

Environmental Sensitivity Index Maps

A Guide to Coastal Resources at Risk to Spilled Oil

Massachusetts and Rhode Island: Volume 4 Rhode Island



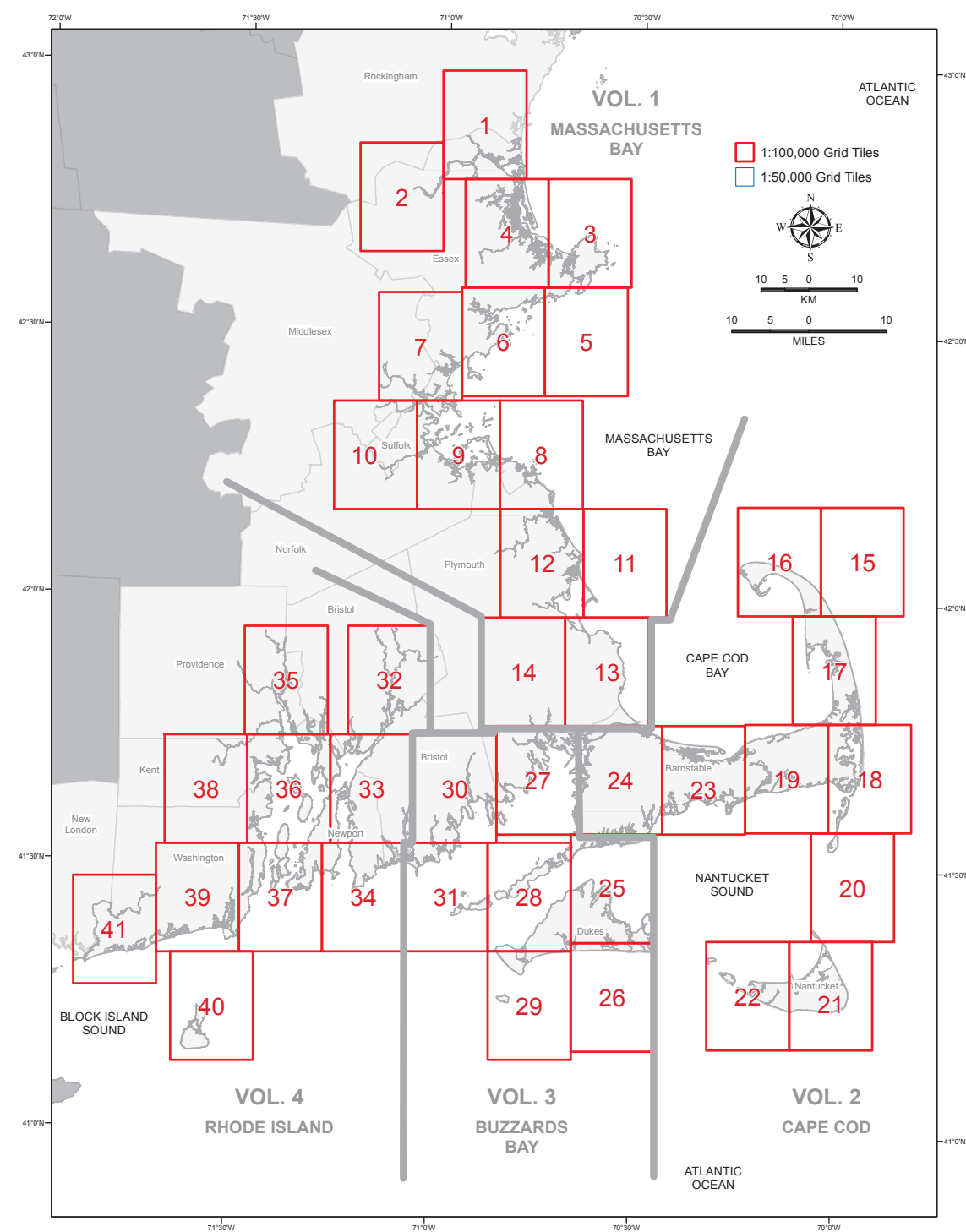
Office of Response and Restoration

November 2016

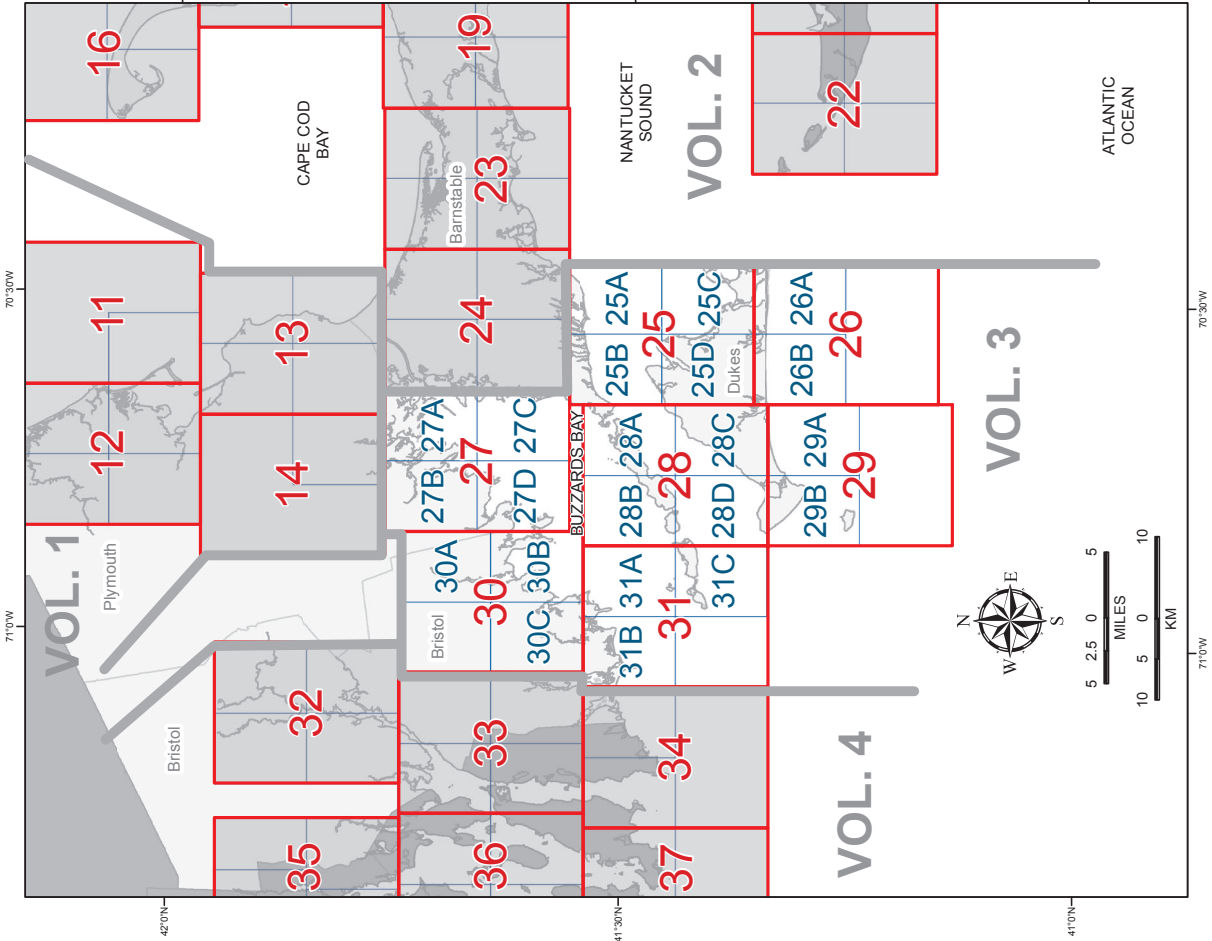
NOAA Environmental Sensitivity Index Maps

A Guide to Coastal Resources at Risk to Spilled Oil

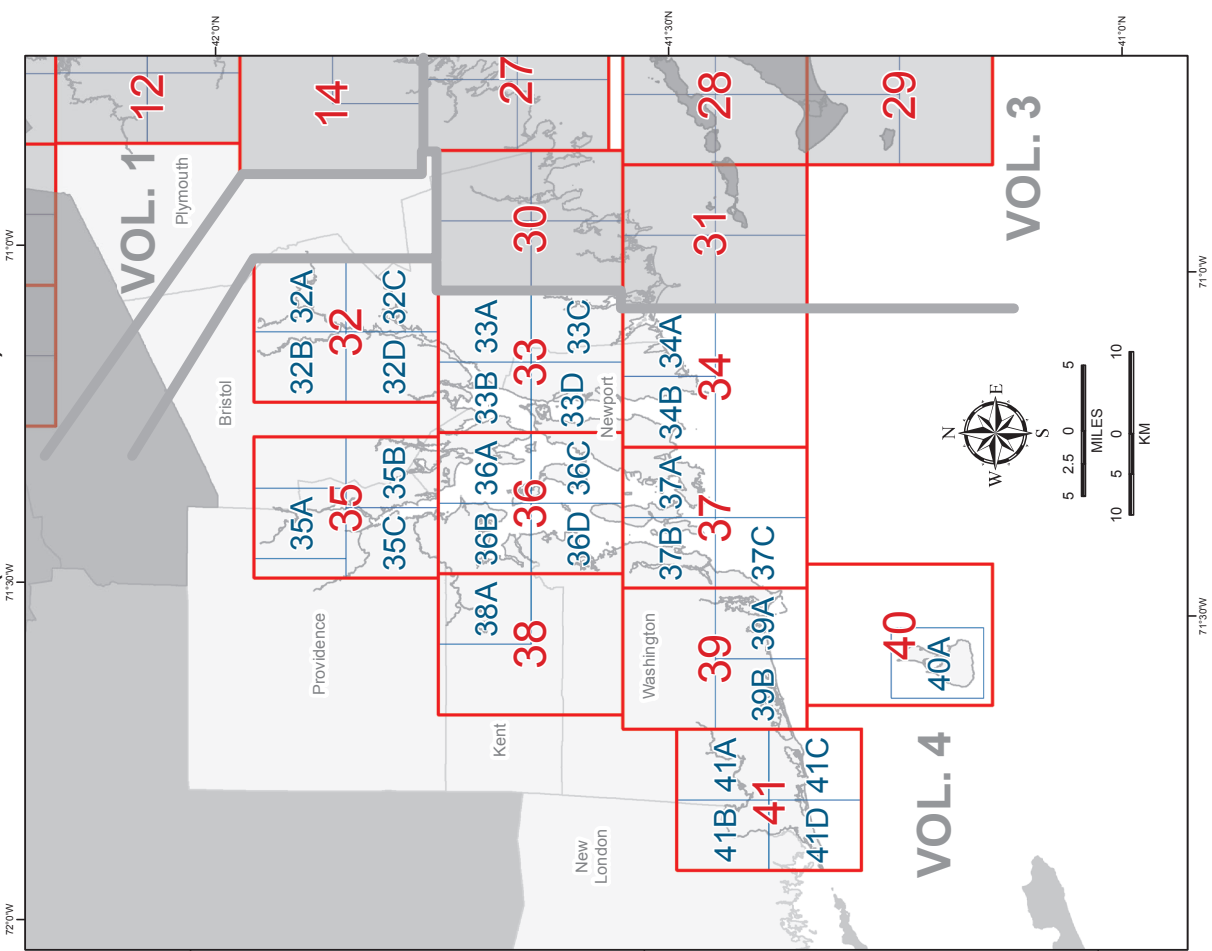
Massachusetts and Rhode Island



Massachusetts and Rhode Island: Volume 3
(Buzzards Bay)



Massachusetts and Rhode Island: Volume 4
(Rhode Island)



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ENVIRONMENTAL SENSITIVITY INDEX: MASSACHUSETTS AND RHODE ISLAND

INTRODUCTION

This Environmental Sensitivity Index (ESI) atlas was developed for the marine and coastal areas of Massachusetts and Rhode Island. The atlas covers the coastal areas of Massachusetts westward to the coastal areas of Rhode Island. The study area also includes 11 bays that open into the Atlantic Ocean. These include Mount Hope, Assonet, Buzzards, Cape Cod, Duxbury, Massachusetts, Narragansett, Plymouth, Popponesset, Quincy, and Waquoit Bays. Major tidal tributary rivers include Black, Merrimack, Parker, Rowley, Eagle Hill, Ipswich, Castle Neck, Essex, and Annisquam in Massachusetts, and the Pawcatuck west of Narragansett Bay; Providence, Potowomut, and Warren draining to Narragansett Bay; and Sakonnet River draining east of Narragansett Bay in Rhode Island. The inland extent of the study area includes lands and fresh waters to five nautical miles from the shoreline of tidal waters. The ESI represents a compilation of information about three main categories: shoreline habitats, sensitive biological resources, and human-use resources. Though the data will be useful for many shoreline applications, the goal of the ESI data is to present a concise summary of resources that may be particularly vulnerable to spilled oil. The intent of the data should caveat other uses. As an example, the ESI is not intended to present a catalog or comprehensive listing of species present in an area, rather the focus is on species particularly sensitive to oiling and life stages where vulnerability may increase.

SHORELINE HABITAT MAPPING

The shoreline and classifications were fully updated using the following sources and methods. The shoreline and intertidal habitats were delineated using a mapped sequence of Light Detection and Ranging (LiDAR) and high-resolution digital orthophotography datasets. The LiDAR data was obtained from the U.S. Geological Survey (USGS) Topographic LiDAR: LiDAR for the North East program (2011)

The base shoreline was compiled at Mean Higher High Water (MHHW) first by LiDAR extraction, then refined within a Geographic Information System (GIS) utilizing high-resolution digital orthophotos. After the shoreline was delineated, digital orthoimagery from various sources was used to classify shoreline segments using the nationally, standardized ESI scale (see below). In addition, various imagery sources for Google Earth and Bing Maps (2014) were used during the classification phase.

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 for use in conjunction with the ESI shoreline. These data were visually reviewed and classified against the aerial imagery and adjusted where necessary to allow for proper classification. All classifications reflect the specifications outlined in the Environmental Sensitivity Index Guidelines version 3.0 (2002). Where necessary, multiple types are used to describe a specific shoreline segment. GIS quality control measures were performed to ensure that all data meet the required specifications.

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 Massachusetts and Rhode Island, presented in order of increasing sensitivity to spilled oil, are listed below.

- | | |
|--|--|
| 1A) Exposed, Rocky Shores | 8A) Sheltered, Impermeable, Rocky Shores |
| 1B) Exposed, Solid Man-Made Structures | 8B) Sheltered, Solid Man-Made Structures |
| 2A) Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay) | 8C) Sheltered Riprap |
| 2B) Exposed Scarps and Steep Slopes (Clay) | 8D) Sheltered, Rocky, Rubble Shores |
| 3A) Fine to Medium Grained Sand Beaches | 9A) Sheltered Tidal Flats |
| 3B) Scarps and Steep Slopes (Sand) | 9B) Vegetated Low Banks |
| 4) Coarse-grained Sand Beaches | 10A) Salt and Brackish Water Marshes |
| 5) Mixed Sand and Gravel Beaches | 10B) Freshwater Marshes |
| 6A) Gravel Beaches | 10C) Swamps |
| 6B) Riprap | 10D) Scrub and Shrub Wetlands |
| 7) Exposed Tidal Flats | |

For each of these shoreline types, a photo and description of the physical attributes, predicted oil behavior, and response considerations is 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:

- Massachusetts Office of Coastal Zone Management (Mass CZM)
- Massachusetts Division of Marine Fisheries (MDMF)
- Massachusetts Division of Fisheries and Wildlife (MADFW)
 - Natural Heritage Endangered Species Program (NHESP)
- Massachusetts Department of Environmental Protection (Mass DEP)
- Massachusetts Audubon Society (Mass Audubon)
- Audubon Society of Rhode Island
- Rhode Island Natural History Survey
- Rhode Island Department of Environmental Management (RI DEM)
 - Division of Fish & Wildlife (RI DFW)
- University of Rhode Island (URI)
- University of Massachusetts Amherst
- Narragansett Bay Estuary Program (NBEP)
- Narragansett Bay National Estuarine Research Reserve (NBNERR)
- Save the Bay, Narragansett Bay
- Manomet Shorebird Recovery Program
- The Nature Conservancy (TNC)
- National Park Service (NPS), Cape Cod National Seashore
- The New England Aquarium
- Mid-Atlantic/New England/Martimes (MANEM)
- Northeast Regional Ocean Council (NROC)
- National Oceanic and Atmospheric Administration
 - Greater Atlantic Regional Fisheries Office – Gloucester, MA (GARFO)
 - National Ocean Service (NOS), Office for Coastal Management (OCM)
 - National Marine Fisheries Service (NMFS)
 - Northeast Fisheries Science Center - Woods Hole, MA (NEFSC)
- Woods Hole Oceanographic Institute
- U.S. Fish and Wildlife Service (USFWS)
- USDA-Natural Resources Conservation Science (NRCS)
- U.S. Environmental Protection Agency (EPA)

NOTE: The above agencies are cited throughout this document, often using the acronyms (in parenthesis) for simplicity.

The biological resources shown in this atlas were extracted from the ESI GIS data compiled for this region. The extracted features were mapped at scale of 1:50,000 and appear on the maps referenced by a combination of number and letter. For example, Map 1B will show the biological features in conjunction with the ESI shoreline. The biology maps on these maps is “layered” in the PDF maps. This allows the user to turn off the biological features to more clearly see the underlying shoreline and habitat polygons. The data published date appearing at the bottom of the maps and on the cover page reflect when the data collection and compilation was completed. This atlas represents those data and was published November 2016.

