	-	-	Apr-Sep	Jan-Dec
	Atl. sharpnose shark																	-	-	Apr-Sep	Apr-Sep	Apr-Sep
	Atl. sharpnose shark																	-	-	-	Apr-Nov	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					
	Atlantic croaker													May-Nov	-	Nov-Apr	Jan-Dec	Jan-Dec
	Atlantic croaker													May-Nov	-	Nov-Apr	Jan-Dec	Apr-Dec
	Atlantic croaker													May-Nov	-	-	May-Nov	May-Nov
	Atlantic croaker													May-Nov	-	-	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-May	Dec-Oct	Dec-Oct
	Atlantic menhaden													-	-	Dec-May	Jan-Dec	Apr-Oct
	Atlantic menhaden													-	-	Dec-May	Nov-Jul*	Nov-Jul*
	Black drum													-	-	Mar-Jun	Jan-Dec	Jan-Dec
	Bluefish													-	-	-	-	-
	Bluefish													-	-	-	Sep-Oct	Sep-Oct
	Bonnethead													-	-	-	Apr-Nov	Apr-Nov
	Bonnethead													-	-	-	Jun-Aug	Jun-Aug
	Bull shark													-	-	Apr-Oct	Apr-Oct	-
	Ladyfish													-	-	Apr-Nov	Jun-Aug	Jun-Aug
	Ladyfish													-	-	Apr-Nov	Jun-Aug	Jun-Oct
	Porgies													-	-	-	-	-
	Red drum													-	-	Jun-Nov	Jun-Sep	Jun-Sep
	Red drum													-	-	Jul-Nov	Jan-Dec	Jul-Sep
	Red drum													Aug-Oct	-	-	-	-
	Sheepshead													-	-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder													-	-	Feb-Apr	Jan-Dec	Apr-Dec
	Southern flounder													-	-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern flounder													-	-	-	Jan-Mar	Jan-Mar
	Southern kingfish													-	-	-	-	-
	Southern kingfish													-	-	May-Nov	-	Jan-Dec
	Southern kingfish													-	-	May-Nov	Jan-Dec	Apr-Nov
	Southern kingfish													-	-	-	-	Jan-Dec
	Spot													-	-	-	-	-
	Spot													-	-	Jan-Jun	Jan-Dec	Apr-Dec
	Spot													-	-	Jan-Jun	Jan-Dec	Jan-Dec
	Spot													-	-	Nov-May	Jan-Dec	Jan-Dec
	Spotted seatrout													-	-	Apr-Oct	Jun-Feb	Jun-Feb
	Spotted seatrout													-	-	May-Oct	Jan-Dec	Jan-Dec
	Star drum													-	-	-	-	-
	Star drum													-	-	May-Aug	Feb-Dec	Feb-Dec
	Star drum													-	-	-	Jan-Dec	Jan-Dec
	Star drum													May-Jun	May-Jul	May-Aug	Jan-Dec	Jan-Dec
	Striped mullet													-	-	-	Jun-Aug	Jun-Aug
	Weakfish													-	-	Apr-Nov	Jan-Dec	Jan-Dec
	Weakfish													-	-	Apr-Nov	Jan-Dec	Apr-Dec
	Weakfish													-	-	-	-	-
	Weakfish													-	-	-	Jan-Dec	Jan-Dec
Fish	Great hammerhead													-	-	-	-	-
Marine Benthic	Florida pompano													-	-	-	-	-

Lemon shark

FISH (continued)



Monthly Presence

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
Marine Pelagic	Smooth dogfish													-	-	-	-	Dec-Apr
	Atlantic tripterygion													-	-	-	Mar-Nov	Mar-Nov
	Blacknose shark													-	-	-	Apr-Sep	Apr-Sep
	Blacktip shark													-	-	-	May-Oct	May-Oct
	Cobia													-	-	-	-	-
	Finetooth shark													-	-	-	-	-
	Giant manta													-	-	-	-	-
	King mackerel													-	-	-	-	-
	Sandbar shark													-	-	-	Apr-Nov	Apr-Nov
	Scalloped hammerhead													-	-	-	-	-
	Spanish mackerel													-	-	-	-	-
	Spinner shark													-	-	-	-	-
	Spiny dogfish													-	-	-	-	Dec-Apr
	Tiger shark													-	-	Apr-Nov	Apr-Nov	Apr-Nov
	White shark													-	-	-	Dec-Apr	Dec-Apr

INVERTEBRATES

Monthly Presence

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
Cephalopod	Atlantic brief squid													-	-	-	-	Jan-Dec
	Atlantic brief squid													-	-	-	-	-
Crab	Blue crab													-	-	-	Sep-Jul	Sep-Jul
	Blue crab													Mar-Aug	Mar-Aug	Apr-Jun	Sep-May	Sep-May
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Blue crab													-	-	-	Jan-Dec	Jan-Dec
Invertebrate	Horseshoe crab													-	-	-	-	-
	Cannonball jellyfish													-	-	-	Jan-Mar	May-Dec
Shrimp	Brown shrimp													-	-	-	Jan-Dec	Aug-Sep
	Brown shrimp													-	-	-	Jan-Dec	Aug-Sep
	Brown shrimp													-	-	-	May-Sep	May-Sep
	Brown shrimp													-	-	-	Jan-Nov	Jun-Nov
	Pink shrimp													-	-	-	-	Mar-May
	Pink shrimp													-	-	-	Apr-Nov	-
	White shrimp													-	-	-	Sep-Jun	Sep-Jun
	White shrimp													-	-	-	Jan-Dec	Jan-Dec
	White shrimp													-	-	-	Mar-Nov	Mar-Nov
	White shrimp													-	-	-	Jan-Dec	Dec-Aug

MARINE MAMMALS

Monthly Presence

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

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	3,551.36	5.55
10B	Freshwater Marshes	1.56	0.00
10C	Swamps	10.97	0.02
10D	Scrub and Shrub Wetlands	18.46	0.03
7	Exposed Tidal Flats	242.81	0.38



ESI SHORELINE HABITAT TYPES

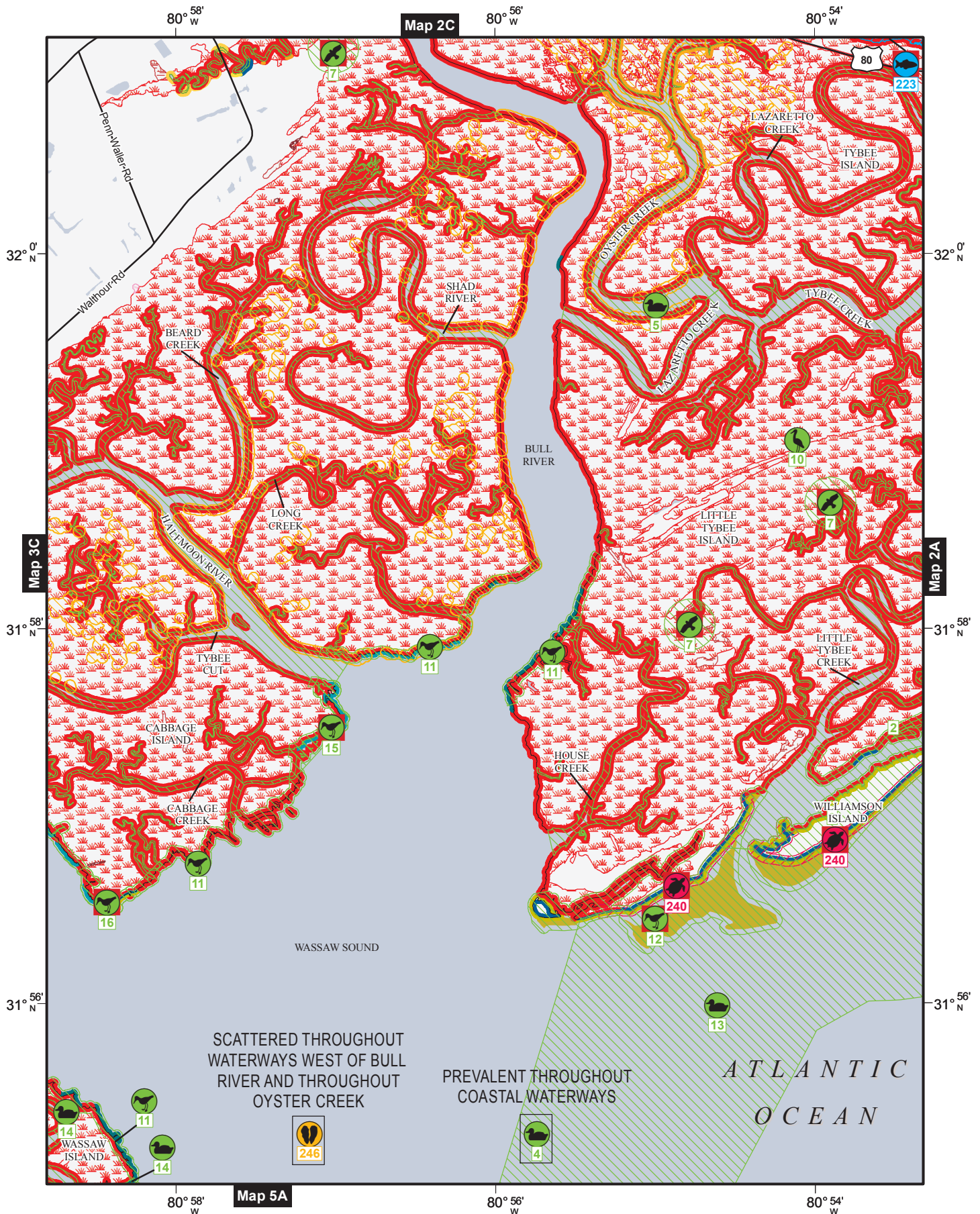
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	124,788.60	77.54	78%
9B	Vegetated Low Banks	54.22	0.03	< 1%
8B	Sheltered, Solid Man-Made Structures	787.92	0.49	< 1%
8C	Sheltered Riprap	1,488.38	0.92	1%
7	Exposed Tidal Flats	14,542.16	9.04	9%
6A	Gravel Beaches	356.48	0.22	< 1%
6B	Riprap	1,244.55	0.77	1%
5	Mixed Sand and Gravel Beaches	1,427.40	0.89	1%
3A	Fine to Medium Grained Sand Beaches	14,538.16	9.03	9%
3B	Scarps and Steep Slopes (Sand)	1,116.47	0.69	1%

Total ESI Shoreline: 160,344.34 Total ESI Shoreline: 99.63
 Total Shoreline: 139,656.13 Total Shoreline: 86.78

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 2B

Georgia



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: June 2015

0 Not for Navigation 1 Miles
0 1 Kilometers

1:50,000



Map 2B
Georgia

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				
2	Gull/Tern	Least tern	Nesting			15 Nests													Apr-Aug	-	-	-
	Shorebird	American oystercatcher	Nesting			12 Adults													Mar-Aug	-	-	-
	Shorebird	American oystercatcher	Wintering			10S													-	-	-	-
	Shorebird	Black-bellied plover	Wintering			1,000S													-	-	-	-
	Shorebird	Dunlin	Wintering			1,000S													-	-	-	-
	Shorebird	Piping plover	Wintering	T	T	10S													-	-	-	-
	Shorebird	Red knot	Wintering		T	100S													-	-	-	-
	Shorebird	Semipalmated plover	Wintering			1,000S													-	-	-	-
	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
	Shorebird	Wilson's plover	Nesting	T		96 Birds													Mar-Jul	-	-	-
	Shorebird	Wilson's plover	Vulnerable Occurrence	T		10S													-	-	-	-
4	Waterfowl	Blue-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Diving ducks	Wintering			100S													-	-	-	-
5	Waterfowl	Mottled duck	Nesting			Possible													Feb-Jun	-	-	Jul-Aug
7	Raptor	Bald eagle	Nesting	T		1 Nest													Sep-Apr	-	-	-
10	Wading	Wading birds	Nesting			30 Nests													Apr-Aug	-	-	-
11	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
12	Shorebird	American oystercatcher	Nesting			6 Adults													Mar-Aug	-	-	-
	Shorebird	American oystercatcher	Wintering			10S													-	-	-	-
	Shorebird	Black-bellied plover	Wintering			1,000S													-	-	-	-
	Shorebird	Dunlin	Wintering			1,000S													-	-	-	-
	Shorebird	Piping plover	Wintering	T	T	10S													-	-	-	-
	Shorebird	Red knot	Wintering		T	100S													-	-	-	-
	Shorebird	Semipalmated plover	Wintering			1,000S													-	-	-	-
	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
	Shorebird	Wilson's plover	Nesting	T		15 Adults													-	-	-	-
	Shorebird	Wilson's plover	Vulnerable Occurrence	T		10S													Mar-Jul	-	-	-
13	Waterfowl	Long-tailed duck	Wintering			10S													-	-	-	-
	Waterfowl	Mergansers	Wintering			100S													-	-	-	-
14	Waterfowl	Diving ducks	Wintering			100S													-	-	-	-
	Waterfowl	Scaup	Wintering			10S													-	-	-	-
15	Shorebird	American oystercatcher	Nesting			4 Adults													Mar-Aug	-	-	-
	Shorebird	Wilson's plover	Nesting	T		14 Adults													Mar-Jul	-	-	-
16	Shorebird	American oystercatcher	Nesting			4 Adults													Mar-Aug	-	-	-

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Molt
							J	F	M	A	M	J	J	A	S	O	N	D	
	Shorebird	Wilson's plover	Nesting	T		4 Adults												Mar-Jul	

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Adults
							J	F	M	A	M	J	J	A	S	O	N	D	
223	Diadromous	American shad	Migration	S		High													Jan-Apr
	Diadromous	Atlantic sturgeon	Concentration Area	E	E	High													May-Dec
	Diadromous	Shortnose sturgeon	General Distribution	E	E	Present													Jan-Dec
																			Nov-Mar
																			Jan-Dec

REPTILES & AMPHIBIANS




Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Adults
							J	F	M	A	M	J	J	A	S	O	N	D	
240	Turtle	Green sea turtle	Nesting	T		Low													May-Oct
	Turtle	K. ridley sea turtle	Nesting	E	E	Rare													May-Oct
	Turtle	Leatherback sea turtle	Nesting	E	E	Low													May-Oct
	Turtle	Loggerhead sea turtle	Nesting	E	T	Low													May-Oct

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Adults
							J	F	M	A	M	J	J	A	S	O	N	D	
246	Bivalve	Eastern oyster	Concentration Area			Reef													May-Dec

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)


BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Molt	
						J	F	M	A	M	J	J	A	S	O	N	D		
	Passerine	Seaside sparrow	Nesting			High													-
	Wading	Clapper rail	Nesting			High													-
	Diving ducks	Rafting				100S													-
	Scaup	Rafting				10,000S													-
	Scoters	Rafting				10,000S													-
	Scoters	Rafting				10S													-


FISH

<div><div></div><div>Subelement</div></div>	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Adults	
						J	F	M	A	M	J	J	A	S	O	N	D		
<div><div></div><div>Diadromous</div></div>	American eel	Migration			-														Sep-Jan
	American shad	Migration			-														Jan-Apr
	Atlantic sturgeon	Concentration Area	E	E	High														Oct-Jan
	Atlantic sturgeon	General Distribution	E	E	Rare														Jan-Dec
	Atlantic sturgeon	General Distribution	E	E	Present														Feb-Sep
	Shortnose sturgeon	General Distribution	E	E	Rare														Jan-Dec
	Shortnose sturgeon	General Distribution	E	E	Rare														Jan-Dec



HABITATS & RARE PLANTS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
						J	F	M	A	M	J	J	A	S	O	N	D
	Rare plant	Vulnerable Occurrence	-	-	-												
	Threatened plant	Vulnerable Occurrence	T	-	-												

REPTILES & AMPHIBIANS









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

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
						J	F	M	A	M	J	J	A	S	O	N	D
 	West Indian manatee	General Distribution	E	E	Low												
	Humpback whale	General Distribution	E	E	Low												
	N.A. right whale	Calving	E	E	30-150												

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				
 	Alcids													-	-	-	-
	Brown pelican													-	-	-	-
	D. crested cormorant													-	-	-	-
	Loons													-	-	-	-
	Black tern													-	-	-	-
	Gulls													-	-	-	-
	Least tern													-	-	-	-
	Terns													-	-	-	-
	Seaside sparrow													-	-	-	-
	Seaside sparrow													-	-	-	-
	Black-capped petrel													-	-	-	-
	Jaegers													-	-	-	-
	Northern gannet													-	-	-	-
	Shearwaters													-	-	-	-
	Storm-petrels													-	-	-	-
  	Phalaropes													-	-	-	-
	Clapper rail													-	-	-	-
	Dabbling ducks													-	-	-	-
														-	-	-	-

FISH





Monthly Presence

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
Diadromous	American eel													-	-	-	Jan-May	Jan-Dec
	Blueback herring													-	-	-	Jan-Dec	Mar-Jul
	Striped bass													-	-	-	Apr-Sep	Jan-Dec
Estuarine Nursery	Atl. sharpnose shark													-	-	-	Apr-Nov	Jan-Nov
	Atl. sharpnose shark													-	-	-	Apr-Sep	Apr-Sep
	Atlantic croaker													May-Nov	-	Nov-Apr	Jan-Dec	Jan-Dec
	Atlantic croaker													May-Nov	-	Nov-Apr	Jan-Dec	Apr-Dec
	Atlantic croaker													May-Nov	-	-	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-May	Jan-Dec	Apr-Oct
	Atlantic menhaden													-	-	Dec-May	Dec-Oct	Dec-Oct
	Atlantic menhaden													-	-	Dec-May	Sep-Jul	Sep-Jul
	Atlantic menhaden													-	-	Dec-May	Nov-Jul*	Nov-Jul*
	Black drum													-	-	Mar-Jun	Jan-Dec	Jan-Dec
	Bluefish													-	-	-	Sep-Oct	Sep-Oct
	Bluefish													-	-	-	-	-
	Bonnethead													-	-	-	Apr-Nov	Apr-Nov
	Bonnethead													-	-	-	Apr-Sep	Apr-Sep
	Bonnethead													-	-	-	Jun-Aug	Jun-Aug
	Bull shark													-	-	Apr-Oct	Apr-Oct	-
	Ladyfish													-	-	Apr-Nov	Jun-Aug	Jun-Aug
	Ladyfish													-	-	Apr-Nov	Jun-Aug	Jun-Oct
	Porgies													-	-	-	-	-
	Red drum													-	-	Jun-Nov	Jun-Sep	Jun-Sep
	Red drum													-	-	Jun-Nov	Jun-Aug	Jun-Aug
	Red drum													Aug-Oct	-	-	-	-
	Red drum													-	-	Jul-Nov	Jan-Dec	Jul-Sep
	Sheepshead													-	-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder													-	-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern flounder													-	-	-	Jan-Mar	Jan-Mar
	Southern flounder													-	-	Feb-Apr	Jan-Dec	Apr-Dec
	Southern kingfish													-	-	May-Nov	-	Jan-Dec
	Southern kingfish													-	-	-	-	Jan-Dec
	Southern kingfish													-	-	May-Nov	Jan-Dec	Apr-Nov
	Spot													-	-	Nov-May	Jan-Dec	Jan-Dec
	Spot													-	-	Nov-May	Jan-Dec	Jan-Dec
	Spot													-	-	Jan-Jun	Jan-Dec	Jan-Dec
	Spotted seatrout													-	-	May-Oct	Jan-Dec	Jan-Dec
	Spotted seatrout													-	-	-	Jun-Jul	Jun-Jul
	Spotted seatrout													-	-	Apr-Oct	Jun-Feb	Jun-Feb
	Star drum													May-Jun	May-Jul	May-Aug	Jan-Dec	Jan-Dec
	Star drum													-	-	May-Aug	Jan-Dec	Jan-Dec
	Star drum													-	-	May-Aug	Feb-Dec	Feb-Dec
	Star drum													-	-	-	Jan-Dec	Jan-Dec
	Striped mullet													-	-	-	Jun-Aug	Jun-Aug


FISH (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
 Fish  Marine Benthic  Marine Pelagic	Weakfish													-	-	Jan-Dec	Jan-Dec
	Weakfish													-	Apr-Nov	Jan-Dec	Apr-Dec
	Great hammerhead													-	Apr-Nov	Jan-Dec	Jan-Dec
	Florida pompano													-	-	-	-
	Lemon shark													-	-	-	-
	Smooth dogfish													-	-	-	Dec-Apr
	Atlantic tripletail													-	-	Mar-Nov	Mar-Nov
	Blacknose shark													-	-	Apr-Sep	Apr-Sep
	Blacktip shark													-	May-Sep	May-Sep	-
	Blacktip shark													-	-	May-Oct	May-Oct
	Cobia													-	-	-	-
	Finetooth shark													-	-	-	-
	Giant manta													-	-	-	-
	King mackerel													-	-	-	-
	Sandbar shark													-	Apr-Sep	Apr-Sep	-
	Sandbar shark													-	-	Apr-Nov	Apr-Nov
	Scalloped hammerhead													-	-	-	-
	Scalloped hammerhead													-	-	Aug	-
	Spanish mackerel													-	-	-	-
	Spinner shark													-	-	-	-
	Spiny dogfish													-	-	-	Dec-Apr
	Tiger shark													-	Apr-Nov	Apr-Nov	Apr-Nov
	White shark													-	-	Dec-Apr	Dec-Apr
														-	-	-	-

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
 Cephalopod  Crab	Atlantic brief squid													-	-	-	Jan-Dec
	Blue crab													-	Apr-Jun	Sep-Jul	Sep-Jul
	Blue crab													-	-	Sep-Jul	Sep-Jul
	Blue crab													-	-	Jan-Dec	Jan-Dec
 Invertebrate  Shrimp	Blue crab													Mar-Aug	Apr-Jun	Sep-May	Sep-May
	Horseshoe crab													-	-	Jan-Dec	Jan-Dec
	Cannonball jellyfish													-	-	-	-
	Brown shrimp													-	Mar-Jun	Jan-Dec	Aug-Sep
	Brown shrimp													-	Jan-Mar	-	May-Dec
	Brown shrimp													-	Mar-Jun	May-Sep	May-Sep
	Brown shrimp													-	Mar-Jun	Mar-Jan	Mar-Jan
	Pink shrimp													-	-	Apr-Nov	-
	White shrimp													-	Apr-Aug	Jan-Dec	Jan-Dec
	White shrimp													-	Apr-Aug	Sep-Jun	Sep-Jun
	White shrimp													-	-	Jan-Dec	Jan-Dec
	White shrimp													-	Apr-Aug	Jan-Dec	Dec-Aug

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																

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	11,587.71	18.11
10B	Freshwater Marshes	0.83	0.00
10C	Swamps	28.78	0.04
10D	Scrub and Shrub Wetlands	2.53	0.00
7	Exposed Tidal Flats	167.82	0.26

ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	316,848.60	196.88	92%
9A	Sheltered Tidal Flats	5,499.07	3.42	2%
9B	Vegetated Low Banks	60.53	0.04	< 1%
8B	Sheltered, Solid Man-Made Structures	70.60	0.04	< 1%
8C	Sheltered Riprap	735.58	0.46	< 1%
7	Exposed Tidal Flats	8,798.46	5.47	3%
6A	Gravel Beaches	3,498.16	2.17	1%
5	Mixed Sand and Gravel Beaches	4,151.85	2.58	1%
3A	Fine to Medium Grained Sand Beaches	6,373.56	3.96	2%
3B	Scarps and Steep Slopes (Sand)	151.62	0.09	< 1%
Total ESI Shoreline:		346,188.01	Total ESI Shoreline:	215.11
Total Shoreline:		323,000.18	Total Shoreline:	200.70

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 2C
Georgia

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				
4	Waterfowl	Blue-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Diving ducks	Wintering			100S													-	-	-	-
5	Waterfowl	Mottled duck	Nesting			Possible												Feb-Jun	-	-	-	Jul-Aug
7	Raptor	Bald eagle	Nesting	T		1 Nest												Sep-Apr	-	-	-	-
9	Passerine	Seaside sparrow	Nesting			High												Mar-Aug	-	-	-	-
17	Wading	Clapper rail	Nesting			High												Mar-Sep	-	-	-	-

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					
220	Diadromous	American shad	Migration			High													-	-	Apr-Jun	May-Dec	Jan-Apr
	Diadromous	Atlantic sturgeon	Concentration Area	E	E	High													-	-	-	Jan-Dec	Jan-Dec
222	Diadromous	Atlantic sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Shortnose sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec
223	Diadromous	American shad	Migration			High													-	-	Apr-Jun	May-Dec	Jan-Apr
	Diadromous	Atlantic sturgeon	Concentration Area	E	E	High													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Shortnose sturgeon	General Distribution	E	E	Present													-	-	-	Nov-Mar	Jan-Dec
224	Diadromous	Shortnose sturgeon	General Distribution	E	E	Present													-	-	-	Nov-Mar	Jan-Dec

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence																
238	Plant	Rare plant	Vulnerable Occurrence			-													-	-	-	-	-

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
246	Bivalve	Eastern oyster	Concentration Area			Reef													May-Nov	May-Nov	Jun-Dec	Jan-Dec	Jan-Dec

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

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	General Distribution	T	T	-												-	-	Apr-Aug	Jan-Dec	Apr-Oct
		K. ridley sea turtle	General Distribution	E	E	-												-	-	Apr-Aug	Jan-Dec	-
		Loggerhead sea turtle	General Distribution	E	T	-												-	-	Apr-Aug	Jan-Dec	Apr-Sep

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	Low													-	-	-	-

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				
 Passerine	Seaside sparrow													-	-	-	-
	Seaside sparrow													-	Oct-May	-	-
 Wading	Clapper rail													-	-	-	-
 Waterfowl	Dabbling ducks													-	-	-	-




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-May	Jan-Dec
	Blueback herring													-	-	-	Jan-Dec	Mar-Jul
	Striped bass													-	-	-	Apr-Sep	Jan-Dec
 Estuarine Nursery	Atl. sharpnose shark													-	-	Apr-Sep	Apr-Sep	Apr-Sep
	Atlantic croaker													May-Nov	-	Nov-Apr	Jan-Dec	Jan-Dec
	Atlantic croaker													May-Nov	-	Nov-Apr	Jan-Dec	Apr-Dec
	Atlantic menhaden													-	-	Dec-May	Dec-Oct	Dec-Oct
	Atlantic menhaden													-	-	Dec-May	Jan-Dec	Apr-Oct
	Black drum													-	-	Mar-Jun	Jan-Dec	Jan-Dec
	Bluefish													-	-	-	Sep-Oct	Sep-Oct
	Bonnethead													-	-	-	Jun-Aug	Jun-Aug
	Ladyfish													-	-	Apr-Nov	Jun-Aug	Jun-Aug
	Ladyfish													-	-	Apr-Nov	Jun-Aug	Jun-Oct
	Red drum													-	-	Jun-Nov	Jun-Sep	Jun-Sep
	Red drum													-	-	Jul-Nov	Jan-Dec	Jul-Sep
	Sheepshead													-	-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder													-	-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern flounder													-	-	Feb-Apr	Jan-Dec	Apr-Dec
	Southern kingfish													-	-	May-Nov	-	Jan-Dec
	Southern kingfish													-	-	May-Nov	Jan-Dec	Apr-Nov
	Spot													-	-	Jan-Jun	Jan-Dec	Jan-Dec
	Spot													-	-	Jan-Jun	Jan-Dec	Apr-Dec
	Spotted seatrout													-	-	May-Oct	Jan-Dec	Jan-Dec
	Spotted seatrout													-	-	Apr-Oct	Jun-Feb	Jan-Feb
	Star drum													May-Jun	May-Jul	May-Aug	Jan-Dec	Jan-Dec
	Star drum													-	-	May-Aug	Feb-Dec	Feb-Dec
	Striped mullet													-	-	-	Jun-Aug	Jun-Aug
	Weakfish													-	-	Apr-Nov	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				
 Marine Pelagic	Weakfish													-	Apr-Nov	Jan-Dec	Apr-Dec
	Atlantic tripletail													-	-	Mar-Nov	Mar-Nov

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
 Cephalopod	Atlantic brief squid													-	-	-	Jan-Dec
	Blue crab													-	-	Jan-Dec	Jan-Dec
	Blue crab													-	-	Sep-Jul	Sep-Jul
 Invertebrate	Horseshoe crab													-	-	Jan-Dec	Jan-Dec
	Cannonball jellyfish													-	-	-	-
	Brown shrimp													-	Mar-Jun	Jan-Dec	Aug-Sep
	Brown shrimp													-	Mar-Jun	May-Sep	May-Sep
 Shrimp	Pink shrimp													-	-	Apr-Nov	-
	White shrimp													-	-	Jan-Dec	Jan-Dec
	White shrimp													-	Apr-Aug	Jan-Dec	Dec-Aug

MARINE MAMMALS

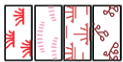
Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
 Dolphin	Bottlenose dolphin													-	-	-	-

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	3,608.26	5.64
10B	Freshwater Marshes	0.02	0.00
10C	Swamps	12.75	0.02
10D	Scrub and Shrub Wetlands	98.47	0.15



ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	90,006.51	55.93	83%
10C	Swamps	1,438.44	0.89	1%
10D	Scrub and Shrub Wetlands	1,580.24	0.98	1%
9A	Sheltered Tidal Flats	4,640.54	2.88	4%
9B	Vegetated Low Banks	16.12	0.01	< 1%
8A	Sheltered, Impermeable, Rocky Shores	57.95	0.04	< 1%
8B	Sheltered, Solid Man-Made Structures	168.10	0.10	< 1%
8C	Sheltered Riprap	169.51	0.11	< 1%
7	Exposed Tidal Flats	7,765.85	4.83	7%
6A	Gravel Beaches	47.16	0.03	< 1%
6B	Riprap	1,661.01	1.03	2%
5	Mixed Sand and Gravel Beaches	489.95	0.30	< 1%
3A	Fine to Medium Grained Sand Beaches	233.96	0.15	< 1%
3B	Scarps and Steep Slopes (Sand)	323.01	0.20	< 1%
Total ESI Shoreline:		108,598.34	67.48	
Total Shoreline:		94,286.23	58.59	

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 3
Georgia

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Contact
1	AIRPORT	HUNTER AAF	
2	ARTIFICIAL REEF	JOE'S CUT REEF	
3	BOAT RAMP	F.W. SPENCER BOAT RAMP	
4	BOAT RAMP	SKIDAWAY NARROWS COMM.PARK BOAT RAMP	
5	BOAT RAMP	THUNDERBOLT BOAT RAMP	
6	BOAT RAMP	TURNERS CREEK BOAT RAMP	
7	EPA FACILITY	COLONIAL TERMINALS, INC.	ENVIRONMENTAL, HEALTH & SAFETY MGR.
8	EPA FACILITY	EPIC MIDSTREAM LLC - SAVANNAH TERMINAL	TERMINAL MANAGER
9	EPA FACILITY	SAVANNAH BRUSH AND CHEMICAL CO.	PRESIDENT
10	EPA FACILITY	ROGER WOOD FOODS, INC.	MAINTENANCE MANAGER
11	EPA FACILITY	PRESIDENT STREET WATER QUALITY CONTROL PLANT	TREATMENT ADMINISTRATOR
12	EPA FACILITY	SOLENIS	EHS MANAGER
13	HELIPORT	MEMORIAL HOSPITAL	
14	HELIPORT	ST JOSEPH'S HOSPITAL	
15	MARINA	COFFEE BLUFF MARINA	
16	MARINA	HOGAN'S MARINA	
17	MARINA	ISLE OF HOPE MARINA	
18	MARINA	THUNDERBOLT MARINE INC.	
19	PORT	SAVANNAH GA PORT	SENIOR DIRECTOR
20	RENEWABLE ENERGY	INTERNATIONAL PAPER SAVANNA MILL	
21	REPEATED MEASUREMENT SITE	BMS - SKIDAWAY NARROWS	

DISPLAYED ON MAP (POLYGONS)			
Map ID	Type	Name	Contact
22	MANAGEMENT AREA	LITTLE TYBEE-CABBAGE ISLAND NATURAL AREA	GEORGIA DEPARTMENT OF NATURAL RESOURCES
23	MANAGEMENT AREA	OSSABAW ISLAND WILDLIFE MANAGEMENT AREA	GEORGIA DEPARTMENT OF NATURAL RESOURCES
24	MANAGEMENT AREA	WORMSLOE EASEMENT	GEORGIA DEPARTMENT OF NATURAL RESOURCES
25	MILITARY	HUNTER ARMY AIRFIELD	
26	NATIONAL PARK	FORT PULASKI NATIONAL MONUMENT	MONUMENT HEADQUARTERS
27	NATURE CONSERVANCY	LITTLE TYBEE RIVER MACROSITE EASEMENT	THE NATURE CONSERVANCY
28	PARK	SKIDAWAY ISLAND STATE PARK	GEORGIA DEPARTMENT OF NATURAL RESOURCES
29	WILDLIFE REFUGE	WASSAW NATIONAL WILDLIFE REFUGE	US FISH AND WILDLIFE SERVICE

ALSO PRESENT IN MAPPED AREA (POINTS)			
Type	Name	Contact	Phone
COAST GUARD	AIRSTA SAVANNAH	AIRSTA SAVANNAH	912/652-4646
COAST GUARD	MARINE SAFETY OFFICE (MSO) SAVANNAH	MSO SAVANNAH	912/652-4646
COAST GUARD	MARINE SAFETY UNIT (MSU) SAVANNAH	MSU SAVANNAH	

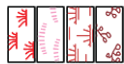
JURISDICTIONS

COUNTY: CHATHAM COUNTY **FEMA:** REGION IV
COAST GUARD: COAST GUARD DISTRICT 7, COAST GUARD SECTOR CHARLESTON **EPA:** REGION 4
USACE: SOUTH ATLANTIC DIVISION, SAVANNAH DISTRICT

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	21,070.67	32.92
10B	Freshwater Marshes	539.53	0.84
10C	Swamps	4,148.29	6.48
10D	Scrub and Shrub Wetlands	735.36	1.15



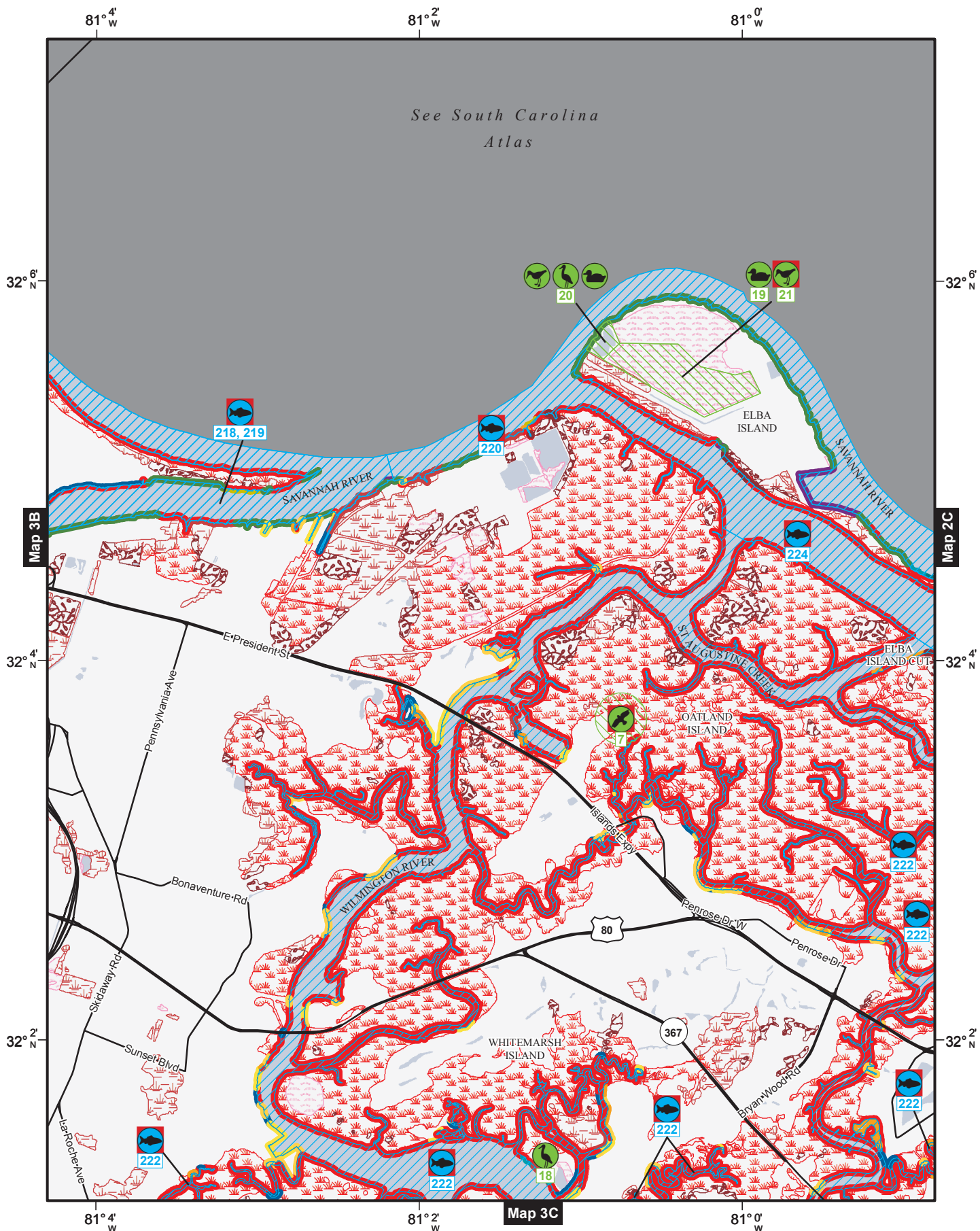
ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	650,681.98	404.32	86%
10B	Freshwater Marshes	1,856.29	1.15	< 1%
10C	Swamps	6,895.31	4.28	1%
10D	Scrub and Shrub Wetlands	3,779.97	2.35	1%
9A	Sheltered Tidal Flats	2,809.73	1.75	< 1%
9B	Vegetated Low Banks	5,513.41	3.43	1%
8B	Sheltered, Solid Man-Made Structures	18,440.67	11.46	2%
8C	Sheltered Riprap	17,031.62	10.58	2%
7	Exposed Tidal Flats	1,566.27	0.97	< 1%
6A	Gravel Beaches	6,488.14	4.03	1%
6B	Riprap	13,488.95	8.38	2%
5	Mixed Sand and Gravel Beaches	1,680.63	1.04	< 1%
3A	Fine to Medium Grained Sand Beaches	357.46	0.22	< 1%
3B	Scarps and Steep Slopes (Sand)	16,565.00	10.29	2%
1B	Exposed, Solid Man-Made Structures	8,393.99	5.22	1%
Total ESI Shoreline:		755,549.42	469.48	
Total Shoreline:		713,648.57	443.44	