KEY BIOLOGICAL FEATURES ON ESI MAPS

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

MARINE MAMMAL



Dolphin



Pinniped



Whale

HERPETOFAUNA



Amphibian/Snake



Turtle

TERRESTRIAL MAMMAL



Bat



Small Mammal

BIRD



Alcid/Pelagic



Diving



Gull/Tern



Passerine



Raptor



Shorebird



Wading



Waterfowl

HABITAT



Upland/Wetland/Plant

INVERTEBRATE



Bivalve/Barnacle/
Chordate



Cephalopod



Crab/Invertebrate/
Shellfish



Gastropod



Insect



Lobster



Shrimp

FISH



Fish



Nursery

MAPPING QUALIFIERS AND GUIDELINES

Element	Qualifier	Guidelines
All	Concentration Area	Areas where concentrations are considerably higher than other records of the same species in the area of interest.
All	General Distribution	Used for broad, general distributions of species that are often mapped to landscape- or habitat-scale features.
All	Vulnerable Occurrence	Intended for records of rare species with discrete occurrences, where the conservation value of the species should be highlighted for spill response.
Birds, Herpetofauna, Marine Mammals, Fish, Invertebrates	Migration	Used when an area is a known staging area of high importance to the species for birds; and/or areas are potential or known migration corridors in the marine environment for other elements.
Birds, Herpetofauna	Nesting	Applicable to all nesting birds and herps. Should represent known nesting areas rather than all potential nesting habitat.
Birds	Rafting	Similar to 'Concentration Area' qualifier, but specific to large on-water concentrations.
Birds	Wintering	Designates known areas of importance to wintering birds.
Benthic	High Ecological Value	For use in areas where benthic organisms provide high ecological services, high quality habitat, or known areas of high biodiversity.
Fish and Invertebrates	Harvest Area	May be used as a qualifier for distributions in special cases, where the general distribution was not mapped and/or widespread and the distribution of the harvested resources is used to depict important areas.
Fish and Invertebrates	Nursery Area	Refers to specific areas of known importance to early life history stages (e.g., larvae, juveniles) of a species.
Fish and Invertebrates	Spawning Area	Areas where animals are spawning. Spawning is loosely defined as the release of gametes or eggs from the adult.

MARINE MAMMALS

Marine mammals depicted in the Massachusetts and Rhode Island atlas include cetaceans (whales, dolphins, and porpoises) and pinnipeds (seals).

Cetaceans - General distribution polygons for whales, dolphins, and porpoises were based on:

- 1) NROC's 2016 habitat-based density models
- 2) Atlantic Marine Assessment Program for Protected Species (AMAPPS) line transect survey data (2013-2014)
- 3) The 2010 report *Marine Mammals and Sea Turtles of Narragansett Bay, Block Island Sound, Rhode Island Sound, and Nearby Waters: Analysis of Existing Data for the Rhode Island Ocean Special Area Management Plan* (Kenney and Vigness-Raposa).

Species distribution maps in the Rhode Island Ocean SAMP analysis were created using modeled seasonal relative abundance patterns generated from seasonal sightings per unit effort (SPUE) values, as well as aggregated sighting, stranding, and bycatch records.

With the exception of Cape Cod Bay, survey data within bays and sounds is limited and often terminates at COLREGS Demarcation Lines. These lines and the 20' depth contours were used to define the boundary between inshore and offshore marine mammal distribution polygons in this atlas. Input from local resource experts at the New England Aquarium, NEFSC, GARFO, and University of Rhode Island Coastal Institute provided inshore and offshore species presence and concentrations. Cetaceans mapped in Narragansett Bay are restricted to the harbor porpoise, a few species of dolphin, and pilot whales. A higher biodiversity of species are found in Buzzards Bay, Nantucket Sound, and Cape Cod Bay, and includes fin, humpback, and North Atlantic right whales. All cetaceans are cited as having a year-round presence, though seasonal concentrations vary among species and by location. Many species peak in offshore waters during the spring and summer and are rarest in winter, whereas Cape Cod Bay exhibits increased presence for some species during the colder months of the year due in part to mass stranding (Kenney, personal communication). A number of species, including the beluga and Bryde's whales, visit the atlas area but are not recorded with any consistency and are mostly anecdotal records. These species typically occur farther offshore and were not mapped due to their rarity in the marine extent of this area of interest.

Concentration areas for fin, humpback, and North Atlantic right whales are represented in Massachusetts based on vector data included as part of CZM's 2015 Massachusetts Ocean Management Plan Core Habitat vector digital data. The core habitats are considered a special, sensitive, or unique (SSU) resource and are based on sightings from 1998 to 2014. These state and federally endangered species, in addition to all other whale species included in this atlas, regularly use Massachusetts waters for feeding. Cape Cod Bay is particularly rich in nutrients and is a significant foraging area for other marine mammals as well.

Seals – Harbor seals are the most common pinniped species in New England coastal waters and have increased significantly in abundance over the last few decades. They are present year-round off the coast of Massachusetts and Rhode Island, but are most commonly winter residents south of Cape Cod as they migrate from the Gulf of Maine in September to warmer waters in pursuit of abundant food resources (Raposa and Dapp, 2009). Harbor seal haulouts are most active October through May and are concentrated along the Cape and Islands, Block Island, and Narragansett Bay. Gray seals are present year-round as well and can regularly be seen hauling out with harbor seals at Monomoy Island, Chatham Harbor, Jeremy Point in Wellfleet, Muskeget Island and shoals off Nantucket. Most gray seals in Rhode Island are recently

weaned pups in the spring and are spotted only occasionally with harbor seals, such as at the north end of Block Island (Kenney, personal communication). Gray seal breeding occurs during the winter months (December through February) and has been noted at haulouts on Monomoy, Muskeget, and Nomans Islands. Harp and hooded seals are present in Massachusetts and Rhode Island waters as well November through May, but do not haul out regularly like harbors and grays. Recorded occurrences are either stranding or from fishery bycatch records (Kenney, personal communication).

Harbor and gray seal haulout locations, seasonality, and breeding activity in Massachusetts were provided by Beth Josephson, NEFSC. Harbor seal haulouts in Rhode Island were mapped according the 2009 report *A Protocol for Long-term Monitoring of Harbor seals (Phoca Vitulina Concolor) in Narragansett Bay, Rhode Island* (Raposa and Dapp) that is based on seal counts conducted in 2007 and 2008. This information was supplemented by vector point data from Cheryl Schroeder and Wenley Ferguson of Save the Bay; they provided data for two sporadic haulout sites along the Sakonnet River.

Expert contacts for Massachusetts/Rhode Island marine mammals*:

Name	Agency	City	Phone	Species
Wenley Ferguson	Save the Bay	Providence, RI	401-272-3540 x105	Seals
Beth Josephson	NOAA, NEFSC, Protected Species Branch	Woods Hole, MA	508-495-2362	Marine Mammals, Seals
Lisa Sette	Center for Coastal Studies	Provincetown, MA	508-487-3623 x102	Marine Mammals, Seals
Robert Kenney	URI Coastal Institute; North Atlantic Right Whale Consortium	Narragansett, RI	401-874-6664	Marine Mammals
Michael Asaro	NOAA, GARFO, Protected Resources Division	Gloucester, MA	978-282-8469	Marine Mammals
Scott Kraus	New England Aquarium	Boston, MA	617-973-5457	Marine Mammals, North Atlantic Right Whale
David Wiley	Stellwagen Bank National Marine Sanctuary	Scituate, MA	781-546-6014	Humpback, Fin, and North Atlantic Right Whales
Debra Palka	NOAA, NEFSC, Protected Species Branch	Woods Hole, MA	508-495-2387	Marine Mammals
Jooke Robbins	Center for Coastal Studies	Provincetown, MA	508-487-3623 x116	Whales
Erin Burke	MDMF, Protected Species	New Bedford, MA	508-990-2860 x142	Marine Mammals, North Atlantic right whale
Stranding/Rescue Hotline (NE)	New England Aquarium	Boston, MA	617-973-5247	Marine Mammals

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

Major Data Sources Used: Marine Mammals

Beth Josephson, National Oceanic and Atmospheric Administration, Northeast Fisheries Science Center. 2016. Atlantic Marine Assessment Program for Protected Species (AMAPPS) Northeast Aerial and Shipboard Cruise Spring and Winter 2014. Vector digital data; Expert knowledge. Content available at <http://seamap.env.duke.edu>.

Beth Josephson, National Oceanic and Atmospheric Administration, Northeast Fisheries Science Center. Seal Haulouts in Massachusetts. Vector digital data; Expert knowledge.

Robert Kenney and Kathleen Vigness-Raposa, University of Rhode Island. 2010. Marine Mammals and Sea Turtles of Narragansett Bay, Block Island Sound, Rhode Island Sound, and Nearby Waters: An Analysis of Existing Data for the Rhode Island Ocean Special Area Management Plan. PDF document <http://seagrant.gso.uri.edu/oceansamp/pdf/appendix/10-Kenney-MM&T>; Database files; Expert knowledge.

Debra Palka, National Oceanic and Atmospheric Administration, Northeast Fisheries Science Center. Atlantic Marine Assessment Program for Protected Species (AMAPPS) Northeast Aerial and Shipboard Cruise Summer and Winter 2013. Vector digital data; Expert knowledge. Content available at <http://seamap.env.duke.edu/>

Kenneth B. Raposa, and Rachel M. Dapp, Marine Acoustics Inc., Narragansett Bay National Estuarine Research Reserve. 2009. A Protocol for Long-term Monitoring of Harbor seals (*Phoca Vitulina Concolor*) in Narragansett Bay, Rhode Island. NBNERR Technical Report Series 2009:2. PDF document <http://nbnerr.org/wp-content/uploads/2016/12/2009-RaposaDapp-NBNERR-Tech-Series-2009.2.pdf>.

Roberts, J.J, B.D. Best, L. Mannocci, E. Fujioka, P.N. Halpin, D.L. Palka, L.P. Garrison, K.D. Mullin, T.V.N. Cole, C.B. Khan, W.M. McLellan, D.A. Pabst, and G.G. Lockhart. 2016. Habitat-based cetacean density models for the U.S. Atlantic and Gulf of Mexico. Scientific Reports 6:22615. Northeast Regional Ocean Council. Digital maps. Available at <http://northeastoceandata.org>.

Cheryl Schroeder, Save the Bay, 2005. Seal Haul-out Locations (Rhode Island). Vector digital data. Content available at <http://www.narrbay.org>.

The Massachusetts Office of Coastal Zone Management. 2015. North Atlantic Right Whale, Fin Whale, and Humpback Whale Core Habitats, 2015 Massachusetts Ocean Management Plan. Vector digital data. Content available at <http://www.mass.gov/eea/mop>.

BIRDS

The Massachusetts and Rhode Island atlas area encompasses the biogeographic regions of the Virginian and Acadian provinces, of which Cape Cod is the shoreward boundary. These two regions have distinct physical characteristics and support a diversity of biological communities including a variety of bird species that inhabit the rocky coasts of the north shore, shallow waters of Cape Cod Bay, sand dunes and mud flats around Cape Cod, and the significantly warmer waters south of the Cape and into Rhode Island. Bird species are included in this atlas either because of their likelihood of direct or indirect impact by an oil spill or similar incident, their general rarity or imperilment, or their special protection status as species of concern, threatened or endangered. Migratory or wintering concentration areas, nesting sites and colonies, and protected species are especially emphasized. Major sources of data used for mapping bird concentration areas in this atlas are described below. Additional data and expert input was

provided primarily by MA DFW NHESP, RI DFW, Massachusetts CZM, Massachusetts Audubon, Audubon Society of Rhode Island, NROC, and USFWS, Rhode Island NWR Complex.

2015 Massachusetts Wildlife Action Plan (MA SWAP) and 2015 Rhode Island Wildlife Action Plan (RI WAP) - These documents were developed to aid in the protection of Species of Greatest Conservation Need (SGCN) by MA DFW and a collaborative effort of RI DEM DFW, TNC, URI, and RINHS, respectively. All state and federally-listed species are included, as well as other species of particular conservation interest such as small, localized “at-risk” populations; globally rare, keystone, and indicator species; and species of regional concern or high regional responsibility. Each of the SGCN has a species profile or fact sheet that includes a statewide distribution map, narrative of life history, summary of habitats that are major and essential components of the species’ life history, and list of key threats. Corresponding GIS data for the RI WAP distribution maps were provided by TNC; these maps are not a comprehensive inventory but provide an estimated range of each species within Rhode Island, and in some cases represent potential habitat. General distribution, abundance, and life history activity including seasonality was mapped for species in the Massachusetts and Rhode Island atlas according to these species profiles. Key habitats were mapped to the corresponding ESI Classified Shoreline habitat polygons (e.g. beaches, wetlands) in the geographic areas highlighted. If key habitats such as coastal dunes and thickets, or forests and grasslands, did not directly correspond to an ESI habitat, then either ESI habitat data were expanded to encompass the additional habitat, or generalized land polygons were created. Rocky habitats are represented by select areas of a .5 nautical mile coastal buffer.

2016 RI DEM Natural Heritage Areas – This dataset was developed as an aid in the identification and protection of plant and animal species listed in the RI Natural Heritage Data, which includes state and federally-listed rare or threatened species, or other species deemed noteworthy by the state. The Natural Heritage Areas consist of polygons developed from kernel density analysis of element occurrences (EO), or discrete observations of a community or nesting site of a Natural Heritage species. The calculation, based on a 30 meter pixel size, determines the mean number of EOs per square kilometer for each pixel, and non-statistically significant areas are eliminated. The result is a polygon dataset representing the estimated habitat and range of rare species in Rhode Island. RI DEM provided a supplemental species list identifying the species located within each Natural Heritage polygon. All Natural Heritage Area polygons mapped in this atlas were assigned the mapping qualifier of “Vulnerable Occurrence”.

Massachusetts Breeding Bird Atlas 2 : 2007-2011 (BBA2) – This is a presence/absence survey conducted by Mass Audubon that maps the breeding range of each bird species in the state based on behavioral activity. Data is registered by coarse blocks (1/6 of a USGS topo map), and only confirmed breeding observations within the blocks were used for the purposes of mapping nesting areas in this atlas, though nesting may be occurring elsewhere as well. Mass Audubon provided GIS data for BBA2 blocks and species files that were used as a guide to assign nesting areas to ESI habitat polygons and/or geographic locations corresponding with species distribution.

Colonial waterbirds and wading birds - Nesting areas for colonial waterbirds in Massachusetts (terns, gulls, egrets, and herons) were mapped primarily using Mass CZM’s *Colonial Waterbirds Important Nesting Habitat* data layer developed for the 2015 Massachusetts Ocean Management Plan. These sites, buffered 0.3 nautical miles, represent areas where more than 100 pairs of individual species of colonial nesting waterbirds were observed during surveys between 1994 and 2006. They are considered a special, sensitive, or unique (SSU) resource and are based on a dataset that originated from MA DFW NHESP. GIS data for colonial waterbird nesting sites in Rhode Island were provided by RI DFW. Nest sites were observed between 1971 and 2015 and were either mapped as points or converted to polygons. Additional nesting areas for colonial waterbirds and wading birds, including marsh species such as rails and

bitterns, were mapped according to BBA2. MA DFW NHESP provided GIS data for roseate tern (state and federally endangered) and “rare tern” breeding, staging, and critical foraging habitats. The “rare tern” species group includes three state-listed tern species of special concern in Massachusetts: the Arctic tern, common tern, and least tern. The NHESP polygons were hand-delineated based on observation records using 2012 aerials and then modified to be congruent with the ESI shoreline and wetland polygons. The foraging areas were mapped in this atlas as general distribution polygons. Staging areas in the original NHESP dataset were determined by the presence of 100 or more individuals. The Cape and Islands (Martha’s Vineyard and Nantucket) in particular receive a huge influx of terns from across the northeast after the breeding season while the birds are preparing for migration. The birds are highly concentrated during that period of time (July through September), staging in flocks sometimes numbering over 10,000 birds (Mostello, personal communication). The roseate tern was mapped in Rhode Island according to the 2016 RI DEM Natural Heritage Areas with additional migration areas and general distribution mapped using the 2015 RI WAP. Nesting sites for the least tern (state threatened) in Rhode Island were mapped using data from RI DFW and the 2015 RI WAP.

In this atlas, select species were grouped by common activities including foraging/general distribution. Note that scientific names are provided only for species not otherwise included in the atlas: “egrets” (including great egret (*Ardea alba*), snowy egret (*Egretta thula*)), “gulls”, “marsh birds” (e.g. bitterns and rails, including Virginia rail (*Rallus limicola*)) and “wading birds” (herons, clapper rail, and glossy ibis). Individual species life history activity areas were mapped separately when data was available. Additional distribution and activity areas for coastal waterbirds and wading birds, including roosting and wintering were mapped primarily using the 2015 RI WAP and 2015 MA SWAP. Additional seasonality and breeding information by species was obtained through *Massachusetts Breeding Bird Atlas 1* (published 2003) and the *Mid-Atlantic/New England/Maritimes (MANEM), Waterbird Conservation Plan: 2006-2010*.

Waterfowl – Sea duck concentrations in Boston Harbor, Cape Cod Bay, Nantucket Sound, and Buzzards Bay were mapped using Mass CZM’s *Sea Duck Core Habitat* data layer developed for the 2015 Massachusetts Ocean Management Plan. These data represent regionally critical habitat for black scoter, common eider, long-tailed duck, surf scoter, and white-winged scoter. This wintering habitat is a special, sensitive or unique (SSU) resource area. It was mapped using effort-corrected sea duck sightings data from 2008 to 2012 provided by USFWS and long-tailed duck telemetry data from 2008 to 2009 collected by Mass Audubon. All five species were grouped as “sea ducks” in this atlas, as well as the red-breasted merganser, large numbers of which migrate to eastern Cape Cod Bay in the spring to join wintering sea ducks. Huge flocks of long-tailed duck, numbering in the 10,000’s, roost in Nantucket Sound as well. NROC data was used as a guide to map sea duck general distribution in federal waters. Sea ducks in Rhode Island were mapped according to the 2015 RI WAP and are concentrated in Narragansett Bay, coastal ponds, and nearshore waters including Block Island. Among other wintering and migratory waterfowl species mapped in this atlas to coastal waters (including inshore lakes, ponds, wetlands, and a coastal buffer of .5 nautical miles), are “diving ducks” (bufflehead (*Bucephala albeola*), canvasback (*Aythya valisineria*), common goldeneye (*Bucephala clangula*), greater scaup (*Aythya marila*), lesser scaup (*Aythya affinis*)), “geese” (Atlantic brant (*Branta bernicla hrota*), Canada goose (*Branta Canadensis*)), “waterfowl” (blue-winged teal, common gallinule, hooded merganser, wood duck (*Aix sponsa*)) and “dabbling ducks” (American wigeon (*Anas Americana*), northern pintail (*Anas acuta*), ruddy duck (*Oxyura jamaicensis*)). Nesting areas were mapped for select species using data from BBA2 and USFWS. Major data sources include the 2015 RI WAP, 2015 MA SWAP, and 2016 RI Natural Heritage Areas. Waterfowl presence in Narragansett Bay was supported by species observations from 2005 through 2015 identified in the Narragansett Bay Winter Waterfowl Survey. This survey is a joint effort of the U.S. EPA Atlantic Ecology

Division and NBNERR. Additional seasonality and breeding information was based on expert input and information provided by the USFWS, including the 2012 report *Atlantic Coast Wintering Sea Duck Survey 2008-2011* (Silverman, et al.).

Seabirds – Pelagic species mapped in this atlas include alcids, “loons” (common loon (*Gavia immer*), red-throated loon (*Gavia stellate*)) “shearwaters” (Cory’s shearwater (*Calonectris diomedea*), great shearwater (*Puffinus gravis*), manx shearwater (*Puffinus puffinus*), sooty shearwater (*Puffinus griseus*)), and phalaropes (e.g. red-necked phalarope (*Phalaropus lobatus*)). Broad distribution polygons were mapped using the 2015 RI WAP, 2015 MA SWAP, and NROC’s digital maps of predicted distribution and abundance of marine birds. Many pelagic species can be seen foraging off the coast May through October, while others are present year-round. Migration and wintering primarily occurs September through June; these areas were mapped for select species in mostly nearshore waters including Nantucket Sound and Nantucket Shoals, an area of particularly abundant activity. Additional nesting site data for Leach’s storm petrel (state endangered) was provided by MA DFW NHESP. This seabird spends most of its life over the open ocean and breeds at only two locations in Massachusetts: Nomans Land Island and Penikese Island.

Shorebirds – Shorebirds in this atlas were primarily mapped to coastal dunes, beaches and flats, and small islands buffered .5 n.m. from the shoreline. The majority of shorebirds are migratory March through October, though some species such as the purple sandpiper winter along rocky shorelines October through April. Current nesting locations for the piping plover (state and federally endangered) were provided by MA DFW NHESP and USFWS, Monomoy NWR. Hand-delineated polygons based on observation records and 2012 aerials were modified to be congruent with the ESI shoreline and habitat polygons. Nesting areas for the American oystercatcher were mapped using the 2012 report provided by MA DFW NHESP, *Summary of 2011 Census of American Oystercatchers in Massachusetts* (Melvin). Both piping plover and American oystercatcher (state special concern) nest sites in Rhode Island were provided by RI DFW; nest sites were observed between 1988 and 2014, and 2003 and 2015, respectively, and were mapped either as points or converted to polygons.

For the purpose of mapping common migration areas for shorebirds in this atlas, several species were assigned to the species group “shorebirds” and include, among others, black-bellied plover (*Pluvialis squatarola*), dunlin (*Calidris alpina*), greater yellowlegs (*Tringa melanoleuca*), least sandpiper (*Calidris minutilla*), sanderling (*Calidris alba*), semi-palmated plover (*Charadrius semipalmatus*), semi-palmated sandpiper (*Calidris pusilla*), short-billed dowitcher (*Limnodromus griseus*), spotted sandpiper (*Actitis macularia*), upland sandpiper, whimbrel (*Numenius phaeopus*), and white-rumped sandpiper (*Calidris fuscicollis*). Individual species life history activity areas were mapped separately when data was available, e.g. migration areas for the red knot (federally proposed threatened). Additional distribution polygons and activity areas for shorebirds were mapped primarily using the 2015 RI WAP, 2015 MA SWAP, 2016 RI Natural Heritage Areas, and BBA2. Point data from 1974 through 2015 was also provided by the Manomet Shorebird Recovery Program’s International Shorebird Survey (ISS), which monitors shorebird populations and staging sites.

Rare Passerines – Nesting locations or vulnerable occurrences of rare, threatened or endangered passerines were included as polygons in this atlas if data was available from the 2015 RI WAP, 2015 MA SWAP, 2016 Rhode Island Natural Heritage Areas, or BBA2. These species are not generally thought of as at risk from an oil spill itself as they are hydrographically removed from large waterbodies, but were included in an effort to make this regional update more usable in an all-hazards context. Their SGCN status should be taken into consideration when conducting cleanup operations in the vicinity of known nesting locations. It should be noted that additional rare passerine species may be nesting in the AOI but were not included due to lack of data. Marsh obligate passerine species were grouped as “marsh passerine” for the

purposes of mapping shared distribution areas in this atlas and include the eastern meadowlark (*Sturnella magna*), marsh wren, Nelson’s sparrow (*Ammodramus nelsoni*), saltmarsh sparrow, seaside sparrow, and willow flycatcher (*Empidonax traillii*). These species inhabit marshes, which should be prioritized for protection in the case of an oil spill. Marshes are highly sensitive to oiling due to their biological productivity and the tendency for oil to persist based on low relative exposure to wind/wave energy. There are also difficulties associated with human cleanup activities in these habitats. Over 30 Neotropical and a few Nearctic short and long distance migratory species were assigned to the species group “passerine” and mapped as general distribution polygons in coastal thickets located in Rhode Island. These areas are heavily utilized during spring and fall migration and sometimes for wintering as well, and are also a breeding area for many species during the summer months.

Raptors – Nesting sites in Rhode Island for the northern harrier and peregrine falcon were mapped either as points or converted to polygons using data from the 2015 RI WAP. MA DFW NHESP provided GIS data for bald eagle wintering grounds along the Merrimack River and associated salt marshes (used for foraging), and nesting areas were mapped using BBA2. Nesting areas for barn owl, northern harrier, peregrine falcon, and short-eared owl were also mapped according to BBA2. Six raptor species (American kestrel (*Falco sparverius*), barn owl, northern harrier, northern goshawk (*Accipiter gentilis*), peregrine falcon, and short eared owl) were grouped as “raptor” and mapped to shared general distribution areas on both Block Island and the southern shore of Rhode Island with a concentration of “Common”. Both breeding and migration activity occurs in these geographic locations during the summer and fall. These species were not mapped in a similar manner in Massachusetts as populations are more disparate and rare. As with passerine species, raptors may not be immediately vulnerable to an oil spill, but due to their protected status responders should be aware of vulnerable areas, and cleanup crews should be aware of their presence. Raptors might also be secondarily affected in the case of an oil spill if carrion have suffered trauma. Monitored osprey (state special concern) nests from 2014-2016 were also mapped in this atlas as points in Rhode Island only and were provided by the Audubon Society of Rhode Island. Osprey nests are now ubiquitous in Massachusetts as well, especially on the Cape and Islands, by far the most important ecoregion for ospreys in Massachusetts, but were not included in the atlas due to lack of complete data. Mass Audubon should be contacted directly for up-to-date information or review of specific locations (see contact information below).

Expert contact for Massachusetts/Rhode Island Birds*:

Name	Agency	City	Phone	Species
Chris Raithel	RI DFW	West Kingston, RI	401-789-0281	Birds
Tom French	MADFW, NHESP	Westborough, MA	508-389-6355	Rare Birds
Andrew Vitz	MADFW, NHESP	Westborough, MA	508-389-6394	Rare Birds
Carolyn Mostello	MADFW, NHESP	Westborough, MA	508-389-6372	Waterbirds
Katharine Parsons	Mass Audubon, Coastal Waterbird Program; MANEM	Cummaquid, MA	508 362-7475	Waterbirds
Rick McKinney	EPA, Atlantic Ecology Division/ NBNERR	Narragansett, RI	401-782-3133	Wading Birds, Waterfowl
Peter Paton	URI	Kingston RI	401-874-2986	Shorebirds, Wading Birds

Name	Agency	City	Phone	Species
Chris Dwyer	USFWS, Migratory Bird Program, Northeast Region	Hadley, MA	413-253-8706	Migratory Birds
Joan Walsh	Mass Audubon	Lincoln, Massachusetts	781-259-2196	Breeding Birds
Susi von Oettingen	USFWS, New England Field Office	Concord, NH	603-223-2541 x6418	Red Knot
Kate Iaquinto	UMass Amherst/ USFWS Monomoy NWR	Chatham, MA	508-945-0594	Shorebirds, Piping Plover
Nick Ernst	USFWS, Rhode Island NWR Complex	Charlestown, RI	401-213-4406	Shorebirds, Gulls/Terns
Stephen Brown	Manomet, Shorebird Recovery Program	Plymouth, MA	508-224-6521	Shorebirds
Mark Faherty	Mass Audubon, Wellfleet Bay Wildlife Sanctuary	South Wellfleet, MA	508-349-2615	Osprey
Jon Scoones	Audubon Society of Rhode Island	Smithfield, RI	401-949-5454 x3044	Osprey

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

Major Data Sources Used: Birds

Kinlan, B.P., A.J. Winship, T.P. White, and J. Christensen. 2016. Modeling At-Sea Occurrence and Abundance of Marine Birds to Support Atlantic Marine Renewable Energy Planning: Phase I Report. U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs, Sterling, VA. OCS Study BOEM 2016-039. xvii+113 p. Northeast Regional Ocean Council. Digital maps. Available at <http://northeastoceandata.org>

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Rick McKinney, U.S. EPA. Narragansett Bay Research Reserve, Winter Waterfowl Survey, 2005-2015. Unpublished. Vector digital data; Expert knowledge.

Scott M. Melvin, Massachusetts Division of Fisheries and Wildlife, Natural Heritage Endangered Species Program. 2012. Summary of 2011 Census of American Oystercatchers in Massachusetts. Westborough, MA. Complete PDF document available at <http://www.mass.gov/eea/docs/dfg/nhesp/species-and-conservation/oystercatcher-census-report-2011.pdf>

Chris Raithel, Rhode Division of Fish and Wildlife. Colonial Nesting Sites. 1971-2015. Unpublished. Vector digital data; Expert knowledge.

Rhode Island Chapter of The Nature Conservancy, Rhode Island Department of Environmental Management, University of Rhode Island, and the Rhode Island Natural History Survey. 2015 Rhode Island Wildlife Action Plan. Kingston, RI. Vector digital data and species profiles. Complete PDF document available at <http://www.dem.ri.gov/programs/fish-wildlife/wildlife-hunted/swap15.php>

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The Massachusetts Office of Coastal Zone Management. 2015. Sea Duck Core Habitat, 2015 Massachusetts Ocean Management Plan. Vector digital data. Content available at <http://www.mass.gov/eea/mop>.

Emily D. Silverman, et al.. 2012. Atlantic Coast Wintering Sea Duck Survey, 2008-2011. PDF document. Available at <http://seaduckjv.org/pdf/studies/pr109.pdf>

Joan Walsh, Massachusetts Audubon Society. 2016. Massachusetts Breeding Bird Atlas 2 : 2007-2011. Lincoln, MA. Vector digital data; Database files. Project information available at: <http://www.massaudubon.org/our-conservation-work/wildlife-research-conservation/statewide-bird-monitoring/breeding-bird-atlases/bba2>

HERPETOFAUNA

Sea Turtles - Sea turtles depicted in this atlas for both Massachusetts and Rhode Island include green (federally threatened), Kemp's ridley (federally endangered), leatherback (federally endangered), and loggerhead (federally threatened). Although adults of hard-shelled species (green, Kemp's ridley, and loggerhead) are generally uncommon in these coastal waters, there is a regular presence of juveniles that is difficult to discern effectively during aerial surveys. Seagrass beds serve as developmental habitats, and green sea turtle juveniles have been known to navigate along the coast southward to warmer waters off the southern states (Dodge and Merigo, personal communication). Leatherbacks are relatively common in the AOI, and Vineyard Sound and Buzzards Bay are areas of particular vulnerability for this species as evidenced by frequent strandings and entanglements (Prescott, personal communication). There is little data to support sea turtle presence in Narragansett Bay and select shallower bays in Massachusetts, and so these areas were not mapped. Other species such as the Hawksbill turtle are known to occasionally visit the AOI but were not included in the atlas.

Seasonal presence for all sea turtles is summer through fall. General distribution polygons and concentrations are based on 2013 Atlantic Marine Assessment Program for Protected Species (AMAPPS)

line transect survey data, the 2010 report *Marine Mammals and Sea Turtles of Narragansett Bay, Block Island Sound, Rhode Island Sound, and Nearby Waters: Analysis of Existing Data for the Rhode Island Ocean Special Area Management Plan* (Kenney and Vigness-Raposa), and local resource expert input and review from New England Aquarium, NEFSC, GARFO, University of Rhode Island Coastal Institute, and Woods Hole Oceanographic Institute.

Inland reptiles and amphibians - Threatened, endangered and other rare reptiles and amphibians were added to the atlas based on their conservation status, their rarity in the region, or based on expert input.

Species in Rhode Island were mapped using either the 2016 RI DEM Natural Heritage Areas data or according to the key habitats and geographic areas highlighted in the 2015 RI WAP data and species profiles (see *BIRDS for complete description of these datasets*). Key habitats were mapped to the corresponding ESI classified shoreline polygons (e.g. freshwater marshes and swamps). Species that primarily utilize upland forest habitats and in some instances the surrounding wetlands and vernal were mapped to generalized land polygons. Natural Heritage Area polygons were assigned the mapping qualifier of “Vulnerable Occurrence” and include the eastern ribbon snake (state special concern), eastern spadefoot (state endangered), northern diamondback terrapin, northern leopard frog, and wood turtle (state special concern). Additional data for the northern diamondback terrapin at Napatree Point was provided by Nick Ernst of the USFWS, Rhode Island National Wildlife Refuge Complex.

The majority of species in Massachusetts occur in upland forest habitats and vernal pools and were mapped to generalized land polygons according to the geographic areas highlighted in the 2015 MA SWAP species profiles (see *BIRDS for complete description of this dataset*). Blanding’s turtle (state threatened) was mapped to the MA SWAP key habitat corresponding with the ESI scrub-shrub wetlands polygons. Distribution polygons for the eastern spadefoot (state threatened) and eastern box turtle within the Cape Cod National Seashore were supported by expert knowledge provided by Robert Cook, National Park Service. The Plymouth red-bellied turtle was mapped with the mapping qualifier of “Vulnerable Occurrence” using 2016 Critical Habitat Designation polygon data (USFWS, NOAA NMFS). “Rare reptile” data were mapped with the qualifier “Vulnerable Occurrence” and were provided by MADFW NHESP and Bob Prescott, Mass Audubon, Wellfleet Bay Wildlife Sanctuary. Rare herpetofauna species in Massachusetts were not included in their entirety in this atlas due to vulnerability of collection concerns by NHESP. NHESP should be contacted directly for up-to-date information or review of specific locations (see contact information below).

Expert Contacts for Massachusetts/Rhode Island herpetofauna*:

Name	Agency	City	Phone	Species
Kate Sampson	NOAA, GARFO, Protected Resources Division	Gloucester, MA	978-282-8470	Sea Turtles
Connie Merigo	New England Aquarium	Boston, MA	617-226-2102	Sea Turtles
Kara Dodge	Woods Hole Oceanographic Institute	Woods Hole, MA	508-289-2589	Sea Turtles, Leatherbacks
Debra Palka	NOAA, NEFSC, Protected Species Branch	Woods Hole, MA	508-495-2387	Sea Turtles

Erin Burke	MDMF, Protected Species	New Bedford, MA	508-990-2860 x142	Sea Turtles, Leatherbacks
Robert Kenney	URI Coastal Institute; North Atlantic Right Whale Consortium	Kingston, RI	401-874-6664	Sea Turtles
Robert Prescott	Mass Audubon, Wellfleet Bay Wildlife Sanctuary	South Wellfleet, MA	508-349-2615	Sea Turtles, Rare Reptiles
Nancy Karraker	URI Coastal Institute	Kingston, RI	401-874-2916	Northern diamondback terrapin
Chris Raithel	RI DFW	West Kingston, RI	401-789-0281	Reptiles and Amphibians
Robert Cook	NPS, Cape Cod National Seashore	Wellfleet, MA	508-487-3262 x0503	Reptiles and Amphibians
Mike Jones	MADFW, NHESP	Westborough, MA	508-389-7863	Reptiles and Amphibians
Jacob Kubel	MADFW, NHESP	Westborough, MA	508-389-6373	Amphibians

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

Major Data Sources Used: Herpetofauna

Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, Office for Coastal Management. Critical Habitat Designations in the United States as of January 2016; Plymouth Red-bellied Turtle. Vector digital data. Content available at <http://marinecadastre.gov/data/>.