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

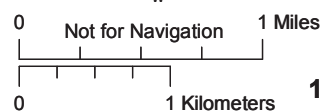




Map 3A
Georgia



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: June 2015



1:50,000



Map 3A
Georgia

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				
7	Raptor	Bald eagle	Nesting	T		1 Nest													Sep-Apr	-	-	-
18	Wading	Wading birds	Nesting			4 Nests													Apr-Aug	-	-	-
19	Waterfowl	Dabbling ducks	Wintering			10S													-	-	-	-
20	Shorebird	Shorebirds	Migration			100S													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			100S													-	-	-	-
	Wading	Wading birds	Roosting			-													-	-	-	-
	Waterfowl	Diving ducks	Wintering			10S													-	-	-	-
21	Shorebird	Dunlin	Wintering			100S													-	-	-	-
	Shorebird	Least sandpiper	Migration			100S													-	Apr-Jun	Jul-Oct	-
	Shorebird	Semipalmated plover	Migration			100S													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Migration			10S													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			10S													-	-	-	-
	Shorebird	Western sandpiper	Wintering			100S													-	-	-	-
	Shorebird	Wilson's plover	Vulnerable Occurrence	T		-													-	-	-	-

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					
218	Freshwater	Robust redborse	Vulnerable Occurrence	E		-													-	-	-	-	-
219	Diadromous	Shortnose sturgeon	Concentration Area	E	E	High													-	-	-	Jan-Dec	Jan-Dec
220	Diadromous	American shad	Migration			High													-	-	Apr-Jun	May-Dec	Jan-Apr
	Diadromous	Atlantic sturgeon	Concentration Area	E	E	High													-	-	-	Jan-Dec	Jan-Dec
222	Diadromous	Atlantic sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Shortnose sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec
224	Diadromous	Shortnose sturgeon	General Distribution	E	E	Present													-	-	-	Nov-Mar	Jan-Dec

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

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	General Distribution	T		-												-	-	Apr-Aug	Jan-Dec	Apr-Oct
		K. ridley sea turtle	General Distribution	E	E	-												-	-	Apr-Aug	Jan-Dec	-
		Loggerhead sea turtle	General Distribution	E	T	-												-	-	Apr-Aug	Jan-Dec	Apr-Sep

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

S
EF
EConcentration
Low

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				



Seaside sparrow

S
EConcentration
Low

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-May	Jan-Dec
	Blueback herring													-	-	-	Jan-Dec	Mar-Jul
Estuarine Nursery	Striped bass													-	-	-	Apr-Sep	Jan-Dec
	Atl. sharpnose shark													-	-	-	Apr-Sep	Apr-Sep
	Atlantic croaker													May-Nov	-	Nov-Apr	Jan-Dec	Jan-Dec
	Atlantic croaker													May-Nov	-	Nov-Apr	Jan-Dec	Apr-Dec
	Atlantic menhaden													-	-	Dec-May	Jan-Dec	Apr-Oct
	Atlantic menhaden													-	-	Dec-May	Dec-Oct	Dec-Oct
	Black drum													-	-	Mar-Jun	Jan-Dec	Jan-Dec
	Bluefish													-	-	-	Sep-Oct	Sep-Oct
	Bonnethead													-	-	-	Jun-Aug	Jun-Aug
	Ladyfish													-	-	Apr-Nov	Jun-Aug	Jun-Aug
	Ladyfish													-	-	Apr-Nov	Jun-Aug	Jun-Oct
	Red drum													-	-	Jun-Nov	Jun-Sep	Jun-Sep
	Red drum													-	-	Jul-Nov	Jan-Dec	Jul-Sep
	Sheepshead													-	-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder													-	-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern flounder													-	-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern kingfish													-	-	May-Nov	-	Jan-Dec
	Southern kingfish													-	-	May-Nov	Jan-Dec	Apr-Nov
	Spot													-	-	Jan-Jun	Jan-Dec	Jan-Dec
	Spot													-	-	Jan-Jun	Jan-Dec	Apr-Dec
	Spotted seatrout													-	-	May-Oct	Jan-Dec	Jan-Dec
	Spotted seatrout													-	-	Apr-Oct	Jun-Feb	Jun-Feb
	Star drum													May-Jun	May-Jul	May-Aug	Jan-Dec	Jan-Dec
	Star drum													-	-	May-Aug	Feb-Dec	Feb-Dec
	Striped mullet													-	-	-	Jun-Aug	Jun-Aug
	Weakfish													-	-	Apr-Nov	Jan-Dec	Jan-Dec
	Weakfish													-	-	Apr-Nov	Jan-Dec	Jan-Dec
	Cattfish													-	-	-	-	-
	Largemouth bass													-	-	-	-	-







Freshwater

FISH (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
 Marine Pelagic	Sunfish													-	-	-	-
	Atlantic tripletail													-	-	Mar-Nov	Mar-Nov

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
 	Cephalopod													-	-	-	Jan-Dec
	Blue crab													-	-	Sep-Jul	Sep-Jul
	Blue crab													-	-	Jan-Dec	Jan-Dec
 	Horseshoe crab													-	-	Jan-Dec	Jan-Dec
	Cannonball jellyfish													-	-	-	-
	Brown shrimp													-	Mar-Jun	Jan-Dec	Aug-Sep
	Brown shrimp													-	Mar-Jun	May-Sep	May-Sep
	Pink shrimp													-	-	Apr-Nov	-
	White shrimp													-	-	Jan-Dec	Jan-Dec
	White shrimp													-	Apr-Aug	Jan-Dec	Dec-Aug

MARINE MAMMALS

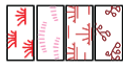
Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bottlenose dolphin													-	-	-	-

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

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	5,619.98	8.78
10B	Freshwater Marshes	323.72	0.51
10C	Swamps	580.47	0.91
10D	Scrub and Shrub Wetlands	410.40	0.64



ESI SHORELINE HABITAT TYPES

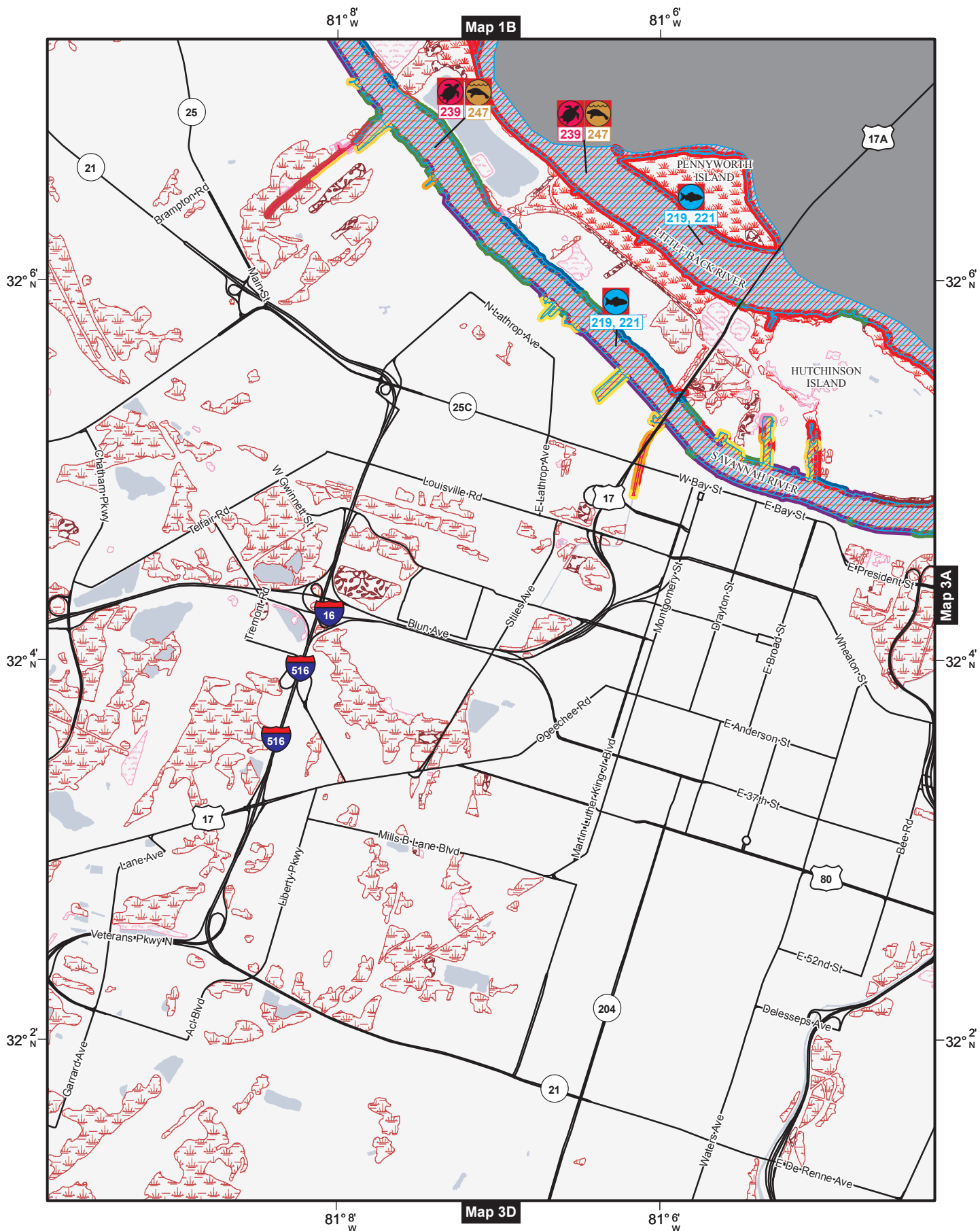
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	155,265.40	96.48	83%
10C	Swamps	2,814.19	1.75	2%
10D	Scrub and Shrub Wetlands	935.00	0.58	1%
9A	Sheltered Tidal Flats	1,874.24	1.16	1%
9B	Vegetated Low Banks	848.01	0.53	< 1%
8B	Sheltered, Solid Man-Made Structures	4,162.59	2.59	2%
8C	Sheltered Riprap	5,135.53	3.19	3%
7	Exposed Tidal Flats	608.74	0.38	< 1%
6A	Gravel Beaches	83.14	0.05	< 1%
6B	Riprap	8,996.37	5.59	5%
5	Mixed Sand and Gravel Beaches	565.61	0.35	< 1%
3B	Scarps and Steep Slopes (Sand)	4,208.03	2.61	2%
1B	Exposed, Solid Man-Made Structures	1,395.85	0.87	1%

Total ESI Shoreline: 186,892.70 Total ESI Shoreline: 116.13
 Total Shoreline: 178,145.82 Total Shoreline: 110.69

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 3B
Georgia

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
				E	E		J	F	M	A	M	J	J	A	S	O	N	D					
219	Diadromous	Shortnose sturgeon	Concentration Area	E	E	High													-	-	-	Jan-Dec	Jan-Dec
221	Diadromous	American shad	Migration			High													-	-	Apr-Jun	May-Dec	Jan-Apr
	Diadromous	Atlantic sturgeon	Concentration Area	E	E	High													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Robust rehorse	Vulnerable Occurrence	E		-													-	-	-	-	-

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
				T	T		J	F	M	A	M	J	J	A	S	O	N	D					
239	Turtle	Green sea turtle	General Distribution	T	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Oct
	Turtle	K. ridley sea turtle	General Distribution	E	E	-													-	-	Apr-Aug	Jan-Dec	-
	Turtle	Loggerhead sea turtle	General Distribution	E	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Sep

MARINE MAMMALS



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

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)



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			
Passerine	Seaside sparrow																	-	-	-	-



FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults	
		J	F	M	A	M	J	J	A	S	O	N	D						
	Diadromous														-	-	-	Jan-May	Jan-Dec
	Blueback herring														-	-	-	Jan-Dec	Mar-Jul
	Blueback herring														-	-	-	Sep-Nov	Mar-Jul
	Striped bass														-	-	-	Apr-Sep	Jan-Dec
	Estuarine Nursery														-	-	Apr-Sep	Apr-Sep	Apr-Sep
	Atlantic croaker														-	-	-	-	-
	Atlantic croaker														May-Nov	-	Nov-Apr	Jan-Dec	Apr-Dec
	Atlantic menhaden														-	-	-	-	-
	Atlantic menhaden														-	-	Dec-May	Jan-Dec	Apr-Oct
	Black drum														-	-	Mar-Jun	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				
	Ladyfish													-	Apr-Nov	Jun-Aug	Jun-Oct
	Red drum													-	Jul-Nov	Jan-Dec	Jul-Sep
	Sheepshead													-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder													-	Feb-Apr	Jan-Dec	Apr-Dec
	Southern flounder													-	-	-	-
	Southern kingfish													-	May-Nov	Jan-Dec	Apr-Nov
	Spot													-	Jan-Jun	Jan-Dec	Apr-Dec
	Spot													-	-	-	-
	Spotted seatrout													-	May-Oct	Jan-Dec	Jan-Dec
	Star drum													May-Jun	May-Aug	Jan-Dec	Jan-Dec
	Striped mullet													-	-	-	-
	Weakfish													-	Apr-Nov	Jan-Dec	Apr-Dec
	Catfish													-	-	-	-
	Largemouth bass													-	-	-	-
	Sunfish													-	-	-	-
	Atlantic tripletail													-	-	Mar-Nov	Mar-Nov

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													-	Mar-Jun	Jan-Dec	Aug-Sep
	Pink shrimp													-	-	Apr-Nov	-
	White shrimp													-	Apr-Aug	Jan-Dec	Dec-Aug

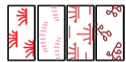
MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		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



ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	404.11	0.63
10B	Freshwater Marshes	162.36	0.25
10C	Swamps	2,338.93	3.65
10D	Scrub and Shrub Wetlands	123.76	0.19

ESI SHORELINE HABITAT TYPES



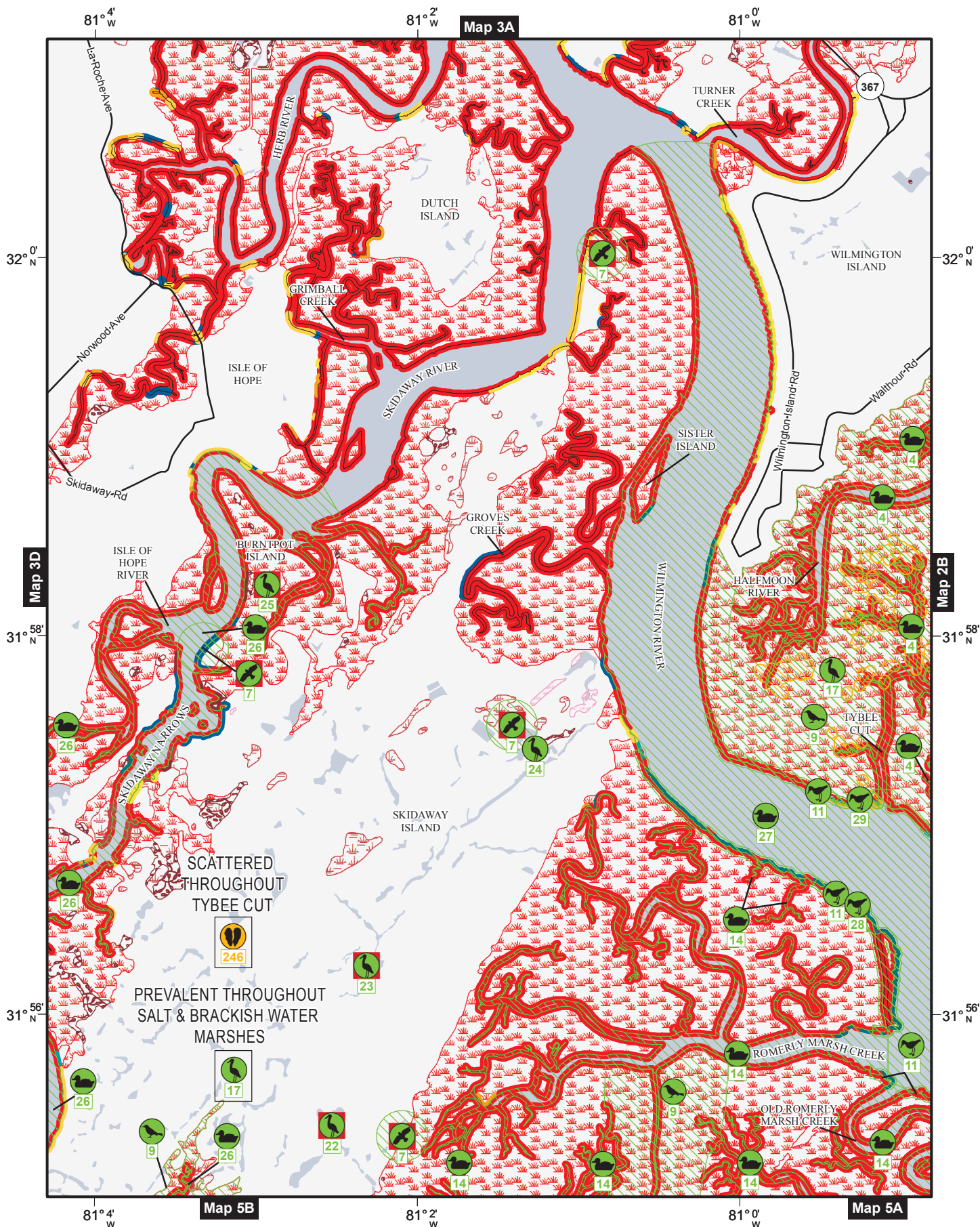
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	15,347.09	9.54	37%
10B	Freshwater Marshes	1,856.29	1.15	4%
10C	Swamps	2,940.44	1.83	7%
10D	Scrub and Shrub Wetlands	906.80	0.56	2%
9B	Vegetated Low Banks	1,057.61	0.66	3%
8B	Sheltered, Solid Man-Made Structures	3,282.97	2.04	8%
8C	Sheltered Riprap	1,496.30	0.93	4%
7	Exposed Tidal Flats	319.26	0.20	1%
6B	Riprap	4,492.58	2.79	11%
3B	Scarps and Steep Slopes (Sand)	2,780.77	1.73	7%
1B	Exposed, Solid Man-Made Structures	6,999.54	4.35	17%

Total ESI Shoreline: 41,479.65 Total ESI Shoreline: 25.77
Total Shoreline: 38,934.83 Total Shoreline: 24.19

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 3C
Georgia

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				
4	Waterfowl	Blue-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Diving ducks	Wintering			100S													-	-	-	-
7	Raptor	Bald eagle	Nesting	T		1 Nest													Sep-Apr			-
9	Passerine	Seaside sparrow	Nesting			High													Mar-Aug			-
11	Shorebird	Shorebirds	Migration			High													Apr-Jun	Jul-Oct		-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
14	Waterfowl	Diving ducks	Wintering			100S													-	-	-	-
	Waterfowl	Scaup	Wintering			10S													-	-	-	-
17	Wading	Clapper rail	Nesting			High													Mar-Sep			-
22	Wading	Wading birds	Nesting			-													Apr-Aug			-
	Wading	Wood stork	Nesting	E	T	40 Nests													Mar-Aug			-
23	Wading	Wading birds	Nesting			-													Apr-Aug			-
	Wading	Wood stork	Nesting	E	T	5 Nests													Mar-Aug			-
24	Wading	Wading birds	Nesting			10 Nests													Apr-Aug			-
25	Wading	Wading birds	Nesting			70 Nests													Apr-Aug			-
	Wading	Wood stork	Nesting	E	T	16 Nests													Mar-Aug			-
26	Waterfowl	Blue-winged teal	Wintering			100S													-			-
	Waterfowl	Gadwall	Wintering			100S													-			-
	Waterfowl	Green-winged teal	Wintering			100S													-			-
	Waterfowl	Mergansers	Wintering			100S													-			-
	Waterfowl	Mottled duck	Nesting			Possible													Feb-Jun		Jul-Aug	-
	Waterfowl	Scaup	Wintering			100S													-			-
27	Waterfowl	Diving ducks	Rafting			100S													-			-
	Waterfowl	Scoters	Rafting			10S													-			-
28	Shorebird	American oystercatcher	Nesting			6 Adults													Mar-Aug			-
29	Shorebird	American oystercatcher	Nesting			4 Adults													Mar-Aug			-

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					
246	Bivalve	Eastern oyster	Concentration Area			Reef													May-Nov	May-Nov	Jun-Dec	Jan-Dec	Jan-Dec

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)


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					
	Atlantic sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec
	Shortnose sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec

HABITATS & RARE PLANTS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence																
						J	F	M	A	M	J	J	A	S	O	N	D					
	Rare plant	Vulnerable Occurrence			-													-	-	-	-	-

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	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Oct
	K. ridley sea turtle	General Distribution	E	E	-													-	-	Apr-Aug	Jan-Dec	-
	Loggerhead sea turtle	General Distribution	E	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Sep

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	Low													-	-	-	-

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				
	Seaside sparrow													-	Oct-May	-	-
	Seaside sparrow													-	-	-	-
	Clapper rail													-	-	-	-
	Waterfowl													-	-	-	-
	Dabbling ducks													-	-	-	-
	Diving ducks													-	-	-	-




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-May	Jan-Dec
	Striped bass													-	-	-	Apr-Sep	Jan-Dec
	Atl. sharpnose shark													-	-	Apr-Sep	Apr-Sep	Apr-Sep
	Atlantic croaker													May-Nov	-	Nov-Apr	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-May	Dec-Oct	Dec-Oct
	Atlantic menhaden													-	-	Dec-May	Sep-Jul	Sep-Jul
	Atlantic menhaden													-	-	Dec-May	Jan-Dec	Jan-Dec
	Black drum													-	-	Mar-Jun	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				
	Bluefish													-	-	Sep-Oct	Sep-Oct
	Bonnethead													-	-	Apr-Sep	Apr-Sep
	Bonnethead													-	-	Jun-Aug	Jun-Aug
	Ladyfish													-	Apr-Nov	Jun-Aug	Jun-Aug
	Red drum													-	Jun-Nov	Jun-Aug	Jun-Aug
	Red drum													-	Jun-Nov	Jan-Dec	Jul-Oct
	Red drum													-	Jun-Nov	Jun-Sep	Jun-Sep
	Sheepshead													-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder													-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern kingfish													-	May-Nov	-	Jan-Dec
	Spot													-	Jan-Jun	Jan-Dec	Jan-Dec
	Spotted seatrout													-	Apr-Oct	Dec-Jun*	Dec-Jun*
	Spotted seatrout													-	-	Jun-Jul	Jun-Jul
	Spotted seatrout													-	Apr-Oct	Jun-Feb	Jun-Feb
	Star drum													-	May-Aug	Jan-Dec	Jan-Dec
	Star drum													-	May-Aug	Feb-Dec	Feb-Dec
	Striped mullet													-	-	Jun-Aug	Jun-Aug
	Weakfish													-	Apr-Nov	Jan-Dec	Jan-Dec
	Blacktip shark													-	May-Sep	May-Sep	-
	Sandbar shark													-	Apr-Sep	Apr-Sep	-
	Scalloped hammerhead													-	-	Aug	-
	Spanish mackerel													-	-	Aug	Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Atlantic brief squid													-	-	-	Jan-Dec
	Blue crab													-	Apr-Jun	Sep-Jul	Sep-Jul
	Blue crab													-	-	Jan-Dec	Jan-Dec
	Blue crab													-	-	Sep-Jul	Sep-Jul
	Horseshoe crab													-	-	Sep-Jul	Sep-Jul
	Horseshoe crab													-	-	Jan-Dec	Jan-Dec
	Cannonball jellyfish													-	-	-	-
	Brown shrimp													-	Mar-Jun	May-Sep	May-Sep
	Brown shrimp													-	Mar-Jun	Mar-Jan	Mar-Jan
	Brown shrimp													-	Mar-Jun	May-Feb*	May-Feb*
	White shrimp													-	-	Jan-Dec	Jan-Dec
	White shrimp													-	Apr-Aug	Jan-Dec	Jan-Dec

MARINE MAMMALS














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

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	9,594.56	14.99
	10B	Freshwater Marshes	14.47	0.02
	10C	Swamps	168.91	0.26
	10D	Scrub and Shrub Wetlands	124.60	0.19

ESI SHORELINE HABITAT TYPES

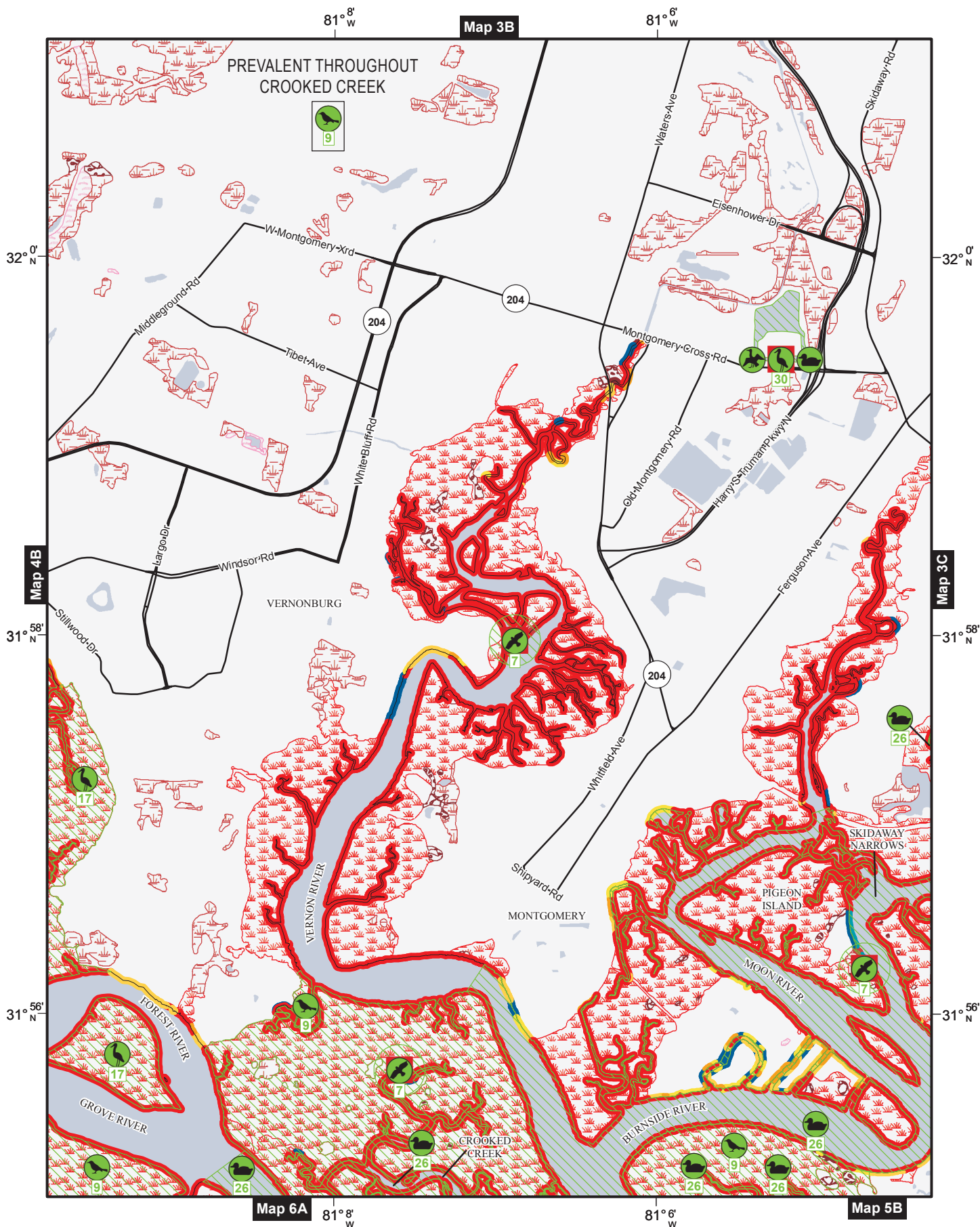
	<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
	10A	Salt and Brackish Water Marshes	296,793.81	184.42	91%
	10C	Swamps	919.39	0.57	< 1%
	10D	Scrub and Shrub Wetlands	1,280.81	0.80	< 1%
	9A	Sheltered Tidal Flats	895.27	0.56	< 1%
	9B	Vegetated Low Banks	1,378.07	0.86	< 1%
	8B	Sheltered, Solid Man-Made Structures	7,344.64	4.56	2%
	8C	Sheltered Riprap	5,335.97	3.32	2%
	7	Exposed Tidal Flats	638.27	0.40	< 1%
	6A	Gravel Beaches	6,405.00	3.98	2%
	5	Mixed Sand and Gravel Beaches	614.25	0.38	< 1%
	3A	Fine to Medium Grained Sand Beaches	357.46	0.22	< 1%
	3B	Scarps and Steep Slopes (Sand)	4,864.23	3.02	1%

Total ESI Shoreline: 326,827.16 Total ESI Shoreline: 203.08
Total Shoreline: 304,358.86 Total Shoreline: 189.12

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 3D Georgia



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: June 2015

0 Not for Navigation 1 Miles
0 1 Kilometers

1:50,000



Map 3D
Georgia

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				
7	Raptor	Bald eagle	Nesting	T		1 Nest													Sep-Apr	-	-	-
9	Passerine	Seaside sparrow	Nesting			High													Mar-Aug	-	-	-
17	Wading	Clapper rail	Nesting			High													Mar-Sep	-	-	-
26	Waterfowl	Blue-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Gadwall	Wintering			100S													-	-	-	-
	Waterfowl	Green-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Mergansers	Wintering			100S													-	-	-	-
	Waterfowl	Mottled duck	Nesting			Possible													Feb-Jun	-	-	Jul-Aug
	Waterfowl	Scaup	Wintering			100S													-	-	-	-
30	Diving	D. crested cormorant	Wintering			100S													-	-	-	-
	Diving	Diving birds	Wintering			10S													-	-	-	-
	Wading	Wading birds	Roosting			10S													-	-	-	-
	Wading	Wood stork	Vulnerable Occurrence	E	T	-													-	-	-	-
	Waterfowl	American coot	Wintering			100S													-	-	-	-
	Waterfowl	Canada goose	Nesting			-													-	-	-	-
	Waterfowl	Dabbling ducks	Wintering			10S													-	-	-	-
	Waterfowl	Diving ducks	Wintering			10S													-	-	-	-
	Waterfowl	Ruddy duck	Wintering			100S													-	-	-	-

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

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	General Distribution	E	E	Rare												-	-	-	Jan-Dec	Jan-Dec
		Shortnose sturgeon	General Distribution	E	E	Rare												-	-	-	Jan-Dec	Jan-Dec

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	General Distribution	T		-												-	-	Apr-Aug	Jan-Dec	Apr-Oct
		K. ridley sea turtle	General Distribution	E	E	-												-	-	Apr-Aug	Jan-Dec	-
		Loggerhead sea turtle	General Distribution	E	T	-												-	-	Apr-Aug	Jan-Dec	Apr-Sep

MARINE MAMMALS




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

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				
 Passerine	Seaside sparrow													-	-	-	-
	Seaside sparrow													-	Oct-May	-	-
 Wading	Clapper rail													-	-	-	-
 Waterfowl	Canada goose													Mar-Jun	-	-	Jun-Jul
	Dabbling ducks													-	-	-	-
	Diving ducks													-	-	-	-


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-May	Jan-Dec
 Estuarine Nursery	Striped bass													-	-	-	Apr-Sep	Jan-Dec
	Atlantic croaker													May-Nov	-	Nov-Apr	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-May	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-May	Dec-Oct	Dec-Oct
	Black drum													-	-	Mar-Jun	Jan-Dec	Jan-Dec
	Bluefish													-	-	-	Sep-Oct	Sep-Oct
	Bonnethead													-	-	-	Jun-Aug	Jun-Aug
	Ladyfish													-	-	Apr-Nov	Jun-Aug	Jun-Aug
	Red drum													-	-	Jun-Nov	Jun-Sep	Jun-Sep
	Red drum													-	-	Jun-Nov	Jan-Dec	Jul-Oct
	Sheepshead													-	-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder													-	-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern kingfish													-	-	May-Nov	-	Jan-Dec
	Spot													-	-	Jan-Jun	Jan-Dec	Jan-Dec
	Spotted seatrout													-	-	Apr-Oct	Jun-Feb	Jun-Feb
	Spotted seatrout													-	-	Apr-Oct	Dec-Jun*	Dec-Jun*
	Star drum													-	-	May-Aug	Feb-Dec	Feb-Dec
	Star drum													-	-	May-Aug	Jan-Dec	Jan-Dec
	Striped mullet													-	-	-	Jun-Aug	Jun-Aug
	Weakfish													-	-	Apr-Nov	Jan-Dec	Jan-Dec
 Marine Pelagic	Spanish mackerel													-	-	-	Aug	Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
 Cephalopod	Atlantic brief squid													-	-	-	Jan-Dec
	Blue crab													-	-	-	Jan-Dec
 Crab	Blue crab													-	-	-	Jan-Dec
	Horseshoe crab													-	-	-	Jan-Dec
 Invertebrate	Horseshoe crab													-	-	-	Jan-Dec
	Cannonball jellyfish													-	-	-	Jan-Dec
 Shrimp	Brown shrimp													-	-	-	Jan-Dec
	Brown shrimp													-	-	-	Jan-Dec
	White shrimp													-	-	-	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				
 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	5,447.55	8.51
10B	Freshwater Marshes	39.14	0.06
10C	Swamps	1,059.97	1.66
10D	Scrub and Shrub Wetlands	76.63	0.12

ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	183,168.15	113.82	91%
10C	Swamps	221.29	0.14	< 1%
10D	Scrub and Shrub Wetlands	657.36	0.41	< 1%
9A	Sheltered Tidal Flats	40.22	0.02	< 1%
9B	Vegetated Low Banks	2,229.65	1.39	1%
8B	Sheltered, Solid Man-Made Structures	3,650.48	2.27	2%
8C	Sheltered Riprap	5,063.82	3.15	3%
5	Mixed Sand and Gravel Beaches	500.76	0.31	< 1%
3B	Scarps and Steep Slopes (Sand)	4,713.48	2.93	2%

Total ESI Shoreline: 200,245.21 Total ESI Shoreline: 124.43
 Total Shoreline: 192,104.37 Total Shoreline: 119.37

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 4
Georgia

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Phone
1	AIRPORT	HODGES AIRPARK	
2	BOAT RAMP	BELL'S LANDING	
3	BOAT RAMP	KINGS FERRY BOAT RAMP	
4	BOAT RAMP	SALT CREEK BOAT RAMP	
5	RENEWABLE ENERGY	SUPERIOR LANDFILL GAS RECOVERY	
6	REPEATED MEASUREMENT SITE	BMS - KINGS FERRY	
7	WATER INTAKE	RICHMOND HILL FISH HATCHERY	

DISPLAYED ON MAP (POLYGONS)			
Map ID	Type	Name	Phone
8	MILITARY	FT STEWART	
9	MILITARY	HUNTER ARMY AIRFIELD	
10	NATURE CONSERVANCY	OGEECHEE RIVER EASEMENT	THE NATURE CONSERVANCY

JURISDICTIONS


COUNTY:	BRYAN COUNTY, CHATHAM COUNTY	FEMA:	REGION IV
COAST GUARD:	COAST GUARD DISTRICT 7, COAST GUARD SECTOR CHARLESTON	EPA:	REGION 4
USACE:	SOUTH ATLANTIC DIVISION, SAVANNAH DISTRICT		

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

	ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
	10A	Salt and Brackish Water Marshes	13,305.75	20.79
	10B	Freshwater Marshes	2,423.90	3.79
	10C	Swamps	17,181.89	26.85
	10D	Scrub and Shrub Wetlands	1,748.77	2.73

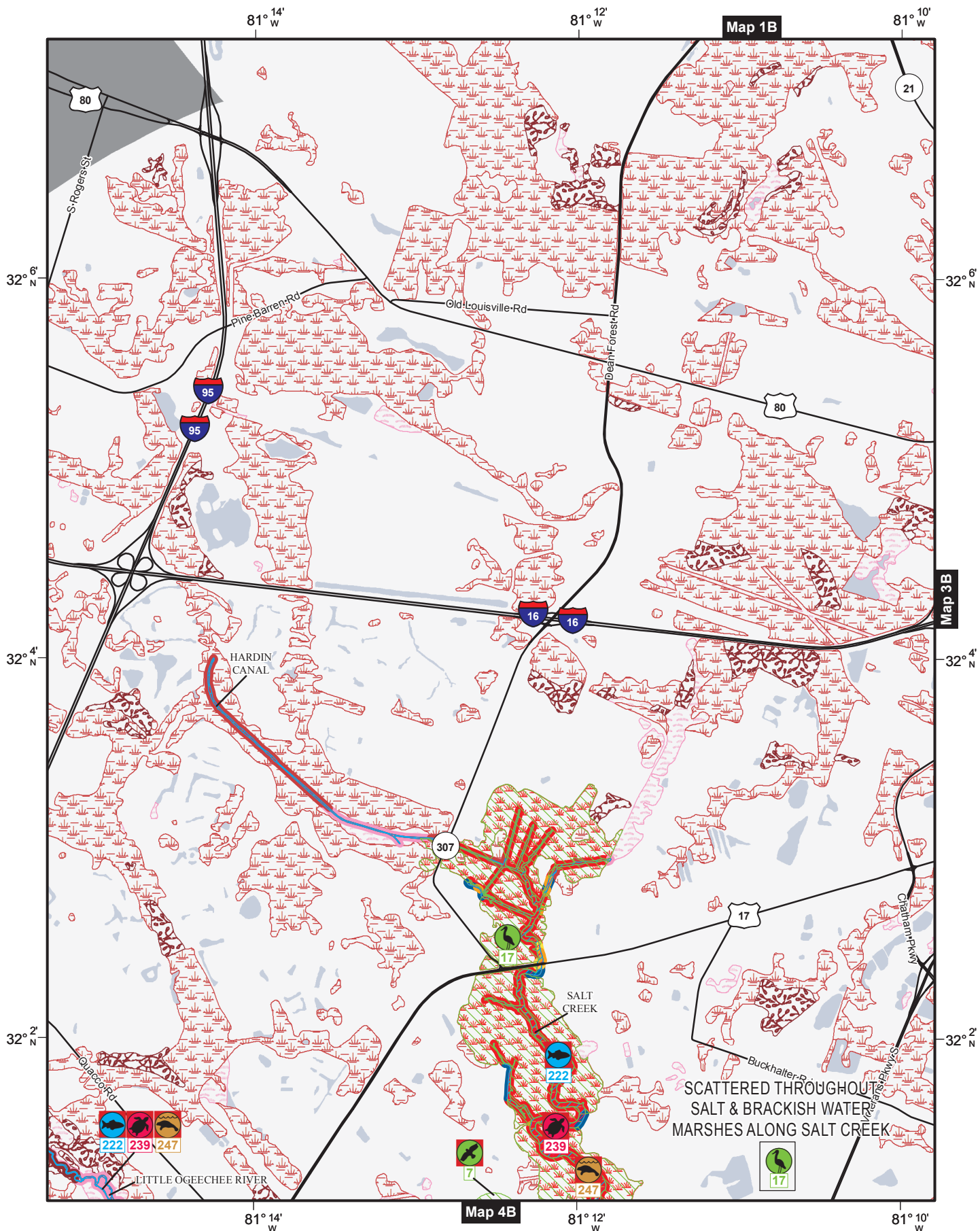
ESI SHORELINE HABITAT TYPES

	ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
	10A	Salt and Brackish Water Marshes	302,743.76	188.12	78%
	10B	Freshwater Marshes	24,548.11	15.25	6%
	10C	Swamps	47,018.15	29.22	12%
	10D	Scrub and Shrub Wetlands	3,616.67	2.25	1%
	9B	Vegetated Low Banks	2,729.34	1.70	1%
	8B	Sheltered, Solid Man-Made Structures	2,691.94	1.67	1%
	8C	Sheltered Riprap	2,170.43	1.35	1%
	3B	Scarps and Steep Slopes (Sand)	3,498.31	2.17	1%
Total ESI Shoreline:			389,016.71	241.72	
Total Shoreline:			383,111.97	238.05	