Robert Kenney and Kathleen Vigness-Raposa, University of Rhode Island. 2010. Marine Mammals and Sea Turtles of Narragansett Bay, Block Island Sound, Rhode Island Sound, and Nearby Waters: An Analysis of Existing Data for the Rhode Island Ocean Special Area Management Plan. PDF document <http://seagrant.gso.uri.edu/oceansamp/pdf/appendix/10-Kenney-MM&T>; Database files; Expert knowledge.

Massachusetts Division of Fisheries and Wildlife, Natural Heritage Endangered Species Program. 2016. Sensitive coastal species: Bird, Fish, Invertebrate, Plant, and Reptile data. Unpublished. Vector digital data and expert knowledge.

Massachusetts Division of Fisheries and Wildlife. Massachusetts State Wildlife Action Plan 2015. Westborough, MA. Species profiles. Complete PDF document available at <http://www.mass.gov/eea/agencies/dfg/dfw/wildlife-habitat-conservation/state-wildlife-conservation-strategy.html>.

Debra Palka, National Oceanic and Atmospheric Administration, Northeast Fisheries Science Center. Atlantic Marine Assessment Program for Protected Species (AMAPPS) Northeast Aerial and Shipboard

Cruise Summer and Winter 2013. Vector digital data, Expert knowledge. Content available at <http://seamap.env.duke.edu>.

Rhode Island Chapter of The Nature Conservancy, Rhode Island Department of Environmental Management, University of Rhode Island, and the Rhode Island Natural History Survey. 2015 Rhode Island Wildlife Action Plan. Kingston, RI. Vector digital data and species profiles. Complete PDF document available at <http://www.dem.ri.gov/programs/fish-wildlife/wildlifehuntered/swap15.php>

Rhode Island Department of Environmental Management. 2016. Rhode Island Natural Heritage Areas. Providence, RI. Vector digital data and supplemental species list supplied by Paul Jordan of RI DEM. Content available at <http://www.rigis.org/>.

TERRESTRIAL MAMMALS

The terrestrial mammals depicted in this atlas are limited to the American water shrew (state special concern), eastern mole, meadow vole, New England cottontail (state special concern), northern myotis (state endangered, federally threatened), smoky shrew (state special concern), southern bog lemming (state special concern), and woodland jumping mouse. Of the above-mentioned species, only the New England cottontail and northern myotis are mapped in Massachusetts. All other species have either only been observed in areas out of the Massachusetts AOI, or are unique to Rhode Island in their rarity and vulnerability. Other terrestrial mammals are potentially occurring in the study area but were not mapped due to their relatively wide distribution, a lack of information regarding particular concentration areas, and/or the unlikelihood of impact during coastal and marine oil spills due to their use of more upland and inland habitats.

Terrestrial mammals were primarily mapped to key habitats upon which they depend in the geographic areas where they are most commonly found according to the species profiles in the 2015 RI WAP and 2015 MA SWAP (*see BIRDS for complete description of these datasets*). Species that mainly utilize upland habitats such as forest or grasslands were mapped to generalized land polygons and include the New England cottontail, northern myotis, woodland jumping mouse, and also a sub-species of meadow vole indigenous to New Shoreham (Block Island). The southern bog lemming occurs in freshwater emergent marsh mainly in the Great Swamp Management Area in South Kingstown, and the eastern mole is localized to sandy floodplains along the lower Pawcatuck River. The American water shrew was mapped to both forested swamps and to its specific areas of vulnerability as determined by the 2016 RI DEM Natural Heritage Areas dataset (*see BIRDS for complete description of this dataset*). The smoky shrew, which occurs in only a limited area of interior forest in Rhode Island, was mapped using the Natural Heritage data and assigned the mapping qualifier of "Vulnerable Occurrence". Distribution polygons for the American water shrew, eastern mole, and woodland jumping mouse were also informed by capture points provided by Charles Brown, RI DEM. Distribution polygons for the New England cottontail and northern myotis within the Cape Cod National Seashore were also supported by expert knowledge provided by Robert Cook, National Park Service. Rare terrestrial mammal species in Massachusetts were not included in their entirety in this atlas due to vulnerability of collection concerns by MA DFW NHESP. NHESP should be contacted directly for up-to-date information or review of specific locations (see contact information below).

Expert Contact for Massachusetts/Rhode Island terrestrial mammals*:

Name	Agency	City	Phone	Species
Charles Brown	RI DFW	West Kingston, RI	401-789-0281	Terrestrial Mammals

Brian Tefft	RI DFW	West Kingston, RI	401-789-0281	New England Cottontail
Tom French	MADFW, NHESP	Westborough, MA	508-389-6355	Terrestrial
Robert Cook	NPS, Cape Cod National Seashore	Wellfleet, MA	508-487-3262 x0503	Terrestrial Mammals

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

Major Data Sources Used: Terrestrial Mammals

Charles Brown, Rhode Island Department of Environmental Management Division of Fish and Wildlife. 2016. Capture points for American water shrew, Eastern mole, and Woodland jumping mouse. Unpublished. Vector digital data; Expert knowledge.

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Rhode Island Department of Environmental Management. 2016. Rhode Island Natural Heritage Areas. Providence, RI. Vector digital data and supplemental species list supplied by Paul Jordan of RI DEM. Content available at <http://www.rigis.org/>.

FISH

The coastal waters of Massachusetts and Rhode Island support a high diversity of fish species due to the varying characteristics of the marine ecosystems located in the atlas area; waters north of Cape Cod are influenced by the colder Gulf of Maine currents, while waters to the south are influenced by the warmer waters of the Mid-Atlantic Bight. Nantucket Shoals also act as a thermal barrier reducing the warming effects of the Gulf Stream northward. Finfish depicted in this atlas include selected marine, estuarine, diadromous, and freshwater species, with an emphasis on species of conservation interest or commercial, recreational, and/or ecological importance. Fish distribution polygons were created based on survey information, digital data, and expert opinion provided primarily by local resource experts at MDMF, MADFW, RI DFW, and NROC. National Hydrography Dataset (NHD) stream line data was buffered into polygons and integrated with the ESI hydrographic layer where additional coverage was necessary to accurately portray species extent inland.

Freshwater - Freshwater fish species in Rhode Island were mapped using collection point data and expert input provided by Alan Libby of RI DFW. American brook lamprey are limited to the Blackstone River and a few of its tributaries and were assigned the mapping qualifier of "Vulnerable Occurrence". The species is currently listed as state threatened, but the status will likely change to endangered if current trends in habitat loss continue (Libby, 2015 RI WAP). Species in Massachusetts were mapped using the 2016 Coldwater Fisheries Resources (CFRs) data layer and accompanying species list provided by MADFW. As CFRs are important habitat for a number of cold water species that are typically more sensitive to alterations of stream flow, water quality, and temperature within their aquatic habitat, all

species mapped using this data were assigned the mapping qualifier of “Vulnerable Occurrence”. The CFRs sampling technique makes it difficult to predict exactly which species will be found in a given system, so all freshwater species were mapped to the full extent of freshwater areas in this dataset, except for the American brook lamprey. As of the 2015 MA SWAP, there were only twelve known populations of this threatened species in the state of Massachusetts; in this atlas it is mapped to select small streams with the mapping qualifier of “Spawning Area” to emphasize this important life history stage during mid-April to early May. Bridle shiner (state special concern) was mapped according to species profiles in the 2015 MA SWAP (see *BIRDS for complete description of this dataset*). Five additional freshwater fish species are found in CFRs in the AOI, but were not included in the atlas: northern pike (*Esox Lucius*), smallmouth bass (*Micropterus dolomieu*), tiger trout (*Salvelinus fontinalis* X *Salmo trutta*), walleye (*Stizostedion vitreum vitreum*), and yellow perch (*Perca flavescens*).

Diadromous – Diadromous fish species included in this atlas are alewife, American eel, American shad, Atlantic salmon, Atlantic sturgeon, blueback herring, brook trout (sea run), rainbow smelt, sea lamprey, and striped bass. Inland distribution throughout coastal streams was mapped primarily using data and input from local resource experts from RI DFW Freshwater and Diadromous Fisheries, MDMF, MADFW Fisheries, and the 2015 MA SWAP. Marine distribution was extracted from trawl and seine survey data provided by MDMF and RI DFW, and NROC’s 2016 habitat-based density models (see *Marine/Estuarine* section below for complete description of these datasets).

Atlantic salmon have been extirpated in Rhode Island primarily by the construction of dams that create barriers to upstream spawning habitat. Their presence now is the result of the state’s stocking efforts (fry and smolts) for restoration in the Pawcatuck River watershed. Distribution polygons for these areas of Atlantic salmon were assigned the mapping qualifier of “Harvest Area”. The stocked fish eventually migrate downstream to sea, and a few years later returning adults are trapped at the Potter Hill fishway and taken to a hatchery, where they are held until fall for spawning (Libby, 2015 RI WAP). There has been limited success restoring Atlantic salmon in Massachusetts and populations may be occurring in the Merrimack and nearby river systems. Distribution in these areas was mapped using CFRs data and assigned the mapping qualifier of “Spawning Area”. General distribution of Atlantic sturgeon (federally threatened) in Rhode Island was mapped in Narragansett Bay and offshore waters. Data for state and federally-listed sturgeon species in Massachusetts was provided by MADFW NHESP and is included in the atlas as “rare sturgeon” with the mapping qualifier of “Vulnerable Occurrence”, though it should be noted that these are areas of spawning as well. Spawning areas for striped bass were mapped using information from USFWS species profiles. Sea lamprey populations are declining in Massachusetts due to loss of spawning and rearing habitat; this species was mapped using CFRs data and assigned the mapping qualifier of “Vulnerable Occurrence”. Three additional diadromous fish species are found in CFRs in the AOI, but were not included in the atlas: brown trout (*Salmo trutta*), ninespine stickleback (*Pungitius pungitius*), and rainbow trout (*Oncorhynchus mykiss*).

Known and potential spawning areas and migratory routes for American shad and river herring in Rhode Island were provided by diadromous fish experts at RI DFW. River herring collectively refers to alewife and blueback herring, two species similar in appearance. It should be noted that is difficult to differentiate inshore water habitat for these species between migration and spawning, as much of it is potentially used for both. For example, impoundments at fishway sites are often used as spawning habitat, but many fish may also use them as passage to the waters upstream (McGee, personal communication). RI DFW also provided a fish passage guide indicating fishway site locations (including eel ramps) throughout Rhode Island. Spawning areas for American shad, river herring, and rainbow smelt were mapped in Massachusetts primarily using point data from the 2011 *Diadromous Fish Habitat Restoration Priority List*

(under revision) and expert input provided by Brad Chase, MDMF. A decline in population of these commercially important diadromous fish is being addressed in part by fish run restoration; both fishway site datasets are also available in HUMAN USE as the type “Fish Passage” in RESOURCE_PT. Migration areas for the American eel were also mapped using fish passage data and supplemented by species profiles in the 2015 MA SWAP. This catadromous species migrates from freshwater habitat downstream into the Atlantic Ocean to eventually spawn in the Sargasso Sea. Overfishing and habitat degradation have resulted in a decline in abundance, and eel ramps are one measure put in place to attempt to rebuild stocks (Libby, 2015 RI WAP). Brook trout (sea run) have recently been discovered in some Rhode Island coastal streams. Experts at RI DFW note that the inland distribution maps for this species primarily illustrate potential areas where it may be found when environmental conditions are suitable (e.g. water temperature). Brook trout (sea run) may coexist in the same river systems as resident brook trout, but spawning and migratory areas have not yet been specifically identified (Libby, personal communication).

Marine/Estuarine – Distribution, abundance, and seasonality of fish species was based primarily on data and expert input provided by RI DFW Marine Fisheries, URI Graduate School of Oceanography (GSO), MDMF, and NROC. Rhode Island coverages were created based on datasets from the following three fishery independent surveys conducted by RI DFW Marine Fisheries: 1) RI Coastal Fishery Resource Assessment Trawl Survey – This survey employs a stratified random design and has been monitoring finfish stocks in Narragansett Bay, Rhode Island Sound, and Block Island Sound since 1979; samples taken in the spring and fall are an accurate indicator of relative species abundance based on biology and life history; 2) RI Narragansett Bay Juvenile Finfish Beach Seine Survey - Monthly samples (June – October) have been collected since 1986 at fixed stations throughout Narragansett Bay; and 3) RI Coastal Pond Juvenile Finfish Beach Seine Survey - Monthly samples (May – October) have been collected since 1991 at fixed stations throughout Rhode Island’s coastal ponds. Data collected by the URI GSO Fish Trawl Survey from 2006-2015 was also used to support bottom fish presence in Narragansett Bay. This survey consists of two stations (mid-bay near Fox Island and lower-bay near Whale Rock) and was developed to quantify the seasonal occurrences of migratory fish populations. Inshore coverages in Massachusetts were created using datasets from two surveys conducted by MDMF Resource Assessment Project: 1) Bottom Trawl Survey - Monitoring benthic fishes and some invertebrates throughout state coastal waters since 1978; samples are taken in May and September to coincide with seasons when either adults or juveniles are available inshore; and 2) Seine Survey – Conducted annually since 2004 to monitor spawning success of winter flounder in six estuaries on southern Cape Cod (Great Pond, Cotuit Bay, Lewis Bay, Bass River, and Stage Harbor); data for summer flounder and a few species of small fish collected as well. A subset of the MDMF trawl dataset from 2000 through 2015 was used, and all other survey datasets were used in their entirety through 2015. Offshore coverages in Massachusetts were created using NROC’s 2016 habitat-based density models that characterize the predicted distribution and abundance of fish species. The digital maps sourced from fall bottom trawl surveys performed by NEFSC (1970-2014) were used as a guide to map species presence in federal waters.

The majority of estuarine and marine fish species in Rhode Island were mapped to one of the following three spatial coverages: 1) Little Narragansett Bay, Narrow River, coastal ponds including Great Salt Pond (Block Island), and tidal waters in Narragansett Bay north of the COLREGS line; 2) all of the aforementioned areas in addition to a one n.m. extension seaward from the coastal feature; or 3) all coastal waters. A few estuarine species, for example white perch, are mapped in coastal streams and nearshore waters of Narragansett Bay. Atlantic cod adults are present year-round in offshore waters only and were not mapped in waters shallower than 30’; larvae and juveniles, however, are present in all coastal waters January through May. The species group killifish (*Fundulus spp.*) mapped in Rhode Island includes rainwater killifish (*Lucania parva*), striped killifish (*Fundulus majalis*), and spotfin killifish (*Fundulus luciae*). Killifish

were mapped to coastal ponds and Narragansett Bay, but rainwater killifish can also be found in coastal streams. The sand tiger, mapped to all coastal waters, is in need of special protective management measures due to its reduced ability to sustain fishing pressure; this species only produces two pups per litter and as a result has severely declining annual rates of population increase. The lined sea horse (*Hippocampus erectus*) was not included in this atlas but is also present in all coastal waters. This species is declining in numbers as well and has an IUCN (International Union for Conservation of Nature and Natural Resources) Rank of “Vulnerable” (2015 RI WAP).

The majority of estuarine and marine fish species in Massachusetts were mapped using broad distributions with a clearly defined boundary between state and federal coastal waters. Relative abundance values within state waters for species identified as Important Fish Resources by the 2015 Massachusetts Ocean Management Plan were calculated using MDMF trawl survey counts/weights and assigned a concentration value of “Abundant”, “Common”, or “Rare”. Seven of these species (Atlantic cod, black sea bass, haddock, red hake, silver hake, spiny dogfish, and winter skate) have distinct fall and spring concentrations in varying locations such as Cape Cod Bay, Nantucket Sound, and Buzzards Bay. All other species have similar seasonal concentration and distribution year-round: little skate, scup, summer flounder, tautog, windowpane, winter flounder, witch flounder, and yellowtail flounder. Several estuarine fish including the threespine stickleback (state threatened) were mapped solely to bays, estuaries, and tidal rivers, a few species of which were also mapped to coastal streams using CFRs data. The species group “tunas” was mapped to all coastal waters in Massachusetts using NROC’s 2015 *Highly Migratory Essential Fish Habitat (EFH) Overlay* data layer and includes bluefin tuna (*Thunnus thynnus*) and yellowfin tuna (*Thunnus albacares*), though the latter is only present in offshore waters south of Cape Cod. The Atlantic wolfish (*Anarhichas lupus*) was mapped to all coastal waters but should be noted for its species of concern status in the Gulf of Maine as designated by NOAA’s NMFS. The species group “searobins” (*Prionotus spp.*) was mapped to all coastal waters in both Massachusetts and Rhode Island and includes striped searobin (*Prionotus evolans*) and northern searobin (*Prionotus carolinus*).

Two estuarine and marine fish species of importance in Massachusetts and Rhode Island coastal waters not included in the atlas are Atlantic menhaden (*Brevoortia tyrannus*) and butterfish (*Peprilus triacanthus*). American sand lance was not mapped in Massachusetts, but is a critical prey species for the roseate tern. Additional species present in the AOI but not included in the atlas are cunner (*Tautoglabrus adspersus*), fourspot flounder (*Paralichthys oblongus*), grubby (*Myoxocephalus aeneus*), Gulfstream flounder (*Citharichthys arctifrons*), northern pipefish (*Syngnathus fuscus*), northern sand lance (*Ammodytes dubius*), sea raven (*Hemitripterus americanus*), smallmouth flounder (*Etropus microstomus*), smooth dogfish (*Mustelus canis*), and spotted hake (*Urophycis regia*).

Expert contacts for Massachusetts/Rhode fish*:

Name	Agency	City	Phone	Species
Brad Chase	MDMF, New Bedford Office	New Bedford, MA	508-990-2860 x118	Diadromous, Fish Passages
Phillip Edwards	RI DFW, Freshwater and Diadromous Fisheries	West Kingston, RI	401-789-0281x13	Diadromous, Fish Passages

Patrick McGee	RI DFW, Freshwater and Diadromous Fisheries	West Kingston, RI	401-789-0281	Diadromous, American Eel
Stephen Hurley	MADWF Southeast District Office	Buzzards Bay, MA	508-759-3406	Freshwater
Caleb Slater	MADWF, Fisheries	Westborough, MA	508-389-6331	Anadromous, Freshwater
Alan Libby	RI DFW, Freshwater and Diadromous Fisheries	West Kingston, RI	401-789-0281x19	Freshwater, Ponds and Streams
Corey Pelletier	RI DFW, Freshwater and Diadromous Fisheries	West Kingston, RI	401-789-0281	Freshwater, Ponds and Streams, Brook Trout
Jeremy Collie	URI, Graduate School of Oceanography	Kingston, RI	401-874-6859	Marine/Estuarine
John Lake	RI DFW, Marine Fisheries	Jamestown, RI	401-423-1942	Marine/Estuarine, Coastal Ponds
Eric Schneider	RI DFW, Marine Fisheries	Jamestown, RI	401-423-1933	Marine/Estuarine
Matt Camisa	MDMF, New Bedford Office	New Bedford, MA	508-990-2860 x139	Groundfish
Vincent Manfredi	MDMF, New Bedford Office	New Bedford, MA	508-990-2860 x110	Small Fish
Russel Brown	NOAA, NEFSC	Woods Hole, MA	508-495-2000	Marine
Vincent Guida	NOAA, NEFSC	Woods Hole, MA	508-495-2000	Marine

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

Major Data Sources Used: Fish

Matthew Camisa and Mark Szymanski, Massachusetts Division of Marine Fisheries. MDMF Resource Assessment Survey Project: Bottom Trawl Survey Data, Spring and Fall, 2000-2015. Unpublished. Spreadsheet; Expert knowledge. Project information available at <http://www.mass.gov/eea/agencies/dfg/dmf/programs-and-projects/resource-assessment-surveys-project.html>.

Brad Chase, Massachusetts Division of Marine Fisheries. 2011 Diadromous Fish Habitat Restoration Priority List (Under Revision). Unpublished. Spreadsheet; Expert knowledge.

Jeremy Collie and Joe Langan, University of Rhode Island Graduate School of Oceanography. University of Rhode Island's Graduate School of Oceanography's (GSO) Narragansett Bay Fish Trawl Survey, 2006-2015. Survey information available at <http://www.gso.uri.edu/fishtrawl>

Phillip Edwards and Patrick McGee, Rhode Island Division of Fish and Wildlife, Freshwater and Diadromous Fisheries. 2016. Fish Passage Guide: Anadromous Fish Runs and Eel Ramps. Unpublished. Spreadsheet; Expert knowledge.

Michael Fogarty and Charles Perretti. 2016. Distribution and biomass data for fish species along the US east coast from about Cape Hatteras north to Canadian waters. Created by the Northeast Fisheries Science Center for the Northeast Regional Ocean Council. Digital maps. Available at <http://northeastoceandata.org>.

John Lake, Jason McNamee, Scott Olszewski, and Eric Schneider, Rhode Island Division of Fish and Wildlife, Marine Fisheries. RI Coastal Pond Juvenile Finfish Beach Seine Survey, RI Narragansett Bay Juvenile Finfish Beach Seine Survey, RI Coastal Fishery Resource Assessment Trawl Survey; 1979-2015. Unpublished. Spreadsheet; Expert knowledge.

Alan Libby, Rhode Island Division of Fish and Wildlife. 2016. Freshwater and Anadromous Fish. Unpublished. Spreadsheet; PDF documents; Expert Knowledge.

Vincent Manfredi, Massachusetts Division of Marine Fisheries. MDMF Resource Assessment Surveys Project: Seine Survey Data, 2004-2015. Unpublished. Spreadsheet; Expert knowledge. Project information available at <http://www.mass.gov/eea/agencies/dfg/dmf/programs-and-projects/resource-assessment-surveys-project.html>.

Massachusetts Division of Fisheries and Wildlife. Massachusetts State Wildlife Action Plan 2015. Westborough, MA. Species profiles. Complete PDF document available at <http://www.mass.gov/eea/agencies/dfg/dfw/wildlife-habitat-conservation/state-wildlife-conservation-strategy.html>.

David Szczebak, Massachusetts Division of Fisheries and Wildlife. 2016. MADFW Coldwater Fisheries Resources. Unpublished. Vector digital data; Supplemental species list; Expert knowledge.

INVERTEBRATES

Invertebrates depicted in this atlas include selected marine and estuarine species of commercial, recreational, ecological and/or conservation interest. Distribution polygons were created based on survey information, digital data, and expert opinion provided primarily by local resource experts at MDMF, MADFW, NEFSC, and RI DFW. National Hydrography Dataset (NHD) stream line data was buffered into polygons and integrated with the ESI hydrographic layer where additional coverage was necessary to accurately portray species extent inland.

Marine/Estuarine Invertebrates – Distribution, abundance, and seasonality of estuarine and marine invertebrate species in Rhode Island was primarily based on expert input and review from RI DFW Marine Fisheries. General distribution polygons were developed using a draft document summarizing the presence or absence of common shellfish species in vulnerable coastal waters and supported by invertebrate data collected between 1979 and 2015 during three fishery independent surveys conducted by RI DFW Marine Fisheries: Coastal Fishery Resource Assessment Trawl Survey, Narragansett Bay Juvenile Finfish Beach Seine Survey, and Coastal Pond Juvenile Finfish Beach Seine Survey. Data from the URI GSO Fish Trawl Survey was also used to support invertebrate presence in Narragansett Bay (*see Marine/Estuarine section of Fish for complete description of these datasets*). The majority of species were mapped by RI DFW invertebrate specialists to one of the following three spatial coverages: 1) Little Narragansett Bay, Narrow River, coastal ponds including Great Salt Pond (Block Island), and tidal waters in Narragansett Bay north

of the COLREGS line; 2) all of the aforementioned areas in addition to a one n. m. extension seaward from the coastal feature; or 3) all coastal waters. Known spawning sites for horseshoe crab were mapped in Narragansett Bay and along the southern shore. Two invertebrate species of high importance in Rhode Island coastal waters are the longfin squid and American lobster, the latter of which is overfished and considered in depleted, poor condition.

Distribution, abundance, and seasonality of estuarine and marine invertebrate species in Massachusetts waters varies greatly north and south of Cape Cod due to the varying conditions of the coastal ecosystems. Inshore coverages were created primarily using expert input and data from MDMF that includes the Resource Assessment Project Bottom Trawl and Seine Surveys (see *Marine/Estuarine section of Fish for complete description of these datasets*) and Lobster Ventless Trap Survey. The latter dataset is a random stratified fishery-independent survey that has been conducted since 2006 and hauls traps twice per month, June through September. The Ventless Trap Survey is capable of sampling on all bottom types with no exclusions and thus is a good tool for characterizing spatial distribution of lobsters and other invertebrates (Pugh, personal communication). Offshore coverages were developed using data and expert input from NEFSC that includes distribution maps indicating location and abundance (raw catch numbers) of select marine invertebrates collected during spring and fall bottom trawl surveys from 2006 through 2016. The boundary between state and federal waters in Massachusetts is clearly defined in the atlas.

Six invertebrate species identified as Important Fish Resources by the 2015 Massachusetts Ocean Management Plan were mapped using a subset of the MDMF Trawl Survey data. Concentration areas for the migratory longfin squid, present in high numbers throughout all coastal waters April through November, were calculated using relative abundance of counts from 2000 through 2015 and assigned a value of “Common”. Kernel density maps were created for channeled and knobbed whelk, horseshoe crab, Jonah crab, and sea scallop using spring and fall biomass from 1978 through 2012. The resulting polygons of graded density were mapped as “Concentration Areas” and assigned values ranging from “High” to “Low”. The seasonality assigned to these areas generally reflects the species abundance and breeding activity captured by the spring and fall trawl survey months, though it should be noted that there is a year-round presence of these species in these areas as well. All six of the aforementioned species were mapped as general distribution polygons outside of these concentration areas except for channeled and knobbed whelk. Whelks are present, however, in all state waters south of Cape Cod with the exception of deeper areas, and also have limited distribution north of the Cape. They bury in the mud December through February (Schneider, personal communication). Spawning sites for horseshoe crabs were mapped to sandy beaches and nursery areas mapped to marsh habitat and protected embayments where juveniles can remain for the first few years of their lives. Other areas of importance for adults of this species are troughs and channels, which are used for staging and overwintering (Perry, personal communication). Nursery areas were also mapped for blue crabs, which have a highly estuarine dependent life history and distribution. As with a few other invertebrate species, such as northern shrimp, an offshore depth contour between 20’ and 40’ was used to define the extent of species distribution.

Lobster is one of the most important commercial resources found within the waters of the Commonwealth and supports a multi-million dollar industry. Concentration areas for this species were created using relative abundance of lobster catch per trap haul data from the Ventless Trap Survey between 2010 and 2015 (except for 2013), and assigned values of “High” or “Medium”. Seasonality of these areas reflects the months of the survey season, but concentrations can persist year-round. Data from earlier seasons was not included as the more recent years more accurately represent current conditions regarding increasing water temperatures and resulting species distribution. Lobster populations as a whole are much larger north of Cape Cod; Boston Harbor and Salem Sound are major areas of both juvenile and adult lobster

concentrations and should be considered critical lobster habitat. All lobster data and information was provided by Tracy Pugh, MDMF.

Nine species of shellfish were mapped in Massachusetts as general distribution polygons with a value of “Potential” using MDMF’s 2011 *Shellfish Suitability Areas* data layer. These polygons represent habitats suitable for shellfish species and include sites where shellfish have been observed since the mid-1970’s, but may not currently support any shellfish. MDMF approved use of these data for this atlas, but should be contacted directly for up-to-date information or site specific assessments for impact or mitigation (see contact information below). Mussels found in coastal rocky habitats are an important food resource for seabirds. Mussel beds were mapped as points in Massachusetts using three data layers developed by Mass CZM for the 2015 Massachusetts Ocean Management Plan: *Attached Mussel Beds*, *Mussel Reefs*, and *Soft Sediment Mussel Beds*. These datasets indicate locations where mussel beds were observed in analyzed seafloor photographs from 2013, and biological information was classified according to a modified version of the Coastal and Marine Ecological Classification Standard (CMECS), Version 4.0, Benthic Biotic Component (Federal Geographic Data Committee, January 2012). Mussel beds, as well as ampelisca (amphipods) and crepidula (commonly known as slipper shells) beds, were mapped as polygons in Narragansett Bay using data from NBEP and expert input from RI DEM. Additional estuarine and marine invertebrate species present in the AOI but not included in the atlas due to either limited commercial importance or paucity of data include the green urchin (*Strongylocentrotus droebachiensis*), green crab (*Carcinus maenas*), lady crab (*Ovalipes ocellatus*), and a few species of spider crab.

Rare and endangered invertebrates - General distribution polygons for rare freshwater bivalves in Massachusetts and Rhode Island were mapped as “rare freshwater mussels” according to the geographic areas highlighted in species profiles of the 2015 RI WAP and 2015 MA SWAP (see *BIRDS for complete description of these datasets*). All species are either state special concern or of particular conservation interest and include alewife floater (*Anodonta imbecilis*), eastern lampmussel (*Lampsilis radiata*), eastern pondmussel (*Ligumia nasuta*), squawfoot (*Strophitus undulatus*), and tidewater mucket (*Leptodea ochracea*). The eastern pearlshell (state endangered) is mapped only in Rhode Island and can be found in the Pawcatuk River basin, which supports several species of freshwater mollusks (2015 RI WAP). MADFW NHESP provided data for “rare snail” in Massachusetts; these gastropods inhabit fresh or brackish marshes and are mapped as “Vulnerable Occurrence”.

Rare insects in Rhode Island were mapped as polygons clipped from marine waters and assigned the mapping qualifier of “Vulnerable Occurrence” using 2016 RI DEM Natural Heritage Areas data (see *BIRDS for complete description of this datasets*). Additional information for beetles was provided by Chris Raithel, RI DEM. The American burying beetle (state and federally endangered) is most commonly found in field habitats on Block Island only, and may be secondarily affected by an oil spill if the carrion it is attracted to has suffered trauma (Raithel, personal communication). Risks to other rare beetles that inhabit sandy beaches include injury during oil spill response due to vehicular traffic. The ringed boghaunter (state endangered) can be found in fens and bogs located in coastal plain peatlands and have a brief flight season extending from late April to early June only (2015 RI WAP). All other insect species included in the Natural Heritage data located in the Rhode Island AOI were assigned to one of two species groups in the atlas: “threatened insect” or “rare insect” (special concern, or of particular conservation interest). See below for complete list of species included in each category.

Rare insect species in Massachusetts were mapped as “rare insect” in this atlas using a single dataset provided by MADFW NHESP and were assigned the mapping qualifier of “Vulnerable Occurrence”. Due to high recreational use in Westport, MA, rare insect populations in this area were assigned the

concentration of “Potential” (von Oettingen, personal communication). Rare invertebrate species in Massachusetts (insects, as well as bivalves and crustaceans) were not included in their entirety in this atlas due to vulnerability of collection concerns by NHESP. NHESP should be contacted directly for up-to-date information or review of specific locations (see contact information below).

Threatened Insect

Brook snaketail	<i>Ophiogomphus asperses</i>	Southern sprite	<i>Nehalennia integricollis</i>
Dark-bellied tiger beetle	<i>Cicindela tranquebarica</i>	Zebra clubtail	<i>Stylurus scudderii</i>

Rare Insect

Arrow clubtail	<i>Stylurus spiniceps</i>	Hairy-necked tiger beetle	<i>Cicindela hirticollis</i>
Arrowhead spiketail	<i>Cordulegaster obliqua</i>	Henry's elfin	<i>Callophrys henrici</i>
Big sand tiger beetle	<i>Cicindela formosa</i>	Hessel's hairstreak	<i>Callophrys hesseli</i>
Bog copper	<i>Lycaena epixanthe</i>	Hoary elfin	<i>Callophrys polios</i>
Broad winged skipper	<i>Poanes viator zizaniae</i>	Lyre-tipped spreadwing	<i>Lestes unguiculatus</i>
Claybanks tiger beetle	<i>Cicindela limbalis</i>	Nine-spotted ladybug	<i>Coccinella novemnotata</i>
Coastal barrens buckmoth	<i>Hemileuca maia</i>	Northern hairstreak	<i>Fixsenia favonius ontario</i>
Coastal swamp metarranthis	<i>Metarranthis pilosaria</i>	Pale green pinion moth	<i>Lithophane viridipallens</i>
Comet darner	<i>Anax longipes</i>	Pine Barrens bluet	<i>Enallagma recurvatum</i>
Common sanddragon	<i>Progomphus obscurus</i>	Pitcher plant borer moth	<i>Papaipema appassionata</i>
Coppery emerald	<i>Somatochlora georgiana</i>	Saltmarsh tiger beetle	<i>Cicindela marginata</i>
Cow path tiger beetle	<i>Cicindela purpurea</i>	Scarlet bluet	<i>Enallagma pictum</i>
Dusted skipper	<i>Atrytonopsis hianna</i>	Sleepy duskywing	<i>Erynnis brizo</i>
Eastern red-bellied tiger beetle	<i>Cicindela rufiventris</i>	Spartina borer moth	<i>Spartiniphaga inops</i>
Frosted elfin	<i>Callophrys irus</i>	Spatterdock darner	<i>Aeshna mutata</i>
		White m hairstreak	<i>Parrhasius m-album</i>

Expert Contacts for Massachusetts/Rhode invertebrates*:

Name	Agency	City	Phone	Species
Chris Raithel	RI DFW	West Kingston, RI	401-789-0281	Beetles
Susi von Oettingen	USFWS, New England Field Office	Concord, NH	603-223-2541 x6418	Rare insects
Michael Nelson	MDFW NHESP	Westborough, MA	508-389-6374	Rare and Terrestrial Invertebrates
Peter Hazelton	MDFW NHESP	Westborough, MA	508-389-6389	Aquatic Invertebrates
Scott Olszewski	RI DFW, Marine Fisheries	Jamestown, RI	401-423-1934	Horseshoe Crabs
Derek Perry	MDMF, New Bedford Office	New Bedford, MA	508-990-2860 x148	Horseshoe Crab, Crabs

Name	Agency	City	Phone	Species
Peter Chase	NOAA, NEFSC/ ASMFC Northern Shrimp Survey	Woods Hole, MA	508-495-2348	Northern Shrimp, Crangon
Kelly Whitmore	MDMF, Annisquam River Station	Gloucester, MA	978-282-0308 x102	Northern Shrimp, Green Crab
Dennis Erkan	RI DFW, Marine Fisheries	Jamestown, RI	401-423-1932	Shellfish
Tracy Pugh	MDMF, New Bedford Office	New Bedford, MA	978-282-0308 x138	Lobster
Mark Rousseau	MDMF, Annisquam River Station	Gloucester, MA	978-282-0308 x162	Shellfish
Eric Schneider	RI DFW, Marine Fisheries	Jamestown, RI	401-423-1933	Marine Invertebrates, Whelks
Vincent Guida	NOAA, NEFSC	Woods Hole, MA	508-495-2000	Marine Invertebrates
Russel Brown	NOAA, NEFSC	Woods Hole, MA	508-495-2000	Marine Invertebrates

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

Major Data Sources Used: Invertebrates

Matthew Camisa and Mark Szymanski, Massachusetts Division of Marine Fisheries. MDMF Resource Assessment Survey Project: Bottom Trawl Survey Data, Spring and Fall, 2000-2015. Unpublished. Spreadsheet; Expert knowledge. Project information available at <http://www.mass.gov/eea/agencies/dfg/dmf/programs-and-projects/resource-assessment-surveys-project.html>.