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 4A
Georgia



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: June 2015

0 Not for Navigation 1 Miles
0 1 Kilometers

1:50,000



Map 4A
Georgia

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
				T			J	F	M	A	M	J	J	A	S	O	N	D				
7	Raptor	Bald eagle	Nesting			1 Nest													Sep-Apr	-	-	-
17	Wading	Clapper rail	Nesting			High													Mar-Sep	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
				E	E		J	F	M	A	M	J	J	A	S	O	N	D					
222	Diadromous	Atlantic sturgeon	General Distribution			Rare													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Shortnose sturgeon	General Distribution			Rare													-	-	-	Jan-Dec	Jan-Dec

REPTILES & AMPHIBIANS


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
				T	T		J	F	M	A	M	J	J	A	S	O	N	D					
239	Turtle	Green sea turtle	General Distribution			-													-	-	Apr-Aug	Jan-Dec	Apr-Oct
	Turtle	K. ridley sea turtle	General Distribution			-													-	-	Apr-Aug	Jan-Dec	-
	Turtle	Loggerhead sea turtle	General Distribution			-													-	-	Apr-Aug	Jan-Dec	Apr-Sep

MARINE MAMMALS

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

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				
 Passerine	Seaside sparrow													-	-	-	-
 Wading	Clapper rail													-	-	-	-

FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
 Diadromous	American eel	J	F	M	A	M	J	J	A	S	O	N	D					

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	746.82	1.17
10B	Freshwater Marshes	358.03	0.56
10C	Swamps	6,165.21	9.63
10D	Scrub and Shrub Wetlands	545.70	0.85

ESI SHORELINE HABITAT TYPES

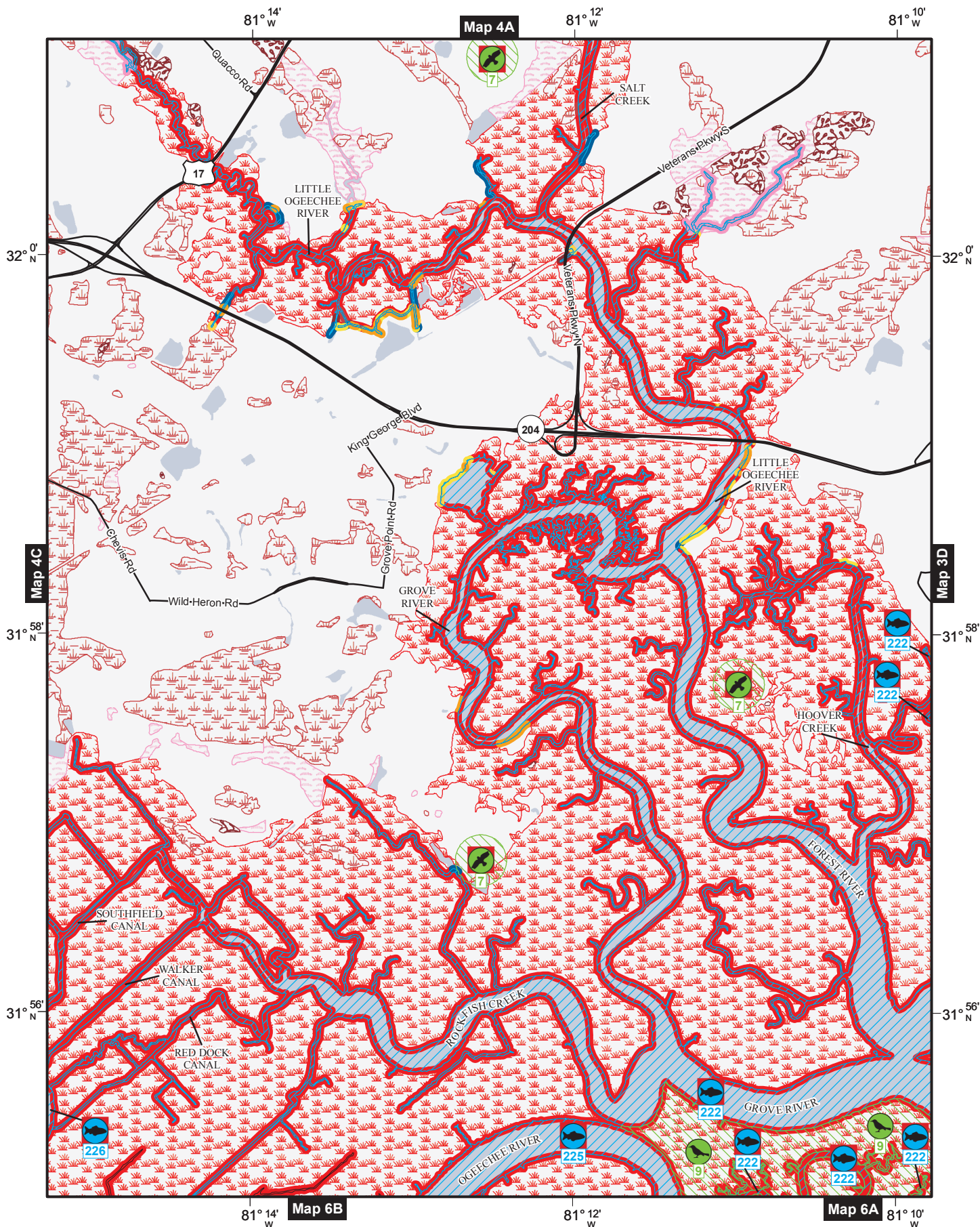
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	21,079.84	13.10	64%
10B	Freshwater Marshes	4,986.34	3.10	15%
10C	Swamps	4,413.35	2.74	13%
10D	Scrub and Shrub Wetlands	554.80	0.34	2%
9B	Vegetated Low Banks	347.57	0.22	1%
8B	Sheltered, Solid Man-Made Structures	65.15	0.04	< 1%
8C	Sheltered Riprap	89.84	0.06	< 1%
3B	Scarps and Steep Slopes (Sand)	1,167.45	0.73	4%

Total ESI Shoreline: 32,704.35
Total ESI Shoreline: 20.32
Total Shoreline: 32,249.28
Total Shoreline: 20.04

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 4B
Georgia



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: June 2015

0 Not for Navigation 1 Miles
0 1 Kilometers

1:50,000



Map 4B
Georgia

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
				T		1 Nest	J	F	M	A	M	J	J	A	S	O	N	D	Sep-Apr			
7	Raptor	Bald eagle	Nesting																			
9	Passerine	Seaside sparrow	Nesting			High													Mar-Aug			

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
				E	E		J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-
222	Diadromous	Atlantic sturgeon	General Distribution			Rare													-	-	-	-	-
	Diadromous	Shortnose sturgeon	General Distribution			Rare													-	-	-	-	-
225	Diadromous	American shad	Migration			-													-	-	Apr-May	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	Concentration Area			High													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Shortnose sturgeon	General Distribution			Present													-	-	-	Nov-Mar	Jan-Dec
	Freshwater	Robust redhorse	Vulnerable Occurrence			-													-	-	-	-	-
226	Diadromous	American shad	Migration			-													-	-	Apr-May	May-Dec	Jan-Apr
	Diadromous	Atlantic sturgeon	Concentration Area			High													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Shortnose sturgeon	Concentration Area			High													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Robust redhorse	Vulnerable Occurrence			-													-	-	-	-	-

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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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	General Distribution	T	T	-												-	-	Apr-Aug	Jan-Dec	Apr-Oct	
	K. ridley sea turtle	General Distribution	E	E	-													-	Apr-Aug	Jan-Dec		-
	Loggerhead sea turtle	General Distribution	E	T	-													-	Apr-Aug	Jan-Dec	Apr-Sep	





MARINE MAMMALS

	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
 Passerine	Seaside sparrow													-	-	-	-
	Seaside sparrow													-	Oct-May	-	-
 Wading	Clapper rail													-	-	-	-


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-May	Jan-Dec
	Striped bass													-	-	-	Apr-Sep	Jan-Dec
 Estuarine Nursery	Atlantic croaker													May-Nov	-	Nov-Apr	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-May	Jan-Dec	Jan-Dec
	Black drum													-	-	Mar-Jun	Jan-Dec	Jan-Dec
	Red drum													-	-	Jun-Nov	Jan-Dec	Jul-Oct
	Sheepshead													-	-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder													-	-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern kingfish													-	-	May-Nov	-	Jan-Dec
	Spot													-	-	Jan-Jun	Jan-Dec	Jan-Dec
	Spotted seatrout													-	-	Apr-Oct	Dec-Jun*	Dec-Jun*
	Star drum													-	-	May-Aug	Jan-Dec	Jan-Dec
	Weakfish													-	-	Apr-Nov	Jan-Dec	Jan-Dec
 Freshwater	Cattfish													-	-	-	-	-
	Largemouth bass													-	-	-	-	-
	Sunfish													-	-	-	-	-
 Marine Pelagic	Spanish mackerel													-	-	-	Aug	Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Cephalopod	Atlantic brief squid													-	-	-	-	Jan-Dec
 Crab	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Horseshoe crab													-	-	-	Sep-Jul	Sep-Jul
 Invertebrate	Cannonball jellyfish													-	-	-	-	-
 Shrimp	Brown shrimp													-	-	Mar-Jun	May-Feb*	May-Feb*
	White shrimp													-	-	-	Jan-Dec	Jan-Dec

MARINE MAMMALS

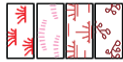
Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
 Dolphin	Bottlenose dolphin													-	-	-	-

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	11,398.76	17.81
10B	Freshwater Marshes	427.18	0.67
10C	Swamps	1,476.95	2.31
10D	Scrub and Shrub Wetlands	130.69	0.20



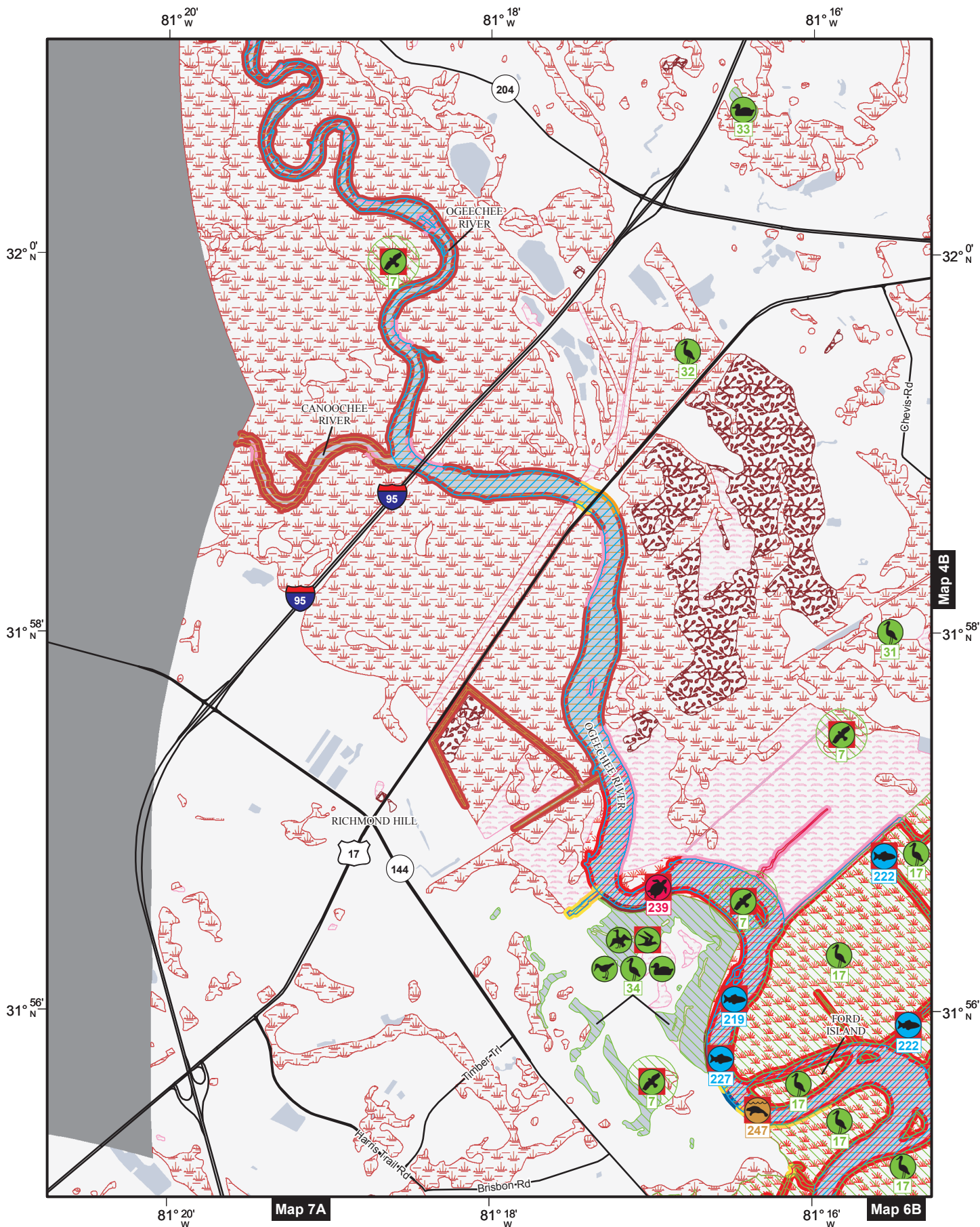
ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	256,810.02	159.57	95%
10B	Freshwater Marshes	6,113.90	3.80	2%
10C	Swamps	495.01	0.31	< 1%
10D	Scrub and Shrub Wetlands	399.91	0.25	< 1%
9B	Vegetated Low Banks	2,090.98	1.30	1%
8B	Sheltered, Solid Man-Made Structures	1,708.82	1.06	1%
8C	Sheltered Riprap	747.80	0.46	< 1%
3B	Scarps and Steep Slopes (Sand)	1,962.20	1.22	1%
Total ESI Shoreline:		270,328.64	Total ESI Shoreline: 167.97	
Total Shoreline:		269,105.89	Total Shoreline: 167.21	

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

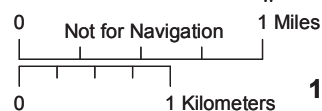




Map 4C
Georgia



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: June 2015



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Map 4C
Georgia

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				
7	Raptor	Bald eagle	Nesting	T		1 Nest													Sep-Apr	-	-	-
17	Wading	Clapper rail	Nesting			High													Mar-Sep	-	-	-
31	Wading	Wading birds	Nesting			-													Apr-Aug	-	-	-
32	Wading	Wading birds	Nesting			25 Nests													Apr-Aug	-	-	-
33	Waterfowl	Diving ducks	Wintering			10S													-	-	-	-
	Waterfowl	Wood duck	Nesting			Possible													Jan-Jul	-	-	-
	Waterfowl	Wood duck	Wintering			100S													-	-	-	-
34	Diving	Diving birds	Wintering			10S													-	-	-	-
	Gull/Tern	Gull-billed tern	Vulnerable Occurrence	T		10S													-	-	-	-
	Shorebird	Shorebirds	Migration			10S													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			10S													-	-	-	-
	Wading	Wading birds	Roosting			100S													-	-	-	-
	Waterfowl	American wigeon	Wintering			Very High													-	-	-	-
	Waterfowl	Diving ducks	Wintering			100S													-	-	-	-
	Waterfowl	Gadwall	Wintering			High													-	-	-	-
	Waterfowl	Northern shoveler	Wintering			High													-	-	-	-
	Waterfowl	Teals	Wintering			High													-	-	-	-
	Waterfowl	Wood duck	Nesting			Possible													Jan-Jul	-	-	-
	Waterfowl	Wood duck	Wintering			10S													-	-	-	-

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					
219	Diadromous	Shortnose sturgeon	Concentration Area	E	E	High													-	-	-	Jan-Dec	Jan-Dec
222	Diadromous	Atlantic sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Shortnose sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec
227	Diadromous	American shad	Migration			-													-	-	Apr-May	May-Dec	Jan-Apr
	Diadromous	Atlantic sturgeon	Concentration Area	E	E	High													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Robust rehorse	Vulnerable Occurrence	E		-													-	-	-	-	-

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					
239	Turtle	Green sea turtle	General Distribution	T	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Oct
	Turtle	K. ridley sea turtle	General Distribution	E	E	-													-	-	Apr-Aug	Jan-Dec	-
	Turtle	Loggerhead sea turtle	General Distribution	E	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Sep

MARINE MAMMALS



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

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
	Seaside sparrow	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-
	Clapper rail	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-

FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
	American eel	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Jan-May	Jan-Dec
	Striped bass	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Apr-Sep	Jan-Dec
	Catfish	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-
	Largemouth bass	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-
	Sunfish	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-	-

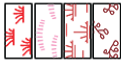
MARINE MAMMALS

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

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	1,155.10	1.80
10B	Freshwater Marshes	1,274.84	1.99
10C	Swamps	6,742.95	10.54
10D	Scrub and Shrub Wetlands	779.05	1.22



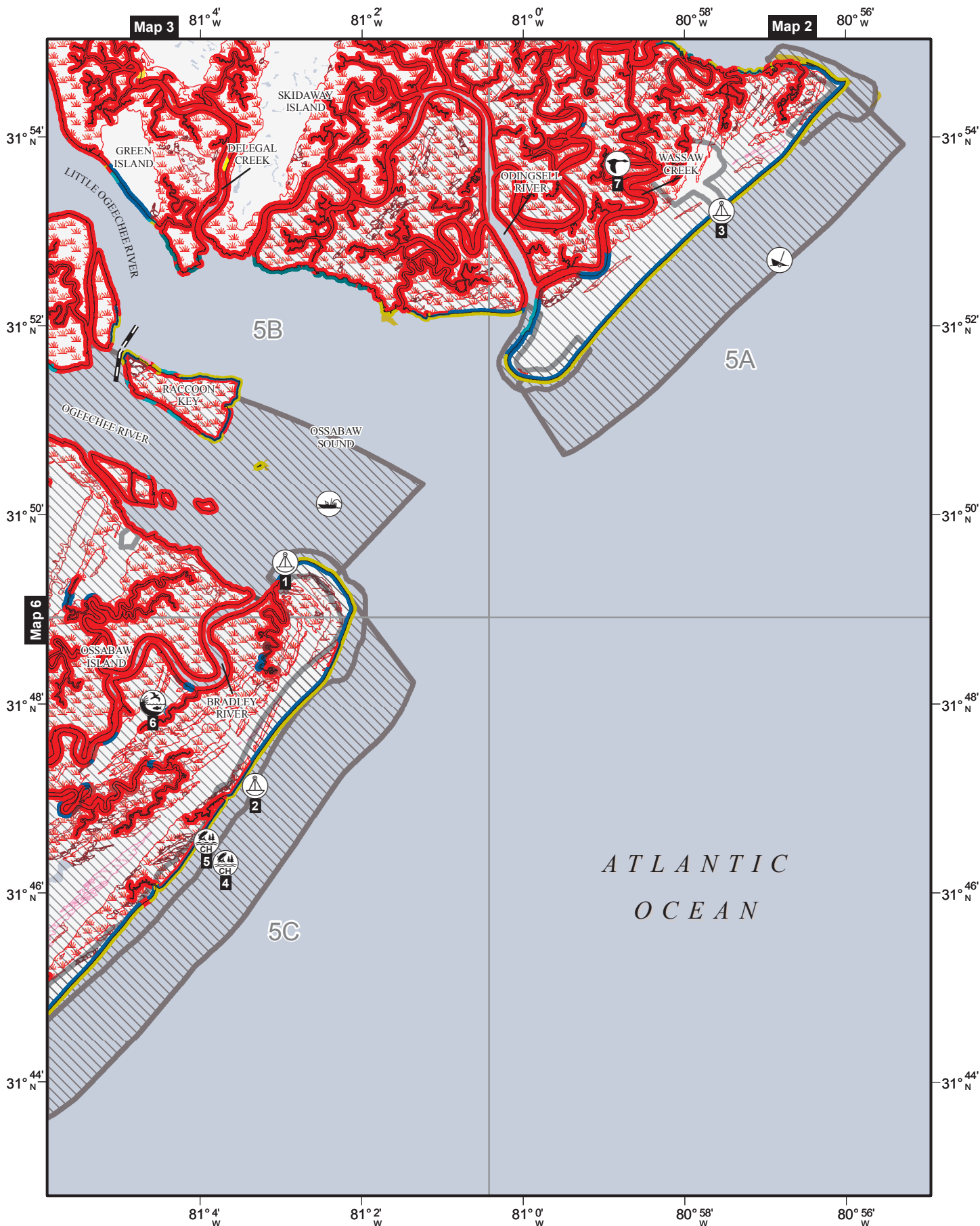
ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	24,780.00	15.40	32%
10B	Freshwater Marshes	12,533.68	7.79	16%
10C	Swamps	35,297.22	21.93	46%
10D	Scrub and Shrub Wetlands	1,198.04	0.74	2%
9B	Vegetated Low Banks	290.86	0.18	< 1%
8B	Sheltered, Solid Man-Made Structures	917.97	0.57	1%
8C	Sheltered Riprap	1,332.79	0.83	2%
3B	Scarps and Steep Slopes (Sand)	368.66	0.23	< 1%
Total ESI Shoreline:		76,719.22	Total ESI Shoreline: 47.67	
Total Shoreline:		72,813.70	Total Shoreline: 45.24	

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 5
Georgia



SEE BACK OF MAP
for details about mapped resources and
other resources that occur in mapped area.
Data Published: June 2015

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)				
Map ID	Type	Name	Contact	Phone
1	REPEATED MEASUREMENT SITE	BMS - BRADLEY		
2	REPEATED MEASUREMENT SITE	BMS - MIDDLE OSSABAW		
3	REPEATED MEASUREMENT SITE	BMS - WASSAW ISL		
DISPLAYED ON MAP (POLYGONS)				
Map ID	Type	Name	Contact	Phone
4	CRITICAL HABITAT	LOGGERHEAD TURTLE CRITICAL HABITAT		
5	CRITICAL HABITAT	PIPING PLOVER CRITICAL HABITAT		
6	MANAGEMENT AREA	OSSABAW ISLAND WILDLIFE MANAGEMENT AREA	GEORGIA DEPARTMENT OF NATURAL RESOURCES	
7	WILDLIFE REFUGE	WASSAW NATIONAL WILDLIFE REFUGE	US FISH AND WILDLIFE SERVICE	912/598-3200


JURISDICTIONS			
COUNTY:	CHATHAM COUNTY	FEMA:	REGION IV
COAST GUARD:	COAST GUARD DISTRICT 7, COAST GUARD SECTOR CHARLESTON	EPA:	REGION 4
USACE:	SOUTH ATLANTIC DIVISION, SAVANNAH 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	15,252.78	23.83
	10B	Freshwater Marshes	124.17	0.19
	10C	Swamps	440.79	0.69
	10D	Scrub and Shrub Wetlands	335.85	0.52
	7	Exposed Tidal Flats	60.31	0.09

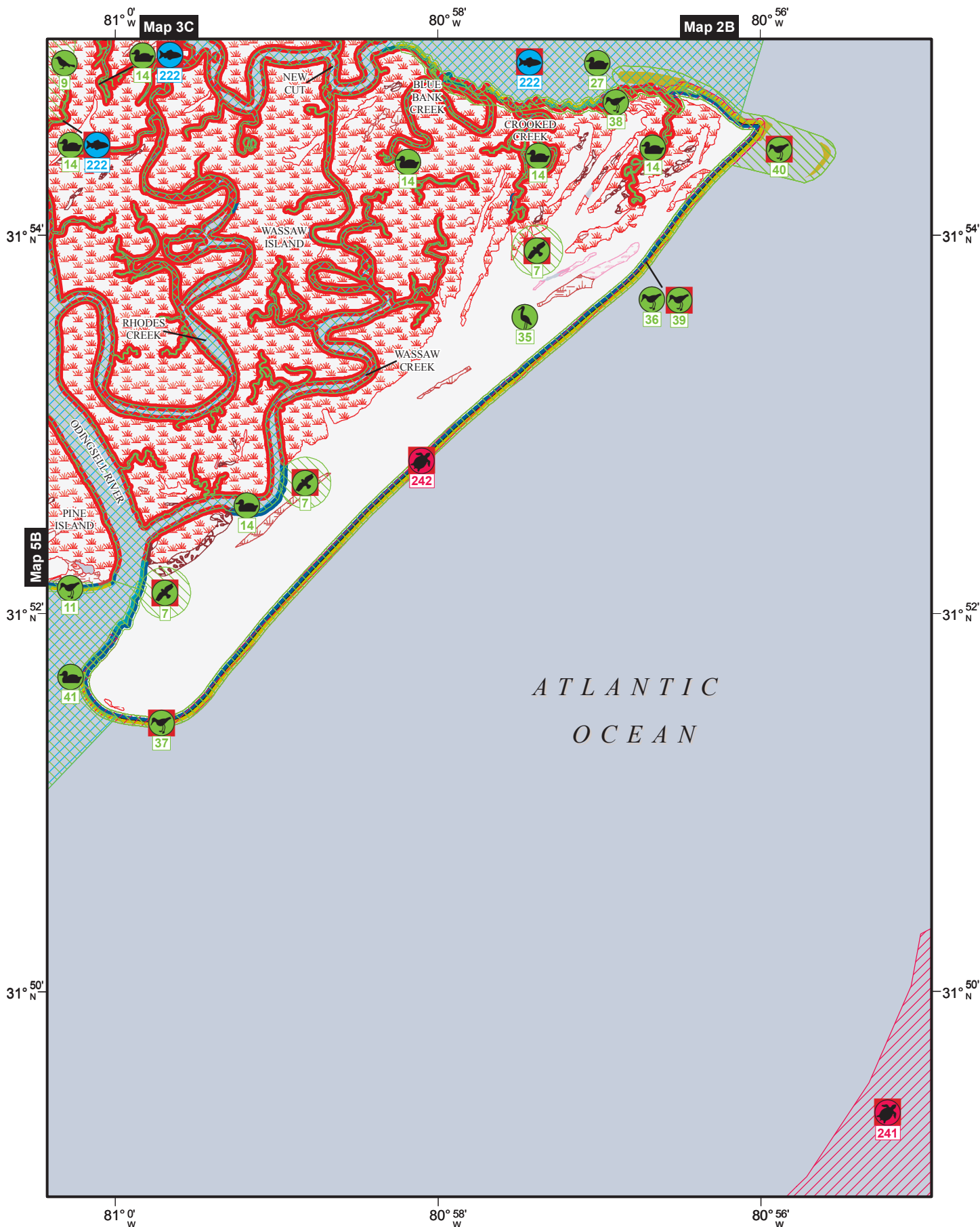
ESI SHORELINE HABITAT TYPES

	<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	430,793.58	267.68	84%
	10C	Swamps	1,027.95	0.64	< 1%
	10D	Scrub and Shrub Wetlands	2,710.41	1.68	1%
	8A	Sheltered, Impermeable, Rocky Shores	269.21	0.17	< 1%
	8B	Sheltered, Solid Man-Made Structures	198.41	0.12	< 1%
	8C	Sheltered Riprap	31.51	0.02	< 1%
	7	Exposed Tidal Flats	32,196.45	20.01	6%
	6A	Gravel Beaches	6,109.30	3.80	1%
	5	Mixed Sand and Gravel Beaches	3,660.45	2.27	1%
	3A	Fine to Medium Grained Sand Beaches	29,843.76	18.54	6%
	3B	Scarps and Steep Slopes (Sand)	6,611.74	4.11	1%
Total ESI Shoreline:			513,452.77	319.04	
Total Shoreline:			458,373.55	284.82	

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

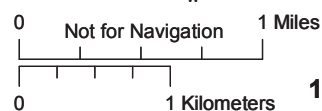




Map 5A Georgia



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: June 2015



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Map 5A
Georgia

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				
7	Raptor	Bald eagle	Nesting	T		1 Nest													Sep-Apr	-	-	-
9	Passerine	Seaside sparrow	Nesting			High													Mar-Aug	-	-	-
11	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
14	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
	Waterfowl	Diving ducks	Wintering			100S													-	-	-	-
	Waterfowl	Scaup	Wintering			10S													-	-	-	-
27	Waterfowl	Diving ducks	Rafting			100S													-	-	-	-
	Waterfowl	Scoters	Rafting			10S													-	-	-	-
35	Wading	Wading birds	Nesting			100 Nests													Apr-Aug	-	-	-
36	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
37	Shorebird	Red knot	Migration	T		-													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
38	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
39	Shorebird	American oystercatcher	Wintering			-													-	-	-	-
	Shorebird	Black-bellied plover	Wintering			1,000S													-	-	-	-
	Shorebird	Dunlin	Wintering			1,000S													-	-	-	-
	Shorebird	Red knot	Wintering	T		100S													-	-	-	-
40	Shorebird	American oystercatcher	Nesting			2 Adults													Mar-Aug	-	-	-
	Shorebird	Red knot	Migration	T		High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Wilson's plover	Nesting	T		6 Adults													Mar-Jul	-	-	-
41	Waterfowl	Diving ducks	Rafting			100S													-	-	-	-
	Waterfowl	Scoters	Rafting			100S													-	-	-	-

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					
222	Diadromous	Atlantic sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Shortnose sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec

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					
241	Turtle	Green sea turtle	General Distribution	T	T	Low													-	-	Apr-Aug	-	Apr-Sep
	Turtle	K. ridley sea turtle	General Distribution	E	E	-													-	-	Apr-Aug	Nov-Apr	Nov-Aug
	Turtle	Loggerhead sea turtle	General Distribution	E	T	-													-	-	Apr-Aug	Nov-Apr	Nov-Aug
242	Turtle	Green sea turtle	Nesting	T	T	Low													May-Oct	Jul-Oct	-	-	May-Oct
	Turtle	K. ridley sea turtle	Nesting	E	E	Rare													May-Oct	Jul-Oct	-	-	May-Oct

REPTILES & AMPHIBIANS (continued)


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					
	Turtle	Leatherback sea turtle	Nesting	E	E	Low													May-Oct	Jul-Oct	-	-	May-Oct
	Turtle	Loggerhead sea turtle	Nesting	E	T	High													May-Oct	Jul-Oct	-	-	May-Oct

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	Long-tailed duck	Wintering		10S													-	-	-	-
		Mergansers	Wintering		100S													-	-	-	-
		Scaup	Rafting		10,000S													-	-	-	-
		Scoters	Rafting		10,000S													-	-	-	-



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	Migration		-													-	-	-	Jan-May	Sep-Jan
		American shad	Migration		-													-	-	-	Nov-Jan	Jan-Apr
		Atlantic sturgeon	Concentration Area	E	E	High												-	-	-	Oct-Jan	Oct-Jan
		Atlantic sturgeon	General Distribution	E	E	Present												-	-	-	Feb-Sep	Feb-Sep
		Shortnose sturgeon	General Distribution	E	E	Rare												-	-	-	-	Jan-Dec

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	General Distribution	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Oct
		K. ridley sea turtle	General Distribution	E	-													-	-	Apr-Aug	Jan-Dec	-
		Leatherback sea turtle	General Distribution	E	E	High												-	-	Apr-Aug	-	Nov-Aug
		Loggerhead sea turtle	General Distribution	E	T	-												-	-	Apr-Aug	Jan-Dec	Apr-Sep

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	Low												-	-	-	-
	Whale	Humpback whale	General Distribution	E	E	Low												-	-	-	-
		N.A. right whale	Calving	E	E	30-150												-	Nov-Apr	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)















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				
	Alcid	Alcids																-	-	-	-
	Diving	Brown pelican																-	-	-	-

BIRDS (continued)

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	D. crested cormorant													-	-	-	-
	Loons													-	-	-	-
	Black tern													-	-	-	-
	Gulls													-	-	-	-
	Least tern													-	-	-	-
	Terns													-	-	-	-
	Seaside sparrow													-	-	-	-
	Seaside sparrow													-	-	-	-
	Black-capped petrel													-	-	-	-
	Jaegers													-	-	-	-
	Northern gannet													-	-	-	-
	Shearwaters													-	-	-	-
	Storm-petrels													-	-	-	-
	Phalaropes													-	-	-	-
	Mottled duck													-	-	-	-

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-Dec
	Striped bass													-	-	-	-	Jan-Dec
	Atl. sharpnose shark													-	-	-	-	Apr-Sep
	Atl. sharpnose shark													-	-	-	-	Apr-Sep
	Atlantic croaker													-	-	-	-	Apr-Nov
	Atlantic croaker													-	-	-	-	Apr-Nov
	Atlantic croaker													-	-	-	-	May-Nov
	Atlantic croaker													-	-	-	-	May-Nov
	Atlantic croaker													-	-	-	-	Jan-Dec
	Atlantic croaker													-	-	-	-	Jan-Dec
	Atlantic menhaden													-	-	-	-	Jan-Dec
	Atlantic menhaden													-	-	-	-	Jan-Dec
	Atlantic menhaden													-	-	-	-	Nov-Aug
	Atlantic menhaden													-	-	-	-	Nov-Aug
	Atlantic menhaden													-	-	-	-	Nov-Jul*
	Atlantic menhaden													-	-	-	-	Nov-Jul*
	Black drum													-	-	-	-	Jan-Dec
	Black drum													-	-	-	-	Jan-Dec
	Bluefish													-	-	-	-	Jan-Dec
	Bluefish													-	-	-	-	Jan-Dec
	Bonnethead													-	-	-	-	Apr-Sep
	Bonnethead													-	-	-	-	Apr-Sep
	Bonnethead													-	-	-	-	Jun-Aug
	Bonnethead													-	-	-	-	Jun-Aug
	Bull shark													-	-	-	-	Apr-Nov
	Bull shark													-	-	-	-	Apr-Nov
	Ladyfish													-	-	-	-	Apr-Oct
	Ladyfish													-	-	-	-	Apr-Oct
	Porgies													-	-	-	-	Jun-Aug
	Porgies													-	-	-	-	Jun-Aug
	Red drum													-	-	-	-	Jun-Aug
	Red drum													-	-	-	-	Jun-Aug





FISH (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Red drum													-	Jun-Nov	Jan-Dec	Jul-Oct
	Red drum													-	Jun-Nov	Jun-Sep	Jan-Sep
	Sheepshead													-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder													-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern flounder													-	-	Jan	Jan
	Southern flounder													-	Feb-Apr	Nov-Sep	Nov-Sep
	Southern flounder													-	-	Jan-Mar	Jan-Mar
	Southern kingfish													-	-	-	-
	Southern kingfish													-	May-Nov	-	Jan-Dec
	Southern kingfish													-	-	-	Jan-Dec
	Spot													-	Nov-May	Apr-Feb	Apr-Feb
	Spot													-	Jan-Jun	Jan-Dec	Jan-Dec
	Spot													-	-	-	-
	Spot													-	Nov-May	Jan-Dec	Jan-Dec
	Spotted seatrout													-	Apr-Oct	Dec-Feb	Dec-Feb
	Spotted seatrout													-	-	Jun-Jul	Jun-Jul
	Spotted seatrout													-	Apr-Oct	Jun-Feb	Jun-Feb
	Spotted seatrout													-	Apr-Oct	Dec-Jan	Jan-Dec
	Star drum													-	May-Aug	Dec-Jun*	Dec-Jun*
	Star drum													-	-	Jan-Dec	Jan-Dec
	Star drum													-	May-Aug	Feb-Dec	Feb-Dec
	Star drum													-	-	-	-
	Striped mullet													-	-	Jun-Aug	Jun-Aug
	Weakfish													-	Apr-Nov	Jan-Dec	Jan-Dec
	Weakfish													-	-	Mar-Jan	Mar-Jan
	Weakfish													-	-	-	-
	Weakfish													-	-	Jan-Dec	Jan-Dec
Fish	Great hammerhead													-	-	-	-
Marine Benthic	Florida pompano													-	-	-	-
	Lemon shark													-	-	-	-
	Smooth dogfish													-	-	-	-
Marine Pelagic	Atlantic tripletail													-	-	Mar-Nov	Dec-Apr
	Blacknose shark													-	-	Apr-Sep	Mar-Nov
	Blacktip shark													-	May-Sep	May-Sep	Apr-Sep
	Blacktip shark													-	Apr-Sep	Apr-Sep	-
	Blacktip shark													-	-	May-Oct	May-Oct
	Cobia													-	-	-	-
	Finetooth shark													-	-	-	-
	Giant manta													-	-	-	-
	King mackerel													-	-	-	-
	Sandbar shark													-	-	Apr-Nov	Apr-Nov
	Sandbar shark													-	Apr-Sep	Apr-Sep	-
	Scalloped hammerhead													-	-	-	-

FISH (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Scalloped hammerhead													-	-	Aug	-
	Spanish mackerel													-	-	-	-
	Spanish mackerel													-	-	Aug	Aug
	Spinner shark													-	-	-	-
	Spiny dogfish													-	-	-	Dec-Apr
	Tiger shark													-	Apr-Nov	Apr-Nov	Apr-Nov
	White shark													-	-	Dec-Apr	Dec-Apr

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Atlantic brief squid													-	-	-	Jan-Dec
	Atlantic brief squid													-	-	-	-
	Blue crab													-	-	Sep-Jul	Sep-Jul
	Blue crab													Mar-Aug	Mar-Aug	Sep-May	Sep-May
	Blue crab													Mar-Aug	Mar-Aug	Oct-Apr	Oct-Apr
	Blue crab													-	Apr-Jun	Sep-Jul	Sep-Jul
	Blue crab													-	Apr-Jun	Jun-Apr*	Jun-Apr*
	Blue crab													-	-	Jan-Dec	Jan-Dec
	Horseshoe crab													-	-	Jan-Dec	Jan-Dec
	Horseshoe crab													-	-	Sep-Jul	Sep-Jul
	Cannonball jellyfish													-	-	-	-
	Brown shrimp													-	Jan-Mar	-	Jun-Nov
	Brown shrimp													-	Jan-Mar	-	May-Nov
	Brown shrimp													-	Jan-Mar	-	May-Dec
	Brown shrimp													-	Mar-Jun	May-Sep	May-Sep
	Brown shrimp													-	Mar-Jun	Mar-Jan	Mar-Jan
	Brown shrimp													-	Mar-Jun	Nov-Sep	Nov-Sep
	Brown shrimp													-	Mar-Jun	May-Feb*	May-Feb*
	Pink shrimp													-	-	-	Mar-May
	White shrimp													-	Apr-Aug	-	Mar-Nov
	White shrimp													-	Apr-Aug	Sep-Jun	Sep-Jun
	White shrimp													-	Apr-Aug	Jan-Dec	Jan-Dec
	White shrimp													-	-	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													-	-	-	-

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	3,894.88	6.09
10B	Freshwater Marshes	16.40	0.03
10C	Swamps	57.42	0.09
10D	Scrub and Shrub Wetlands	61.23	0.10
7	Exposed Tidal Flats	39.16	0.06