Dennis Erkan, Rhode Division of Fish and Wildlife, Marine Fisheries. 2016. Coastal Estuaries, Ponds, and Rivers with Greatest Protection Concerns for Invertebrates and Fish. Unpublished. Word document; Expert knowledge.

Kathryn Ford, Massachusetts Division of Marine Fisheries. Important Fish Resources, 2015 Massachusetts Ocean Management Plan – Individual Fish and Invertebrate Species Data, 1978-2012. Unpublished. Vector digital data. Project information available at <http://www.mass.gov/eea/waste-mgmt-recycling/coasts-and-oceans/mass-ocean-plan/2015-final-ocean-plan.html>

Vincent Guida, National Oceanic and Atmospheric Administration (NOAA), Northeast Fisheries Science Center (NEFSC). NEFSC Bottom Trawl Surveys, Spring and Fall 2006-2016 – Invertebrate Species. Unpublished. PDF document; Expert knowledge.

John Lake, Jason McNamee, Scott Olszewski, and Eric Schneider, Rhode Island Division of Fish and Wildlife, Marine Fisheries. RI Coastal Pond Juvenile Finfish Beach Seine Survey, RI Narragansett Bay Juvenile Finfish Beach Seine Survey, RI Coastal Fishery Resource Assessment Trawl Survey; 1979-2015. Unpublished. Spreadsheet; Expert knowledge.

Vincent Manfredi, Massachusetts Division of Marine Fisheries. MDMF Resource Assessment Surveys Project: Seine Survey Data, 2004-2015. Unpublished. Spreadsheet; Expert knowledge. Project information available at <http://www.mass.gov/eea/agencies/dfg/dmf/programs-and-projects/resource-assessment-surveys-project.html>.

Massachusetts Division of Fisheries and Wildlife. Massachusetts State Wildlife Action Plan 2015. Westborough, MA. Species profiles. Complete PDF document available at <http://www.mass.gov/eea/agencies/dfg/dfw/wildlife-habitat-conservation/state-wildlife-conservation-strategy.html>.

Massachusetts Division of Fisheries and Wildlife, Natural Heritage Endangered Species Program. 2016. Sensitive coastal species: Bird, Fish, Invertebrate, Plant, and Reptile data. Unpublished. Vector digital data; Expert knowledge.

Tracy Pugh, Massachusetts Division of Marine Fisheries. Lobster Ventless Trap Survey Data, 2010-2015. Unpublished. Vector digital data; Expert knowledge.

Rhode Island Chapter of The Nature Conservancy, Rhode Island Department of Environmental Management, University of Rhode Island, and the Rhode Island Natural History Survey. 2015 Rhode Island Wildlife Action Plan. Kingston, RI. Vector digital data and species profiles. Complete PDF document available at <http://www.dem.ri.gov/programs/fish-wildlife/wildlifehuntered/swap15.php>

Rhode Island Department of Environmental Management. 2016. Rhode Island Natural Heritage Areas. Providence, RI. Vector digital data and supplemental species list supplied by Paul Jordan of RI DEM. Content available at <http://www.rigis.org/>

Mark Rousseau, Massachusetts Division of Marine Fisheries. 2011. Shellfish Suitability Areas. Boston, MA. Vector digital data. Content available at Massachusetts Geographic Information System (MassGIS).

BENTHIC HABITATS

Benthic habitats mapped in this atlas include a few different species of submerged aquatic vegetation (SAV) and macroalgae.

The most common SAV species in Massachusetts and Rhode Island is eelgrass (*Zostera marina*), but widgeon grass (*Ruppia maritima*) can be found as well in areas of less salinity. These plants form an important marine and estuarine aquatic habitat that is integral to the health of shallow coastal areas. They are the base of food production in the sea and provide shelter and a place of attachment for a wide range of fish, invertebrates, and herpetofauna during some stage in their life cycle. Eelgrass beds filter excess nutrients out of the water, and in certain locations help to stabilize unconsolidated sediments and shorelines. All SAV were assigned the mapping qualifier of “High Ecological Value”. Polygons depicting SAV in Rhode Island were primarily based on the 2012 dataset developed by the Rhode Island Eelgrass Mapping Task Force that utilized aerial survey and ground truthing as production methods. These areas of SAV were mapped with a concentration value of “Present”. Two SAV datasets produced by the URI Environmental Data Center in 2006 and 2009 were also used where they did not overlap the 2012 data, and these polygons were mapped with a concentration value of “Potential” based on local resource expert input. Jim Turenne, USDA-NRCS, provided input for additional widgeon grass coverage in coastal ponds in Little Compton and Sachem Pond on Block Island.

Polygons depicting SAV in Massachusetts were based on datasets developed by the MassDEP Wetlands Conservancy Program Eelgrass Mapping Project in 2010, 2012, and 2013; together the three layers cover the entire Massachusetts coastline. MassDEP has been surveying since 1995 and relies on remote sensing of aerial imagery supplemented by underwater video data to acquire SAV extents. Additional eelgrass coverage for the Town of Sandwich was provided by Kathryn Ford, MDMF, and for Boston Harbor and Salem Sound by Todd Callaghan, Mass CZM. All of these areas of SAV were mapped with a concentration value of either “Present”, “Patchy”, or “Dense”. Mass CZM produced a dataset for the 2015 Massachusetts Ocean Management Plan that augmented the MassDEP data with eelgrass patches noted by state and federal divers and historic and buffer data that included areas of potential eelgrass growth. Where these latter data did not overlap existing eelgrass polygons, they were mapped with a concentration of “Potential”.

Two rare freshwater plants species, cutleaf watermilfoil (*Myriophyllum pinnatum*)(state threatened) and hornleaf riverweed (*Podostemum ceratophyllum*)(state special concern) were also mapped as SAV in Rhode Island with a mapping qualifier of “Vulnerable Occurrence” and a concentration of “Present” using the 2016 RI DEM Natural Heritage Areas data (*see BIRDS for complete description of this dataset*). MADFW NHESP provided a single dataset for ten coastal and estuarine plant species that depend on the dynamic interface of land and water. The areas of these data located in water were mapped as “rare aquatic/wetland plant” (SAV) with the mapping qualifier “High Ecological Value” and a concentration of “Present”.

Macroalgae mapped for Rhode Island includes both red (Rhodophyta) and green (Chlorophyta). Both species have a year-round presence, but green algae have a strong seasonal component and are only present in large abundances in the summer and fall (Green and Deacutis, personal communication). Distribution polygons in Narragansett Bay were based on data from summer and fall aerial surveys conducted by RI DFW between 2007 and 2012 and along coastal ponds and rocky shores by expert input from Lindsay Green and Carol Thornber, URI. Only high density accumulations were mapped with a concentration value of either 41-70% or 71-100% of total cover. Macroalgae depicted in Massachusetts consist of aquatic vegetation beds mapped as points using three data layers developed by Mass CZM for the 2015 Massachusetts Ocean Management Plan: *Attached Mussel Beds*, *Canopy-forming Algal Beds (Kelps)*, and *Soft Corals*. These datasets indicate locations where benthic biota was observed in analyzed seafloor photographs from 2013, and the biological information was classified according to a modified version of the Coastal and Marine Ecological Classification Standard (CMECS), Version 4.0, Benthic Biotic Component (Federal Geographic Data Committee, January 2012). The biotic subclass of macroalgae were extracted from these data and mapped with a concentration value of “Medium” based on density of cover.

Expert contacts for Massachusetts/Rhode Island benthic habitats*:

Name	Agency	City	Phone	Species
Michael Bradley	URI EDC	Kingston, RI	401-874-5054	Eelgrass
Todd Callaghan	Mass CZM	Boston, MA	617.626.1233	Eelgrass, Macroalgae
Phil Colarusso	US EPA Region 1	Boston, MA	617.918.1506	Eelgrass
Charles Costello	MassDEP	Boston, MA	617.292.5907	Eelgrass
Kenny Raposa	NBNERR	Prudence Island, RI	401-683-7849	SAV, Coastal Habitat
Jim Turenne	USDA NRCS	Warwick, RI	401-822-8830	Benthic Habitat, Eelgrass

Christopher Deacutis	RI DFW, Marine Fisheries	Jamestown, RI	401-423-1939	Macroalgae
Carol Thornber	URI	Kingston, RI	401-874-4495	Macroalgae
Tanner Steeves	RI DFW	West Kingston, RI	401-789-0281	Habitat
Robert Wernerehl	MADFW, NHESP	Westborough, MA	508-389-7818	Terrestrial and Aquatic Plants, Natural Communities

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

Major Data Sources Used: Benthic Habitats

Chris Deacutis, Rhode Island Division of Fish and Wildlife, Marine Fisheries. 2016. Narragansett Bay Macroalgae Fall and Summer High Density 2007-2012. Unpublished. PDF document; Expert knowledge.

Lindsay Green and Carol Thornber, University of Rhode Island, Biological Sciences. 2016. Macroalgae Locations in Rhode Island. Unpublished. Expert knowledge.

Massachusetts Department of Environmental Protection Wetlands Conservancy Program, Eelgrass Mapping Project. 2014, 2013. MassDEP 2013, 2012, 2010 Eelgrass Mapping. Boston, MA. Vector digital data. Content available at Massachusetts Geographic Information System (MassGIS).

Massachusetts Division of Fisheries and Wildlife, Natural Heritage Endangered Species Program. 2016. Sensitive coastal species: Bird, Fish, Invertebrate, Plant, and Reptile data. Unpublished. Vector digital data; Expert knowledge.

Massachusetts Office of Coastal Zone Management. 2015. Attached Mussel Beds; Canopy-forming Algal Beds (Kelps); Soft Corals. 2015 Massachusetts Ocean Management Plan. Boston, MA. Vector digital data. Content available at Massachusetts Geographic Information System (MassGIS).

Massachusetts Office of Coastal Zone Management. 2015. Eelgrass, 2015 Massachusetts Ocean Management Plan. Boston, MA. Vector digital data. Content available at Massachusetts Geographic Information System (MassGIS).

Rhode Island Department of Environmental Management. 2016. Rhode Island Natural Heritage Areas. Providence, RI. Vector digital data and supplemental species list supplied by Paul Jordan of RI DEM. Content available at <http://www.rigis.org/>.

Rhode Island Eelgrass Mapping Task Force. 2013. Submerged Aquatic Vegetation (SAV) in Rhode Island Coastal Waters (2012). Kingston, RI. Vector digital data. Content available at <http://www.rigis.org/>

University of Rhode Island Environmental Data Center. 2013. Submerged Aquatic Vegetation (SAV) in Rhode Island Coastal Waters (2006) and (2009). Kingston, RI. Vector digital data. Content available at <http://www.rigis.org/>

HABITATS

Habitat features depicted in this atlas include threatened, endangered, and rare plants, and vernal pools.

Plants in Rhode Island were mapped as polygons using 2016 RI DEM Natural Heritage Areas data (*see BIRDS for complete description of this dataset*). All features were clipped to land and assigned the mapping qualifier of “Vulnerable Occurrence.” The Natural Heritage data includes 147 state-listed rare, endangered, and threatened species that are located in the Rhode Island AOI. All were assigned to one of four species groups in the atlas: “endangered plant”, “threatened plant”, “rare plant” (special concern) or “rare wetland/aquatic plant” (special concern) (includes FAV), except for the seaside sandplant (*Honckenya peploides*), which was mapped individually with additional expert input provided by Nick Ernst, USFWS, Rhode Island NWR Complex. See below for complete list of species included in each category.

Plants in Massachusetts were mapped using a single dataset provided by MADFW NHESP consisting of ten coastal and estuarine plant species that depend on the dynamic interface of land and water. The areas of these data located on land were mapped as “rare plant” with the mapping qualifier “Vulnerable Occurrence”. Rare plant species and communities in Massachusetts were not included in their entirety in this atlas due to vulnerability of collection concerns by NHESP. NHESP should be contacted directly for up-to-date information or review of specific locations (see contact information below).

Vernal pools are small, shallow ponds characterized by lack of fish and periods of dryness. Vernal pool habitat is extremely important to a variety of wildlife species and is utilized for breeding, feeding, and other important functions. This includes certain protected species such as the eastern spadefoot that breed exclusively in vernal pools and other organisms such as fairy shrimp that spend their entire life cycles confined to vernal pool habitat. Vernal pools were mapped as points in Massachusetts with the mapping qualifier “Vulnerable Occurrence” using the 2016 MADFW NHESP *Certified Vernal Pools* dataset. This data layer contains points for all vernal pools that have been certified by NHESP and is continually updated (see contact information below). Data for vernal pools in Rhode Island is not currently available. RI DFW should be contacted directly for up-to-date information and specific locations (see contact information below).

Endangered Plant

American ginseng	<i>Panax quinquefolius</i>	Little lady's tresses	<i>Spiranthes tuberosa</i>
Arrowhead rattlesbox	<i>Crotalaria sagittalis</i>	Lizard's tail	<i>Saururus cernuus</i>
Awed flatsedge	<i>Cyperus squarrosus</i>	Longbeak beaksedge	<i>Rhynchospora scirpoides</i>
Bicknell's cranesbill	<i>Geranium bicknellii</i>	Long's bulrush	<i>Scirpus longii</i>
Bigseed alfalfa dodder	<i>Cuscuta indecora</i>	Maryland goldenaster	<i>Chrysopsis mariana</i>
Black-fruited spikerush	<i>Eleocharis melanocarpa</i>	Narrowfruit horned beaksedge	<i>Rhynchospora inundata</i>
Bluntlobe grapefern	<i>Botrychium oneidense</i>	Northern adderstongue	<i>Ophioglossum pusillum</i>
Canby's bulrush	<i>Schoenoplectus etuberculatus</i>	Plymouth rose gentian	<i>Sabatia kennedyana</i>
Devil's-tongue	<i>Opuntia humifusa</i>	Purple cliffbrake	<i>Pellaea atropurpurea</i>
Dwarf umbrella-sedge	<i>Fuirena pumila</i>	Rannoch-rush	<i>Scheuchzeria palustris</i>
Early blue violet	<i>Viola subsinuata</i>	Red trillium	<i>Trillium erectum</i>
Foxtail clubmoss	<i>Lycopodiella alopecuroides</i>	Rock buttercup	<i>Ranunculus micranthus</i>
Globefruit primrose-willow	<i>Ludwigia sphaerocarpa</i>	Roundleaf yellow violet	<i>Viola rotundifolia</i>
Goldenclub	<i>Orontium aquaticum</i>	Little lady's tresses	<i>Spiranthes tuberosa</i>
Greater fringed gentian	<i>Gentianopsis crinita</i>	Lizard's tail	<i>Saururus cernuus</i>
Green adder's-mouth orchid	<i>Malaxis unifolia</i>	Longbeak beaksedge	<i>Rhynchospora scirpoides</i>
Large yellow lady's-slipper	<i>Cypripedium parviflorum</i>	Sandplain gerardia*	<i>Agalinis acuta</i> *Federally endangered
Slender arrowhead	<i>Sagittaria teres</i>	Waxyleaf meadow-rue	<i>Thalictrum revolutum</i>

Swamp cottonwood	<i>Populus heterophylla</i>	Western blue virginsbower	<i>Clematis occidentalis</i>
Torrey's beaksedge	<i>Rhynchospora torreyana</i>	Yellow fringed orchid	<i>Platanthera ciliaris</i>
Violet woodsorrel	<i>Oxalis violacea</i>	Yellow widelip orchid	<i>Liparis loeselii</i>
Walking fern	<i>Asplenium rhizophyllum</i>	Slender arrowhead	<i>Sagittaria teres</i>
Walter's sedge	<i>Carex striata</i>	Swamp cottonwood	<i>Populus heterophylla</i>

Threatened Plant

Appalachian stitchwort	<i>Minuartia glabra</i>	Netted nutrush	<i>Scleria reticularis</i>
Autumn coralroot	<i>Corallorhiza odontorhiza</i>	Palegreen orchid	<i>Platanthera flava</i>
Blue cohosh	<i>Caulophyllum thalictroides</i>	Pine barren goldenheather	<i>Hudsonia ericoides</i>
Blunt-lobed hepatica	<i>Anemone americana</i>	Red baneberry	<i>Actaea rubra</i>
Canada lily	<i>Lilium canadense</i>	Rose of Plymouth	<i>Sabatia stellaris</i>
Carolina redroot	<i>Lachnanthes caroliniana</i>	Seacoast angelica	<i>Angelica lucida</i>
Carpenter's square	<i>Scrophularia marilandica</i>	Seaside knotweed	<i>Polygonum glaucum</i>
Creeping St. Johnswort	<i>Hypericum adpressum</i>	Sessileleaf ticktrefoil	<i>Desmodium sessilifolium</i>
Fewflower nutrush	<i>Scleria pauciflora</i>	Smith's bulrush	<i>Schoenoplectus smithii</i>
Fourleaf milkweed	<i>Asclepias quadrifolia</i>	Stiff yellow flax	<i>Linum medium</i>
Foxglove beardtongue	<i>Penstemon digitalis</i>	Swaying bulrush	<i>Schoenoplectus subterminalis</i>
Hairy small-leaf ticktrefoil	<i>Desmodium ciliare</i>	Whip nutrush	<i>Scleria triglomerata</i>
Hyssopleaf hedgenettle	<i>Stachys hyssopifolia</i>	White fringed orchid	<i>Platanthera blephariglottis</i>
Long-bracted green orchid	<i>Coeloglossum viride</i>	Yellow thistle	<i>Cirsium horridulum</i>
Longstyle sweetroot	<i>Osmorhiza longistylis</i>	Zigzag goldenrod	<i>Solidago flexicaulis</i>
Lowland rotala	<i>Rotala ramosior</i>	Netted nutrush	<i>Scleria reticularis</i>