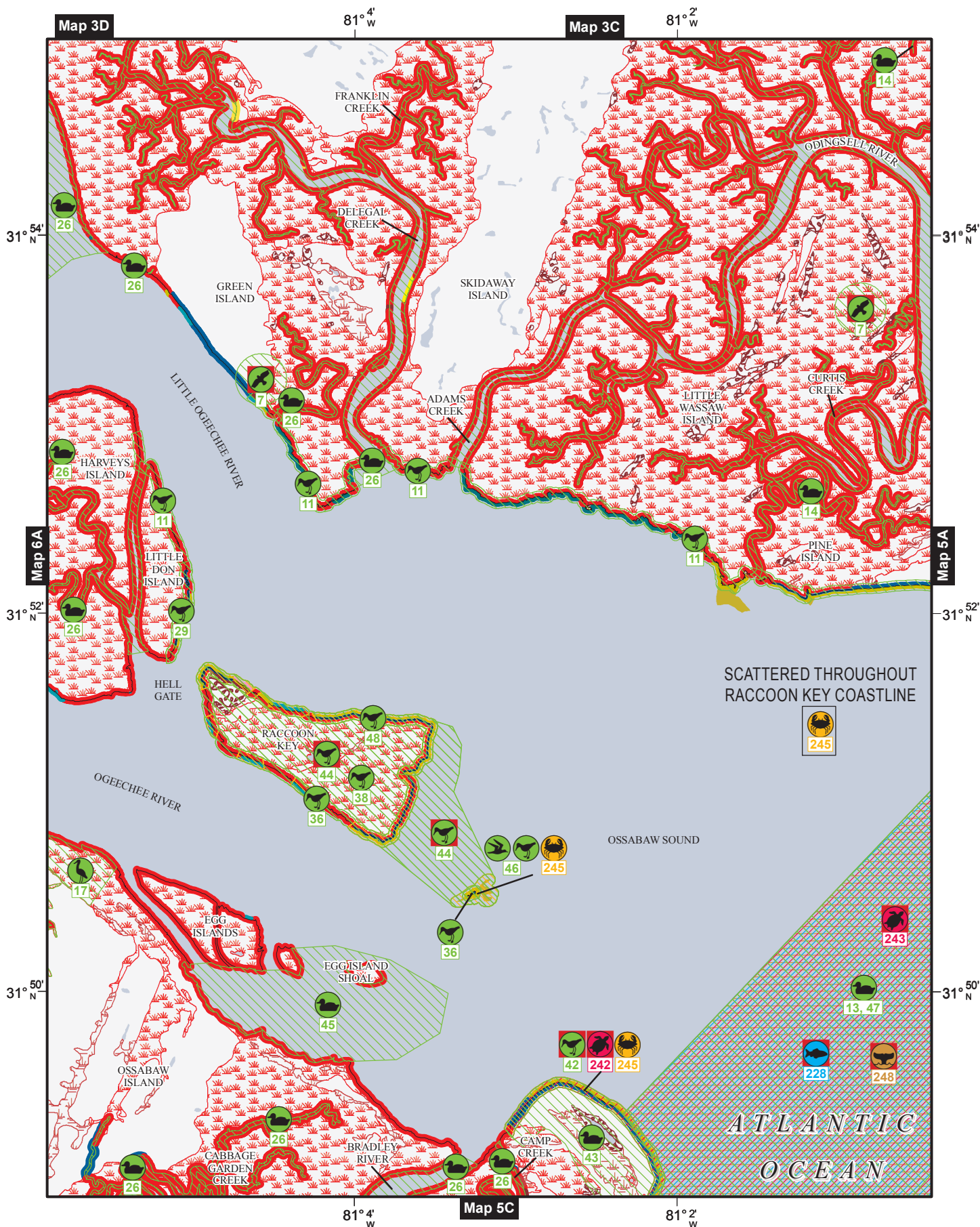
ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	122,256.12	75.97	80%
10C	Swamps	171.22	0.11	< 1%
10D	Scrub and Shrub Wetlands	257.36	0.16	< 1%
7	Exposed Tidal Flats	13,081.31	8.13	9%
6A	Gravel Beaches	1,534.79	0.95	1%
5	Mixed Sand and Gravel Beaches	1,585.85	0.99	1%
3A	Fine to Medium Grained Sand Beaches	12,059.71	7.49	8%
3B	Scarps and Steep Slopes (Sand)	2,027.85	1.26	1%
Total ESI Shoreline:		152,974.22	95.05	
Total Shoreline:		136,398.86	84.75	

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

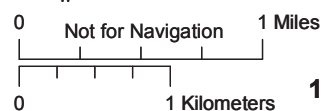




Map 5B
Georgia



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: June 2015



1:50,000



Map 5B
Georgia

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				
7	Raptor	Bald eagle	Nesting	T		1 Nest													Sep-Apr	-	-	-
11	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
13	Waterfowl	Long-tailed duck	Wintering			10S													-	-	-	-
	Waterfowl	Mergansers	Wintering			100S													-	-	-	-
14	Waterfowl	Diving ducks	Wintering			100S													-	-	-	-
	Waterfowl	Scaup	Wintering			10S													-	-	-	-
17	Wading	Clapper rail	Nesting			High													Mar-Sep	-	-	-
26	Waterfowl	Blue-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Gadwall	Wintering			100S													-	-	-	-
	Waterfowl	Green-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Mergansers	Wintering			100S													-	-	-	-
	Waterfowl	Mottled duck	Nesting			Possible													Feb-Jun	-	-	Jul-Aug
	Waterfowl	Scaup	Wintering			100S													-	-	-	-
29	Shorebird	American oystercatcher	Nesting			4 Adults													Mar-Aug	-	-	-
36	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
38	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
42	Shorebird	American oystercatcher	Nesting			4 Adults													Mar-Aug	-	-	-
	Shorebird	American oystercatcher	Wintering			-													-	-	-	-
	Shorebird	Dunlin	Wintering			1,000S													-	-	-	-
	Shorebird	Piping plover	Wintering	T	T	-													-	-	-	-
	Shorebird	Red knot	Migration		T	High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			High													-	-	-	-
	Shorebird	Wilson's plover	Nesting	T		10 Adults													Mar-Jul	-	-	-
	Shorebird	Wilson's plover	Vulnerable Occurrence	T		10S													-	-	-	-
43	Waterfowl	Hooded merganser	Nesting			Possible													Feb-Jun	-	-	-
	Waterfowl	Hooded merganser	Wintering			High													-	-	-	-
	Waterfowl	Mottled duck	Nesting			Possible													Feb-Jun	-	-	Jul-Aug
	Waterfowl	Teals	Wintering			High													-	-	-	-
44	Shorebird	Red knot	Migration		T	-													-	Apr-Jun	Jul-Oct	-
	Shorebird	Ruddy turnstone	Migration			-													-	Apr-Jun	Jul-Oct	-
	Shorebird	Sanderling	Migration			-													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			High													-	-	-	-
45	Waterfowl	Bufflehead	Rafting			High													-	-	-	-
	Waterfowl	Mergansers	Rafting			High													-	-	-	-
	Waterfowl	Scaup	Rafting			High													-	-	-	-

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mig.(F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D		
46	Gull/Tern	Least tern	Nesting			-												Apr-Aug	-	-
	Shorebird	American oystercatcher	Nesting			3 Adults												Mar-Aug	-	-
	Shorebird	American oystercatcher	Roosting			7 Adults												-	-	-
	Shorebird	Whimbrel	Migration			High												Apr-Jun	-	-
47	Waterfowl	Scaup	Rafting			10,000S												-	-	-
	Waterfowl	Scoters	Rafting			10,000S												-	-	-
48	Shorebird	American oystercatcher	Nesting			5 Adults												Mar-Aug	-	-

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				
228	Diadromous	American eel	Migration			-													-	-	Jan-May	Sep-Jan
	Diadromous	American shad	Migration			-													-	-	Nov-Jan	Jan-Apr
	Diadromous	Atlantic sturgeon	Concentration Area	E	E	High													-	-	Oct-Jan	Oct-Jan
	Diadromous	Atlantic sturgeon	General Distribution	E	E	Present													-	-	Feb-Sep	Feb-Sep
	Diadromous	Shortnose sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec

REPTILES & AMPHIBIANS

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				
242	Turtle	Green sea turtle	Nesting	T	T	Low													May-Oct	Jul-Oct	-	May-Oct
	Turtle	K. ridley sea turtle	Nesting	E	E	Rare													May-Oct	Jul-Oct	-	May-Oct
	Turtle	Leatherback sea turtle	Nesting	E	E	Low													May-Oct	Jul-Oct	-	May-Oct
	Turtle	Loggerhead sea turtle	Nesting	E	T	High													May-Oct	Jul-Oct	-	May-Oct
243	Turtle	Leatherback sea turtle	General Distribution	E	E	High													-	Apr-Aug	-	Nov-Aug

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				
245	Crab	Horseshoe crab	Spawning Area			High													Apr-Jun	-	-	Apr-Jun

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																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
248	Whale	Humpback whale	General Distribution	E	E	Low																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

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					
 Passerine	Seaside sparrow	Nesting			High													Mar-Aug				
 Waterfowl	Diving ducks	Rafting			100S													-				
	Scoters	Rafting			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	American shad	Migration			-													-				
	Atlantic sturgeon	Concentration Area	E	E	High													-				
	Atlantic sturgeon	General Distribution	E	E	Rare													-				
	Shortnose sturgeon	General Distribution	E	E	Rare													-				
	Shortnose sturgeon	General Distribution	E	E	Present													-				

HABITATS & RARE PLANTS

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					
 Plant	Rare plant	Vulnerable Occurrence			-													-				

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	General Distribution	T	T	-													-				
	K. ridley sea turtle	General Distribution	E	E	-													-				
	Loggerhead sea turtle	General Distribution	E	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	General Distribution	E	E	Low													-			

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)



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				
 Alcids	Alcids																	-			
 Diving	Brown pelican																	-			
	D. crested cormorant																	-			
	Loons																	-			
 Gull/Tern	Black tern																	-			
	Gulls																	-			
	Least tern																	-			




BIRDS (continued)

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Terns													-	-	-	-
	Seaside sparrow													-	-	-	-
	Seaside sparrow													-	Oct-May	-	-
	Black-capped petrel													-	-	-	-
	Jaegers													-	-	-	-
	Northern gannet													-	-	-	-
	Shearwaters													-	-	-	-
	Storm-petrels													-	-	-	-
	Phalaropes													-	-	-	-
	Clapper rail													-	-	-	-
	Dabbling ducks													-	-	-	-
	Diving ducks													-	-	-	-
	Mottled duck													-	-	-	-

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-May	Jan-Dec
	Striped bass													-	-	-	Apr-Sep	Jan-Dec
	Atl. sharpnose shark													-	-	-	Apr-Nov	Apr-Nov
	Atl. sharpnose shark													-	-	-	Apr-Sep	Apr-Sep
	Atlantic croaker													May-Nov	-	-	Apr-Jan	Apr-Jan
	Atlantic croaker													May-Nov	-	-	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	-	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	-	Nov-Aug	Nov-Aug
	Atlantic menhaden													-	-	-	Jan-Jul*	Jan-Jul*
	Atlantic menhaden													-	-	-	Dec-Oct	Dec-Oct
	Atlantic menhaden													-	-	-	Jan-Dec	Jan-Dec
	Black drum													-	-	-	Mar-Jun	Jan-Dec
	Bluefish													-	-	-	Sep-Oct	Sep-Oct
	Bluefish													-	-	-	-	-
	Bonnethead													-	-	-	Apr-Sep	Apr-Sep
	Bonnethead													-	-	-	Apr-Nov	Apr-Nov
	Bonnethead													-	-	-	Jun-Aug	Jun-Aug
	Bull shark													-	-	-	Apr-Oct	Apr-Oct
	Ladyfish													-	-	-	Jun-Aug	Jun-Aug
	Porgies													-	-	-	-	-
	Red drum													Aug-Oct	-	-	-	-
	Red drum													-	-	-	Jan-Dec	Jul-Oct
	Red drum													-	-	-	Jun-Sep	Jun-Sep
	Sheepshead													-	-	-	Jul-Dec	Jan-Dec
	Southern flounder													-	-	-	Nov-Sep	Nov-Sep
	Southern flounder													-	-	-	Jan-Dec	Jan-Dec
	Southern flounder													-	-	-	Jan	Jan
	Southern kingfish													-	-	-	May-Nov	Jan-Dec


FISH (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Southern kingfish													-	-	-	Jan-Dec
	Spot													-	Jan-Jun	Jan-Dec	Jan-Dec
	Spot													-	Nov-May	Apr-Feb	Apr-Feb
	Spotted seatrout													-	Apr-Oct	Nov-Jun*	Nov-Jun*
	Spotted seatrout													-	Apr-Oct	Jun-Feb	Jun-Feb
	Spotted seatrout													-	Apr-Oct	Dec-Feb	Dec-Feb
	Spotted seatrout													Apr-Sep	-	Dec-Jan	Jan-Dec
	Spotted seatrout													-	Apr-Oct	Dec-Jun*	Dec-Jun*
	Star drum													-	May-Aug	Jan-Dec	Jan-Dec
	Star drum													-	May-Aug	Feb-Dec	Feb-Dec
	Star drum													-	-	Jan-Dec	Jan-Dec
	Striped mullet													-	-	Jun-Aug	Jun-Aug
	Weakfish													-	-	Mar-Jan	Mar-Jan
	Weakfish													-	Apr-Nov	Jan-Dec	Jan-Dec
 Fish	Great hammerhead													-	-	-	-
 Marine Benthic	Florida pompano													-	-	-	-
	Lemon shark													-	-	-	-
	Smooth dogfish													-	-	-	Dec-Apr
 Marine Pelagic	Atlantic tripletail													-	-	Mar-Nov	Mar-Nov
	Blacknose shark													-	-	Apr-Sep	Apr-Sep
	Blacktip shark													-	Apr-Sep	Apr-Sep	-
	Blacktip shark													-	-	May-Oct	May-Oct
	Cobia													-	-	-	-

FISH (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Finetooth shark													-	-	-	-
	Giant manta													-	-	-	-
	King mackerel													-	-	-	-
	Sandbar shark													-	-	Apr-Nov	Apr-Nov
	Sandbar shark													-	Apr-Sep	Apr-Sep	-
	Scalloped hammerhead													-	-	-	-
	Spanish mackerel													-	-	-	-
	Spanish mackerel													-	-	Aug	Aug
	Spinner shark													-	-	-	-
	Spiny dogfish													-	-	-	Dec-Apr
	Tiger shark													-	Apr-Nov	Apr-Nov	Apr-Nov
	White shark													-	-	Dec-Apr	Dec-Apr

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
 Cephalopod	Atlantic brief squid													-	-	-	Jan-Dec
Crab	Blue crab													-	Apr-Jun	Jun-Apr*	Jun-Apr*

INVERTEBRATES (continued)

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

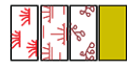
MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
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	8,131.61	12.71
10C	Swamps	201.12	0.31
10D	Scrub and Shrub Wetlands	165.83	0.26
7	Exposed Tidal Flats	21.14	0.03

ESI SHORELINE HABITAT TYPES

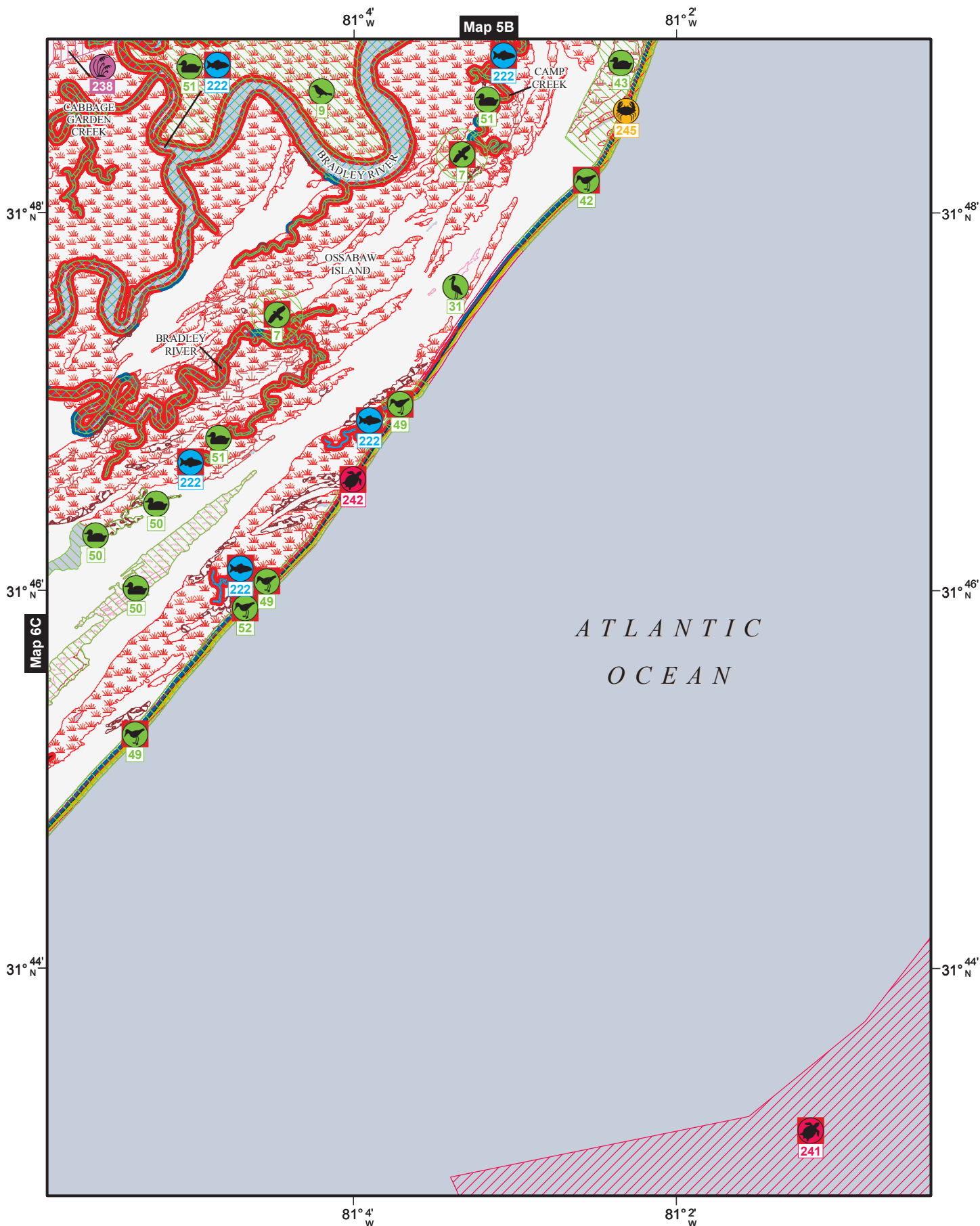
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	236,913.25	147.21	89%
10C	Swamps	54.94	0.03	< 1%
10D	Scrub and Shrub Wetlands	1,060.20	0.66	< 1%
8A	Sheltered, Impermeable, Rocky Shores	269.21	0.17	< 1%
8B	Sheltered, Solid Man-Made Structures	198.41	0.12	< 1%
8C	Sheltered Riprap	31.51	0.02	< 1%
7	Exposed Tidal Flats	9,306.18	5.78	4%
6A	Gravel Beaches	4,574.51	2.84	2%
5	Mixed Sand and Gravel Beaches	2,074.59	1.29	1%
3A	Fine to Medium Grained Sand Beaches	7,975.09	4.96	3%
3B	Scarps and Steep Slopes (Sand)	3,413.58	2.12	1%

Total ESI Shoreline: 265,871.46 Total ESI Shoreline: 165.20
Total Shoreline: 242,035.92 Total Shoreline: 150.39

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

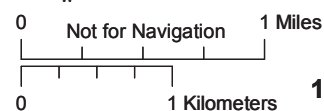




Map 5C
Georgia



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: June 2015



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Map 5C
Georgia

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				
7	Raptor	Bald eagle	Nesting	T		1 Nest													Sep-Apr	-	-	-
9	Passerine	Seaside sparrow	Nesting			High													Mar-Aug	-	-	-
31	Wading	Wading birds	Nesting			-													Apr-Aug	-	-	-
42	Shorebird	American oystercatcher	Nesting			4 Adults													Mar-Aug	-	-	-
	Shorebird	American oystercatcher	Wintering			-													-	-	-	-
	Shorebird	Dunlin	Wintering			1,000S													-	-	-	-
	Shorebird	Piping plover	Wintering	T	T	-													-	-	-	-
	Shorebird	Red knot	Migration		T	High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			High													-	-	-	-
	Shorebird	Wilson's plover	Nesting	T		10 Adults													Mar-Jul	-	-	-
	Shorebird	Wilson's plover	Vulnerable Occurrence	T		10S													-	-	-	-
43	Waterfowl	Hooded merganser	Nesting			Possible													Feb-Jun	-	-	-
	Waterfowl	Hooded merganser	Wintering			High													-	-	-	-
	Waterfowl	Mottled duck	Nesting			Possible													Feb-Jun	-	-	Jul-Aug
	Waterfowl	Teals	Wintering			High													-	-	-	-
49	Shorebird	American oystercatcher	Wintering			-													-	-	-	-
	Shorebird	Dunlin	Wintering			1,000S													-	-	-	-
	Shorebird	Piping plover	Wintering	T	T	-													-	-	-	-
	Shorebird	Red knot	Migration		T	-													-	Apr-Jun	Jul-Oct	-
	Shorebird	Red knot	Wintering		T	-													-	-	-	-
	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
	Shorebird	Wilson's plover	Vulnerable Occurrence	T		10S													-	-	-	-
50	Waterfowl	American coot	Wintering			100S													-	-	-	-
	Waterfowl	Blue-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Dabbling ducks	Wintering			10S													-	-	-	-
	Waterfowl	Diving ducks	Wintering			100S													-	-	-	-
	Waterfowl	Gadwall	Wintering			100S													-	-	-	-
	Waterfowl	Green-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Hooded merganser	Nesting			Possible													Feb-Jun	-	-	-
	Waterfowl	Hooded merganser	Wintering			High													-	-	-	-
	Waterfowl	Northern shoveler	Wintering			10S													-	-	-	-
	Waterfowl	Ring-necked duck	Wintering			100S													-	-	-	-
	Waterfowl	Wood duck	Nesting			-													Jan-Jul	-	-	-
	Waterfowl	Wood duck	Wintering			High													-	-	-	-

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				
51	Waterfowl	Blue-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Gadwall	Wintering			100S													-	-	-	-
	Waterfowl	Green-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Mottled duck	Nesting			Possible												Feb-Jun	-	-	-	Jul-Aug
	Waterfowl	Scaup	Wintering			100S													-	-	-	-
52	Shorebird	Wilson's plover	Nesting	T		30 Adults												Mar-Jul	-	-	-	-

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					
222	Diadromous	Atlantic sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Shortnose sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec

HABITATS & RARE PLANTS

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					
238	Plant	Rare plant	Vulnerable Occurrence			-													-	-	-	-	-


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					
241	Turtle	Green sea turtle	General Distribution	T	T	Low													-	-	Apr-Aug	-	Apr-Sep
	Turtle	K. ridley sea turtle	General Distribution	E	E	-													-	-	Apr-Aug	Nov-Apr	Nov-Aug
242	Turtle	Loggerhead sea turtle	General Distribution	E	T	-													-	-	Apr-Aug	Nov-Apr	Nov-Aug
	Turtle	Green sea turtle	Nesting	T	T	Low													May-Oct	Jul-Oct	-	-	May-Oct
	Turtle	K. ridley sea turtle	Nesting	E	E	Rare													May-Oct	Jul-Oct	-	-	May-Oct
	Turtle	Leatherback sea turtle	Nesting	E	E	Low													May-Oct	Jul-Oct	-	-	May-Oct
	Turtle	Loggerhead sea turtle	Nesting	E	T	High													May-Oct	Jul-Oct	-	-	May-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					
245	Crab	Horseshoe crab	Spawning Area			High													Apr-Jun	Apr-Jun	-	-	Apr-Jun


BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mtg.(S)	Mtg.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
	Waterfowl																	-	-	-	-
	Long-tailed duck	Wintering			10S													-	-	-	-
	Mergansers	Wintering			100S													-	-	-	-
	Scaup	Rafting			10,000S													-	-	-	-
	Scoters	Rafting			10,000S													-	-	-	-



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	Migration			-													-	-	-	-	Sep-Jan
	American shad	Migration			-													-	-	-	-	Jan-Apr
	Atlantic sturgeon	Concentration Area	E	E	High													-	-	-	-	Oct-Jan
	Atlantic sturgeon	General Distribution	E	E	Present													-	-	-	-	Feb-Sep
	Shortnose sturgeon	General Distribution	E	E	Rare													-	-	-	-	Jan-Dec







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	General Distribution	T	T	-													-	-	-	-	Apr-Oct
	K. ridley sea turtle	General Distribution	E	E	-													-	-	-	-	-
	Leatherback sea turtle	General Distribution	E	E	High													-	-	-	-	Nov-Aug
	Loggerhead sea turtle	General Distribution	E	T	-													-	-	-	-	Apr-Sep



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	Low													-	-	-	-
	Humpback whale	General Distribution	E	E	Low													-	-	-	-
	N.A. right whale	Calving	E	E	30-150													-	Nov-Apr	-	-

BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
 Alcid	Alcids													-	-	-	-
	Brown pelican													-	-	-	-
	D. crested cormorant													-	-	-	-
 Gull/Tern	Loons													-	-	-	-
	Black tern													-	-	-	-
	Gulls													-	-	-	-
 Passerine	Least tern													-	-	-	-
	Terns													-	-	-	-
	Seaside sparrow													-	Oct-May	-	-
 Pelagic	Seaside sparrow													-	-	-	-
	Black-capped petrel													-	-	-	-
	Jaegers													-	-	-	-
 Shorebird	Northern gannet													-	-	-	-
	Shearwaters													-	-	-	-
	Storm-petrels													-	-	-	-
 Waterfowl	Phalaropes													-	-	-	-
	Dabbling ducks													-	-	-	-
	Diving ducks													-	-	-	-
	Mottled duck													-	-	-	-





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-May	Jan-Dec
	Striped bass													-	-	-	Apr-Sep	Jan-Dec
 Estuarine Nursery	Atl. sharpnose shark													-	-	-	Apr-Nov	Apr-Nov
	Atlantic croaker													May-Nov	-	-	Jan-Dec	Jan-Dec
	Atlantic croaker													-	-	-	-	-
	Atlantic croaker													May-Nov	-	-	May-Nov	May-Nov
	Atlantic croaker													May-Nov	-	-	Apr-Jan	Apr-Jan
	Atlantic croaker													May-Nov	-	-	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	-	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	-	Jan-Jul*	Jan-Jul*
	Atlantic menhaden													-	-	-	Sep-Jul*	Sep-Jul*
	Black drum													-	-	-	Jan-Dec	Jan-Dec
	Bluefish													-	-	-	-	-
	Bonnethead													-	-	-	Apr-Nov	Apr-Nov
	Bull shark													-	-	-	Apr-Oct	Apr-Oct
	Porgies													-	-	-	-	-
	Red drum													Aug-Oct	-	-	-	-
	Red drum													-	-	-	-	-
	Red drum													-	-	-	Jun-Nov	Jan-Dec
	Red drum													-	-	-	Jul-Oct	Jul-Oct

FISH (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Sheepshead													-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder													-	-	Nov-Jul*	Nov-Jul*
	Southern flounder													-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern flounder													-	-	Jan	Jan
	Southern kingfish													-	-	-	Jan-Dec
	Southern kingfish													-	May-Nov	-	Jan-Dec
	Southern kingfish													-	-	-	-
	Spot													-	Nov-May	Apr-Feb	Apr-Feb
	Spot													-	Nov-May	Jan-Dec	Jan-Dec
	Spot													-	-	-	-
	Spot													-	Jan-Jun	Jan-Dec	Jan-Dec
	Spotted seatrout													-	Apr-Oct	Dec-Jun*	Dec-Jun*
	Spotted seatrout													Apr-Sep	-	Dec-Jan	Jan-Dec
	Star drum													-	-	Jan-Dec	Jan-Dec
	Star drum													-	-	-	-
	Star drum													-	May-Aug	Jan-Dec	Jan-Dec
	Weakfish													-	-	-	-
	Weakfish													-	-	Jan-Dec	Jan-Dec
	Weakfish													-	-	Mar-Jan	Mar-Jan
	Weakfish													-	Apr-Nov	Jan-Dec	Jan-Dec
	Great hammerhead													-	-	-	-
	Florida pompano													-	-	-	-
	Lemon shark													-	-	-	-
	Smooth dogfish													-	-	-	Dec-Apr
	Atlantic tripletail													-	-	Mar-Nov	Mar-Nov
	Blacknose shark													-	-	Apr-Sep	Apr-Sep
	Blacktip shark													-	-	May-Oct	May-Oct
	Cobia													-	-	-	-
	Finetooth shark													-	-	-	-
	Giant manta													-	-	-	-
	King mackerel													-	-	-	-
	Sandbar shark													-	-	Apr-Nov	Apr-Nov
	Scalloped hammerhead													-	-	-	-
	Spanish mackerel													-	-	-	-
	Spanish mackerel													-	-	Aug	Aug
	Spinner shark													-	-	-	-
	Spiny dogfish													-	-	-	Dec-Apr
	Tiger shark													-	Apr-Nov	Apr-Nov	Apr-Nov
	White shark													-	-	Dec-Apr	Dec-Apr

INVERTEBRATES

	Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
			J	F	M	A	M	J	J	A	S	O	N	D					
	Cephalopod	Atlantic brief squid													-	-	-	-	-
	Crab	Atlantic brief squid													-	-	-	-	-
		Blue crab													-	-	-	-	-
		Blue crab													Mar-Aug	Mar-Aug	Apr-Jun	Jul-Apr*	Jan-Dec
		Blue crab													Mar-Aug	Mar-Aug	Apr-Jun	Jul-Apr*	Jan-Dec
		Horseshoe crab													-	-	-	-	-
		Horseshoe crab													-	-	-	-	-
	Invertebrate	Cannonball jellyfish													-	-	-	-	-
	Shrimp	Brown shrimp													-	-	-	-	-
		Brown shrimp													-	-	-	-	-
		Brown shrimp													-	-	-	-	-
		Brown shrimp													-	-	-	-	-
		Pink shrimp													-	-	-	-	-
		White shrimp													-	-	-	-	-
		White shrimp													-	-	-	-	-
		White shrimp													-	-	-	-	-

MARINE MAMMALS

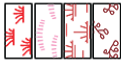
	Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
			J	F	M	A	M	J	J	A	S	O	N	D				
	Dolphin	Bottlenose dolphin													-	-	-	-

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	3,230.74	5.05
10B	Freshwater Marshes	107.77	0.17
10C	Swamps	182.26	0.28
10D	Scrub and Shrub Wetlands	108.80	0.17



ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	71,801.89	44.62	76%
10C	Swamps	801.79	0.50	1%
10D	Scrub and Shrub Wetlands	1,392.86	0.87	1%
7	Exposed Tidal Flats	9,808.94	6.10	10%
3A	Fine to Medium Grained Sand Beaches	9,808.94	6.10	10%
3B	Scarps and Steep Slopes (Sand)	1,170.29	0.73	1%
Total ESI Shoreline:		94,784.71	58.90	
Total Shoreline:		80,116.43	49.78	

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 6
Georgia

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Phone
1	ARTIFICIAL REEF	BEAR RIVER	
2	ARTIFICIAL REEF	OGEECHEE REEF	
3	BOAT RAMP	DEMERIES CREEK BOAT RAMP	
4	BOAT RAMP	FORT MCALLISTER BOAT RAMP	
5	BOAT RAMP	FT. MCALLISTER CMPGD REDBIRD BOAT RAMP	
6	BOAT RAMP	SUNBURY BOAT RAMP	
7	MARINA	FORT MCALLISTER MARINA	
8	MARINA	KILKENNY FISH CAMP	
9	REPEATED MEASUREMENT SITE	BMS - SOUTH OSSABAW	

DISPLAYED ON MAP (POLYGONS)			
Map ID	Type	Name	Phone
10	CRITICAL HABITAT	LOGGERHEAD TURTLE CRITICAL HABITAT	
11	CRITICAL HABITAT	PIPING PLOVER CRITICAL HABITAT	
12	MANAGEMENT AREA	OSSABAW ISLAND WILDLIFE MANAGEMENT AREA	GEORGIA DEPARTMENT OF NATURAL RESOURCES
13	MANAGEMENT AREA	RICHMOND HILL WILDLIFE MANAGEMENT AREA	GEORGIA DEPARTMENT OF NATURAL RESOURCES
14	PARK	FORT MCALLISTER STATE PARK	912/727-2339


JURISDICTIONS			
COUNTY:	BRYAN COUNTY, CHATHAM COUNTY, LIBERTY COUNTY		
COAST GUARD:	COAST GUARD DISTRICT 7, COAST GUARD SECTOR CHARLESTON		
USACE:	SOUTH ATLANTIC DIVISION, SAVANNAH DISTRICT		
FEMA:	REGION IV		
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	38,657.32	60.40
	10B	Freshwater Marshes	771.59	1.21
	10C	Swamps	7,600.86	11.88
	10D	Scrub and Shrub Wetlands	553.84	0.87

ESI SHORELINE HABITAT TYPES

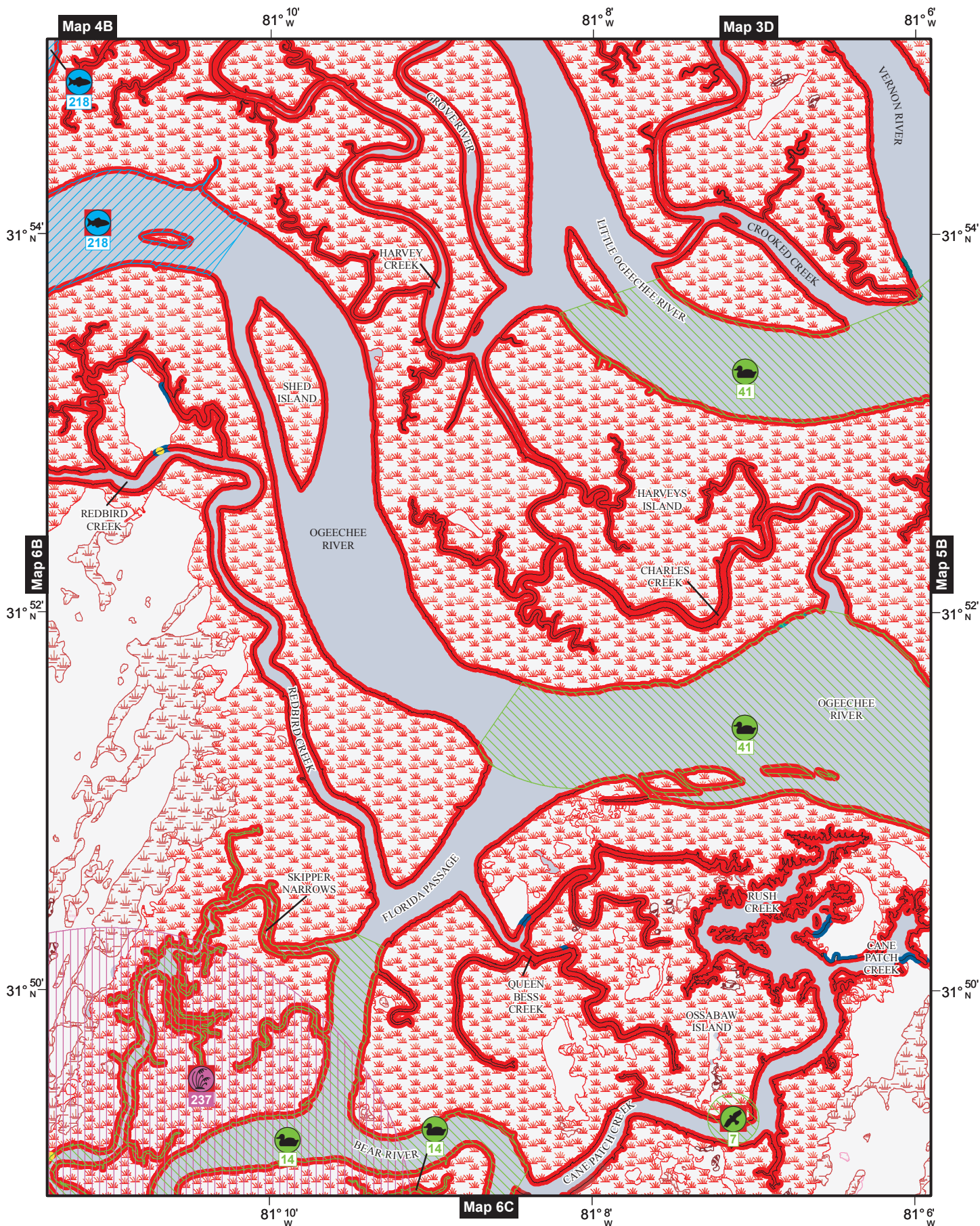
	<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
	10A	Salt and Brackish Water Marshes	902,974.95	561.08	94%
	10B	Freshwater Marshes	471.07	0.29	< 1%
	10C	Swamps	1,863.53	1.16	< 1%
	10D	Scrub and Shrub Wetlands	1,599.74	0.99	< 1%
	9A	Sheltered Tidal Flats	11,544.01	7.17	1%
	9B	Vegetated Low Banks	3,286.25	2.04	< 1%
	8B	Sheltered, Solid Man-Made Structures	4,477.01	2.78	< 1%
	8C	Sheltered Riprap	4,994.27	3.10	1%
	7	Exposed Tidal Flats	6,213.75	3.86	1%
	6A	Gravel Beaches	8,471.84	5.26	1%
	5	Mixed Sand and Gravel Beaches	613.14	0.38	< 1%
	3A	Fine to Medium Grained Sand Beaches	6,113.15	3.80	1%
	3B	Scarps and Steep Slopes (Sand)	9,445.03	5.87	1%

Total ESI Shoreline: 962,067.74 Total ESI Shoreline: 597.80
 Total Shoreline: 929,752.45 Total Shoreline: 577.72

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

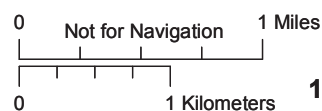




Map 6A
Georgia



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: June 2015



1:50,000



Map 6A
Georgia

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
				T			J	F	M	A	M	J	J	A	S	O	N	D	Sep-Apr				
7	Raptor	Bald eagle	Nesting			1 Nest																	
14	Waterfowl	Diving ducks	Wintering			100S																	
	Waterfowl	Scaup	Wintering			10S																	
41	Waterfowl	Diving ducks	Rafting			100S																	
	Waterfowl	Scoters	Rafting			100S																	

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
				E			J	F	M	A	M	J	J	A	S	O	N	D					
218	Freshwater	Robust rehorse	Vulnerable Occurrence			-																	

HABITATS & RARE PLANTS


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence																
				T			J	F	M	A	M	J	J	A	S	O	N	D					
237	Plant	Threatened plant	Vulnerable Occurrence			-																	

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

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					
	Passerine	Seaside sparrow	Nesting			High													Mar-Aug				
	Wading	Clapper rail	Nesting			High													Mar-Sep				
	Waterfowl	Blue-winged teal	Wintering			100S																	
		Gadwall	Wintering			100S																	
		Green-winged teal	Wintering			100S																	
		Mergansers	Wintering			100S																	
		Mottled duck	Nesting			Possible													Feb-Jun				Jul-Aug
		Scaup	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	American shad	Migration			-													-	Apr-May	May-Dec	Jan-Apr
	Atlantic sturgeon	Concentration Area	E	E	High													-	-	Jan-Dec	Jan-Dec
	Atlantic sturgeon	General Distribution	E	E	Rare													-	-	Jan-Dec	Jan-Dec
	Shortnose sturgeon	General Distribution	E	E	Rare													-	-	Jan-Dec	Jan-Dec
	Shortnose sturgeon	General Distribution	E	E	Present													-	-	Nov-Mar	Jan-Dec

HABITATS & RARE PLANTS

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				
 Plant	Rare plant	Vulnerable Occurrence			-													-	-	-	-

REPTILES & AMPHIBIANS




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				
 Turtle	Green sea turtle	General Distribution	T	T	-													-	Apr-Aug	Jan-Dec	Apr-Oct
	K. ridley sea turtle	General Distribution	E	E	-													-	Apr-Aug	Jan-Dec	-
	Loggerhead sea turtle	General Distribution	E	T	-													-	Apr-Aug	Jan-Dec	Apr-Sep

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	Low													-	-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)




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				
 Passerine	Seaside sparrow																	-	Oct-May	-	-
	Seaside sparrow																	-	-	-	-
 Wading	Clapper rail																	-	-	-	-
 Waterfowl	Dabbling ducks																	-	-	-	-
	Diving ducks																	-	-	-	-
	Mottled duck																	-	-	-	-

FISH

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
 Diadromous	American eel													-	-	Jan-May	Jan-Dec
	Striped bass													-	-	Apr-Sep	Jan-Dec
 Estuarine Nursery	Atlantic croaker													May-Nov	Nov-Apr	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	Dec-May	Jan-Dec	Jan-Dec
	Black drum													-	Mar-Jun	Jan-Dec	Jan-Dec
	Red drum													-	Jun-Nov	Jan-Dec	Jul-Oct
	Sheepshead													-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder													-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern kingfish													-	May-Nov	-	Jan-Dec
	Spot													-	Jan-Jun	Jan-Dec	Jan-Dec
	Spotted seatrout													-	Apr-Oct	Nov-Jun*	Nov-Jun*
	Spotted seatrout													-	Apr-Oct	Dec-Jun*	Dec-Jun*
	Star drum													-	May-Aug	Jan-Dec	Jan-Dec
	Weakfish													-	Apr-Nov	Jan-Dec	Jan-Dec
 Freshwater	Catfish													-	-	-	-
	Largemouth bass													-	-	-	-
	Sunfish													-	-	-	-
	Atlantic tripletail													-	-	Mar-Nov	Mar-Nov
	Spanish mackerel													-	-	Aug	Aug

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
 Cephalopod	Atlantic brief squid													-	-	-	Jan-Dec
	Blue crab													-	-	Jan-Dec	Jan-Dec
	Horseshoe crab													-	-	Sep-Jul	Sep-Jul
	Horseshoe crab													-	-	Jan-Dec	Jan-Dec
 Invertebrate	Cannonball jellyfish													-	-	-	-
	Brown shrimp													-	Mar-Jun	May-Feb*	May-Feb*
 Shrimp	White shrimp													-	-	Jan-Dec	Jan-Dec

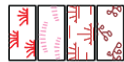
MARINE MAMMALS

Subelement	Species	Monthly Presence												Calving	Pupping	Molt
		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



<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	14,008.83	21.89
10B	Freshwater Marshes	8.47	0.01
10C	Swamps	736.70	1.15
10D	Scrub and Shrub Wetlands	28.42	0.04

ESI SHORELINE HABITAT TYPES

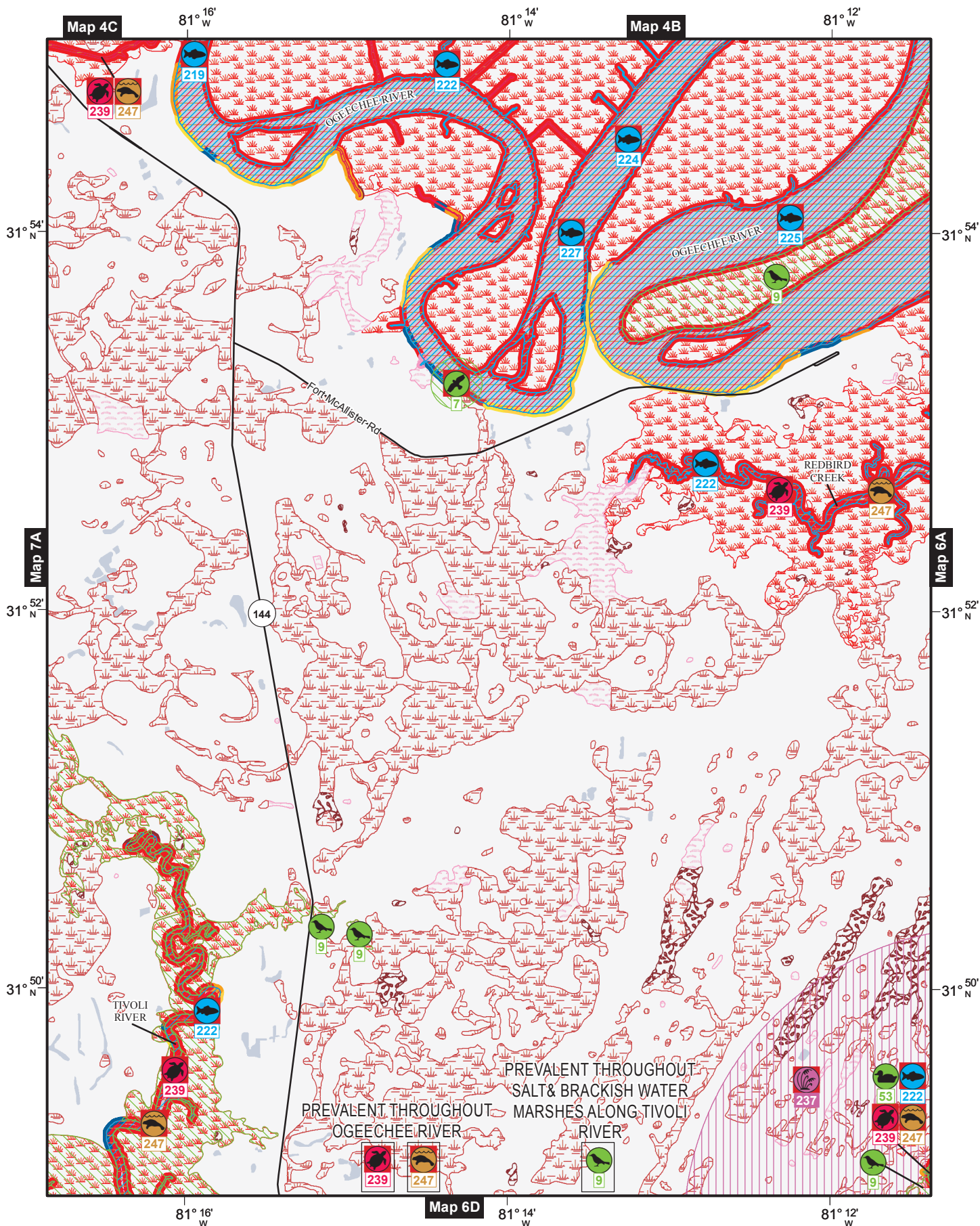
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt and Brackish Water Marshes	318,043.46	197.62	99%
10C	Swamps	521.23	0.32	< 1%
10D	Scrub and Shrub Wetlands	148.77	0.09	< 1%
8B	Sheltered, Solid Man-Made Structures	39.13	0.02	< 1%
6A	Gravel Beaches	409.62	0.25	< 1%
5	Mixed Sand and Gravel Beaches	149.06	0.09	< 1%
3B	Scarps and Steep Slopes (Sand)	1,548.11	0.96	< 1%

Total ESI Shoreline: 320,859.38 Total ESI Shoreline: 199.37
 Total Shoreline: 319,664.24 Total Shoreline: 198.63

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 6B
Georgia



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: June 2015

0 Not for Navigation 1 Miles
0 1 Kilometers

1:50,000



Map 6B
Georgia

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				
7	Raptor	Bald eagle	Nesting	T		1 Nest													Sep-Apr	-	-	-
9	Passerine	Seaside sparrow	Nesting			High													Mar-Aug	-	-	-
53	Waterfowl	Blue-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Diving ducks	Wintering			100S													-	-	-	-
	Waterfowl	Green-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Scaup	Wintering			10S													-	-	-	-

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					
219	Diadromous	Shortnose sturgeon	Concentration Area	E	E	High													-	-	-	Jan-Dec	Jan-Dec
222	Diadromous	Atlantic sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Shortnose sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec
224	Diadromous	Shortnose sturgeon	General Distribution	E	E	Present													-	-	-	Nov-Mar	Jan-Dec
225	Diadromous	American shad	Migration			-													-	-	Apr-May	May-Dec	Jan-Apr
	Diadromous	Atlantic sturgeon	Concentration Area	E	E	High													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Shortnose sturgeon	General Distribution	E	E	Present													-	-	-	Nov-Mar	Jan-Dec
	Freshwater	Robust redborse	Vulnerable Occurrence	E		-													-	-	-	-	-
227	Diadromous	American shad	Migration			-													-	-	Apr-May	May-Dec	Jan-Apr
	Diadromous	Atlantic sturgeon	Concentration Area	E	E	High													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Robust redborse	Vulnerable Occurrence	E		-													-	-	-	-	-

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
237	Plant	Threatened plant	Vulnerable Occurrence	T		-												

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					
239	Turtle	Green sea turtle	General Distribution	T	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Oct
	Turtle	K. ridley sea turtle	General Distribution	E	E	-													-	-	Apr-Aug	Jan-Dec	-
	Turtle	Loggerhead sea turtle	General Distribution	E	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Sep

MARINE MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
247	Manatee	West Indian manatee	General Distribution	E	E	Low	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	
Wading	Clapper rail	Nesting			High	J	F	M	A	M	J	J	A	S	O	N	D	Mar-Sep				

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)




BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
Passerine	Seaside sparrow																
	Seaside sparrow																
Wading	Clapper rail																
	Dabbling ducks																

FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
Diadromous	American eel																Jan-May	Jan-Dec
	Striped bass																Apr-Sep	Jan-Dec
Estuarine Nursery	Atlantic croaker													May-Nov		Nov-Apr	Jan-Dec	Jan-Dec
	Atlantic menhaden															Dec-May	Jan-Dec	Jan-Dec
	Black drum															Mar-Jun	Jan-Dec	Jan-Dec
	Red drum															Jun-Nov	Jan-Dec	Jul-Oct
	Sheepshead															Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder															Feb-Apr	Jan-Dec	Jan-Dec
	Southern kingfish															May-Nov		Jan-Dec
	Spot															Jan-Jun	Jan-Dec	Jan-Dec
	Spotted seatrout															Apr-Oct	Nov-Jun*	Nov-Jun*
	Spotted seatrout															Apr-Oct	Dec-Jun*	Dec-Jun*
	Star drum															May-Aug	Jan-Dec	Jan-Dec
	Weakfish															Apr-Nov	Jan-Dec	Jan-Dec
Freshwater	Catfish																	
	Largemouth bass																	
	Sunfish																	
Marine Pelagic	Atlantic tripletail																Mar-Nov	Mar-Nov
	Spanish mackerel																Aug	Aug

INVERTEBRATES


Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
 Cephalopod	Atlantic brief squid													-	-	-	Jan-Dec
	Blue crab													-	-	-	Jan-Dec
 Invertebrate	Horseshoe crab													-	-	-	Jan-Dec
	Horseshoe crab													-	-	-	Sep-Jul
	Cannonball jellyfish													-	-	-	Jan-Dec
	Cannonball jellyfish													-	-	-	Jan-Dec
 Shrimp	Brown shrimp													-	-	-	May-Feb*
	White shrimp													-	-	-	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													-	-	-	-

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)	Area (Sq. Miles)
 10A	Salt and Brackish Water Marshes	4,605.53	7.20
10B	Freshwater Marshes	358.14	0.56
10C	Swamps	4,735.17	7.40
10D	Scrub and Shrub Wetlands	267.05	0.42

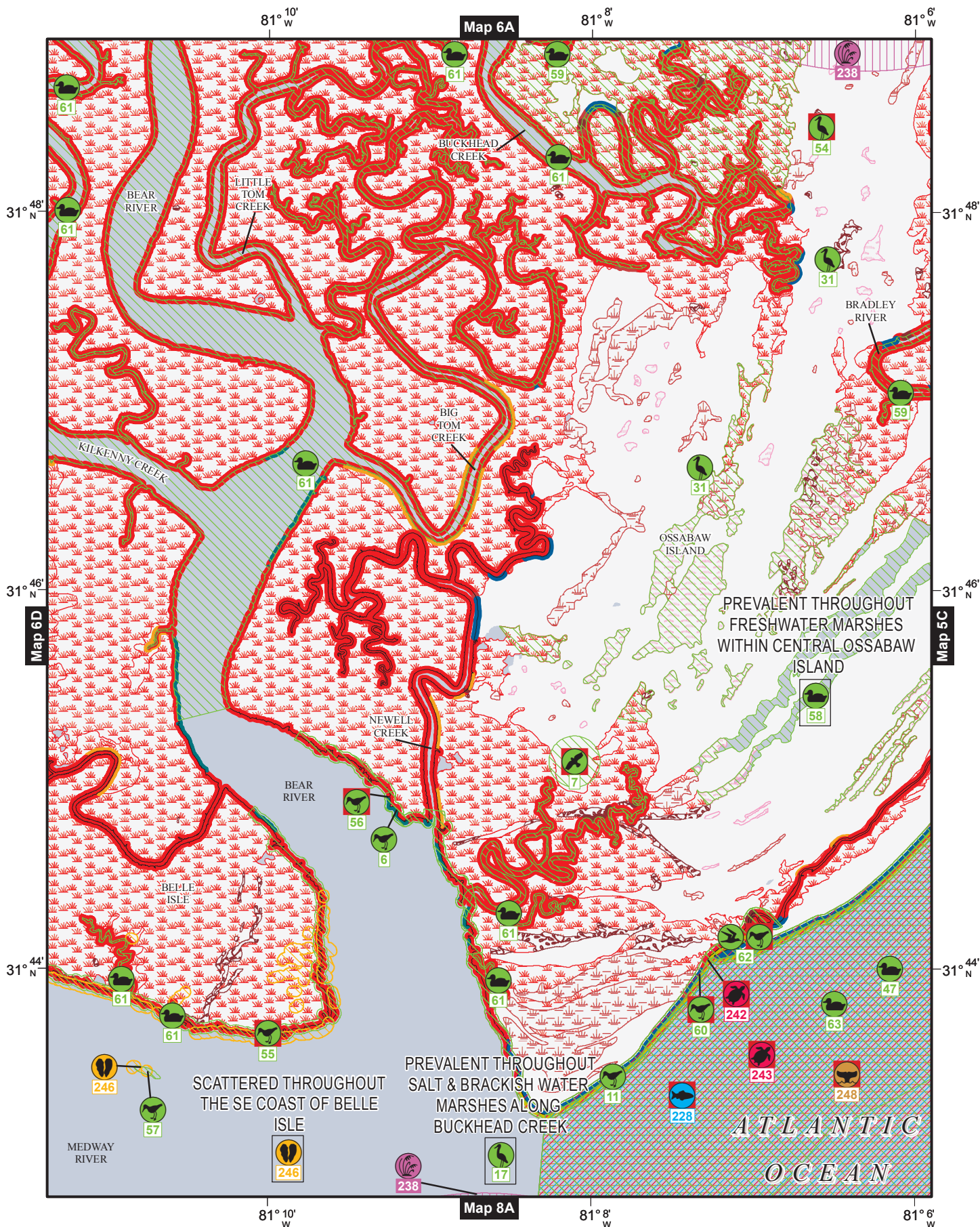
ESI SHORELINE HABITAT TYPES		Length (Meters)		Length (Miles)		% of ESI Shoreline	
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	Length (Miles)	% of ESI Shoreline	% of ESI Shoreline	% of ESI Shoreline
 10A	Salt and Brackish Water Marshes	87,892.17	54.61	54.61	87%	87%	87%
10B	Freshwater Marshes	471.07	0.29	0.29	< 1%	< 1%	< 1%
10C	Swamps	338.65	0.21	0.21	< 1%	< 1%	< 1%
10D	Scrub and Shrub Wetlands	340.16	0.21	0.21	< 1%	< 1%	< 1%
9B	Vegetated Low Banks	1,899.03	1.18	1.18	2%	2%	2%
8B	Sheltered, Solid Man-Made Structures	3,569.66	2.22	2.22	4%	4%	4%
8C	Sheltered Riprap	3,720.21	2.31	2.31	4%	4%	4%
3B	Scarps and Steep Slopes (Sand)	2,449.60	1.52	1.52	2%	2%	2%

Total ESI Shoreline: 100,680.55
Total ESI Shoreline: 62.56
Total Shoreline: 99,656.86
Total Shoreline: 61.92

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 6C
Georgia



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: June 2015

0 Not for Navigation 1 Miles
0 1 Kilometers
1:50,000



Map 6C
Georgia

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	Shorebird	American oystercatcher	Nesting			2 Adults													Mar-Aug	-	-	-
7	Raptor	Bald eagle	Nesting	T		1 Nest													Sep-Apr	-	-	-
11	Shorebird	Shorebirds	Migration			High													Apr-Jun	Jul-Oct	-	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
17	Wading	Clapper rail	Nesting			High													Mar-Sep	-	-	-
31	Wading	Wading birds	Nesting			-													Apr-Aug	-	-	-
47	Waterfowl	Scaup	Rafting			10,000S													-	-	-	-
	Waterfowl	Scoters	Rafting			10,000S													-	-	-	-
54	Wading	Wading birds	Nesting			-													Apr-Aug	-	-	-
	Wading	Wood stork	Nesting	E	T	90 Nests													Mar-Aug	-	-	-
55	Shorebird	American oystercatcher	Wintering			10S													-	-	-	-
	Shorebird	Dunlin	Wintering			10,000S													-	-	-	-
	Shorebird	Red knot	Wintering		T	100S													-	-	-	-
	Shorebird	Shorebirds	Migration			High													Apr-Jun	Jul-Oct	-	-
56	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
	Shorebird	American oystercatcher	Wintering			10S													-	-	-	-
	Shorebird	Dunlin	Wintering			10,000S													-	-	-	-
	Shorebird	Red knot	Wintering		T	100S													-	-	-	-
57	Shorebird	American oystercatcher	Nesting			6 Adults													Mar-Aug	-	-	-
	Shorebird	Shorebirds	Migration			High													Apr-Jun	Jul-Oct	-	-
	Shorebird	Shorebirds	Wintering			High													-	-	-	-
58	Waterfowl	American coot	Wintering			100S													-	-	-	-
	Waterfowl	Dabbling ducks	Wintering			10S													-	-	-	-
	Waterfowl	Gadwall	Wintering			100S													-	-	-	-
	Waterfowl	Hooded merganser	Nesting			Possible													Feb-Jun	-	-	-
	Waterfowl	Hooded merganser	Wintering			High													-	-	-	-
	Waterfowl	Northern shoveler	Wintering			10S													-	-	-	-
	Waterfowl	Ring-necked duck	Wintering			100S													-	-	-	-
	Waterfowl	Wood duck	Nesting			-													Jan-Jul	-	-	-
	Waterfowl	Wood duck	Wintering			High													-	-	-	-
59	Waterfowl	Gadwall	Wintering			100S													-	-	-	-
	Waterfowl	Mottled duck	Nesting			Possible													Feb-Jun	-	-	Jul-Aug
	Waterfowl	Scaup	Wintering			100S													-	-	-	-
60	Shorebird	American oystercatcher	Wintering			-													-	-	-	-
	Shorebird	Dunlin	Wintering			1,000S													-	-	-	-
	Shorebird	Piping plover	Wintering	T	T	-													-	-	-	-
	Shorebird	Red knot	Migration		T	-													Apr-Jun	Jul-Oct	-	-

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Molt
							J	F	M	A	M	J	J	A	S	O	N	D	
	Shorebird	Red knot	Wintering		T	-													-
	Shorebird	Wilson's plover	Vulnerable Occurrence	T		10S													-
61	Waterfowl	Scaup	Wintering			10S													-
62	Gull/Tern	Least tern	Nesting			12 Nests													-
	Shorebird	American oystercatcher	Nesting			6 Adults													-
	Shorebird	Wilson's plover	Nesting	T		46 Adults													-
63	Waterfowl	Long-tailed duck	Wintering			10S													-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Adults
							J	F	M	A	M	J	J	A	S	O	N	D	
228	Diadromous	American eel	Migration			-													Sep-Jan
	Diadromous	American shad	Migration			-													Jan-May
	Diadromous	Atlantic sturgeon	Concentration Area	E	E	High													Nov-Jan
	Diadromous	Atlantic sturgeon	General Distribution	E	E	Present													Oct-Jan
	Diadromous	Shortnose sturgeon	General Distribution	E	E	Rare													Feb-Sep
																			Jan-Dec

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Adults
							J	F	M	A	M	J	J	A	S	O	N	D	
238	Plant	Rare plant	Vulnerable Occurrence			-													-

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Adults
							J	F	M	A	M	J	J	A	S	O	N	D	
242	Turtle	Green sea turtle	Nesting	T	T	Low													May-Oct
	Turtle	K. ridley sea turtle	Nesting	E	E	Rare													May-Oct
	Turtle	Leatherback sea turtle	Nesting	E	E	Low													May-Oct
	Turtle	Loggerhead sea turtle	Nesting	E	T	High													May-Oct
243	Turtle	Leatherback sea turtle	General Distribution	E	E	High													Nov-Aug



INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Adults
							J	F	M	A	M	J	J	A	S	O	N	D	
246	Bivalve	Eastern oyster	Concentration Area			Reef													Jan-Dec


MARINE MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Molt
							J	F	M	A	M	J	J	A	S	O	N	D	
248	Whale	Humpback whale	General Distribution	E	E	Low													-
	Whale	N.A. right whale	Calving	E	E	30-150													-

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				
 	Seaside sparrow	Nesting			High													Mar-Aug	-	-	-
	Blue-winged teal	Wintering			100S													-	-	-	-
	Diving ducks	Rafting			100S													-	-	-	-
	Wintering	Wintering			100S													-	-	-	-
	Green-winged teal	Wintering			100S													-	-	-	-
	Mergansers	Wintering			100S													-	-	-	-
	Scaup	Rafting			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					
	Atlantic sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec
	Shortnose sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec

HABITATS & RARE PLANTS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence																
	Threatened plant	Vulnerable Occurrence	T		-													-	-	-	-	-

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	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Oct
	K. ridley sea turtle	General Distribution	E	E	-													-	-	Apr-Aug	Jan-Dec	-
	Loggerhead sea turtle	General Distribution	E	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Sep

MARINE MAMMALS





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

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				
 	Alcids													-	-	-	-
	Brown pelican													-	-	-	-
	D. crested cormorant													-	-	-	-
	Loons													-	-	-	-
	Black tern													-	-	-	-
	Gulls													-	-	-	-

BIRDS (continued)

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Least tern													-	-	-	-
	Terns													-	-	-	-
	Seaside sparrow													-	-	-	-
	Seaside sparrow													-	-	-	-
	Black-capped petrel													-	-	-	-
	Jaegers													-	-	-	-
	Northern gannet													-	-	-	-
	Shearwaters													-	-	-	-
	Storm-petrels													-	-	-	-
	Phalaropes													-	-	-	-
	Clapper rail													-	-	-	-
	Dabbling ducks													-	-	-	-
	Diving ducks													-	-	-	-

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-May	Jan-Dec
	Striped bass													-	-	-	Apr-Sep	Jan-Dec
	Atl. sharpnose shark													-	-	-	Apr-Nov	Apr-Nov
	Atl. sharpnose shark													-	-	-	Apr-Sep	Apr-Sep
	Atlantic croaker													May-Nov	-	Nov-Apr	Jan-Dec	Jan-Dec
	Atlantic croaker													May-Nov	-	-	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-May	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-May	Sep-Jul*	Sep-Jul*
	Atlantic menhaden													-	-	Dec-May	Nov-Aug	Nov-Aug
	Black drum													-	-	Mar-Jun	Jan-Dec	Jan-Dec
	Bluefish													-	-	-	-	-
	Bonnethead													-	-	-	Apr-Nov	Apr-Nov
	Bonnethead													-	-	-	Apr-Sep	Apr-Sep
	Bull shark													-	-	Apr-Oct	Apr-Oct	-
	Porgies													-	-	-	-	-
	Red drum													-	-	Jun-Nov	Jan-Dec	Jul-Oct
	Red drum													-	-	-	-	-
	Sheepshead													-	-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder													-	-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern flounder													-	-	Feb-Apr	Nov-Sep	Nov-Sep
	Southern flounder													-	-	-	Nov-Jul*	Nov-Jul*
	Southern kingfish													-	-	May-Nov	-	Jan-Dec
	Southern kingfish													-	-	-	-	Jan-Dec
	Spot													-	-	Jan-Jun	Jan-Dec	Jan-Dec
	Spot													-	-	Nov-May	Jan-Dec	Jan-Dec
	Spotted seatrout													-	-	Apr-Oct	Nov-Jun*	Nov-Jun*
	Spotted seatrout													-	-	Apr-Oct	Dec-Feb	Dec-Feb

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Spotted seatrout													-	-	Apr-Oct	Dec-Jun*	Dec-Jun*
	Star drum													-	-	May-Aug	Jan-Dec	Jan-Dec
	Weakfish													-	-	-	Jan-Dec	Jan-Dec
	Weakfish													-	-	-	Jan-Dec	Jan-Dec
Fish	Great hammerhead													-	-	Apr-Nov	Jan-Dec	Jan-Dec
Marine Benthic	Lemon shark													-	-	-	-	-
	Smooth dogfish													-	-	-	-	-
Marine Pelagic	Atlantic triptail													-	-	-	-	Dec-Apr
	Blacknose shark													-	-	-	Mar-Nov	Mar-Nov
	Blacktip shark													-	-	Apr-Sep	Apr-Sep	Apr-Sep
	Blacktip shark													-	-	Apr-Sep	Apr-Sep	-
	Cobia													-	-	-	May-Oct	May-Oct
	Finetooth shark													-	-	-	-	-
	Giant manta													-	-	-	-	-
	King mackerel													-	-	-	-	-
	Sandbar shark													-	-	-	Apr-Nov	Apr-Nov
	Sandbar shark													-	-	Apr-Sep	Apr-Sep	-
	Scalloped hammerhead													-	-	-	Jul	-
	Scalloped hammerhead													-	-	-	-	-
	Spanish mackerel													-	-	-	Aug	Aug
	Spanish mackerel													-	-	-	-	-
	Spinner shark													-	-	-	-	-
	Spiny dogfish													-	-	-	-	Dec-Apr
	Tiger shark													-	-	Apr-Nov	Apr-Nov	Apr-Nov
	White shark													-	-	-	Dec-Apr	Dec-Apr

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
Cephalopod	Atlantic brief squid													-	-	-	-	Jan-Dec
Crab	Blue crab													-	-	-	Jan-Dec	Jan-Dec
	Blue crab													-	-	Apr-Jun	Jun-Apr*	Jun-Apr*
	Blue crab													Mar-Aug	Mar-Aug	Apr-Jun	Jul-Apr*	Jul-Apr*
	Horseshoe crab													-	-	-	Jan-Dec	Jan-Dec
	Horseshoe crab													-	-	-	Sep-Jul	Sep-Jul
Invertebrate	Cannonball jellyfish													-	-	-	-	-
Shrimp	Brown shrimp													-	-	Mar-Jun	Nov-Sep	Nov-Sep
	Brown shrimp													-	-	Mar-Jun	May-Feb*	May-Feb*
	Brown shrimp													-	-	Jan-Mar	-	Jan-Nov
	White shrimp													-	-	Apr-Aug	Jan-Dec	Jan-Dec
	White shrimp													-	-	-	Jan-Dec	Jan-Dec
	White shrimp													-	-	Apr-Aug	Sep-Jun	Sep-Jun

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	10,147.37	15.86
10B	Freshwater Marshes	378.04	0.59
10C	Swamps	654.52	1.02
10D	Scrub and Shrub Wetlands	171.03	0.27

ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	249,760.64	155.19	90%
10C	Swamps	959.44	0.60	< 1%
10D	Scrub and Shrub Wetlands	1,100.28	0.68	< 1%
9A	Sheltered Tidal Flats	6,729.52	4.18	2%
9B	Vegetated Low Banks	338.65	0.21	< 1%
7	Exposed Tidal Flats	5,749.67	3.57	2%
6A	Gravel Beaches	4,298.83	2.67	2%
3A	Fine to Medium Grained Sand Beaches	6,113.16	3.80	2%
3B	Scarps and Steep Slopes (Sand)	2,362.26	1.47	1%

Total ESI Shoreline: 277,412.45 Total ESI Shoreline: 172.38
Total Shoreline: 258,833.03 Total Shoreline: 160.83

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 6D
Georgia

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	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
7	Raptor	Bald eagle	Nesting	T		1 Nest													Sep-Apr	-	-	-	-
31	Wading	Wading birds	Nesting			-													Apr-Aug	-	-	-	-
53	Waterfowl	Blue-winged teal	Wintering			100S													-	-	-	-	-
	Waterfowl	Diving ducks	Wintering			100S													-	-	-	-	-
	Waterfowl	Green-winged teal	Wintering			100S													-	-	-	-	-
	Waterfowl	Scaup	Wintering			10S													-	-	-	-	-
55	Shorebird	American oystercatcher	Wintering			10S													-	-	-	-	-
	Shorebird	Dunlin	Wintering			10,000S													-	-	-	-	-
	Shorebird	Red knot	Wintering			100S													-	-	-	-	-
	Shorebird	Shorebirds	Migration	T		High													Apr-Jun	Jul-Oct	-	-	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-	-
64	Waterfowl	Diving ducks	Rafting			100S													-	-	-	-	-
	Waterfowl	Scaup	Rafting			100S													-	-	-	-	-
65	Shorebird	American oystercatcher	Nesting			14 Adults													Mar-Aug	-	-	-	-

HABITATS & RARE PLANTS

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
237	Plant	Threatened plant	Vulnerable Occurrence	T		-													-	-	-	-	-

INVERTEBRATES

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
246	Bivalve	Eastern oyster	Concentration Area			Reef													May-Nov	May-Nov	Jun-Dec	Jan-Dec	Jan-Dec

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)	Juveniles	Adults
Passerine	Seaside sparrow	Nesting			High													Mar-Aug	-	-	-	-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
Diadromous	Atlantic sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec
	Shortnose sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec

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	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Oct
	K. ridley sea turtle	General Distribution	E	E	-													-	-	Apr-Aug	Jan-Dec	-
	Loggerhead sea turtle	General Distribution	E	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Sep

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	Low													-	-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)



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				
	Seaside sparrow																	-	-	-	-
	Seaside sparrow																	-	Oct-May	-	-
	Dabbling ducks																	-	-	-	-

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-May	Jan-Dec
	Atlantic croaker																	May-Nov	-	Nov-Apr	Jan-Dec	Jan-Dec
	Atlantic menhaden																	-	-	Dec-May	Jan-Dec	Jan-Dec
	Black drum																	-	-	Mar-Jun	Jan-Dec	Jan-Dec
	Red drum																	-	-	Jun-Nov	Jan-Dec	Jul-Oct
	Sheepshead																	-	-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder																	-	-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern kingfish																	-	-	May-Nov	-	Jan-Dec
	Spot																	-	-	Jan-Jun	Jan-Dec	Jan-Dec
	Spotted seatrout																	-	-	Apr-Oct	Nov-Jun*	Nov-Jun*
	Star drum																	-	-	May-Aug	Jan-Dec	Jan-Dec
	Weakfish																	-	-	Apr-Nov	Jan-Dec	Jan-Dec
	Atlantic tripletail																	-	-	-	Mar-Nov	Mar-Nov

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					
	Atlantic brief squid																	-	-	-	-	Jan-Dec
	Blue crab																	-	-	-	Jan-Dec	Jan-Dec
	Horseshoe crab																	-	-	-	Jan-Dec	Jan-Dec
	White shrimp																	-	-	-	Jan-Dec	Jan-Dec

MARINE MAMMALS

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

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	9,900.20	15.47
10B	Freshwater Marshes	26.94	0.04
10C	Swamps	1,474.39	2.30
10D	Scrub and Shrub Wetlands	87.32	0.14

ESI SHORELINE HABITAT TYPES

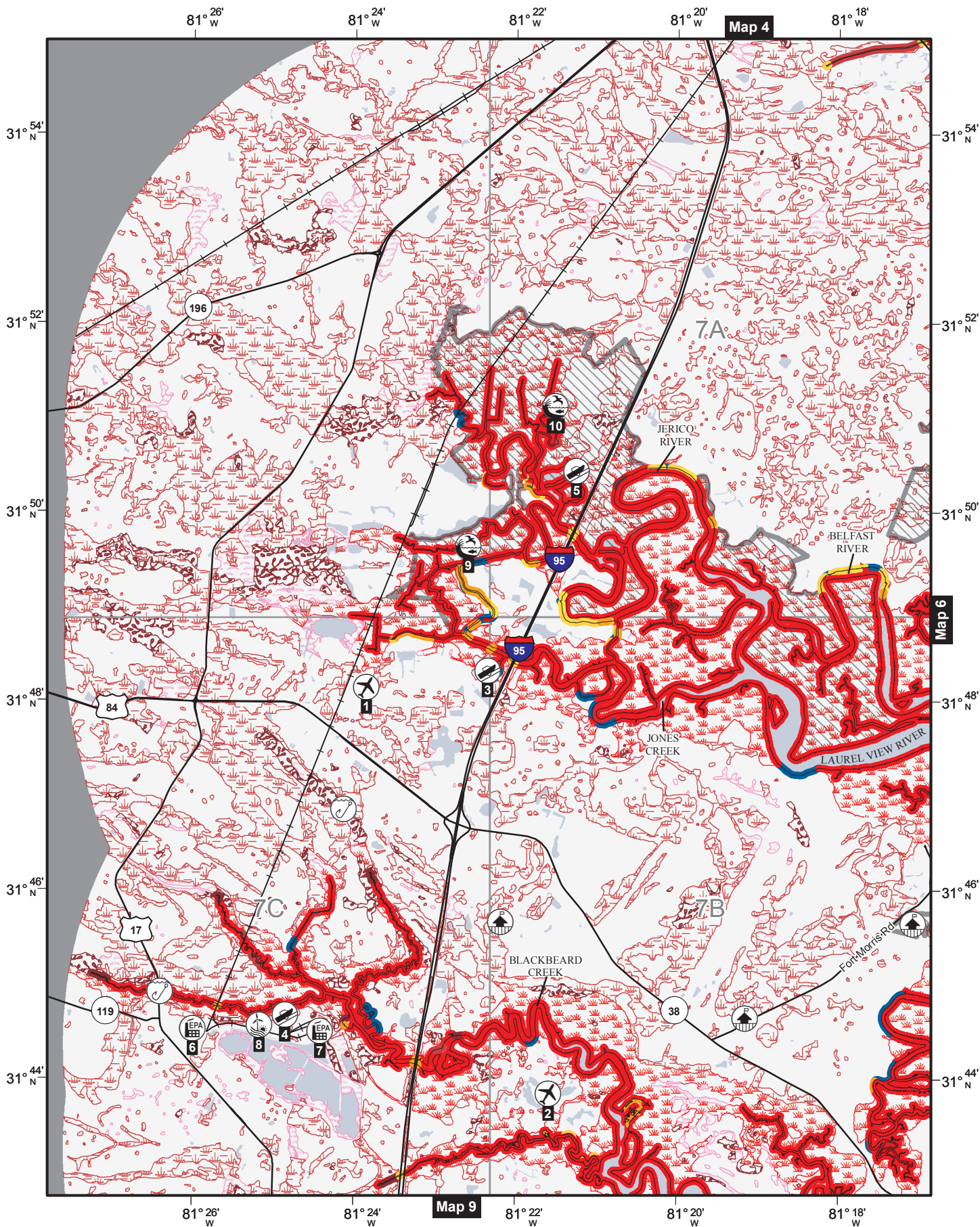
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	247,365.02	153.71	94%
10C	Swamps	44.21	0.03	< 1%
10D	Scrub and Shrub Wetlands	10.54	0.01	< 1%
9A	Sheltered Tidal Flats	4,814.49	2.99	2%
9B	Vegetated Low Banks	1,048.57	0.65	< 1%
8B	Sheltered, Solid Man-Made Structures	868.23	0.54	< 1%
8C	Sheltered Riprap	1,274.06	0.79	< 1%
7	Exposed Tidal Flats	464.09	0.29	< 1%
6A	Gravel Beaches	3,758.93	2.34	1%
5	Mixed Sand and Gravel Beaches	464.09	0.29	< 1%
3B	Scarps and Steep Slopes (Sand)	3,085.07	1.92	1%

Total ESI Shoreline: 263,197.30 Total ESI Shoreline: 163.54
Total Shoreline: 251,684.67 Total Shoreline: 156.39

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 7
Georgia



SEE BACK OF MAP
for details about mapped resources and
other resources that occur in mapped area.
Data Published: June 2015

0 Not for Navigation 2 Miles
0 2 Kilometers

1:100,000

Map 7
Georgia

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Phone
1	AIRPORT	BERG PARK AERODROME	
2	AIRPORT	HARVEST LAKE	
3	BOAT RAMP	LIBERTY COUNTY REGIONAL PARK BOAT RAMP	
4	BOAT RAMP	RICEBORO CREEK BOAT RAMP	
5	BOAT RAMP	RICHMOND HILL WMA BOAT RAMP	
6	EPA FACILITY	SNF HOLDING COMPANY - RICEBORO, GA FACILITIES	912-884-8736
7	EPA FACILITY	INTERSTATE PAPER, LLC	912-884-3371
8	RENEWABLE ENERGY	INTERSTATE PAPER LLC RICEBORO	

DISPLAYED ON MAP (POLYGONS)			
Map ID	Type	Name	Phone
9	MANAGEMENT AREA	JERICO RIVER NATURAL AREA	GEORGIA DEPARTMENT OF NATURAL RESOURCES
10	MANAGEMENT AREA	RICHMOND HILL WILDLIFE MANAGEMENT AREA	GEORGIA DEPARTMENT OF NATURAL RESOURCES

JURISDICTIONS


COUNTY: BRYAN COUNTY, LIBERTY COUNTY
COAST GUARD: COAST GUARD DISTRICT 7, COAST GUARD SECTOR CHARLESTON
USACE: SOUTH ATLANTIC DIVISION, SAVANNAH DISTRICT

FEMA: REGION IV
EPA: REGION 4

ESI POLYGON HABITAT TYPES

	ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
	10A	Salt and Brackish Water Marshes	14,687.60	22.95
	10B	Freshwater Marshes	2,229.00	3.48
	10C	Swamps	20,825.70	32.54
	10D	Scrub and Shrub Wetlands	1,832.32	2.86