Rare Plant

Allegheny Mountain buttercup	<i>Ranunculus allegheniensis</i>	Drumheads	<i>Polygala cruciata</i>
American cancer-root	<i>Conopholis americana</i>	Drummond's rockcress	<i>Boechera stricta</i>
American false pennyroyal	<i>Hedeoma pulegioides</i>	Dwarf chinquapin oak	<i>Quercus prinoides</i>
American spikenard	<i>Aralia racemosa</i>	Dwarf huckleberry	<i>Gaylussacia bigeloviana</i>
Annual wildrice	<i>Zizania aquatica</i>	Early saxifrage	<i>Micranthes virginianensis</i>
Beaked spikerush	<i>Eleocharis rostellata</i>	Eastern swamp saxifrage	<i>Micranthes pensylvanica</i>
Big cordgrass	<i>Spartina cynosuroides</i>	Feverwort	<i>Triosteum perfoliatum</i>
Bigleaf aster	<i>Eurybia macrophylla</i>	Field sagewort	<i>Artemisia campestris</i>
Black ash	<i>Fraxinus nigra</i>	Greater poverty rush	<i>Juncus antheratus</i>
Bloodroot	<i>Sanguinaria canadensis</i>	Hairystem gooseberry	<i>Ribes hirtellum</i>
Broadwing sedge	<i>Carex alata</i>	Herbwilliam	<i>Ptilimnium capillaceum</i>
Butterfly milkweed	<i>Asclepias tuberosa</i>	Hobblebush	<i>Viburnum lantanoides</i>
Canadian honewort	<i>Cryptotaenia canadensis</i>	Indiangrass	<i>Sorghastrum nutans</i>
Candle anemone	<i>Anemone cylindrica</i>	Jointed spikesedge	<i>Eleocharis equisetoides</i>
Clasping milkweed	<i>Asclepias amplexicaulis</i>	Lanceleaf figwort	<i>Scrophularia lanceolata</i>
Daisy-leaf grape fern	<i>Botrychium matricariifolium</i>	Lesser purple fringed orchid	<i>Platanthera psycodes</i>
Ditch stonecrop	<i>Penthorum sedoides</i>	Drumheads	<i>Polygala cruciata</i>
Downy yellow violet	<i>Viola pubescens</i>	Drummond's rockcress	<i>Boechera stricta</i>

Long beechfern	<i>Phegopteris connectilis</i>	Slender seapurslane	<i>Sesuvium maritimum</i>
Maidenhair spleenwort	<i>Asplenium trichomanes</i>	Slenderleaf false foxglove	<i>Agalinis tenuifolia</i>
Orangefruit horse-gentian	<i>Triosteum aurantiacum</i>	Slimspike threeawn	<i>Aristida longespica</i>
Ostrich fern	<i>Matteuccia struthiopteris</i>	Spring lady's tresses	<i>Spiranthes vernalis</i>
Pink corydalis	<i>Capnoides sempervirens</i>	Striped maple	<i>Acer pensylvanicum</i>
Pink tickseed	<i>Coreopsis rosea</i>	Summer coralroot	<i>Corallorhiza maculata</i>
Poke milkweed	<i>Asclepias exaltata</i>	Sundial lupine	<i>Lupinus perennis</i>
Purplestem beggarticks	<i>Bidens connata</i>	Tall horned beaksedge	<i>Rhynchospora macrostachya</i>
Pursh seepweed	<i>Suaeda calceoliformis</i>	Trumpet honeysuckle	<i>Lonicera sempervirens</i>
Ramp	<i>Allium tricoccum</i>	Tuberous grasspink	<i>Calopogon tuberosus</i>
Robert geranium	<i>Geranium robertianum</i>	Twining screwstem	<i>Bartonia paniculata</i>
Round-leaved dogwood	<i>Swida rugosa</i>	Virginia stickseed	<i>Hackelia virginiana</i>
Rue anemone	<i>Thalictrum thalictroides</i>	Virginia tephrosia	<i>Tephrosia virginiana</i>
Scotch wild lovage	<i>Ligusticum scoticum</i>	White colicroot	<i>Aletris farinosa</i>
Shore quillwort	<i>Isoetes riparia</i>	Wild bergamot	<i>Monarda fistulosa</i>
Sickleleaf silkgrass	<i>Pityopsis falcata</i>	Yellow coralroot	<i>Corallorhiza trifida</i>

Rare wetland/aquatic plant

Eastern gamagrass	<i>Tripsacum dactyloides</i>	North wind bog-orchid	<i>Platanthera aquilonis</i>
American featherfoil	<i>Hottonia inflata</i>	Whorled milkwort	<i>Polygala verticillata</i>
Humped bladderwort	<i>Utricularia gibba</i>	Zigzag bladderwort	<i>Utricularia subulata</i>
Resupinate bladderwort	<i>Utricularia resupinata</i>		

Expert contacts for Massachusetts/Rhode Island habitats and rare plants*:

Name	Agency	City	Phone	Species
Tanner Steeves	RI DEM DFW	West Kingston, RI	401-789-0281	Plants and Natural Communities; Vernal Pools
Robert Wernerehl	MADFW, NHESP	Westborough, MA	508-389-7818	Terrestrial Plants and Natural Communities
Jacob Kubel	MADFW, NHESP	Westborough, MA	508-389-6373	Vernal Pools

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

Major Data Sources Used: Habitats

Massachusetts Division of Fisheries and Wildlife, Natural Heritage Endangered Species Program. 2016. NHESP Certified Vernal Pools. Boston, MA. Vector digital data. Content available at Massachusetts Geographic Information System (MassGIS).

Massachusetts Division of Fisheries and Wildlife, Natural Heritage Endangered Species Program. 2016. Sensitive coastal species: Bird, Fish, Invertebrate, Plant, and Reptile data. Unpublished. Vector digital data; Expert knowledge.

Rhode Island Department of Environmental Management. 2016. Rhode Island Natural Heritage Areas. Providence, RI. Vector digital data and supplemental species list supplied by Paul Jordan of RI DEM. Content available at <http://www.rigis.org/> . Full listing of rare plants in Rhode Island with status information available at <http://rinhs.org/biodiversity-data/info-on-rare-species-in-ri/> .

INVASIVE SPECIES

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

Expert contacts for Massachusetts/Rhode Island invasive species:

Name	Agency	City	Phone
David W. Gregg	Rhode Island Natural History Survey, Invasive Plants	Kingston, RI	401-874-5800
Karro Frost	MA DFW, NHESP, Invasive Plants	Westborough, MA	508-389-6390
Adrienne Pappal	Mass CZM, Aquatic Invasive Species Program Manager	Boston, MA	617-626-1218
Kelly Whitmore	MDMF, Invasive Crabs	Gloucester, MA	978-282-0308 x102

WILDLIFE REHABILITATION

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





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

HUMAN-USE RESOURCES

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.

	Access		Historical Site
	Airport		Lock and Dam
	Anchorage		Management Area
	Aquaculture		Marina
	Artificial Reef		Marine Sanctuary
	Archaeological Sites		Military
	Beach		National Park
	Boat Ramp		Nature Conservancy
	Campground		Park
	Commercial Fishing		Port
	Critical Habitat		Recreational Fishing
	Diving Site		Repeated Measurement Site
	EPA Facility		State Protected Area
	Ferry		Tribal Land
	Historic Wreck		Wildlife Refuge

Access: Locations where it is possible to gain access to the shoreline were mapped from data provided by the Rhode Island Department of Environmental Management (DEM) and the Massachusetts Department of Fish and Game (DFG).

Airport: Locations of airports, airfields, landing strips, etc. was collected from the Rhode Island Department of Transportation (RIDOT) and the Massachusetts Department of Transportation (MASSDOT).

Anchorage: Locations where commercial vessels can be anchored offshore were provided by NOAA's National Ocean Service (NOS), Office for Coastal Management (OCM).

Aquaculture: Locations where farmed or managed aquaculture/mariculture occurs were obtained from the Rhode Island Coastal Resources Management Council (CRMC) and Massachusetts Division of Marine Fisheries (MDMF).

Archaeological Site: Rhode Island statute governing archaeology, or the Antiquities Act of Rhode Island, is contained in the 2016 Rhode Island General Laws, Title 42 – State Affairs and Government, Chapter 42-45.1. Under Massachusetts General Law Chapter 6, sections 179-180, and Chapter 91, section 63, the Board of Underwater Archaeological Resources (BUAR) is charged with the responsibility of encouraging the discovery and reporting, as well as the preservation and protection, of underwater archaeological resources. For statutes governing archaeology above the tidal zone in Massachusetts, see Massachusetts General Laws Chapter 9 sections 26-27C and 950 CMR 70: Massachusetts Historical Commission. Both Massachusetts and Rhode Island preferred to protect the location of archaeological sites. In the event of an oil spill or clean up activity please contact the State Archaeologists who can provide precise locational information of all sites.

Charlotte Taylor, State Archaeologist
Rhode Island Historical Preservation & Heritage Commission
Old State House, 150 Benefit Street
Providence, RI 02930-1209
Phone: 401-222-4140

Timothy Ives, State Archaeologist
Rhode Island Historical Preservation & Heritage Commission
Old State House, 150 Benefit Street
Providence, RI 02930-1209
Phone: 401-222-4139

Victor Mastone, Director
Board of Underwater Archaeological Resources
251 Causeway Street, Suite 800
Boston, MA 02114-2199
Phone: 617-626-1141

Jonathan K. Patton, Archaeologist/Preservation Planner
Massachusetts Historical Commission
220 Morrissey Boulevard
Boston, MA 02125-3314
Phone: 617-727-8470

Army Corps of Engineers: U.S. Army Corps of Engineers (ACE) districts and divisions data were downloaded from the U.S. Geological Survey (USGS) which originated from the U.S. Army Engineer Corps of Engineers.

Artificial Reef: Locations of reefs made out of human-made materials or natural materials was provided by the Massachusetts Division of Marine Fisheries (MDMF) and downloaded from NOAA's National Ocean Service (NOS), Office for Coastal Management (OCM).

Beach: Locations of recreational beaches used for activities such as swimming, sun-bathing, surf fishing, etc. were provided by the Massachusetts Department of Public Health (MDPH), Rhode Island Department of Environmental Management (DEM), and Rhode Island Coastal Resources Management Council (CRMC).

Boat Ramp: Boat ramp location data were provided by the Rhode Island Department of Environmental Management (DEM), University of Rhode Island Coastal Resources Center (CRC) and Environmental Data Center (EDC), Massachusetts Department of Fish and Game (DFG), and Massachusetts Office of Coastal Zone Management (CZM).

Campground: Locations of campgrounds were obtained from the Rhode Island Department of Environmental Management (DEM).

City: Cities data were obtained from the Massachusetts Emergency Management Agency (MEMA) and the Rhode Island Department of Economic Development.

Coast Guard: U.S. Coast Guard (USCG) stations, districts, and sectors were provided by the USCG.

Commercial Fishing: Locations for important, high use sites fished by commercial fishers on a regular basis were provide by the Rhode Island Department of Environmental Management (DEM), University of Rhode Island Environmental Data Center (EDC), University of Rhode Island Fisheries Center, University of Rhode Island Department of Fisheries, Rhode Island Coastal Resources Management Council (RI CRMC), Massachusetts Division of Marine Fisheries (MDMF), and the National Marine Fisheries Service (NMFS), National Geospatial-Intelligence Agency (NGA), and USHarbors.com.

County: Boundaries for counties were obtained from the University of Rhode Island Environmental Data Center (EDC) and the Massachusetts Geographic Information System (MASSGIS).

Critical Habitat: Designated Critical Habitat was mapped for the Atlantic sturgeon, North Atlantic right whale, and Plymouth red-bellied turtle. Data were provided by the USFWS and NOAA's NMFS.

Diving: Popular recreational diving and snorkeling sites were obtained from the Northeast Regional Ocean Council (NROC) and Massachusetts Office of Coastal Zone Management (CZM).

Environmental Protection Agency Facility: EPA facility locations represent the following facilities: those 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 comes from U.S. Environmental Protection Agency (EPA) Region 1.

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

Essential Habitat: Certified vernal pools are classified by the presence of fairy shrimp and/or breeding evidence of obligate amphibian species, such as blue-spotted salamanders and wood frogs, or facultative amphibian species, such as Fowler's toads and spring peepers. These data were provided by the Massachusetts Division of Fisheries and Wildlife Natural Heritage Endangered Species Program (NHESP). Essential Fish Habitat (EFH) are necessary to support the key life stages of American plaice, Atlantic cod, Atlantic halibut, Atlantic herring, Atlantic scallop, Atlantic wolfish, haddock, little skate, monkfish, ocean pout, pollock, red hake, silver hake, white hake, windowpane, winter flounder, winter skate, witch flounder, and yellowtail flounder. Data for EFH in Massachusetts and Rhode Island is located in BIOLOGY-FISH and INVERT as individual species distribution polygons.

Facility: Commercial facilities were obtained from the Massachusetts Department of Public Health (MDPH).

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

Ferry: State and local ferry terminal locations, including Boston Harbor water taxi stops, were obtained from the Massachusetts Department of Transportation (MASSDOT) and University of Rhode Island Coastal Resources Center (CRC) and Environmental Data Center (EDC).

Ferry Route: Ferry routes were obtained from the Massachusetts Department of Transportation (MASSDOT) and Rhode Island Department of Administration.

Fish Passage: Locations of structures that facilitate the passage of anadromous fish and eels during migration, such as ladders, fish steps, fish elevators, rock ramps, culverts, denils, steepass, and pool & weirs, were provided by the Rhode Island Division of Fish & Wildlife (DFW), Freshwater and Diadromous Fisheries, and Massachusetts Division of Marine Fisheries (MDMF). Data provided by the MDMF dates to 2011 and is currently under revision; MDMF should be contacted for up-to-date information and review of specific site locations.

Brad Chase, Senior Marine Fisheries Biologist
MDMF, New Bedford Office
New Bedford, MA
508-990-2860x118

Fishery Area: Fishery area locations include Shellfish Management Areas provided by the Rhode Island Division of Fish & Wildlife (DFW), Marine Fisheries. These are areas with more restrictive possession or harvesting restrictions that may include areas where harvest is prohibited to protect brood stock and enhancement activities (e.g. shellfish spawner sanctuaries, oyster reserves, and restoration areas). Data for *Coldwater Fisheries Resources* (CFRs) were provided by the Massachusetts Division of Fisheries and Wildlife (DFW). This data layer is based on the National Hydrography Dataset (NHD) and represents important

habitat for cold water fish species in Massachusetts; see BIOLOGY-FISH narrative (above) for complete list of species included.

Historic Wreck: Data on locations of historic wrecks comes from the U.S. Department of Commerce (DOC) and NOAA's Nation Ocean Service (NOS) and Coastal Service Center (CSC).

Historical Site: Massachusetts and Rhode Island historical sites were provided by the National Park Service's (NPS) National Register of Historic Places (2014). Additional sites were provided by the Massachusetts Historical Commission (MHC) and Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA) as part of their *Protected and Recreational Open Space* database, Rhode Island Department of Environmental Management (DEM) as part of their *Municipal and Non-governmental Organization Conservation Lands* database, and Rhode Island Advisory Commission on Historical Cemeteries. In the event of an oil spill or clean up activity, please contact Jonathan K. Patton at the Massachusetts Historical Commission (see contact info above in Archaeological Site) or the Rhode Island Historical Preservation & Heritage Commission (see contact below) who can provide up-to-date and precise location information.

Jeffrey D. Emidy, Deputy Director
Rhode Island Historical Preservation & Heritage Commission
Old State House, 150 Benefit Street
Providence, RI 02930-1209
Phone: 401-222-4134

Landfill: Permanent waste and debris disposal locations were mapped with data obtained from the Massachusetts Department of Environmental Protection (MassDEP) and Rhode Island Department of Administration.

Lock and Dam: Dams mapped within the area of interest were obtained from the Massachusetts Office of Dam Safety (ODS) and Rhode Island Department of Environmental Management (DEM).

Management Area: Management areas in this ESI atlas include state designated conservation lands and wildlife management areas obtained from the Rhode Island Department of Environmental Management (DEM) as part of their *State Conservation Lands* and *Municipal and Non-governmental Organization Conservation Lands* databases, and Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA) as part of their *Protected and Recreational Open Space* database. Data for barrier islands, bay barriers, and spits that are regulated for development under the RI Coastal Resources Management Program was obtained from the Rhode Island Coastal Resources Management Council (CRMC). Managed areas for shellfish and lobster for the purpose of conserving or enhancing resources, including Designated Shellfish Growing Areas (DSGA), were provided by the Massachusetts Division of Marine Fisheries (MDMF), Rhode Island Division of Fish & Wildlife (DFW), and NOAA's Greater Atlantic Regional Fisheries Office (GARFO). Additional management areas included are NOAA's NMFS Seasonal Management Areas (SMAs) for North Atlantic Right Whales and U.S. Marine Protected Areas Boundaries, which include restricted and closure areas.

Also included are Priority Habitats of Rare Species, provided by the Massachusetts Division of Fisheries and Wildlife Natural Heritage Endangered Species Program (NHESP). These are identified areas of state-listed rare species habitat in Massachusetts in which projects must be reviewed; in the event of an oil spill or clean up activity contact the NHESP Regulatory Review or Emily Holt, Senior Endangered Species Review Assistant, NHESP, at 508-389-6385 for up-to-date information and review of specific site locations.