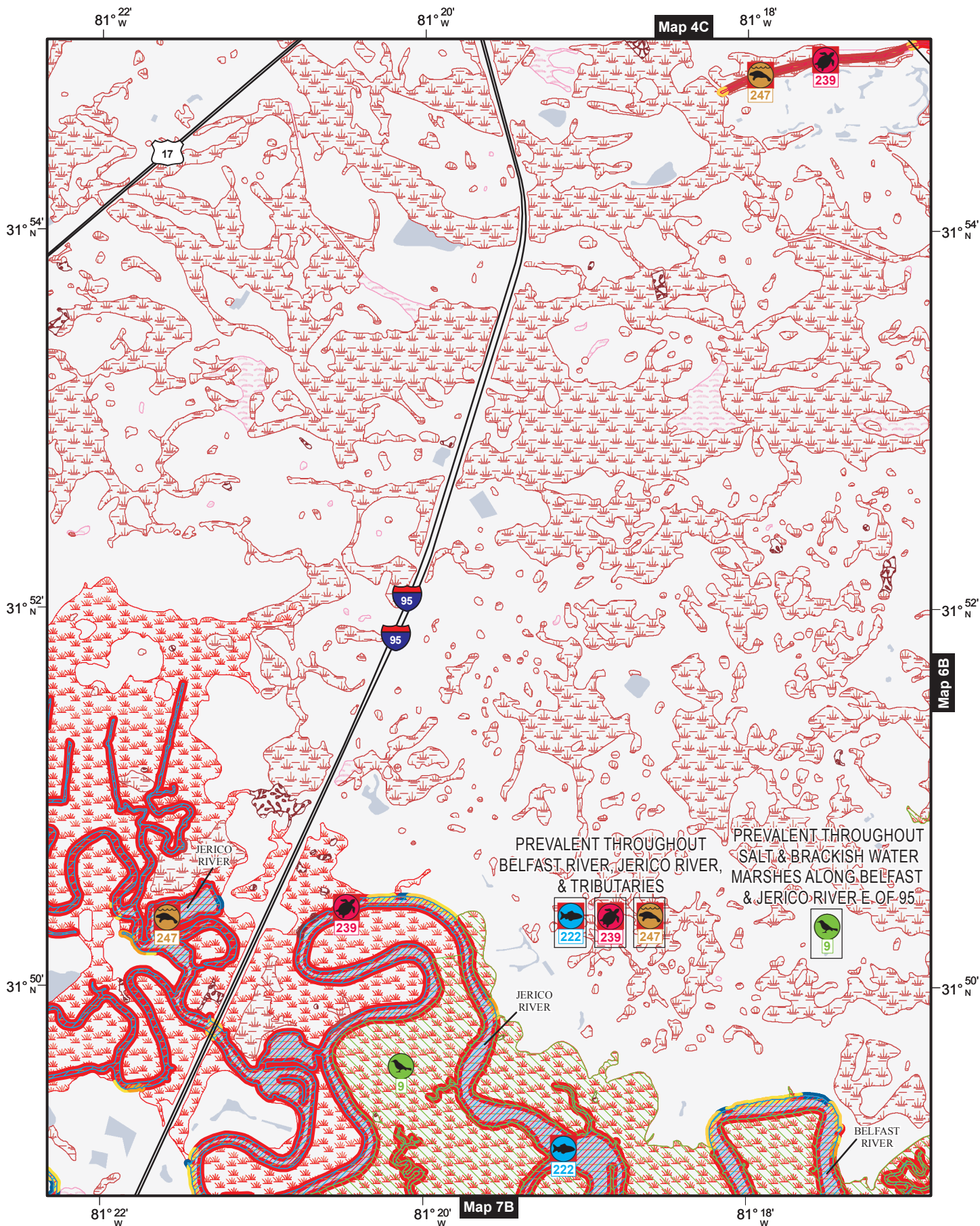
ESI SHORELINE HABITAT TYPES

	ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
	10A	Salt and Brackish Water Marshes	333,381.85	207.15	93%
	10B	Freshwater Marshes	108.75	0.07	< 1%
	10C	Swamps	5,259.72	3.27	1%
	10D	Scrub and Shrub Wetlands	2,188.94	1.36	1%
	9A	Sheltered Tidal Flats	2,094.98	1.30	1%
	9B	Vegetated Low Banks	3,935.20	2.45	1%
	8B	Sheltered, Solid Man-Made Structures	2,588.01	1.61	1%
	8C	Sheltered Riprap	3,479.49	2.16	1%
	3B	Scarps and Steep Slopes (Sand)	7,166.50	4.45	2%
Total ESI Shoreline:			360,203.45	223.82	
Total Shoreline:			354,929.81	220.54	

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 7A
Georgia



SEE BACK OF MAP
for details about mapped species and other species that occur in mapped area.
Data Published: June 2015

0 **Not for Navigation** **1 Miles**

0 **1 Kilometers**

1:50,000



Map 7A
Georgia

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
9	Passerine	Seaside sparrow	Nesting			High	J	F	M	A	M	J	J	A	S	O	N	D	Mar-Aug	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
222	Diadromous	Atlantic sturgeon	General Distribution	E	E	Rare	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Shortnose sturgeon	General Distribution	E	E	Rare	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Jan-Dec	Jan-Dec

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
239	Turtle	Green sea turtle	General Distribution	T	T	-	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Apr-Aug	Jan-Dec	Apr-Oct
	Turtle	K. ridley sea turtle	General Distribution	E	E	-	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Apr-Aug	Jan-Dec	-
	Turtle	Loggerhead sea turtle	General Distribution	E	T	-	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Apr-Aug	Jan-Dec	Apr-Sep

MARINE MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
247	Manatee	West Indian manatee	General Distribution	E	E	Low	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																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)



BIRDS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
Passerine	Seaside sparrow					J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-
Wading	Seaside sparrow					J	F	M	A	M	J	J	A	S	O	N	D	-	Oct-May	-	-
	Clapper rail					J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-

FISH

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
 Diadromous	American eel													-	-	Jan-May	Jan-Dec
	Atlantic croaker													May-Nov	Nov-Apr	Jan-Dec	Jan-Dec
 Estuarine Nursery	Atlantic menhaden													-	Dec-May	Jan-Dec	Jan-Dec
	Black drum													-	Mar-Jun	Jan-Dec	Jan-Dec
	Red drum													-	Jun-Nov	Jan-Dec	Jul-Oct
	Sheepshead													-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder													-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern kingfish													-	May-Nov	-	Jan-Dec
	Spot													-	Jan-Jun	Jan-Dec	Jan-Dec
	Spotted seatrout													-	Apr-Oct	Nov-Jun*	Nov-Jun*
	Star drum													-	May-Aug	Jan-Dec	Jan-Dec
	Weakfish													-	Apr-Nov	Jan-Dec	Jan-Dec
 Marine Pelagic	Atlantic tripletail													-	-	Mar-Nov	Mar-Nov

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
 Cephalopod	Atlantic brief squid													-	-	-	Jan-Dec
	Blue crab													-	-	Jan-Dec	Jan-Dec
 Crab	Horseshoe crab													-	-	Jan-Dec	Jan-Dec
	White shrimp													-	-	Jan-Dec	Jan-Dec

MARINE MAMMALS

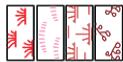
Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
 Dolphin	Bottlenose dolphin													-	-	-	-

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	3,567.36	5.57
10B	Freshwater Marshes	207.59	0.32
10C	Swamps	6,471.43	10.11
10D	Scrub and Shrub Wetlands	88.14	0.14



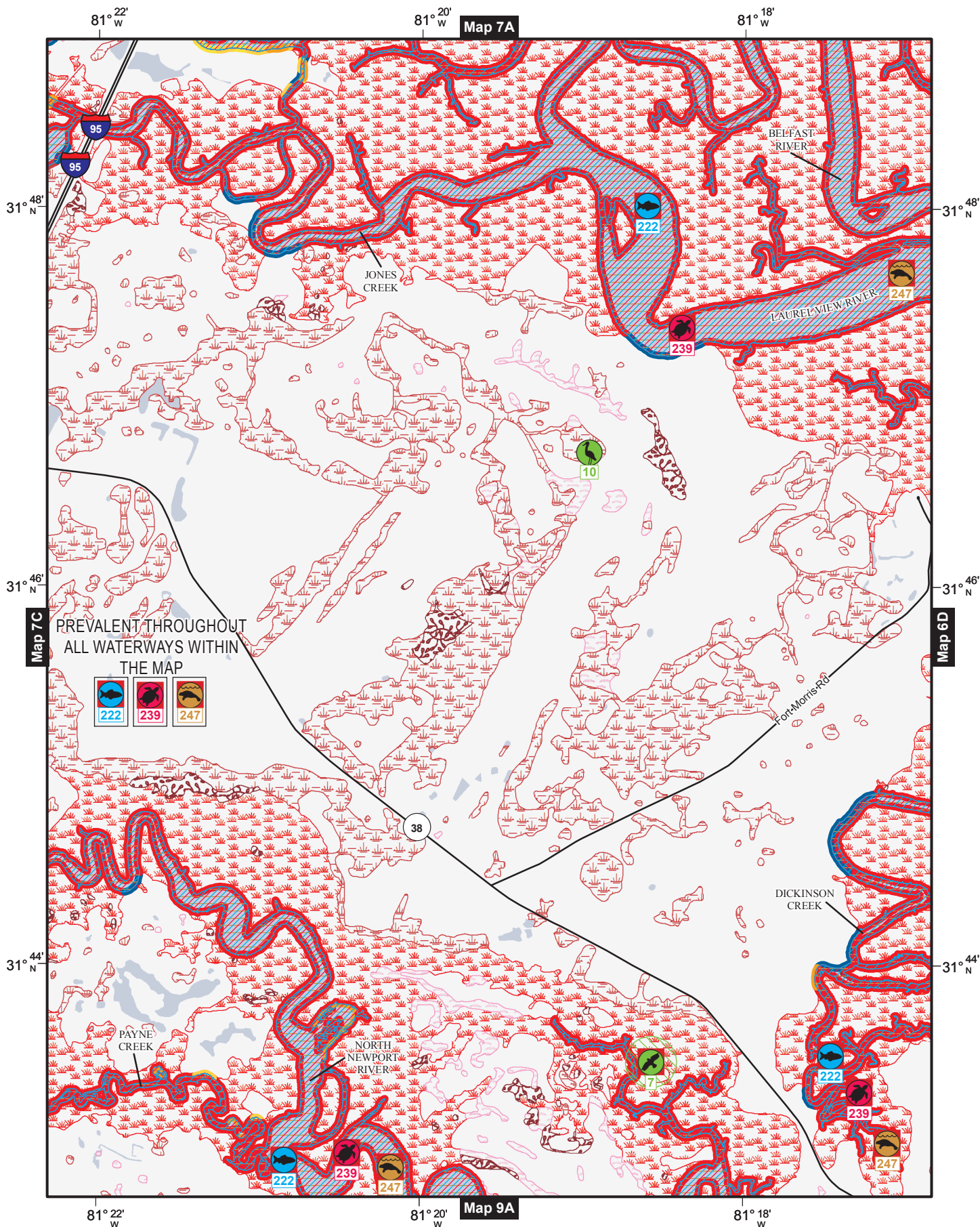
ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	80,243.62	49.86	90%
10B	Freshwater Marshes	108.75	0.07	< 1%
10C	Swamps	3,939.41	2.45	4%
10D	Scrub and Shrub Wetlands	120.98	0.08	< 1%
9B	Vegetated Low Banks	587.60	0.37	1%
8B	Sheltered, Solid Man-Made Structures	1,836.75	1.14	2%
8C	Sheltered Riprap	1,671.23	1.04	2%
3B	Scarps and Steep Slopes (Sand)	915.55	0.57	1%
Total ESI Shoreline:		89,423.89	Total ESI Shoreline:	55.57
Total Shoreline:		88,580.97	Total Shoreline:	55.04

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 7B
Georgia



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: June 2015

0 Not for Navigation 1 Miles
0 1 Kilometers

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
				T			J	F	M	A	M	J	J	A	S	O	N	D				
7	Raptor	Bald eagle	Nesting			1 Nest													Sep-Apr	-	-	-
10	Wading	Wading birds	Nesting			30 Nests													Apr-Aug	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
				E	E		J	F	M	A	M	J	J	A	S	O	N	D					
222	Diadromous	Atlantic sturgeon	General Distribution			Rare													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Shortnose sturgeon	General Distribution			Rare													-	-	-	Jan-Dec	Jan-Dec

REPTILES & AMPHIBIANS



Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
				T	T		J	F	M	A	M	J	J	A	S	O	N	D					
239	Turtle	Green sea turtle	General Distribution			-													-	-	Apr-Aug	Jan-Dec	Apr-Oct
	Turtle	K. ridley sea turtle	General Distribution			-													-	-	Apr-Aug	Jan-Dec	-
	Turtle	Loggerhead sea turtle	General Distribution			-													-	-	Apr-Aug	Jan-Dec	Apr-Sep

MARINE MAMMALS

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



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				
	Passerine	Seaside sparrow	Nesting			High												Mar-Aug	-	-	-
	Wading	Clapper rail	Nesting			High												Mar-Sep	-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)




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				
	Passerine	Seaside sparrow																-	-	-	-
		Seaside sparrow																-	Oct-May	-	-
	Wading	Clapper rail																-	-	-	-

FISH

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
 Diadromous	American eel													-	-	Jan-May	Jan-Dec
 Estuarine Nursery	Atlantic croaker													May-Nov	Nov-Apr	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	Dec-May	Jan-Dec	Jan-Dec
	Black drum													-	Mar-Jun	Jan-Dec	Jan-Dec
	Red drum													-	Jun-Nov	Jan-Dec	Jul-Oct
	Sheepshead													-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder													-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern kingfish													-	May-Nov	-	Jan-Dec
	Spot													-	Jan-Jun	Jan-Dec	Jan-Dec
	Spotted seatrout													-	Apr-Oct	Nov-Jun*	Nov-Jun*
	Star drum													-	May-Aug	Jan-Dec	Jan-Dec
	Weakfish													-	Apr-Nov	Jan-Dec	Jan-Dec
 Marine Pelagic	Atlantic tripletail													-	-	Mar-Nov	Mar-Nov

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
 Cephalopod	Atlantic brief squid													-	-	-	Jan-Dec
 Crab	Blue crab													-	-	Jan-Dec	Jan-Dec
	Horseshoe crab													-	-	Jan-Dec	Jan-Dec
 Shrimp	White shrimp													-	-	Jan-Dec	Jan-Dec

MARINE MAMMALS

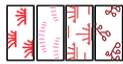
Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
 Dolphin	Bottlenose dolphin													-	-	-	-

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	7,457.21	11.65
10B	Freshwater Marshes	273.23	0.43
10C	Swamps	2,827.43	4.42
10D	Scrub and Shrub Wetlands	197.90	0.31



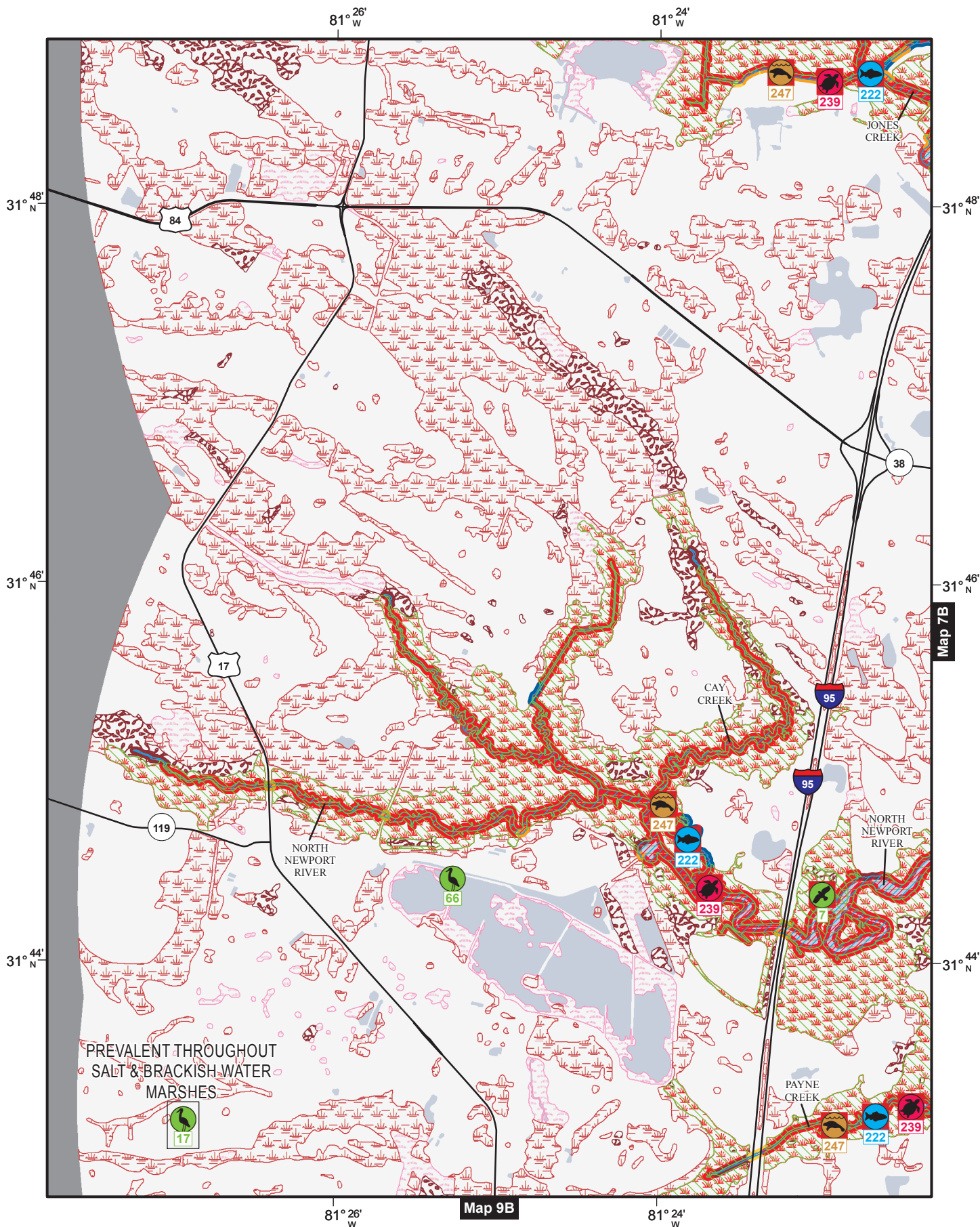
ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	160,240.11	99.57	95%
10C	Swamps	172.99	0.11	< 1%
10D	Scrub and Shrub Wetlands	134.04	0.08	< 1%
9A	Sheltered Tidal Flats	2,094.98	1.30	1%
9B	Vegetated Low Banks	519.37	0.32	< 1%
8B	Sheltered, Solid Man-Made Structures	471.74	0.29	< 1%
8C	Sheltered Riprap	1,054.01	0.65	1%
3B	Scarps and Steep Slopes (Sand)	4,431.52	2.75	3%
Total ESI Shoreline:		169,118.77	Total ESI Shoreline:	105.09
		166,450.83	Total Shoreline:	103.43

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

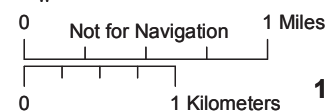




Map 7C
Georgia



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: June 2015



1:50,000



Map 7C
Georgia

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
				T			J	F	M	A	M	J	J	A	S	O	N	D					
7	Raptor	Bald eagle	Nesting			1 Nest													Sep-Apr	-	-	-	-
17	Wading	Clapper rail	Nesting			High													Mar-Sep	-	-	-	-
66	Wading	Wading birds	Nesting			250 Nests													Apr-Aug	-	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
				E	E		J	F	M	A	M	J	J	A	S	O	N	D					
222	Diadromous	Atlantic sturgeon	General Distribution			Rare													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Shortnose sturgeon	General Distribution			Rare													-	-	-	Jan-Dec	Jan-Dec

REPTILES & AMPHIBIANS



Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
				T	E		J	F	M	A	M	J	J	A	S	O	N	D					
239	Turtle	Green sea turtle	General Distribution			-													-	-	Apr-Aug	Jan-Dec	Apr-Oct
	Turtle	K. ridley sea turtle	General Distribution			-													-	-	Apr-Aug	Jan-Dec	-
	Turtle	Loggerhead sea turtle	General Distribution			-													-	-	Apr-Aug	Jan-Dec	Apr-Sep

MARINE MAMMALS

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

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				
	Passerine																
	Seaside sparrow													-	-	-	-
	Wading																
	Clapper rail													-	-	-	-

FISH

	Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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MARINE MAMMALS

Monthly Presence

Subelement
Dolphin

Species
Bottlenose dolphin

J F M A M J J A S O N D Mating Calving Pupping Molt

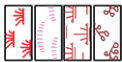


For additional information about species locations and extent, reference the underlying GIS data available from response.restoration.noaa.gov

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	2,411.48	3.77
10B	Freshwater Marshes	689.89	1.08
10C	Swamps	5,217.29	8.15
10D	Scrub and Shrub Wetlands	729.68	1.14



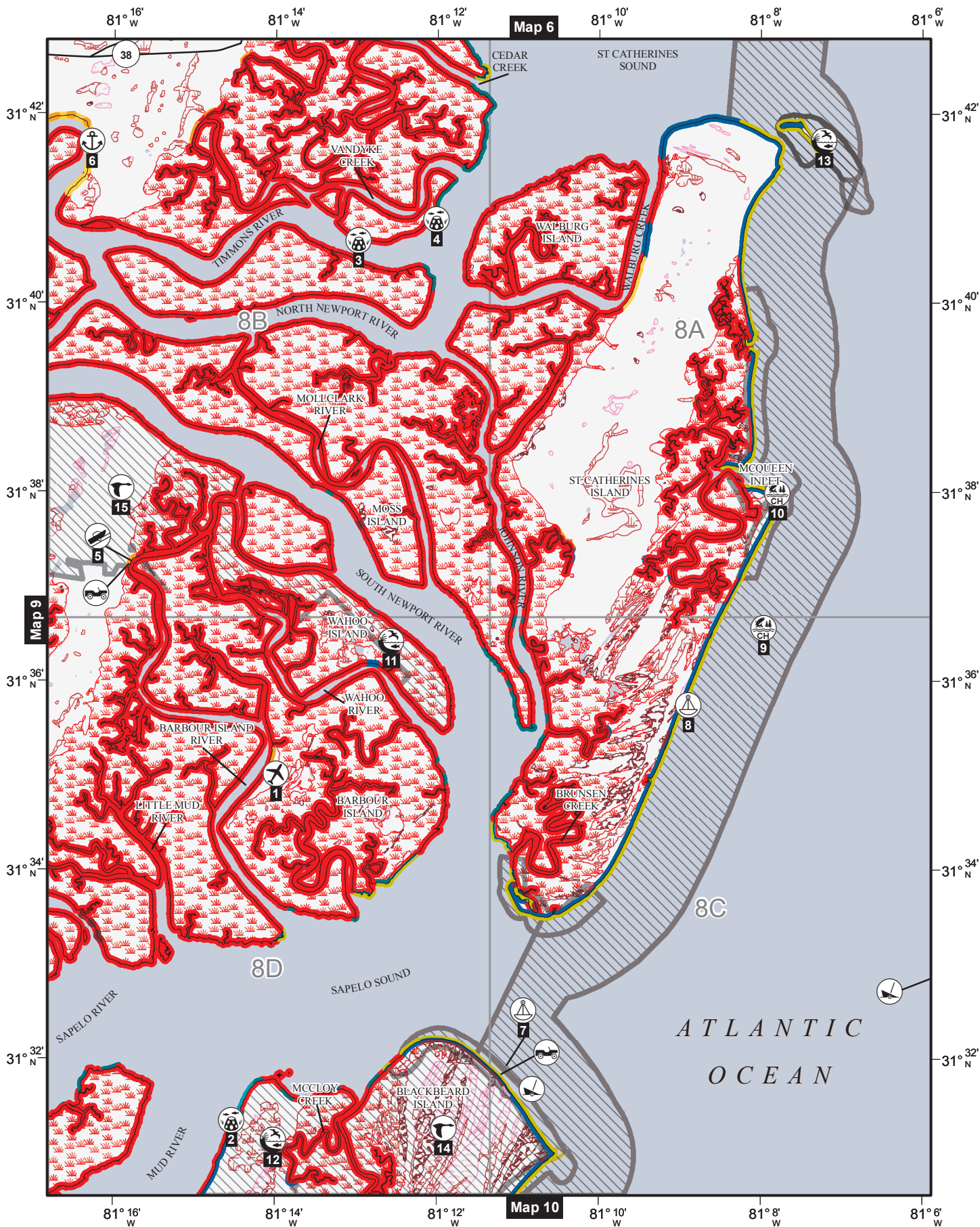
ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	66,860.98	41.55	92%
10C	Swamps	733.43	0.46	1%
10D	Scrub and Shrub Wetlands	1,933.92	1.20	3%
9B	Vegetated Low Banks	1,549.51	0.96	2%
8B	Sheltered, Solid Man-Made Structures	20.20	0.01	< 1%
8C	Sheltered Riprap	429.06	0.27	1%
3B	Scarps and Steep Slopes (Sand)	1,161.57	0.72	2%
Total ESI Shoreline:		72,688.66	Total ESI Shoreline: 45.17	
		71,773.53	Total Shoreline: 44.60	

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





Map 8
Georgia



SEE BACK OF MAP
for details about mapped resources and
other resources that occur in mapped area.
Data Published: June 2015

0 Not for Navigation 2 Miles
0 2 Kilometers

1:100,000



Map 8
Georgia

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Phone
1	AIRPORT	BARBOUR ISLAND	
2	ARTIFICIAL REEF	HIGH POINT REEF	
3	ARTIFICIAL REEF	TIMMONS REEF	
4	ARTIFICIAL REEF	VAN DYKE REEF	
5	BOAT RAMP	BARBOUR ISLAND RIVER LANDING	
6	MARINA	HALF MOON MARINA	
7	REPEATED MEASUREMENT SITE	BMS - BLACKBEARD ISL	
8	REPEATED MEASUREMENT SITE	BMS - ST CATH ISL	

DISPLAYED ON MAP (POLYGONS)			
Map ID	Type	Name	Phone
9	CRITICAL HABITAT	LOGGERHEAD TURTLE CRITICAL HABITAT	
10	CRITICAL HABITAT	PIPING PLOVER CRITICAL HABITAT	
11	MANAGEMENT AREA	LITTLE WAHOO ISLAND NATURAL AREA	GEORGIA DEPARTMENT OF NATURAL RESOURCES
12	MANAGEMENT AREA	SAPELO ISLAND WILDLIFE MANAGEMENT AREA	GEORGIA DEPARTMENT OF NATURAL RESOURCES
13	MANAGEMENT AREA	ST. CATHERINES ISLAND BAR NATURAL AREA	GEORGIA DEPARTMENT OF NATURAL RESOURCES
14	WILDLIFE REFUGE	BLACKBEARD ISLAND NWR	843/784-2468
15	WILDLIFE REFUGE	HARRIS NECK NATIONAL WILDLIFE REFUGE	912/832-4608

JURISDICTIONS

COUNTY: BRYAN COUNTY, CHATHAM COUNTY, LIBERTY COUNTY, MCINTOSH COUNTY
COAST GUARD: COAST GUARD DISTRICT 7, COAST GUARD SECTOR CHARLESTON
USACE: SOUTH ATLANTIC DIVISION, SAVANNAH DISTRICT


FEMA: REGION IV
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	31,007.65	48.45
	10B	Freshwater Marshes	667.01	1.04
	10C	Swamps	1,194.27	1.87
	10D	Scrub and Shrub Wetlands	753.75	1.18
	7	Exposed Tidal Flats	28.31	0.04

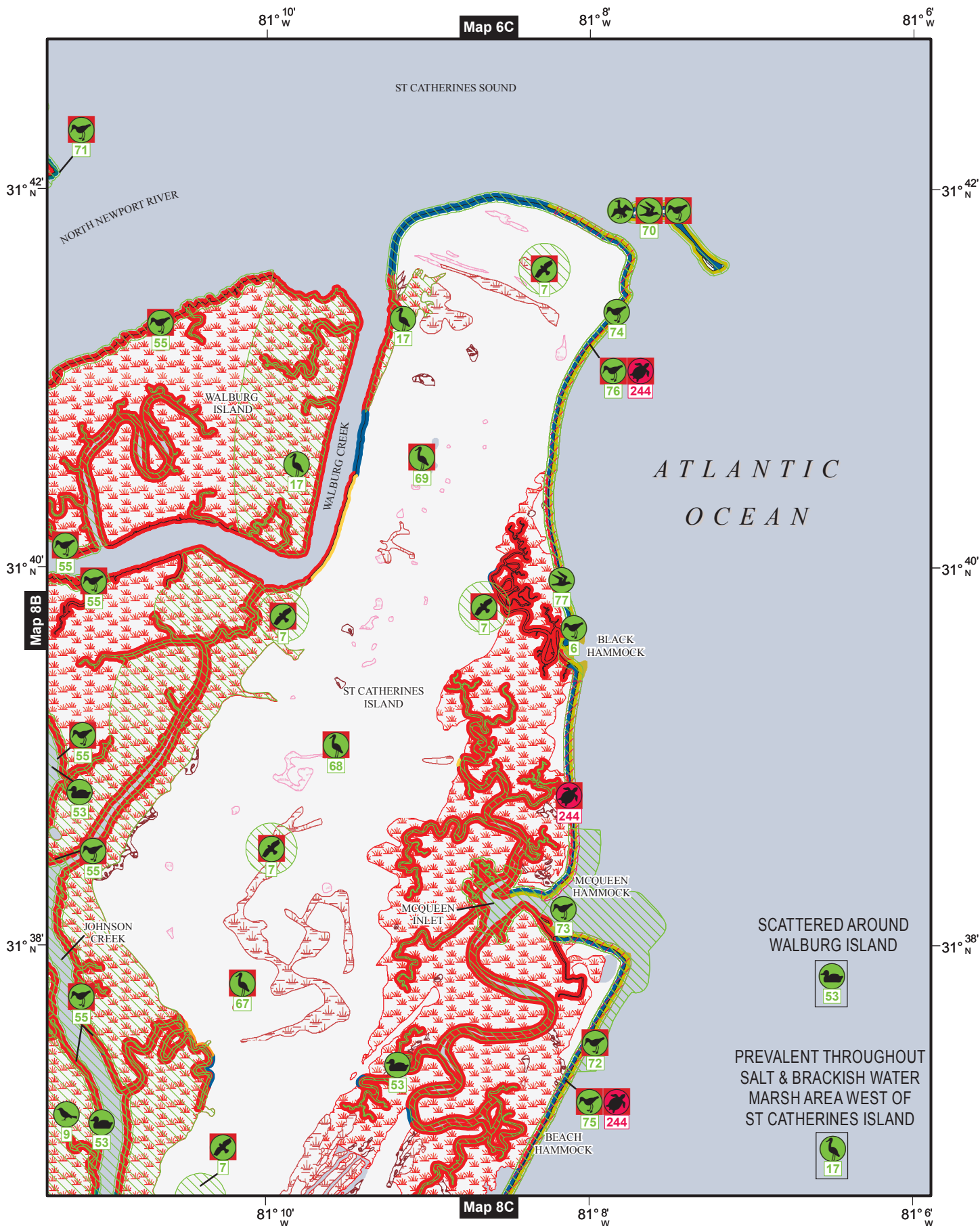
ESI SHORELINE HABITAT TYPES

	<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	686,596.31	426.63	88%
	10B	Freshwater Marshes	197.86	0.12	< 1%
	10C	Swamps	65.72	0.04	< 1%
	10D	Scrub and Shrub Wetlands	4,243.41	2.64	1%
	9B	Vegetated Low Banks	2,338.37	1.45	< 1%
	8B	Sheltered, Solid Man-Made Structures	185.63	0.12	< 1%
	8C	Sheltered Riprap	3,088.24	1.92	< 1%
	7	Exposed Tidal Flats	33,485.14	20.81	4%
	6A	Gravel Beaches	15,521.66	9.64	2%
	5	Mixed Sand and Gravel Beaches	1,798.59	1.12	< 1%
	3A	Fine to Medium Grained Sand Beaches	30,158.67	18.74	4%
	3B	Scarps and Steep Slopes (Sand)	4,551.12	2.83	1%
Total ESI Shoreline:			782,230.73	486.06	
Total Shoreline:			720,801.64	447.89	

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 8A
Georgia

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	Shorebird	American oystercatcher	Nesting			2 Adults													Mar-Aug	-	-	-
7	Raptor	Bald eagle	Nesting	T		1 Nest													Sep-Apr	-	-	-
9	Passerine	Seaside sparrow	Nesting			High													Mar-Aug	-	-	-
17	Wading	Clapper rail	Nesting			High													Mar-Sep	-	-	-
53	Waterfowl	Blue-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Diving ducks	Wintering			100S													-	-	-	-
	Waterfowl	Green-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Scaup	Wintering			10S													-	-	-	-
55	Shorebird	American oystercatcher	Wintering			10S													-	-	-	-
	Shorebird	Dunlin	Wintering			10,000S													-	-	-	-
	Shorebird	Red knot	Wintering		T	100S													-	-	-	-
	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
67	Wading	Wading birds	Nesting			125 Nests													Apr-Aug	-	-	-
	Wading	Wood stork	Nesting	E	T	47 Nests													Mar-Aug	-	-	-
68	Wading	Wading birds	Nesting			150 Nests													Apr-Aug	-	-	-
	Wading	Wood stork	Nesting	E	T	35 Nests													Mar-Aug	-	-	-
69	Wading	Wading birds	Nesting			-													Apr-Aug	-	-	-
	Wading	Wood stork	Nesting	E	T	3 Nests													Mar-Aug	-	-	-
70	Diving	Brown pelican	Nesting			-													Apr-Aug	-	-	-
	Gull/Tern	Black skimmer	Nesting			230 Nests													Apr-Jul	-	-	-
	Gull/Tern	Gull-billed tern	Nesting	T		120 Nests													Apr-Aug	-	-	-
	Gull/Tern	Least tern	Nesting			46 Nests													Apr-Aug	-	-	-
	Shorebird	American oystercatcher	Nesting			6 Adults													Mar-Aug	-	-	-
	Shorebird	American oystercatcher	Roosting			6 Adults													-	-	-	-
	Shorebird	American oystercatcher	Wintering			10S													-	-	-	-
	Shorebird	Dunlin	Wintering			10,000S													-	-	-	-
	Shorebird	Piping plover	Wintering	T	T	10S													-	-	-	-
	Shorebird	Red knot	Migration	T		-													-	Apr-Jun	Jul-Oct	-
	Shorebird	Red knot	Wintering	T		-													-	-	-	-
	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
	Shorebird	Wilson's plover	Nesting	T		12 Adults													Mar-Jul	-	-	-
	Shorebird	Wilson's plover	Vulnerable Occurrence	T		-													-	-	-	-
71	Shorebird	American oystercatcher	Nesting			14 Adults													Mar-Aug	-	-	-
	Shorebird	American oystercatcher	Wintering			10S													-	-	-	-
	Shorebird	Dunlin	Wintering			10,000S													-	-	-	-

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				
	Shorebird	Red knot	Wintering		T	100S													-	-	-	-
	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
72	Shorebird	American oystercatcher	Wintering			10S													-	-	-	-
	Shorebird	Dunlin	Wintering			1,000S													-	-	-	-
	Shorebird	Piping plover	Wintering	T	T	10S													-	-	-	-
	Shorebird	Red knot	Wintering		T	10S													-	-	-	-
	Shorebird	Semipalmated plover	Wintering			1,000S													-	-	-	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
	Shorebird	Western sandpiper	Wintering			1,000S													-	-	-	-
	Shorebird	Wilson's plover	Vulnerable Occurrence	T		10S													-	-	-	-
73	Shorebird	Marbled godwit	Migration			High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
74	Shorebird	American oystercatcher	Nesting			-													Mar-Aug	-	-	-
75	Shorebird	American oystercatcher	Nesting			6 Adults													Mar-Aug	-	-	-
	Shorebird	Wilson's plover	Nesting	T		14 Adults													Mar-Jul	-	-	-
76	Shorebird	Wilson's plover	Nesting	T		-													Mar-Jul	-	-	-
77	Gull/Tern	Least tern	Nesting			6 Nests													Apr-Aug	-	-	-

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					
244	Turtle	Green sea turtle	Nesting	T	T	Low													May-Oct	Jul-Oct	-	-	May-Oct
	Turtle	K. ridley sea turtle	Nesting	E	E	Rare													May-Oct	Jul-Oct	-	-	May-Oct
	Turtle	Leatherback sea turtle	Nesting	E	E	Low													May-Oct	Jul-Oct	-	-	May-Oct
	Turtle	Loggerhead sea turtle	Nesting	E	T	Medium													May-Oct	Jul-Oct	-	-	May-Oct

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	Diving ducks	Rafting			100S													-	-	-	-
		Long-tailed duck	Wintering			10S													-	-	-	-
		Mergansers	Wintering			100S													-	-	-	-
		Scaup	Rafting			10,000S													-	-	-	-
		Scaup	Rafting			100S													-	-	-	-
		Scaup	Rafting			1,000S													-	-	-	-
		Scoters	Rafting			1,000S													-	-	-	-
		Scoters	Rafting			10,000S													-	-	-	-


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			-													-	-	-	Sep-Jan
		American shad			-													-	-	-	Jan-Apr
	Atlantic sturgeon	Concentration Area	E	E	High													-	-	-	Oct-Jan
	Atlantic sturgeon	General Distribution	E	E	Present													-	-	-	Feb-Sep
	Atlantic sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec
	Shortnose sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec
	Shortnose sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec



HABITATS & RARE PLANTS

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				
	Plant	Rare plant			-													-	-	-	-
		Vulnerable Occurrence			-													-	-	-	-

REPTILES & AMPHIBIANS




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				
	Turtle	Green sea turtle	T	T	-													-	-	-	Apr-Oct
		K. ridley sea turtle	E	E	-													-	-	-	Jan-Dec
	Leatherback sea turtle	General Distribution	E	E	High													-	-	-	Nov-Aug
	Loggerhead sea turtle	General Distribution	E	T	-													-	-	-	Apr-Sep

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	Low													-	-	-	-
	Whale	Humpback whale	E	E	Low													-	-	-	-
	N.A. right whale	Calving	E	E	30-150													-	Nov-Apr	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)


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				
	Alcid	Alcids																-	-	-	-
	Diving	Brown pelican																-	-	-	-
		D. crested cormorant																-	-	-	-
	Gull/Tern	Loons																-	-	-	-
		Black tern																-	-	-	-
		Gulls																-	-	-	-
		Least tern																-	-	-	-
	Passerine	Terns																-	-	-	-
		Seaside sparrow																-	Oct-May	-	-
Pelagic		Seaside sparrow																-	-	-	-
		Black-capped petrel																-	-	-	-



BIRDS (continued)

	Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
			J	F	M	A	M	J	J	A	S	O	N	D					
		Jaegers													-	-	-	-	-
		Northern gannet													-	-	-	-	-
		Shearwaters													-	-	-	-	-
		Storm-petrels													-	-	-	-	-
	Shorebird	Phalaropes													-	-	-	-	-
	Wading	Clapper rail													-	-	-	-	-
	Waterfowl	Dabbling ducks													-	-	-	-	-





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-May	Jan-Dec
	Estuarine Nursery	Atl. sharpnose shark													-	-	-	Apr-Nov	Apr-Nov
		Atl. sharpnose shark													-	-	-	Apr-Sep	Apr-Sep
		Atlantic croaker													May-Nov	-	-	Jan-Dec	Jan-Dec
		Atlantic croaker													May-Nov	-	-	Jan-Dec	Jan-Dec
		Atlantic menhaden													-	-	Nov-Aug	Nov-Aug	Nov-Aug
		Atlantic menhaden													-	-	Dec-May	Jan-Dec	Jan-Dec
		Atlantic menhaden													-	-	Dec-May	Sep-Jul*	Sep-Jul*
		Black drum													-	-	Mar-Jun	Jan-Dec	Jan-Dec
		Bluefish													-	-	-	-	-
		Bonnethead													-	-	-	Apr-Sep	Apr-Sep
		Bonnethead													-	-	-	Apr-Nov	Apr-Nov
		Bull shark													-	-	Apr-Oct	Apr-Oct	-
		Porgies													-	-	-	-	-
		Red drum													-	-	Jun-Nov	Jan-Dec	Jul-Oct
		Red drum													-	-	-	-	-
		Sheepshead													-	-	Jul-Dec	Jan-Dec	Jan-Dec
		Southern flounder													-	-	Feb-Apr	Jan-Dec	Jan-Dec
		Southern flounder													-	-	-	Nov-Jul*	Nov-Jul*
		Southern flounder													-	-	Feb-Apr	Nov-Sep	Nov-Sep
		Southern kingfish													-	-	-	-	Jan-Dec
		Southern kingfish													-	-	May-Nov	-	Jan-Dec
		Spot													-	-	Nov-May	Jan-Dec	Jan-Dec
		Spot													-	-	Jan-Jun	Jan-Dec	Jan-Dec
		Spotted seatrout													-	-	Apr-Oct	Nov-Jun*	Nov-Jun*
		Spotted seatrout													Apr-Sep	-	-	Nov	Nov-Sep
		Spotted seatrout													-	-	Apr-Oct	Dec-Feb	Dec-Feb
		Star drum													-	-	-	Jan-Dec	Jan-Dec
		Star drum													-	-	May-Aug	Jan-Dec	Jan-Dec
		Weakfish													-	-	-	Jan-Dec	Jan-Dec
		Weakfish													-	-	Apr-Nov	Jan-Dec	Jan-Dec
	Fish	Great hammerhead													-	-	-	-	-
		Florida pompano													-	-	-	-	-

FISH (continued)

	Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
			J	F	M	A	M	J	J	A	S	O	N	D				
		Lemon shark													-	-	-	-
		Smooth dogfish													-	-	-	Dec-Apr
	Marine Pelagic	Atlantic tripletail													-	-	Mar-Nov	Mar-Nov
		Blacknose shark													-	-	Apr-Sep	Apr-Sep
		Blacktip shark													-	-	May-Oct	May-Oct
		Blacktip shark													-	-	Apr-Sep	-
		Cobia													-	-	-	-
		Finetooth shark													-	-	-	-
		Giant manta													-	-	-	-
		King mackerel													-	-	-	-
		Sandbar shark													-	-	Apr-Nov	Apr-Nov
		Sandbar shark													-	-	Apr-Sep	-
		Scalloped hammerhead													-	-	Jul	-
		Scalloped hammerhead													-	-	-	-
		Spanish mackerel													-	-	-	-
		Spanish mackerel													-	-	May-Oct*	May-Oct*
		Spinner shark													-	-	-	-
		Spiny dogfish													-	-	-	Dec-Apr
		Tiger shark													-	-	Apr-Nov	Apr-Nov
		White shark													-	-	Dec-Apr	Dec-Apr

INVERTEBRATES

	Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
			J	F	M	A	M	J	J	A	S	O	N	D				
	Cephalopod	Atlantic brief squid													-	-	-	Jan-Dec
	Crab	Blue crab													Mar-Aug	Apr-Jun	Jul-Apr*	Jul-Apr*
		Blue crab													-	Apr-Jun	Jun-Apr*	Jun-Apr*
		Blue crab													-	-	Jan-Dec	Jan-Dec
		Horseshoe crab													-	-	Jan-Dec	Jan-Dec
	Invertebrate	Cannonball jellyfish													-	-	-	-
	Shrimp	Brown shrimp													-	Jan-Mar	-	Jan-Nov
		Brown shrimp													-	Mar-Jun	May-Oct	May-Oct
		Brown shrimp													-	Mar-Jun	Nov-Sep	Nov-Sep
		White shrimp													-	Apr-Aug	Sep-Jun	Sep-Jun
		White shrimp													-	-	Jan-Dec	Jan-Dec
		White shrimp													-	Apr-Aug	Jan-Dec	Jan-Dec

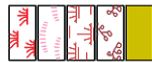
MARINE MAMMALS

	Subelement	Species	Monthly Presence												Calving	Pupping	Molt
			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	4,988.70	7.79
10B	Freshwater Marshes	46.96	0.07
10C	Swamps	297.87	0.47
10D	Scrub and Shrub Wetlands	71.46	0.11
7	Exposed Tidal Flats	18.88	0.03

ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification
10A	Salt and Brackish Water Marshes
10D	Scrub and Shrub Wetlands
9B	Vegetated Low Banks
8C	Sheltered Riprap
7	Exposed Tidal Flats
6A	Gravel Beaches
5	Mixed Sand and Gravel Beaches
3A	Fine to Medium Grained Sand Beaches
3B	Scarps and Steep Slopes (Sand)

	Length (Meters)	Length (Miles)	% of ESI Shoreline
	141,257.48	87.77	80%
	246.64	0.15	< 1%
	387.29	0.24	< 1%
	1,192.83	0.74	1%
	14,318.99	8.90	8%
	458.36	0.28	< 1%
	39.81	0.02	< 1%
	15,675.57	9.74	9%
	2,061.42	1.28	1%
Total ESI Shoreline:	175,638.38	Total ESI Shoreline: 109.14	
Total Shoreline:	156,039.37	Total Shoreline: 96.96	

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 8B
Georgia

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				
7	Raptor	Bald eagle	Nesting	T		1 Nest													Sep-Apr	-	-	-
17	Wading	Clapper rail	Nesting			High													Mar-Sep	-	-	-
31	Wading	Wading birds	Nesting			-													Apr-Aug	-	-	-
53	Waterfowl	Blue-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Diving ducks	Wintering			100S													-	-	-	-
	Waterfowl	Green-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Scaup	Wintering			10S													-	-	-	-
55	Shorebird	American oystercatcher	Wintering			10S													-	-	-	-
	Shorebird	Dunlin	Wintering			10,000S													-	-	-	-
	Shorebird	Red knot	Wintering		T	100S													-	-	-	-
	Shorebird	Shorebirds	Migration			High													Apr-Jun	-	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
64	Waterfowl	Diving ducks	Rafting			100S													-	-	-	-
	Waterfowl	Scaup	Rafting			100S													-	-	-	-
65	Shorebird	American oystercatcher	Nesting			14 Adults													Mar-Aug	-	-	-
71	Shorebird	American oystercatcher	Nesting			14 Adults													Mar-Aug	-	-	-
	Shorebird	American oystercatcher	Wintering			10S													-	-	-	-
	Shorebird	Dunlin	Wintering			10,000S													-	-	-	-
	Shorebird	Red knot	Wintering		T	100S													-	-	-	-
	Shorebird	Shorebirds	Migration			High													Apr-Jun	-	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
78	Wading	Wading birds	Nesting			771 Nests													Apr-Aug	-	-	-
79	Wading	Wood stork	Nesting	E	T	478 Nests													Mar-Aug	-	-	-
	Diving	Diving birds	Wintering			100S													-	-	-	-
	Shorebird	Shorebirds	Migration			100S													-	Apr-Jun	-	Jul-Oct
	Shorebird	Shorebirds	Wintering			100S													-	-	-	-
	Wading	Great egret	Roosting			100S													-	-	-	-
	Wading	Wading birds	Roosting			100S													-	-	-	-
	Wading	White ibis	Roosting			100S													-	-	-	-
	Wading	Wood stork	Concentration Area	E	T	1,000S													-	-	-	-
	Waterfowl	American coot	Wintering			100S													Mar-Oct	-	-	-
	Waterfowl	Common moorhen	Nesting			Possible													-	-	-	-
	Waterfowl	Common moorhen	Wintering			100S													-	-	-	-
	Waterfowl	Dabbling ducks	Wintering			100S													-	-	-	-
	Waterfowl	Diving ducks	Wintering			100S													-	-	-	-
	Waterfowl	G. white-fronted goose	Wintering			10S													-	-	-	-
	Waterfowl	Mergansers	Wintering			100S													-	-	-	-

BIRDS (continued)

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					
	Waterfowl	Teals	Wintering			100S													-				-
	Waterfowl	Wood duck	Nesting			-													Jan-Jul				-
80	Waterfowl	Diving ducks	Wintering			10S													-				-
	Waterfowl	Green-winged teal	Wintering			100S													-				-
81	Waterfowl	Scaup	Wintering			100S													-				-
82	Shorebird	American oystercatcher	Wintering			-													-				-

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					
246	Bivalve	Eastern oyster	Concentration Area			Reef													May-Nov	May-Nov	Jun-Dec	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				
Passerine	Seaside sparrow	Nesting			High													Mar-Aug	-	-	-

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	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec
	Shortnose sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec




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	General Distribution	T	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Oct
	K. ridley sea turtle	General Distribution	E	E	-													-	-	Apr-Aug	Jan-Dec	-
	Loggerhead sea turtle	General Distribution	E	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Sep



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	Low													-	-	-	-




BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Passerine	Seaside sparrow													-	Oct-May	-	-	-
	Seaside sparrow													-	-	-	-	-
 Wading	Clapper rail													-	-	-	-	-
	Dabbling ducks													-	-	-	-	-
 Waterfowl	Diving ducks													-	-	-	-	-
														-	-	-	-	-

FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Diadromous  Estuarine Nursery	American eel													-	-	-	Jan-May	Jan-Dec
	Atl. sharpnose shark													-	-	Apr-Sep	Apr-Sep	Apr-Sep
	Atlantic croaker													May-Nov	-	Nov-Apr	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-May	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-May	Nov-Aug	Jan-Aug
	Black drum													-	-	Mar-Jun	Jan-Dec	Jan-Dec
	Bonnethead													-	-	-	Apr-Sep	Apr-Sep
	Red drum													-	-	Jun-Nov	Jan-Dec	Jul-Oct
	Sheepshead													-	-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder													-	-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern flounder													-	-	Feb-Apr	Nov-Sep	Nov-Sep
	Southern kingfish													-	-	May-Nov	-	Jan-Dec
	Spot													-	-	Jan-Jun	Jan-Dec	Jan-Dec
	Spotted seatrout													-	-	Apr-Oct	Dec-Feb	Dec-Feb
	Spotted seatrout													-	-	Apr-Oct	Nov-Jun*	Nov-Jun*
	Star drum													-	-	May-Aug	Jan-Dec	Jan-Dec
	Weakfish													-	-	Apr-Nov	Jan-Dec	Jan-Dec
	Atlantic tripletail													-	-	-	Mar-Nov	Mar-Nov
	Blacktip shark													-	-	Apr-Sep	Apr-Sep	-
	Sandbar shark													-	-	Apr-Sep	Apr-Sep	-
	Scalloped hammerhead													-	-	-	Jul	-
	Spanish mackerel													-	-	-	May-Oct*	May-Oct*

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Cephalopod													-	-	-	Jan-Dec
	Crab													-	-	-	Jan-Dec
	Atlantic brief squid													-	-	-	Jan-Dec
	Blue crab													-	Apr-Jun	Jun-Apr*	Jan-Apr*
	Blue crab													-	-	-	Jan-Dec
	Horseshoe crab													-	-	-	Jan-Dec
	Cannonball jellyfish													-	-	-	Jan-Dec
	Shrimp													-	-	-	-
	Brown shrimp													-	Mar-Jun	May-Oct	May-Oct
	Brown shrimp													-	Mar-Jun	Nov-Sep	Nov-Sep
	White shrimp													-	-	Jan-Dec	Jan-Dec
	White shrimp													-	Apr-Aug	Jan-Dec	Jan-Dec

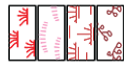
MARINE MAMMALS

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



<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	13,473.84	21.05
10B	Freshwater Marshes	86.20	0.13
10C	Swamps	223.96	0.35
10D	Scrub and Shrub Wetlands	45.66	0.07

ESI SHORELINE HABITAT TYPES

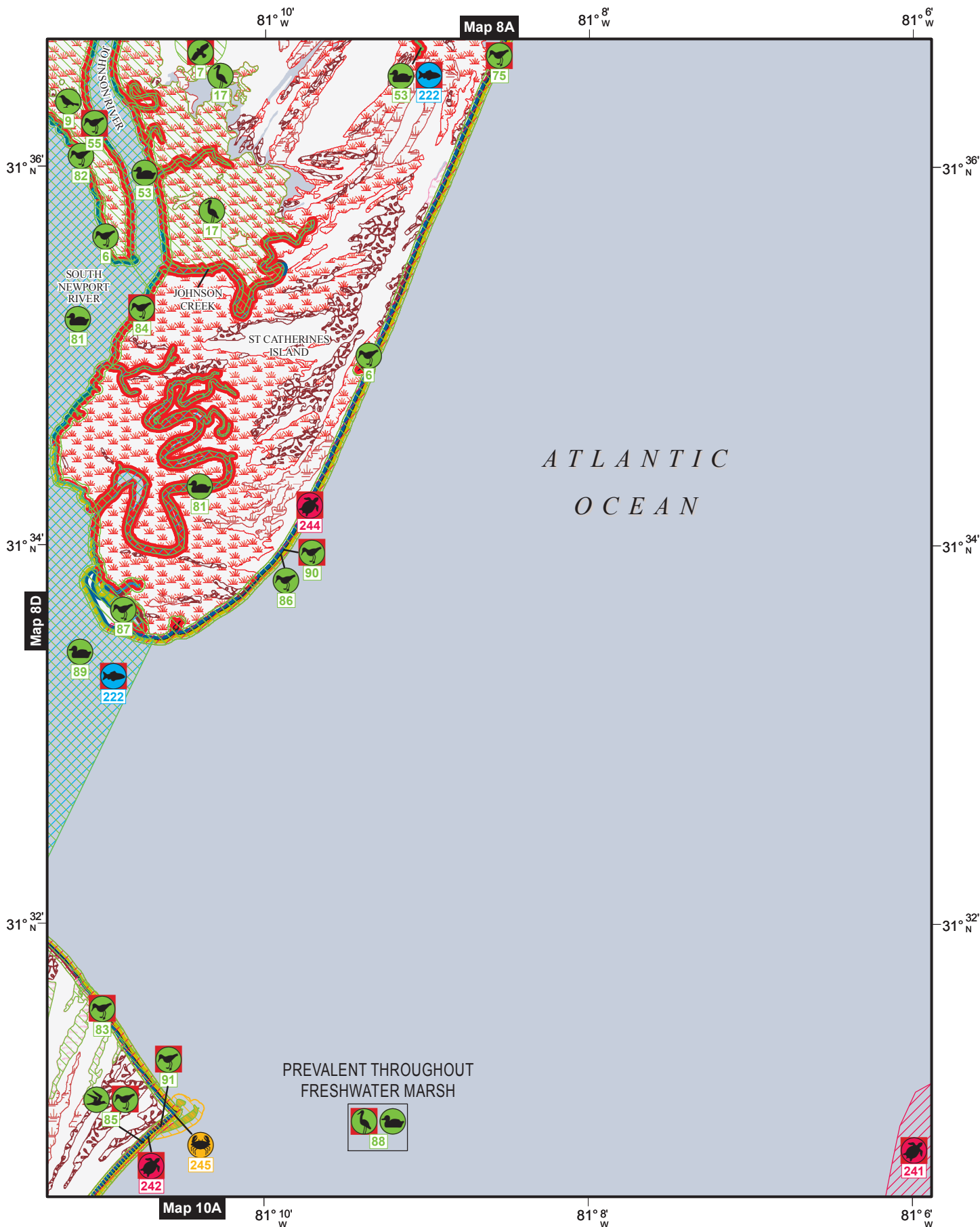
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt and Brackish Water Marshes	288,131.08	179.04	96%
10C	Swamps	65.72	0.04	< 1%
10D	Scrub and Shrub Wetlands	384.87	0.24	< 1%
9B	Vegetated Low Banks	1,297.68	0.81	< 1%
8B	Sheltered, Solid Man-Made Structures	185.63	0.12	< 1%
8C	Sheltered Riprap	1,895.42	1.18	1%
7	Exposed Tidal Flats	641.42	0.40	< 1%
6A	Gravel Beaches	6,028.67	3.75	2%
5	Mixed Sand and Gravel Beaches	231.34	0.14	< 1%
3B	Scarps and Steep Slopes (Sand)	89.19	0.06	< 1%

Total ESI Shoreline: 298,951.02 Total ESI Shoreline: 185.76
Total Shoreline: 291,512.82 Total Shoreline: 181.14

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 8C
Georgia

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	Shorebird	American oystercatcher	Nesting			2 Adults													Mar-Aug	-	-	-
7	Raptor	Bald eagle	Nesting	T		1 Nest													Sep-Apr	-	-	-
9	Passerine	Seaside sparrow	Nesting			High													Mar-Aug	-	-	-
17	Wading	Clapper rail	Nesting			High													Mar-Sep	-	-	-
53	Waterfowl	Blue-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Diving ducks	Wintering			100S													-	-	-	-
	Waterfowl	Green-winged teal	Wintering			100S													-	-	-	-
	Waterfowl	Scaup	Wintering			10S													-	-	-	-
55	Shorebird	American oystercatcher	Wintering			10S													-	-	-	-
	Shorebird	Dunlin	Wintering			10,000S													-	-	-	-
	Shorebird	Red knot	Wintering		T	100S													-	-	-	-
	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
75	Shorebird	American oystercatcher	Nesting			6 Adults													Mar-Aug	-	-	-
	Shorebird	Wilson's plover	Nesting		T	14 Adults													Mar-Jul	-	-	-
81	Waterfowl	Scaup	Wintering			100S													-	-	-	-
82	Shorebird	American oystercatcher	Wintering			-													-	-	-	-
83	Shorebird	American oystercatcher	Wintering			10S													-	-	-	-
	Shorebird	Dunlin	Wintering			10,000S													-	-	-	-
	Shorebird	Shorebirds	Migration			-													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			100S													-	-	-	-
	Shorebird	Short-billed dowitcher	Wintering			1,000S													-	-	-	-
	Shorebird	Wilson's plover	Nesting		T	14 Adults													Mar-Jul	-	-	-
84	Shorebird	Dunlin	Wintering			10,000S													-	-	-	-
	Shorebird	Red knot	Wintering		T	100S													-	-	-	-
	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
85	Gull/Tern	Least tern	Nesting			-													Apr-Aug	-	-	-
	Shorebird	American oystercatcher	Nesting			4 Adults													Mar-Aug	-	-	-
	Shorebird	American oystercatcher	Wintering			-													-	-	-	-
	Shorebird	Dunlin	Wintering			1,000S													-	-	-	-
	Shorebird	Piping plover	Wintering		T	10S													-	-	-	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
	Shorebird	Wilson's plover	Nesting		T	28 Adults													Mar-Jul	-	-	-
86	Shorebird	American oystercatcher	Wintering			10S													-	-	-	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
87	Shorebird	American oystercatcher	Nesting			2 Adults													Mar-Aug	-	-	-
	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-

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				
88	Wading	Wood stork	Vulnerable Occurrence	E	T	-													-	-	-	-
	Waterfowl	American coot	Wintering			10S													-	-	-	-
	Waterfowl	Diving ducks	Wintering			10S													-	-	-	-
	Waterfowl	Hooded merganser	Nesting			Possible													Feb-Jun	-	-	-
	Waterfowl	Hooded merganser	Wintering			High													-	-	-	-
	Waterfowl	Scaup	Wintering			100S													-	-	-	-
	Waterfowl	Teals	Wintering			High													-	-	-	-
	Waterfowl	Wood duck	Nesting			-													Jan-Jul	-	-	-
	Waterfowl	Wood duck	Wintering			-													-	-	-	-
	Waterfowl	Diving ducks	Rafting			10S													-	-	-	-
89	Waterfowl	Scoters	Rafting			10S													-	-	-	-
	Shorebird	Dunlin	Wintering			1,000S													-	-	-	-
	Shorebird	Piping plover	Wintering	T	T	10S													-	-	-	-
	Shorebird	Red knot	Wintering		T	10S													-	-	-	-
90	Shorebird	Red knot	Wintering		T	-													-	-	-	-
	Shorebird	Red knot	Wintering		T	-													-	-	-	-
	Shorebird	Semipalmated plover	Wintering			1,000S													-	-	-	-
	Shorebird	Western sandpiper	Wintering			1,000S													-	-	-	-
	Shorebird	Wilson's plover	Vulnerable Occurrence	T		10S													-	-	-	-
	Shorebird	Red knot	Migration		T	-													Apr-Jun	Jul-Oct	-	-
91	Shorebird	Red knot	Wintering		T	-													-	-	-	-
	Shorebird	Red knot	Wintering		T	-													-	-	-	-

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					
222	Diadromous	Atlantic sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Shortnose sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec

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					
241	Turtle	Green sea turtle	General Distribution	T	T	Low													-	-	Apr-Aug	-	Apr-Sep
	Turtle	K. ridley sea turtle	General Distribution	E	E	-													-	-	Apr-Aug	Nov-Apr	Nov-Aug
	Turtle	Loggerhead sea turtle	General Distribution	E	T	-													-	-	Apr-Aug	Nov-Apr	Nov-Aug
242	Turtle	Green sea turtle	Nesting	T	T	Low													May-Oct	Jul-Oct	-	-	May-Oct
	Turtle	K. ridley sea turtle	Nesting	E	E	Rare													May-Oct	Jul-Oct	-	-	May-Oct
244	Turtle	Leatherback sea turtle	Nesting	E	E	Low													May-Oct	Jul-Oct	-	-	May-Oct
	Turtle	Loggerhead sea turtle	Nesting	E	T	High													May-Oct	Jul-Oct	-	-	May-Oct
	Turtle	Green sea turtle	Nesting	T	T	Low													May-Oct	Jul-Oct	-	-	May-Oct
	Turtle	K. ridley sea turtle	Nesting	E	E	Rare													May-Oct	Jul-Oct	-	-	May-Oct
	Turtle	Leatherback sea turtle	Nesting	E	E	Low													May-Oct	Jul-Oct	-	-	May-Oct
	Turtle	Loggerhead sea turtle	Nesting	E	T	Medium													May-Oct	Jul-Oct	-	-	May-Oct

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				

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				

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					



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					





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				


BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
 Alcid	Alcids													-	-	-	-
	Brown pelican													-	-	-	-
	D. crested cormorant													-	-	-	-
 Gull/Tern	Loons													-	-	-	-
	Black tern													-	-	-	-
	Gulls													-	-	-	-
	Least tern													-	-	-	-
	Terns													-	-	-	-




BIRDS (continued)

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
 Passerine	Seaside sparrow													-	-	-	-
	Seaside sparrow													-	-	-	-
 Pelagic	Black-capped petrel													-	-	-	-
	Jaegers													-	-	-	-
	Northern gannet													-	-	-	-
	Shearwaters													-	-	-	-
 Shorebird	Storm-petrels													-	-	-	-
	Phalaropes													-	-	-	-
	Clapper rail													-	-	-	-
	Dabbling ducks													-	-	-	-
 Waterfowl	Diving ducks													-	-	-	-
	Diving ducks													-	-	-	-






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-May	Jan-Dec
	Estuarine Nursery													-	-	-	Apr-Nov	Apr-Nov
	Atl. sharpnose shark													-	-	-	Apr-Sep	Apr-Sep
	Atl. sharpnose shark													-	-	-	Apr-Sep	Apr-Sep
	Atlantic croaker													-	-	-	-	-
	Atlantic croaker													May-Nov	-	Nov-Apr	Jan-Dec	Jan-Dec
	Atlantic croaker													May-Nov	-	-	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-May	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-May	Sep-Jul*	Sep-Jul*
	Atlantic menhaden													-	-	Dec-May	Jan-Nov	Jan-Nov
	Black drum													-	-	Mar-Jun	Jan-Dec	Jan-Dec
	Bluefish													-	-	-	-	-
	Bonnethead													-	-	-	Apr-Sep	Apr-Sep
	Bonnethead													-	-	-	Apr-Nov	Apr-Nov
	Bull shark													-	-	Apr-Oct	Apr-Oct	-
	Porgies													-	-	-	-	-
	Red drum													-	-	Jun-Nov	Jan-Dec	Jul-Oct

FISH (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Red drum													-	-	-	-
	Sheepshead													-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder													-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern flounder													-	-	Nov-Jul*	Nov-Jul*
	Southern kingfish													-	-	-	Jan-Dec
	Southern kingfish													-	-	-	-
	Southern kingfish													-	May-Nov	-	Jan-Dec
	Spot													-	Jan-Jun	Jan-Dec	Jan-Dec
	Spot													-	-	-	-
	Spot													-	Nov-May	Jan-Dec	Jan-Dec
	Spotted seatrout													-	Apr-Oct	Nov-Jun*	Nov-Jun*
	Spotted seatrout													-	Apr-Oct	Jan-Feb	Jan-Feb
	Spotted seatrout													Apr-Sep	-	Nov	Nov-Sep
	Star drum													-	-	Jan-Dec	Jan-Dec
	Star drum													-	-	-	-
	Star drum													-	May-Aug	Jan-Dec	Jan-Dec
	Weakfish													-	Apr-Nov	Jan-Dec	Jan-Dec
	Weakfish													-	-	-	-
	Weakfish													-	-	Jan-Dec	Jan-Dec
 Fish	Great hammerhead													-	-	-	-
 Marine Benthic	Florida pompano													-	-	-	-
	Lemon shark													-	-	-	-
	Smooth dogfish													-	-	-	Dec-Apr
 Marine Pelagic	Atlantic tripletail													-	-	Mar-Nov	Mar-Nov
	Blacknose shark													-	-	Apr-Sep	Apr-Sep
	Blacktip shark													-	-	May-Oct	May-Oct
	Blacktip shark													-	Apr-Sep	Apr-Sep	-
	Cobia													-	-	-	-
	Finetooth shark													-	-	Jul	-
	Finetooth shark													-	-	-	-
	Giant manta													-	-	-	-
	King mackerel													-	-	-	-
	Sandbar shark													-	-	-	-
	Sandbar shark													-	-	Apr-Nov	Apr-Nov
	Sandbar shark													-	Apr-Sep	Apr-Sep	-
	Scalloped hammerhead													-	May-Sep	May-Sep	-
	Scalloped hammerhead													-	-	-	-
	Spanish mackerel													-	-	-	-
	Spanish mackerel													-	-	-	-
	Spanish mackerel													-	-	May-Oct*	May-Oct*
	Spinner shark													-	-	-	-
	Spiny dogfish													-	-	-	Dec-Apr
	Tiger shark													-	Apr-Nov	Apr-Nov	Apr-Nov
	White shark													-	-	Dec-Apr	Dec-Apr

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Atlantic brief squid													-	-	-	Jan-Dec
	Atlantic brief squid													-	-	-	-
	Blue crab													Mar-Aug	Mar-Aug	Apr-Jun	Jul-Apr*
	Blue crab													-	-	Jan-Dec	Jan-Dec
	Blue crab													-	-	Sep-Jul	Sep-Jul
	Blue crab													-	-	Jan-Dec	Jan-Dec
	Horseshoe crab													-	-	-	-
	Cannonball jellyfish													-	-	-	-
	Brown shrimp													-	Jan-Mar	-	Jun-Nov
	Brown shrimp													-	Mar-Jun	May-Nov*	May-Nov*
	Brown shrimp													-	Mar-Jun	May-Oct	May-Oct
	Brown shrimp													-	Jan-Mar	-	Jan-Nov
	White shrimp													-	-	Jan-Dec	Jan-Dec
	White shrimp													-	Apr-Aug	Jan-Dec	Jan-Dec
	White shrimp													-	Apr-Aug	Sep-Jun	Sep-Jun
	White shrimp													-	Apr-Aug	-	Mar-Nov

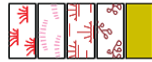
MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		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



ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	2,203.60	3.44
10B	Freshwater Marshes	54.54	0.09
10C	Swamps	203.41	0.32
10D	Scrub and Shrub Wetlands	414.33	0.65
7	Exposed Tidal Flats	9.43	0.01

ESI SHORELINE HABITAT TYPES

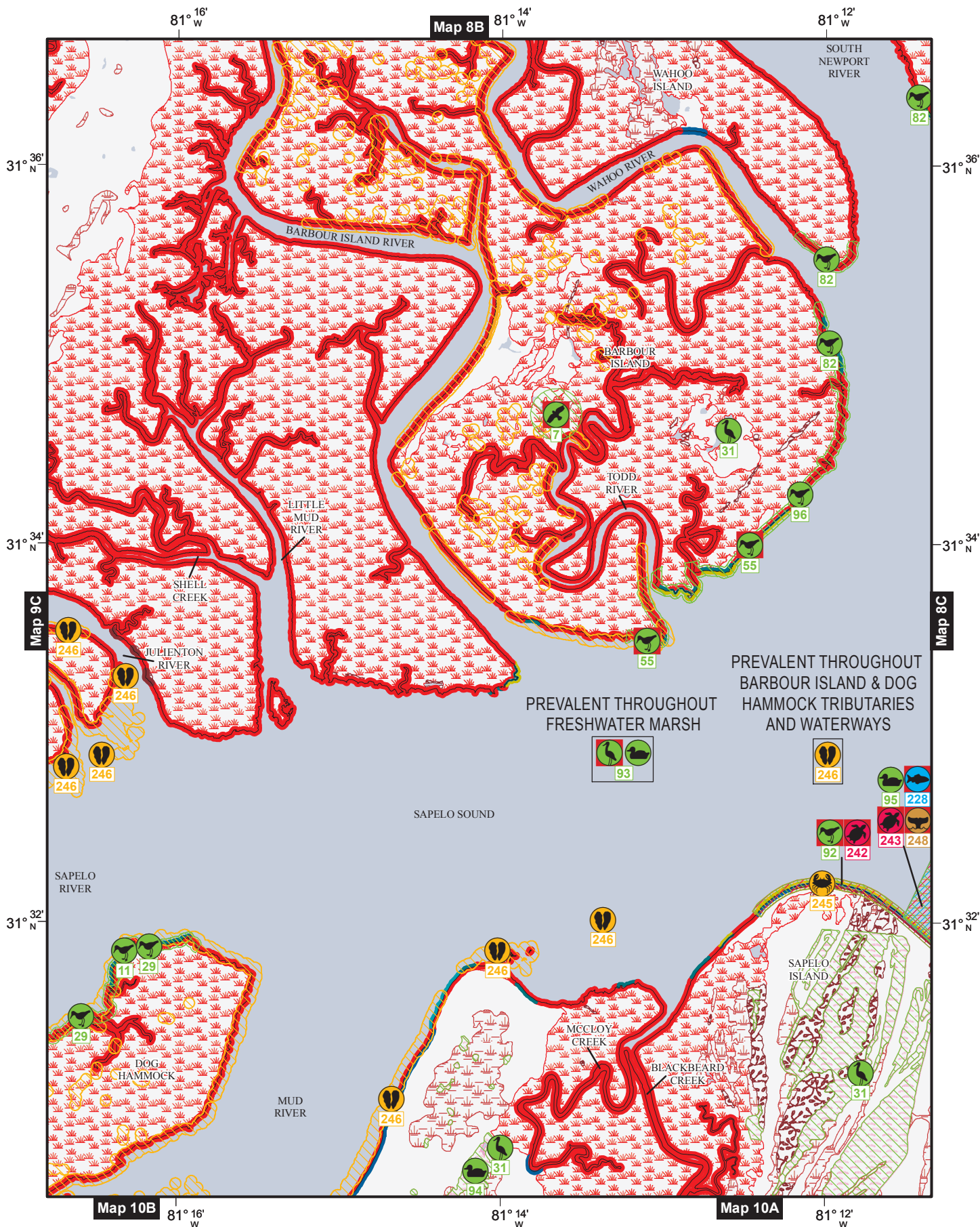
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	43,576.61	27.08	57%
10B	Freshwater Marshes	197.86	0.12	< 1%
10D	Scrub and Shrub Wetlands	1,633.32	1.01	2%
7	Exposed Tidal Flats	14,058.74	8.74	18%
6A	Gravel Beaches	3,338.83	2.07	4%
5	Mixed Sand and Gravel Beaches	877.06	0.54	1%
3A	Fine to Medium Grained Sand Beaches	12,482.71	7.76	16%
3B	Scarps and Steep Slopes (Sand)	84.02	0.05	< 1%

Total ESI Shoreline: 76,249.16 Total ESI Shoreline: 47.38
Total Shoreline: 55,884.00 Total Shoreline: 34.72

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





SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: June 2015

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				
7	Raptor	Bald eagle	Nesting	T		1 Nest													Sep-Apr	-	-	-
11	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
29	Shorebird	American oystercatcher	Nesting			4 Adults													Mar-Aug	-	-	-
31	Wading	Wading birds	Nesting			-													Apr-Aug	-	-	-
55	Shorebird	American oystercatcher	Wintering			10S													-	-	-	-
	Shorebird	Dunlin	Wintering			10,000S													-	-	-	-
	Shorebird	Red knot	Wintering		T	100S													-	-	-	-
	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
82	Shorebird	American oystercatcher	Wintering			-													-	-	-	-
92	Shorebird	American oystercatcher	Wintering			10S													-	-	-	-
	Shorebird	Dunlin	Wintering			10,000S													-	-	-	-
	Shorebird	Red knot	Migration		T	-													-	Apr-Jun	Jul-Oct	-
	Shorebird	Red knot	Wintering		T	-													-	-	-	-
	Shorebird	Shorebirds	Migration			-													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			100S													-	-	-	-
	Shorebird	Short-billed dowitcher	Wintering			1,000S													-	-	-	-
	Shorebird	Wilson's plover	Nesting		T	14 Adults													Mar-Jul	-	-	-
93	Wading	Wood stork	Vulnerable Occurrence		E	-													-	-	-	-
	Waterfowl	American coot	Wintering			10S													-	-	-	-
	Waterfowl	Diving ducks	Wintering			10S													-	-	-	-
	Waterfowl	Hooded merganser	Nesting			Possible													Feb-Jun	-	-	-
	Waterfowl	Hooded merganser	Wintering			High													-	-	-	-
	Waterfowl	Teals	Wintering			High													-	-	-	-
	Waterfowl	Wood duck	Nesting			-													Jan-Jul	-	-	-
	Waterfowl	Wood duck	Wintering			-													-	-	-	-
94	Waterfowl	Diving ducks	Wintering			10S													-	-	-	-
95	Waterfowl	Long-tailed duck	Wintering			10S													-	-	-	-
	Waterfowl	Mergansers	Wintering			100S													-	-	-	-
	Waterfowl	Scaup	Rafting			10,000S													-	-	-	-
	Waterfowl	Scoters	Rafting			10,000S													-	-	-	-
96	Shorebird	American oystercatcher	Nesting			8 Adults													Mar-Aug	-	-	-

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				
228	Diadromous	American eel	Migration			-													-	-	Jan-May	Sep-Jan
	Diadromous	American shad	Migration			-													-	-	Nov-Jan	Jan-Apr
	Diadromous	Atlantic sturgeon	Concentration Area	E	E	High													-	-	Oct-Jan	Oct-Jan
	Diadromous	Atlantic sturgeon	General Distribution	E	E	Present													-	-	Feb-Sep	Feb-Sep
	Diadromous	Shortnose sturgeon	General Distribution	E	E	Rare													-	-	-	Jan-Dec

REPTILES & AMPHIBIANS

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				
242	Turtle	Green sea turtle	Nesting	T	T	Low													May-Oct	-	-	May-Oct
	Turtle	K. ridley sea turtle	Nesting	E	E	Rare													May-Oct	-	-	May-Oct
	Turtle	Leatherback sea turtle	Nesting	E	E	Low													May-Oct	-	-	May-Oct
	Turtle	Loggerhead sea turtle	Nesting	E	T	High													May-Oct	-	-	May-Oct
243	Turtle	Leatherback sea turtle	General Distribution	E	E	High													-	Apr-Aug	-	Nov-Aug

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				
245	Crab	Horseshoe crab	Spawning Area			High													Apr-Jun	-	-	Apr-Jun
246	Bivalve	Eastern oyster	Concentration Area			Reef													May-Nov	Jun-Dec	Jan-Dec	Jan-Dec

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																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
248	Whale	Humpback whale	General Distribution	E	E	Low																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

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				
	Passerine	Seaside sparrow	Nesting			High												Mar-Aug	-	-	-	
	Wading	Clapper rail	Nesting			High												Mar-Sep	-	-	-	
	Waterfowl	Diving ducks	Rafting			10S												-	-	-	-	
		Scaup	Rafting			1,000S												-	-	-	-	
		Scaup	Wintering			100S												-	-	-	-	
		Scoters	Rafting			10S												-	-	-	-	


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				
	Diadromous	Atlantic sturgeon	General Distribution	E	E	Rare													-	-	Jan-Dec	Jan-Dec
		Shortnose sturgeon	General Distribution	E	E	Rare													-	-	Jan-Dec	Jan-Dec

HABITATS & RARE PLANTS

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
Plant	Threatened plant	Vulnerable Occurrence	T		-	J	F	M	A	M	J	J	A	S	O	N	D
																	

REPTILES & AMPHIBIANS


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

MARINE MAMMALS

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






ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
Alcid	Alcids	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	-
																	
Diving	Brown pelican													-	-	-	-
	D. crested cormorant													-	-	-	-
	Loons													-	-	-	-
Gull/Tern	Black tern													-	-	-	-
	Gulls													-	-	-	-
	Least tern													-	-	-	-
	Terns													-	-	-	-
Passerine	Seaside sparrow													-	-	-	-
	Seaside sparrow													-	-	-	-
Pelagic	Black-capped petrel													-	-	-	-
	Jaegers													-	-	-	-
	Northern gannet													-	-	-	-
	Shearwaters													-	-	-	-
	Storm-petrels													-	-	-	-
Shorebird	Phalaropes													-	-	-	-
Wading	Clapper rail													-	-	-	-
Waterfowl	Diving ducks													-	-	-	-

FISH

Monthly Presence

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	American eel													-	-	-	Jan-May	Jan-Dec
	Atl. sharpnose shark													-	-	-	Apr-Nov	Apr-Nov
	Atl. sharpnose shark													-	-	Apr-Sep	Apr-Sep	Apr-Sep
	Atlantic croaker													May-Nov	-	-	Jan-Dec	Jan-Dec
	Atlantic croaker													May-Nov	-	Nov-Apr	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-May	Sep-Jul*	Sep-Jul*
	Atlantic menhaden													-	-	Dec-May	Jan-Nov	Jan-Nov
	Atlantic menhaden													-	-	Dec-May	Jan-Dec	Jan-Dec
	Black drum													-	-	Mar-Jun	Jan-Dec	Jan-Dec
	Bluefish													-	-	-	-	-
	Bonnethead													-	-	-	Apr-Nov	Apr-Nov
	Bonnethead													-	-	-	Apr-Sep	Apr-Sep
	Bull shark													-	-	Apr-Oct	Apr-Oct	-
	Porgies													-	-	-	-	-
	Red drum													-	-	Jun-Nov	Jan-Dec	Jul-Oct
	Red drum													-	-	-	-	-
	Sheepshead													-	-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder													-	-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern flounder													-	-	-	Nov-Jul*	Nov-Jul*
	Southern kingfish													-	-	May-Nov	-	Jan-Dec
	Southern kingfish													-	-	-	-	Jan-Dec
	Spot													-	-	Nov-May	Jan-Dec	Jan-Dec
	Spot													-	-	Jan-Jun	Jan-Dec	Jan-Dec
	Spotted seatrout													-	-	Apr-Oct	Nov-Jun*	Nov-Jun*
	Spotted seatrout													-	-	Apr-Oct	Jan-Feb	Jan-Feb
	Spotted seatrout													Apr-Sep	-	-	Nov	Nov-Sep
	Star drum													-	-	-	Jan-Dec	Jan-Dec
	Star drum													-	-	May-Aug	Jan-Dec	Jan-Dec
	Weakfish													-	-	-	Jan-Dec	Jan-Dec
	Weakfish													-	-	Apr-Nov	Jan-Dec	Jan-Dec
	Great hammerhead													-	-	-	-	-
	Florida pompano													-	-	-	-	-
	Lemon shark													-	-	-	-	-
	Smooth dogfish													-	-	-	-	Dec-Apr
	Atlantic tripletail													-	-	-	Mar-Nov	Mar-Nov
	Blacknose shark													-	-	-	Apr-Sep	Apr-Sep
	Blacktip shark													-	-	Apr-Sep	Apr-Sep	-
	Blacktip shark													-	-	-	May-Oct	May-Oct
	Cobia													-	-	-	-	-
	Finetooth shark													-	-	-	Jul	-
	Finetooth shark													-	-	-	-	-
	Giant manta													-	-	-	-	-

FISH (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	King mackerel													-	-	-	-
	Sandbar shark													-	Apr-Sep	Apr-Sep	-
	Sandbar shark													-	-	Apr-Nov	Apr-Nov
	Scalloped hammerhead													-	-	-	-
	Scalloped hammerhead													-	May-Sep	May-Sep	-
	Spanish mackerel													-	-	-	-
	Spanish mackerel													-	-	May-Oct*	May-Oct*
	Spinner shark													-	-	-	-
	Spiny dogfish													-	-	-	Dec-Apr
	Tiger shark													-	Apr-Nov	Apr-Nov	Apr-Nov
	White shark													-	-	Dec-Apr	Dec-Apr

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Cephalopod													-	-	-	Jan-Dec
	Crab													Mar-Aug	Mar-Aug	Jul-Apr*	Jul-Apr*
	Blue crab													-	-	Jan-Dec	Jan-Dec
	Blue crab													-	Apr-Jun	Sep-Jul	Sep-Jul
	Horseshoe crab													-	-	Jan-Dec	Jan-Dec
	Cannonball jellyfish													-	-	-	-
	Brown shrimp													-	Mar-Jun	May-Oct	May-Oct
	Brown shrimp													-	Mar-Jun	May-Nov*	May-Nov*
	Brown shrimp													-	Jan-Mar	-	Jan-Nov
	White shrimp													-	-	Jan-Dec	Jan-Dec
	White shrimp													-	Apr-Aug	Jan-Dec	Jan-Dec
	White shrimp													-	Apr-Aug	Sep-Jun	Sep-Jun

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													-	-	-	-


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	10,342.03	16.16
	10B	Freshwater Marshes	478.90	0.75
	10C	Swamps	468.42	0.73
	10D	Scrub and Shrub Wetlands	222.28	0.35

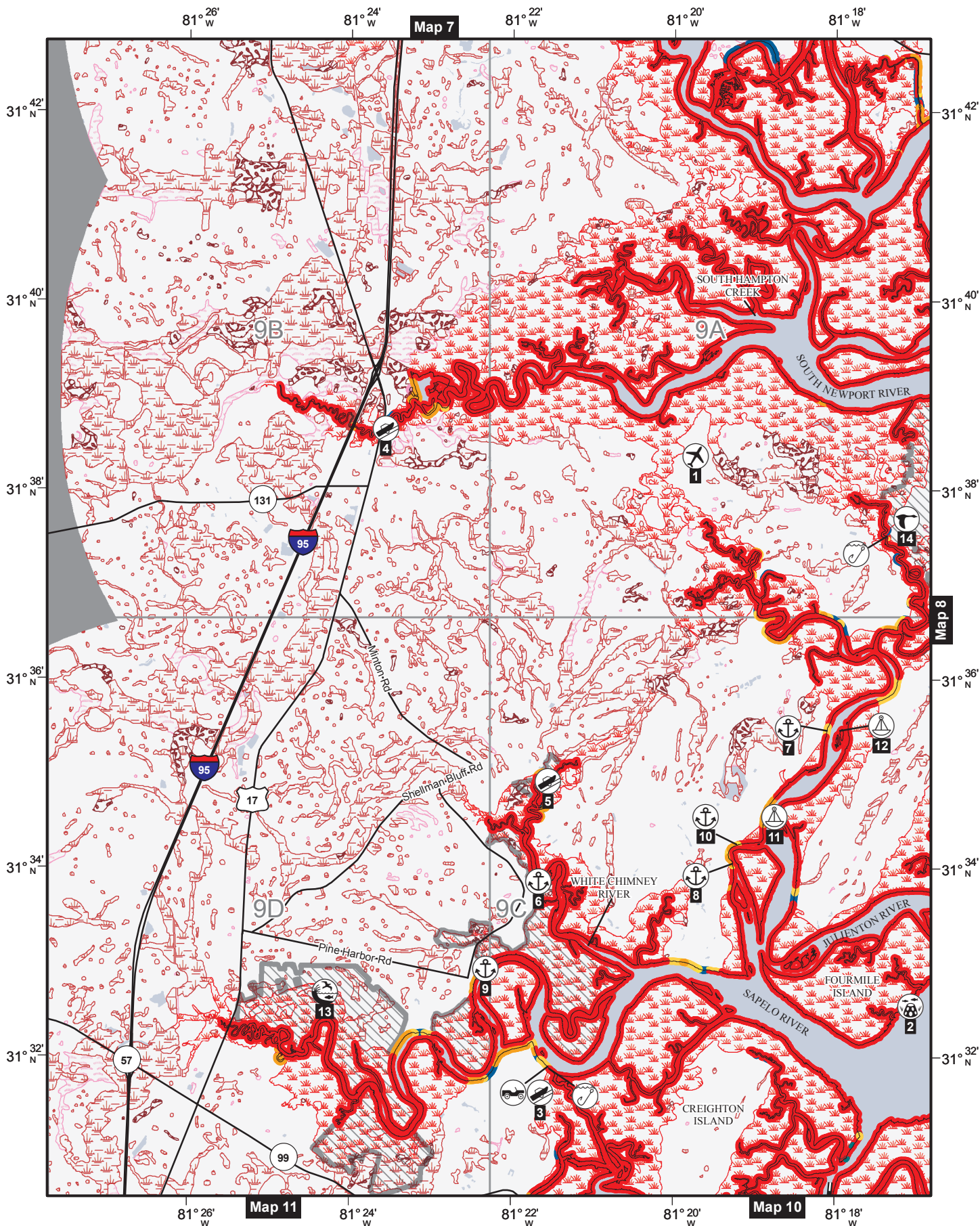
ESI SHORELINE HABITAT TYPES

	ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
	10A	Salt and Brackish Water Marshes	213,670.68	132.77	92%
	10D	Scrub and Shrub Wetlands	1,978.57	1.23	1%
	9B	Vegetated Low Banks	653.39	0.41	< 1%
	7	Exposed Tidal Flats	4,461.72	2.77	2%
	6A	Gravel Beaches	5,700.26	3.54	2%
	5	Mixed Sand and Gravel Beaches	650.38	0.40	< 1%
	3A	Fine to Medium Grained Sand Beaches	1,996.11	1.24	1%
	3B	Scarps and Steep Slopes (Sand)	2,314.72	1.44	1%
Total ESI Shoreline:			231,425.83	143.80	
Total Shoreline:			217,400.70	135.09	

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 9
Georgia



SEE BACK OF MAP
for details about mapped resources and
other resources that occur in mapped area.
Data Published: June 2015

0 Not for Navigation 2 Miles
0 2 Kilometers

1:100,000



Map 9
Georgia

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Phone
1	AIRPORT	EAGLE NECK	
2	ARTIFICIAL REEF	FOUR MILE ISLAND REEF	
3	BOAT RAMP	BELLVILLE BOAT RAMP	
4	BOAT RAMP	SOUTH NEWPORT RIVER BOAT RAMP	
5	BOAT RAMP	WHITE CHIMNEY RIVER BOAT RAMP	
6	MARINA	BELLE BLUFF MARINA	
7	MARINA	DALLAS BLUFF MARINA	
8	MARINA	FISHERMAN'S LODGE	
9	MARINA	PINE HARBOR MARINA	
10	MARINA	SHELLMAN BLUFF FISH CAMP	
11	REPEATED MEASUREMENT SITE	BMS - ONTMNT BLF SNDBR	
12	REPEATED MEASUREMENT SITE	BMS - DALLAS BLF SNDBR	

DISPLAYED ON MAP (POLYGONS)			
Map ID	Type	Name	Phone
13	MANAGEMENT AREA	RICHMOND HILL WILDLIFE MANAGEMENT AREA	GEORGIA DEPARTMENT OF NATURAL RESOURCES
14	WILDLIFE REFUGE	HARRIS NECK NATIONAL WILDLIFE REFUGE	US FISH AND WILDLIFE SERVICE 912/832-4608

JURISDICTIONS


COUNTY:	LIBERTY COUNTY, MCINTOSH COUNTY	FEMA:	REGION IV
COAST GUARD:	COAST GUARD DISTRICT 7, COAST GUARD SECTOR CHARLESTON	EPA:	REGION 4
USACE:	SOUTH ATLANTIC DIVISION, SAVANNAH DISTRICT		

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

	ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
	10A	Salt and Brackish Water Marshes	23,348.23	36.48
	10B	Freshwater Marshes	1,771.17	2.77
	10C	Swamps	12,954.65	20.24
	10D	Scrub and Shrub Wetlands	1,650.53	2.58

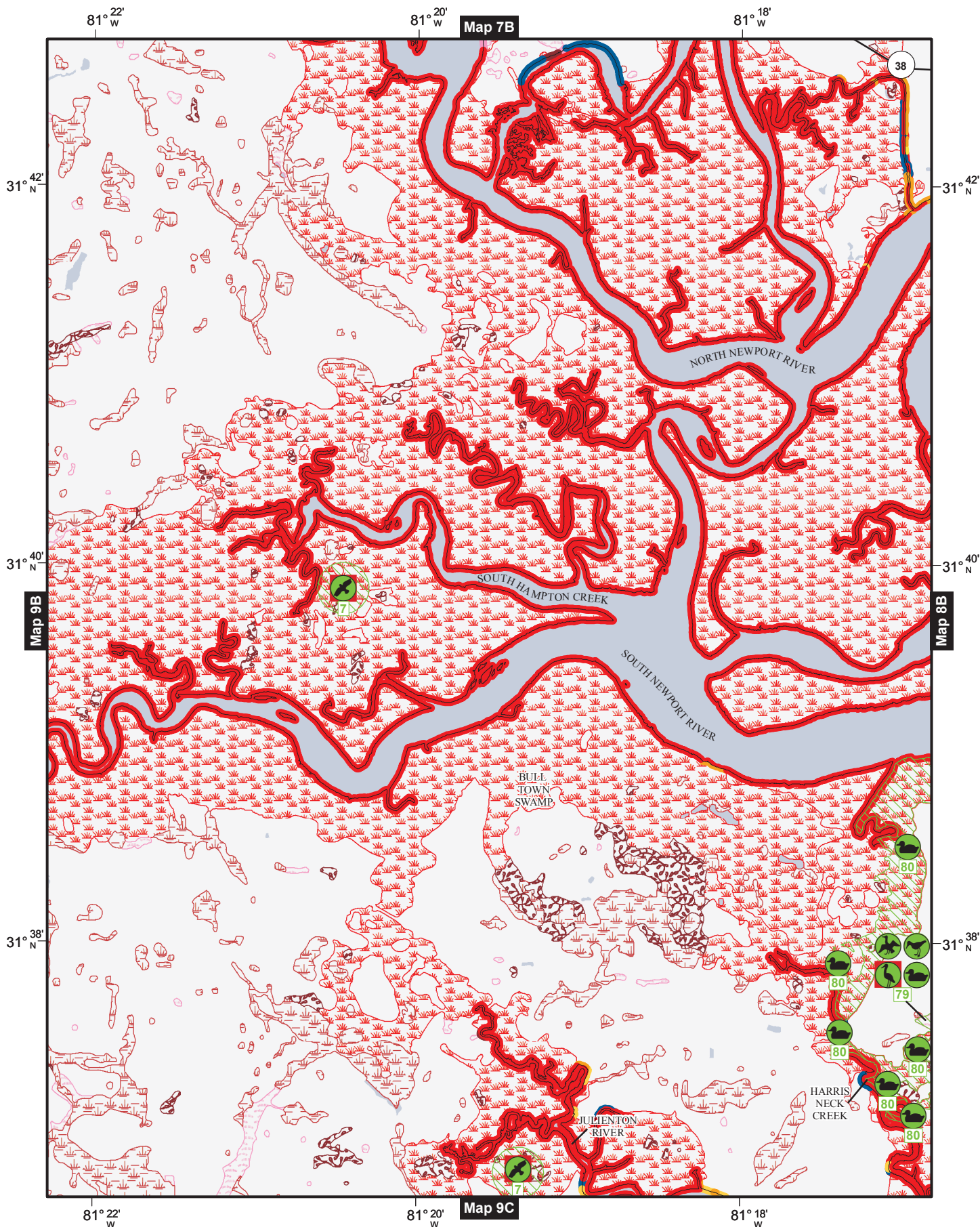
ESI SHORELINE HABITAT TYPES

	ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
	10A	Salt and Brackish Water Marshes	461,554.72	286.80	96%
	10B	Freshwater Marshes	543.44	0.34	< 1%
	10C	Swamps	117.17	0.07	< 1%
	10D	Scrub and Shrub Wetlands	1,195.80	0.74	< 1%
	9A	Sheltered Tidal Flats	207.43	0.13	< 1%
	9B	Vegetated Low Banks	8,190.30	5.09	2%
	8B	Sheltered, Solid Man-Made Structures	995.01	0.62	< 1%
	8C	Sheltered Riprap	4,819.70	2.99	1%
	6A	Gravel Beaches	215.64	0.13	< 1%
	3B	Scarps and Steep Slopes (Sand)	4,994.12	3.10	1%
Total ESI Shoreline:			482,833.32	300.02	
Total Shoreline:			478,150.94	297.11	

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 9A

Georgia



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: June 2015

0 Not for Navigation 1 Miles
0 1 Kilometers

1:50,000



Map 9A
Georgia

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	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig.(S)	Mig.(F)	Molt
7	Raptor	Bald eagle	Nesting	T		1 Nest													Sep-Apr	-	-	-
79	Diving	Diving birds	Wintering			100S													-	-	-	-
	Shorebird	Shorebirds	Migration			100S													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			100S													-	-	-	-
	Wading	Great egret	Roosting			100S													-	-	-	-
	Wading	Wading birds	Roosting			100S													-	-	-	-
	Wading	White ibis	Roosting			100S													-	-	-	-
	Wading	Wood stork	Concentration Area	E	T	1,000S													-	-	-	-
	Waterfowl	American coot	Wintering			100S													-	-	-	-
	Waterfowl	Common moorhen	Nesting			Possible													Mar-Oct	-	-	-
	Waterfowl	Common moorhen	Wintering			100S													-	-	-	-
	Waterfowl	Dabbling ducks	Wintering			100S													-	-	-	-
	Waterfowl	Diving ducks	Wintering			100S													-	-	-	-
	Waterfowl	G. white-fronted goose	Wintering			10S													-	-	-	-
	Waterfowl	Mergansers	Wintering			100S													-	-	-	-
	Waterfowl	Teals	Wintering			100S													-	-	-	-
	Waterfowl	Wood duck	Nesting			-													Jan-Jul	-	-	-
80	Waterfowl	Diving ducks	Wintering			10S													-	-	-	-
	Waterfowl	Green-winged teal	Wintering			100S													-	-	-	-

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
	Passerine	Seaside sparrow			High													Mar-Aug	-	-	-
	Wading	Clapper rail			High													Mar-Sep	-	-	-

FISH

Subelement	Species	Mapping Qualifier	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
	Diadromous	Atlantic sturgeon	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec
		Shortnose sturgeon	E	E	Rare													-	-	-	Jan-Dec	Jan-Dec

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	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Oct
	K. ridley sea turtle	General Distribution	E	E	-													-	-	Apr-Aug	Jan-Dec	-
	Loggerhead sea turtle	General Distribution	E	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Sep

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	S	E	Low													-	-	-	-
			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				
	Seaside sparrow													-	Oct-May	-	-
	Seaside sparrow													-	-	-	-
	Clapper rail													-	-	-	-
														-	-	-	-

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-May	Jan-Dec
	Atlantic croaker													May-Nov	-	Nov-Apr	Jan-Dec	Jan-Dec
	Atlantic menhaden													-	-	Dec-May	Jan-Dec	Jan-Dec
	Black drum													-	-	Mar-Jun	Jan-Dec	Jan-Dec
	Red drum													-	-	Jun-Nov	Jan-Dec	Jul-Oct
	Sheepshead													-	-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder													-	-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern kingfish													-	-	May-Nov	-	Jan-Dec
	Spot													-	-	Jan-Jun	Jan-Dec	Jan-Dec
	Spotted seatrout													-	-	Apr-Oct	Nov-Jun*	Nov-Jun*
	Star drum													-	-	May-Aug	Jan-Dec	Jan-Dec
	Weakfish													-	-	Apr-Nov	Jan-Dec	Jan-Dec
	Atlantic tripletail													-	-	-	Mar-Nov	Mar-Nov
	Spanish mackerel													-	-	-	May-Oct*	May-Oct*

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
 Cephalopod	Atlantic brief squid													-	-	-	Jan-Dec
	Blue crab													-	-	-	Jan-Dec
 Crab	Horseshoe crab													-	-	-	Jan-Dec
	Cannonball jellyfish													-	-	-	Jan-Dec
	Brown shrimp													-	Mar-Jun	May-Oct	May-Oct
 Shrimp	White shrimp													-	-	-	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													-	-	-	-


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	11,313.71	17.68
	10B	Freshwater Marshes	122.08	0.19
	10C	Swamps	1,289.03	2.01
	10D	Scrub and Shrub Wetlands	332.24	0.52

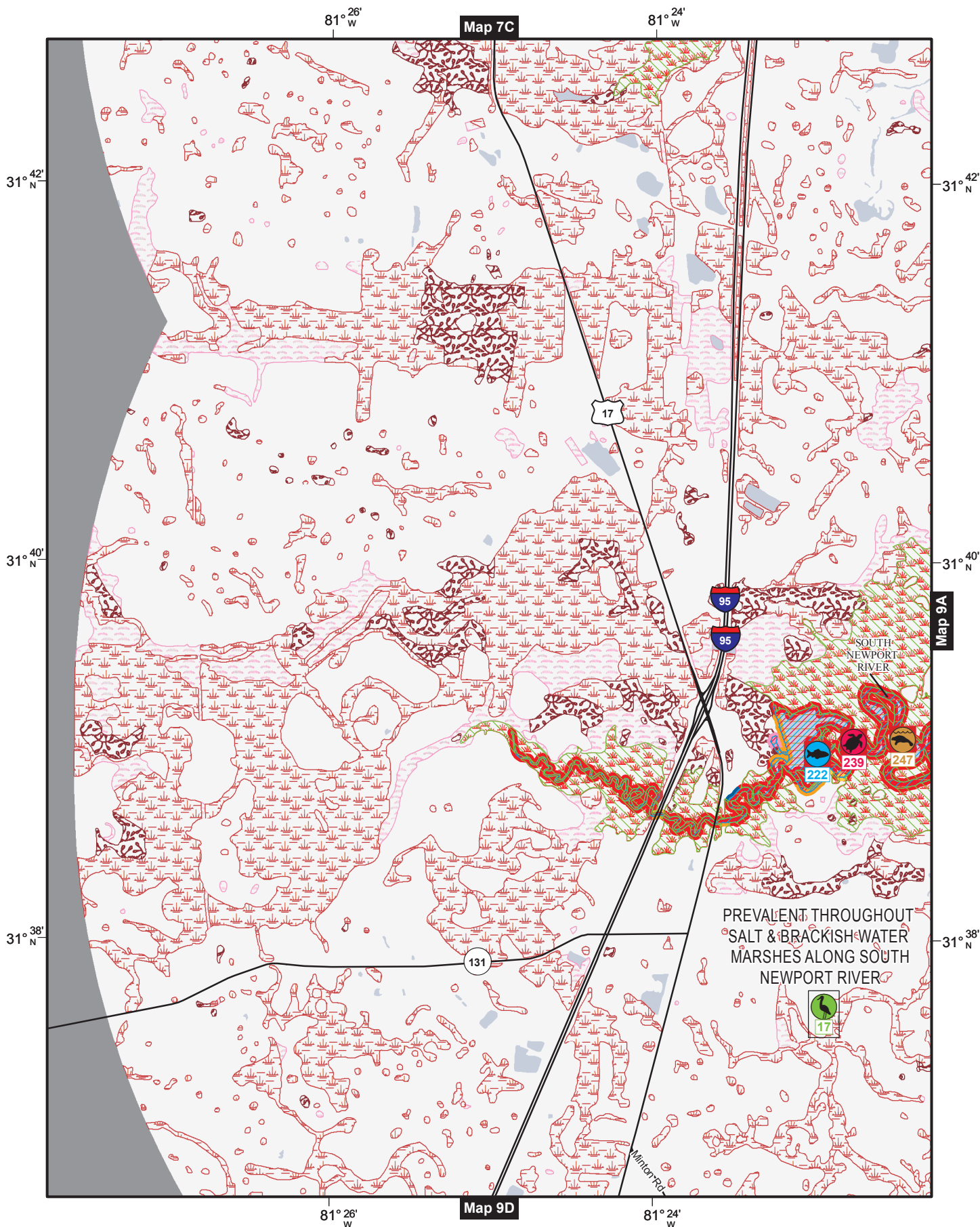
ESI SHORELINE HABITAT TYPES

	ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
	10A	Salt and Brackish Water Marshes	203,092.16	126.20	97%
	10B	Freshwater Marshes	188.36	0.12	< 1%
	10D	Scrub and Shrub Wetlands	273.00	0.17	< 1%
	9A	Sheltered Tidal Flats	207.43	0.13	< 1%
	9B	Vegetated Low Banks	2,057.92	1.28	1%
	8B	Sheltered, Solid Man-Made Structures	75.10	0.05	< 1%
	8C	Sheltered Riprap	657.63	0.41	< 1%
	3B	Scarps and Steep Slopes (Sand)	2,612.89	1.62	1%
Total ESI Shoreline:			209,164.48	Total ESI Shoreline:	129.97
Total Shoreline:			207,293.37	Total Shoreline:	128.81

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 9B
Georgia

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
17	Wading	Clapper rail	Nesting			High	J	F	M	A	M	J	J	A	S	O	N	D	Mar-Sep	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
222	Diadromous	Atlantic sturgeon	General Distribution	E	E	Rare	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Shortnose sturgeon	General Distribution	E	E	Rare	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-	Jan-Dec	Jan-Dec

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
239	Turtle	Green sea turtle	General Distribution	T	T	-	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Apr-Aug	Jan-Dec	Apr-Oct
	Turtle	K. ridley sea turtle	General Distribution	E	E	-	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Apr-Aug	Jan-Dec	-
	Turtle	Loggerhead sea turtle	General Distribution	E	T	-	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Apr-Aug	Jan-Dec	Apr-Sep

MARINE MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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247	Manatee	West Indian manatee	General Distribution	E	E	Low	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
	Passerine	Seaside sparrow	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-
	Wading	Clapper rail	J	F	M	A	M	J	J	A	S	O	N	D	-	-	-

FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
	Diadromous	American eel	J	F	M	A	M	J	J	A	S	O	N	D	-	-	Jan-May	Jan-Dec

MARINE MAMMALS

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

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	922.70	1.44
10B	Freshwater Marshes	1,136.46	1.78
10C	Swamps	5,686.92	8.89
10D	Scrub and Shrub Wetlands	882.14	1.38



ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	23,824.28	14.80	91%
10B	Freshwater Marshes	355.08	0.22	1%
10C	Swamps	117.17	0.07	< 1%
10D	Scrub and Shrub Wetlands	260.48	0.16	1%
9B	Vegetated Low Banks	1,308.20	0.81	5%
8C	Sheltered Riprap	292.33	0.18	1%
3B	Scarps and Steep Slopes (Sand)	152.74	0.09	1%

Total ESI Shoreline: 26,310.29 Total ESI Shoreline: 16.35
Total Shoreline: 25,698.71 Total Shoreline: 15.97

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



Map 9C
Georgia

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
7	Raptor	Bald eagle	Nesting	T		1 Nest	J	F	M	A	M	J	J	A	S	O	N	D	Sep-Apr	-	-	-
11	Shorebird	Shorebirds	Migration			High													-	Apr-Jun	Jul-Oct	-
	Shorebird	Shorebirds	Wintering			1,000S													-	-	-	-
17	Wading	Clapper rail	Nesting			High													Mar-Sep	-	-	-
31	Wading	Wading birds	Nesting			-													Apr-Aug	-	-	-
81	Waterfowl	Scaup	Wintering			100S													-	-	-	-
97	Wading	Wading birds	Nesting			-													Apr-Aug	-	-	-
	Wading	Wood stork	Nesting	E	T	67 Nests													Mar-Aug	-	-	-
98	Waterfowl	Diving ducks	Rafting			10S													-	-	-	-
	Waterfowl	Scaup	Rafting			1,000S													-	-	-	-
	Waterfowl	Scoters	Rafting			10S													-	-	-	-

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence															
237	Plant	Threatened plant	Vulnerable Occurrence	T		-	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
246	Bivalve	Eastern oyster	Concentration Area			Reef	J	F	M	A	M	J	J	A	S	O	N	D	May-Nov	May-Nov	Jun-Dec	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
	Passerine	Seaside sparrow	Nesting			High												Mar-Aug	-	-	-

FISH

<div><div></div></div>	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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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	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Oct
	K. ridley sea turtle	General Distribution	E	E	-													-	-	Apr-Aug	Jan-Dec	-
	Loggerhead sea turtle	General Distribution	E	T	-													-	-	Apr-Aug	Jan-Dec	Apr-Sep

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	Low													-	-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)




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				
	Seaside sparrow																	-	-	-	-
	Seaside sparrow																	-	Oct-May	-	-
	Clapper rail																	-	-	-	-
	Diving ducks																	-	-	-	-

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-May	Jan-Dec
	Atl. sharpnose shark																	May-Nov	-	Apr-Sep	Apr-Sep	Apr-Sep
	Atlantic croaker																	-	-	Nov-Apr	Jan-Dec	Jan-Dec
	Atlantic menhaden																	-	-	Dec-May	Jan-Nov	Jan-Nov
	Atlantic menhaden																	-	-	Dec-May	Jan-Dec	Jan-Dec
	Black drum																	-	-	Mar-Jun	Jan-Dec	Jan-Dec
	Bonnethead																	-	-	Apr-Sep	Apr-Sep	Apr-Sep
	Red drum																	-	-	Jun-Nov	Jan-Dec	Jul-Oct
	Sheepshead																	-	-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder																	-	-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern kingfish																	-	-	May-Nov	-	Jan-Dec
	Spot																	-	-	Jan-Jun	Jan-Dec	Jan-Dec
	Spotted seatrout																	-	-	Apr-Oct	Nov-Jun*	Nov-Jun*
	Spotted seatrout																	-	-	Apr-Oct	Jan-Feb	Jan-Feb
	Star drum																	-	-	May-Aug	Jan-Dec	Jan-Dec
	Weakfish																	-	-	Apr-Nov	Jan-Dec	Jan-Dec
	Atlantic tripletail																	-	-	-	Mar-Nov	Mar-Nov
	Blacktip shark																	-	-	Apr-Sep	Apr-Sep	-
	Finetooth shark																	-	-	-	Jul	-
	Sandbar shark																	-	-	Apr-Sep	Apr-Sep	-
	Scalloped hammerhead																	-	-	May-Sep	May-Sep	-
	Spanish mackerel																	-	-	-	May-Oct*	May-Oct*

INVERTEBRATES

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

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)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	8,806.10	13.76
10B	Freshwater Marshes	84.67	0.13
10C	Swamps	1,319.51	2.06
10D	Scrub and Shrub Wetlands	204.05	0.32

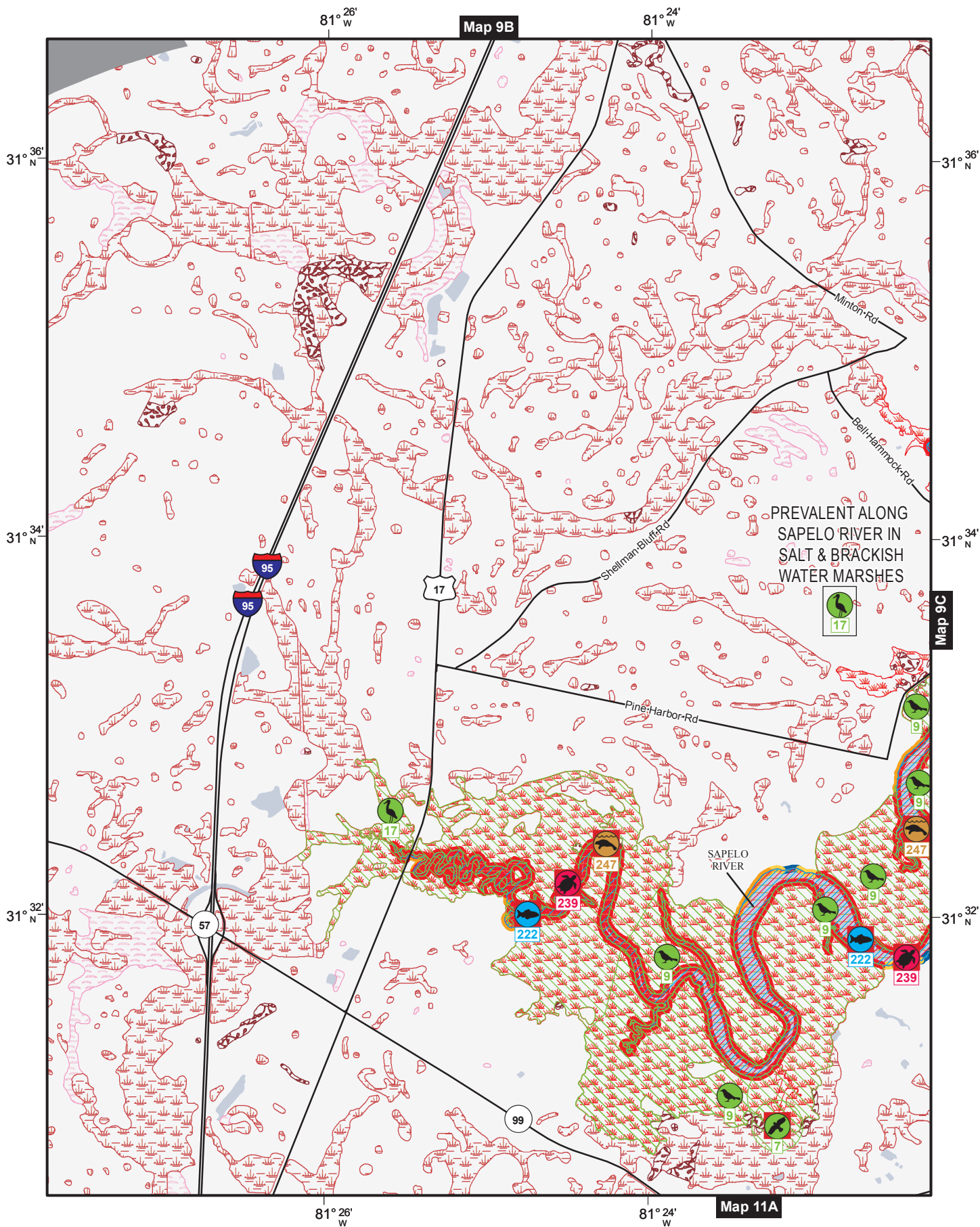
ESI SHORELINE HABITAT TYPES		Length (Meters)		Length (Miles)		% of ESI Shoreline
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	Length (Miles)	% of ESI Shoreline	
10A	Salt and Brackish Water Marshes	196,181.86	121.90	121.90	95%	< 1%
10D	Scrub and Shrub Wetlands	496.57	0.31	0.31	< 1%	
9B	Vegetated Low Banks	2,926.45	1.82	1.82	1%	< 1%
8B	Sheltered, Solid Man-Made Structures	832.69	0.52	0.52	< 1%	
8C	Sheltered Riprap	3,291.06	2.04	2.04	2%	< 1%
6A	Gravel Beaches	215.64	0.13	0.13	< 1%	
3B	Scarps and Steep Slopes (Sand)	1,900.83	1.18	1.18	1%	

Total ESI Shoreline: 205,845.09
Total ESI Shoreline: 127.91
Total Shoreline: 204,323.05
Total Shoreline: 126.96

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

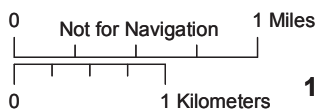




Map 9D
Georgia



SEE BACK OF MAP
for details about mapped species and
other species that occur in mapped area.
Data Published: June 2015



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
				T			J	F	M	A	M	J	J	A	S	O	N	D				
7	Raptor	Bald eagle	Nesting			1 Nest													Sep-Apr	-	-	-
9	Passerine	Seaside sparrow	Nesting			High													Mar-Aug	-	-	-
17	Wading	Clapper rail	Nesting			High													Mar-Sep	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
				E	E		J	F	M	A	M	J	J	A	S	O	N	D					
222	Diadromous	Atlantic sturgeon	General Distribution			Rare													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Shortnose sturgeon	General Distribution			Rare													-	-	-	Jan-Dec	Jan-Dec

REPTILES & AMPHIBIANS


Map ID	Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
				T	E		J	F	M	A	M	J	J	A	S	O	N	D					
239	Turtle	Green sea turtle	General Distribution			-													-	-	Apr-Aug	Jan-Dec	Apr-Oct
	Turtle	K. ridley sea turtle	General Distribution			-													-	-	Apr-Aug	Jan-Dec	-
	Turtle	Loggerhead sea turtle	General Distribution			-													-	-	Apr-Aug	Jan-Dec	Apr-Sep

MARINE MAMMALS



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

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									
	Passerine																					
	Seaside sparrow																					
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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-Dec	Jan-Dec
 Estuarine Nursery	Atlantic croaker														May-Nov	-	Nov-Apr	Jan-Dec
	Atlantic menhaden														-	-	Dec-May	Jan-Dec

FISH (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Black drum													-	Mar-Jun	Jan-Dec	Jan-Dec
	Red drum													-	Jun-Nov	Jan-Dec	Jul-Oct
	Sheepshead													-	Jul-Dec	Jan-Dec	Jan-Dec
	Southern flounder													-	Feb-Apr	Jan-Dec	Jan-Dec
	Southern kingfish													-	May-Nov	-	Jan-Dec
	Spot													-	Jan-Jun	Jan-Dec	Jan-Dec
	Spotted seatrout													-	Apr-Oct	Nov-Jun*	Nov-Jun*
	Star drum													-	May-Aug	Jan-Dec	Jan-Dec
	Weakfish													-	Apr-Nov	Jan-Dec	Jan-Dec
	Spanish mackerel													-	-	May-Oct*	May-Oct*

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Atlantic brief squid													-	-	-	Jan-Dec
	Blue crab													-	-	Jan-Dec	Jan-Dec
	Horseshoe crab													-	-	Jan-Dec	Jan-Dec
	Cannonball jellyfish													-	-	-	-
	Brown shrimp													-	Mar-Jun	May-Oct	May-Oct
	White shrimp													-	-	Jan-Dec	Jan-Dec

MARINE MAMMALS

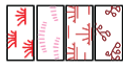
Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bottlenose dolphin													-	-	-	-

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	2,305.14	3.60
10B	Freshwater Marshes	428.15	0.67
10C	Swamps	4,659.40	7.28
10D	Scrub and Shrub Wetlands	232.23	0.36



ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	38,460.02	23.90	93%
10D	Scrub and Shrub Wetlands	165.74	0.10	< 1%
9B	Vegetated Low Banks	1,894.12	1.18	5%
8B	Sheltered, Solid Man-Made Structures	87.22	0.05	< 1%
8C	Sheltered Riprap	578.68	0.36	1%
3B	Scarps and Steep Slopes (Sand)	327.66	0.20	1%

Total ESI Shoreline: 41,513.44 Total ESI Shoreline: 25.80
 Total Shoreline: 40,839.42 Total Shoreline: 25.38




































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































LEGEND: GEORGIA

Human-Use Features

	Abandoned Vessel
	Access
	Airport/Heliport
	Anchorage
	Army Corps of Engineers
	Artificial Reef
	Beach
	Boat Ramp
	Coast Guard
	Commercial Fishing
	Critical Habitat
	EPA Facility
	EPA Region
	FEMA Region
	Historical Site
	Management Area
	Marina
	Marine Sanctuary
	Military Installation
	National Estuarine Research Reserve
	National Park
	Nature Conservancy
	Park
	Port
	Recreational Fishing
	Renewable Energy
	Repeated Measurement Site
	Washover
	Water Intake
	Wildlife Refuge
	Interstate
	Rail Route
	Shipping Lane
	State Highway or Route
	US Highway

ESI Shoreline and Habitat Ranking

		1B) Exposed, Solid Man-made Structures
		3A) Fine to Medium Grained Sand Beaches 3B) Scarps and Steep Slopes in Sand
		5) Mixed Sand and Gravel Beaches
		6A) Gravel Beaches
		6B) Riprap
		7) Exposed Tidal Flats
		8A) Sheltered, Impermeable, Rocky Shores
		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.

LEGEND: GEORGIA

Sensitive Biological Resources

	Birds		Invertebrates		Benthic
	Birds		Bivalve		Hardbottom
	Alcid/Pelagic		Cephalopod		
	Diving		Crab/Invertebrate		Habitats
	Gull/Tern		Shrimp		Plant
	Passerine				
	Raptor		Marine Mammals		
	Shorebird		Dolphin		Threatened or Endangered Species
	Wading		Manatee		
	Waterfowl		Whale		
					Map ID
	Fish		Reptiles & Amphibians		
	Fish		Turtle		
	Nursery				

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 seven 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 are assigned a "General Distribution" mapping qualifier and 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 aerial 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.