Marina: Marina locations were obtained from the Massachusetts Office of Coastal Zone Management (CZM), University of Rhode Island Coastal Resources Center (CRC) and Environmental Data Center (EDC), and Rhode Island Geographic Information System (RIGIS).

Marine Sanctuary: Boundaries for the Studds/Stellwagen Bank National Marine Sanctuary were provided by NOAA's National Ocean Service (NOS).

Military: Point data for the U.S. Navy Newport Station were provided by the Rhode Island Department of Administration.

Mine Site: Mine site locations were provided by the U.S. Geological Survey (USGS).

National Park: National park boundaries were obtained from the National Parks Service (NPS).

Natural Hazards: Natural hazard areas include 2015 Storm Surge Inundation data obtained from NOAA's National Hurricane Center, Storm Surge Unit.

Nature Conservancy: Boundaries of The Nature Conservancy (TNC) properties in Massachusetts and Rhode Island were obtained from the Rhode Island Department of Environmental Management (DEM) as part of their *State Conservation Lands* and *Municipal and Non-governmental Organization Conservation Lands* databases, and from the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA) as part of their *Protected and Recreational Open Space* database.

NOAA Facility: Locations of NOAA facilities were digitized as points from address matching and verified with Google Earth imagery.

Pipeline: Pipelines were obtained from the Massachusetts Department of Public Health (MDPH) and Applied Science Associates, Department of Commerce (DOC), and NOAA.

Port: Port location data were compiled from the Massachusetts Department of Transportation (MASSDOT), NOAA's National Ocean Service (NOS), Office for Coastal Management (OCM), and University of Rhode Island Coastal Resources Center (CRC) and Environmental Data Center (EDC).

Rail Route: Locations of railways were obtained from the Rhode Island Department of Transportation (RIDOT) and National Grid, and the Massachusetts Geographic Information System (MASSGIS).

Recreational Fishing: Locations of recreational fishing in Rhode Island were provided by the University of Rhode Island Environmental Data Center (EDC) and University of Rhode Island Fisheries Center. Data were not included for Massachusetts since they are common throughout the study area in this state. In the event of an oil spill or clean up activity please contact nearby marinas or boat ramp locations.

Regional or State Park: Regional and state park boundaries, natural preserves, and recreation areas were obtained from the Rhode Island Department of Environmental Management (DEM) as part of their *State Conservation Lands* and *Municipal and Non-governmental Organization Conservation Lands* databases, and from the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA) as part of their *Protected and Recreational Open Space* database.

Renewable Energy: Renewable energy locations include wind turbine and energy areas, and were obtained from the University of Rhode Island Environmental Data Center (EDC), Massachusetts Office of Coastal Zone Management (CZM), and NOAA's National Ocean Service (NOS), Office for Coastal Management (OCM).

Repeated Measurement Site: Repeated measurement sites include locations for invasive species monitoring, national data buoy stations, and tide gauges. Data were obtained from the Massachusetts Office of Coastal Zone Management (CZM).

Shipping Lane: Shipping lanes in Massachusetts and Rhode Island waters were obtained from NOAA's National Ocean Service (NOS), Office for Coastal Management (OCM).

State Border: State borders for Massachusetts and Rhode Island were downloaded from Digital Offshore Cadastre (DOC).

State Protected Area: State protected areas presented in this ESI Map represent state forests and were obtained from the Rhode Island Department of Environmental Management (DEM) and Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA) as part of their *Protected and Recreational Open Space* database.

State Waters: The Massachusetts and Rhode Island state waters boundary was obtained from the Bureau of Ocean Energy Management (BOEM).

Tribal Lands: Tribal lands in Massachusetts and Rhode Island include the Narragansett Reservation and Wampanoag Tribe of Gay Head. Data were downloaded from NOAA's National Ocean Service (NOS), Office for Coastal Management (OCM).

Tunnel: Nautical tunnels derived from NOAA Chart Major Linework were obtained from the Massachusetts Office of Coastal Zone Management (CZM).

Wildlife Refuge: National Wildlife Refuges (NWR) boundaries were provided by the USFWS. NERRS Reserve Boundaries for Waquoit Bay, MA and Narragansett Bay, RI, were provided by the Narragansett Bay National Estuarine Research Reserve (NBNERR). Additional state wildlife refuge areas, preserves, and sanctuaries data were obtained from the Massachusetts Audubon Society, the Rhode Island Department of Environmental Management (DEM) as part of their *State Conservation Lands* and *Municipal and Non-governmental Organization Conservation Lands* databases, and from the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA) as part of their *Protected and Recreational Open Space* database.

GEOGRAPHIC INFORMATION SYSTEM

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

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

MAJOR ROADS

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

SHORELINE CLASSIFICATIONS

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

SENSITIVE BIOLOGICAL RESOURCES

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

HUMAN-USE FEATURES

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

ACKNOWLEDGMENTS

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Information presented in this atlas was collected, compiled, and reviewed with the assistance of biologists and resource managers from many agencies including Massachusetts Department of Environmental Protection, Massachusetts Office of Coastal Zone Management, Rhode Island Department of Environmental Management, Rhode Island Coastal Resources Management Council, Rhode Island Natural History Survey, Audubon Society of Rhode Island, University of Rhode Island (including the Coastal Institute, Environmental Data Center, and Graduate School of Oceanography), Narragansett Bay National Estuarine Research Reserve, Save the Bay, Manomet, Woods Hole Oceanographic Institute, National Park

Service, NOAA's Office for Coastal Management, NOAA's Greater Atlantic Regional Fisheries Office, Northeast Regional Ocean Council, U.S. EPA, USDA-Natural Resources Conservation Science, and U.S. Fish and Wildlife Service. Photo provided by Erik Danielson.

Staff at the Rhode Island Division of Fish & Wildlife, The Nature Conservancy, Massachusetts Division of Fisheries and Wildlife, Massachusetts Division of Marine Fisheries, Massachusetts Audubon Society, New England Aquarium, and Robert Kenney of the University of Rhode Island Coastal Institute contributed a vast amount of information to this effort, including first-hand expertise, publications, maps, and digital data. Additional thanks to staff at Massachusetts Division of Fish and Wildlife's Natural Heritage Endangered Species Program and Northeast Fisheries Science Center for contributing their time, data, and expert input. This work was profoundly enhanced by the collaboration and guidance offered by individuals at all of these agencies. Coordination credit and resource expertise should go to Stephen Lehmann of NOAA's Office of Response and Restoration, Paul Jordan and James Ball of Rhode Island Department of Environmental Management, Brian Brodeur of Massachusetts Department of Environmental Protection, Daniel Koch of Massachusetts Department of Fish and Game, Eric Schneider of Rhode Island Division of Fish & Wildlife, Kathryn Ford of Massachusetts Division of Marine Fisheries, and Drew Major of U.S. Fish and Wildlife Service.

Data provided by NHESP was selective as species- and site-specific information contained in the NHESP database are exempt from public disclosure in order to protect vulnerable species (listed under the Massachusetts Endangered Species Act) from harm. NHESP updates their files daily and has offered continued assistance in future ESI mapping updates.

APPROPRIATE USE OF ATLAS AND DATA

This atlas and the associated database were developed to provide summary information on sensitive natural and human-use resources for the purposes of oil and chemical spill planning and response. Although the atlas and database should be very useful for other environmental and natural resource planning purposes, it should not be used in place of data held by the Massachusetts Department of Environmental Protection, Rhode Island Department of Environmental Management, Massachusetts Audubon Society, Audubon Society of Rhode Island, University of Rhode Island, Rhode Island Division of Fish & Wildlife, Massachusetts Division of Marine Fisheries, Massachusetts Division of Fisheries and Wildlife including the Natural Heritage Endangered Species Program, Rhode Island Natural History Survey, the U.S. Fish and Wildlife Service, or other agencies. Likewise, information contained in the atlas and database cannot be used in place of consultations with natural and cultural resource agencies, or in place of field surveys. This atlas should not be used for navigation.

SPECIES LIST

Common Name	Scientific Name	Common Name	Scientific Name
BENTHIC		BIRDS, cont.	
ALGAE		<u>Grasshopper sparrow</u>	<u>Ammodramus</u> <u>savannarum</u>
Green macroalgae	<i>Chlorophyta</i>	<u>Marsh passerines</u>	-
Red macroalgae	<i>Rhodophyta</i>	<u>Marsh wren</u>	<u>Cistothorus palustris</u>
Macroalgae	-	Nashville warbler	<u>Oreothlypis ruficapilla</u>
SAV		<u>Northern parula</u>	<u>Setophaga americana</u>
<u>Cutleaf watermilfoil</u>	<u>Myriophyllum</u> <u>pinnatum</u>	Northern waterthrush	<u>Seiurus noveboracensis</u>
Eelgrass	<i>Zostera marina</i>	<u>Passerine birds</u>	-
<u>Hornleaf riverweed</u>	<u>Podostemum</u> <u>ceratophyllum</u>	<u>Prothonotary warbler</u>	<u>Protonotaria citrea</u>
Rare aquatic/wetland plant	-	<u>Saltmarsh sparrow</u>	<u>Ammodramus</u> <u>caudacutus</u>
Seagrass	-	Seaside sparrow	<u>Ammodramus</u> <u>maritimus</u>
Widgeon grass	<i>Ruppia maritima</i>	<u>Sedge wren</u>	<u>Cistothorus platensis</u>
BIRDS		Tree swallow	<u>Tachycineta bicolor</u>
ALCID		<u>Vesper sparrow</u>	<u>Poocetes gramineus</u>
Atlantic puffin	<i>Fratercula arctica</i>	White-throated sparrow	<u>Zonotrichia albicollis</u>
Razorbill	<i>Alca torda</i>	Winter wren	<u>Troglodytes troglodytes</u>
DIVING		<u>Yellow-billed cuckoo</u>	<u>Coccyzus americanus</u>
Double-crested cormorant	<i>Phalacrocorax auritus</i>	<u>Yellow-breasted chat</u>	<u>Icteria virens</u>
Great cormorant	<i>Phalacrocorax carbo</i>	PELAGIC	
Horned grebe	<i>Podiceps auritus</i>	<u>Leach's storm-petrel</u>	<u>Oceanodroma leucorhoa</u>
<u>Loons</u>	<u>Gavia spp.</u>	Northern gannet	<u>Morus bassanus</u>
<u>Pied-billed grebe</u>	<u>Podilymbus podiceps</u>	Shearwaters	-
GULL/TERN		RAPTOR	
Black skimmer	<i>Rynchops niger</i>	<u>Bald eagle</u>	<u>Haliaeetus leucocephalus</u>
<u>Common tern</u>	<u>Sterna hirundo</u>	<u>Barn owl</u>	<u>Tyto alba</u>
Great black-backed gull	<i>Larus marinus</i>	<u>Northern harrier</u>	<u>Circus cyaneus</u>
Gulls	-	<u>Osprey</u>	<u>Pandion haliaetus</u>
Herring gull	<i>Larus argentatus</i>	<u>Peregrine falcon</u>	<u>Falco peregrinus</u>
Laughing gull	<i>Larus atricilla</i>	<u>Raptors</u>	-
<u>Least tern</u>	<u>Sternula antillarum</u>	<u>Short-eared owl</u>	<u>Asio flammeus</u>
<u>Rare tern</u>	-	SHOREBIRD	
<u>Roseate tern</u>	<u>Sterna dougallii</u>	<u>American oystercatcher</u>	<u>Haematopus palliatus</u>
PASSERINE		<u>Eskimo curlew</u>	<u>Numenius borealis</u>
<u>Acadian flycatcher</u>	<u>Empidonax virescens</u>	Hudsonian godwit	<u>Limosa haemastica</u>
Canada warbler	<i>Wilsonia canadensis</i>	Lesser yellowlegs	<u>Tringa flavipes</u>
<u>Cerulean warbler</u>	<u>Setophaga cerulea</u>	<u>Piping plover</u>	<u>Charadrius melodus</u>
Common nighthawk	<i>Chordeiles minor</i>	Purple sandpiper	<u>Calidris maritima</u>
Fish crow	<i>Corvus ossifragus</i>	<u>Red knot</u>	<u>Calidris canutus</u>

SPECIES LIST

Common Name	Scientific Name	Common Name	Scientific Name
BIRDS, cont.		FISH, cont.	
Red-necked phalarope	<i>Phalaropus lobatus</i>	Blueback herring	<i>Alosa aestivalis</i>
Ruddy turnstone	<i>Arenaria interpres</i>	<u>Rare sturgeon</u>	-
Shorebirds	-	Sea lamprey	<i>Petromyzon marinus</i>
<u>Upland sandpiper</u>	<i>Bartramia longicauda</i>	Striped bass	<i>Morone saxatilis</i>
<u>Willet</u>	<i>Tringa semipalmata</i>	Atlantic herring	<i>Clupea harengus</i>
WADING		Bay anchovy	<i>Anchoa mitchilli</i>
<u>American bittern</u>	<i>Botaurus lentiginosus</i>	Black sea bass	<i>Centropristis striata</i>
<u>Black-crowned night-heron</u>	<i>Nycticorax nycticorax</i>	Bluefish	<i>Pomatomus saltatrix</i>
Cattle egret	<i>Bubulcus ibis</i>	Hogchoker	<i>Trinectes maculatus</i>
<u>Clapper rail</u>	<i>Rallus longirostris</i>	Northern kingfish	<i>Menticirrhus saxatilis</i>
<u>Egrets</u>	-	Scup	<i>Stenotomus chrysops</i>
<u>Glossy ibis</u>	<i>Plegadis falcinellus</i>	Summer flounder	<i>Paralichthys dentatus</i>
<u>King rail</u>	<i>Rallus elegans</i>	Weakfish	<i>Cynoscion regalis</i>
<u>Least bittern</u>	<i>Ixobrychus exilis</i>	White perch	<i>Morone americana</i>
Little blue heron	<i>Egretta caerulea</i>	Windowpane	<i>Scophthalmus aquosus</i>
<u>Marsh birds</u>	-	Winter flounder	<i>Pleuronectes americanus</i>
<u>Sora</u>	<i>Porzana carolina</i>	Atlantic silverside	<i>Menidia menidia</i>
Tricolored heron	<i>Egretta tricolor</i>	Fourspine stickleback	<i>Apeltes quadracus</i>
<u>Wading birds</u>	-	Inland silverside	<i>Menidia beryllina</i>
<u>Yellow-crowned night-heron</u>	<i>Nyctanassa violacea</i>	Killifish	<i>Fundulus spp.</i>
WATERFOWL		Mummichog	<i>Fundulus heteroclitus</i>
American black duck	<i>Anas rubripes</i>	Oyster toadfish	<i>Opsanus tau</i>
Blue-winged teal	<i>Anas discors</i>	Sheepshead minnow	<i>Cyprinodon variegatus</i>
Common eider	<i>Somateria mollissima</i>	Stickleback	<i>Gasterosteus sp.</i>
<u>Common gallinule</u>	<i>Gallinula galeata</i>	<u>Threespine stickleback</u>	<i>Gasterosteus aculeatus</i>
Dabbling ducks	-	<u>American brook lamprey</u>	<i>Lampetra appendix</i>
Diving ducks	-	Blacknose dace	<i>Rhinichthys atratulus</i>
Gadwall	<i>Anas strepera</i>	<u>Bridle shiner</u>	<i>Notropis bifrenatus</i>
Geese	-	Brook trout	<i>Salvelinus fontinalis</i>
Green-winged teal	<i>Anas crecca</i>	Brook trout (sea run)	<i>Salmo trutta (sea run)</i>
Harlequin duck	<i>Histrionicus histrionicus</i>	Common shiner	<i>Luxilus cornutus</i>
<u>Hooded merganser</u>	<i>Lophodytes cucullatus</i>	Creek chub	<i>Semotilus atromaculatus</i>
Sea ducks	-	Fallfish	<i>Semotilus corporalis</i>
<u>Waterfowl</u>	-	Longnose dace	<i>Rhinichthys cataractae</i>
FISH		Rainbow smelt	<i>Osmerus mordax</i>
Alewife	<i>Alosa pseudoharengus</i>	Redbreast sunfish	<i>Lepomis auritus</i>
American eel	<i>Anguilla rostrata</i>	Slimy sculpin	<i>Cottus cognatus</i>
American shad	<i>Alosa sapidissima</i>	Tessellated darter	<i>Etheostoma olmstedii</i>
Atlantic salmon	<i>Salmo salar</i>	White sucker	<i>Catostomus commersoni</i>
<u>Atlantic sturgeon</u>	<i>Acipenser oxyrinchus</i>	American plaice	<i>Hippoglossoides platessoides</i>

SPECIES LIST

Common Name	Scientific Name	Common Name	Scientific Name
FISH, cont.		HERPETOFAUNA	
American sand lance	<i>American sand lance</i>	AMPHIBIAN	
Atlantic cod	<i>Gadus morhua</i>	<u>Blue-spotted salamander</u>	<i>Ambystoma laterale</i>
Atlantic halibut	<i>Hippoglossus hippoglossus</i>	<u>Eastern spadefoot</u>	<i>Scaphiopus holbrookii</i>
Atlantic tomcod	<i>Microgadus tomcod</i>	Four-toed salamander	<i>Hemidactylium scutatum</i>
Atlantic wolffish	<i>Anarhichas lupus</i>	Fowler's toad	<i>Anaxyrus fowleri</i>
Goosefish	<i>Lophius americanus</i>	<u>Marbled salamander</u>	<i>Ambystoma opacum</i>
Haddock	<i>Melanogrammus aeglefinus</i>	Northern dusky salamander	<i>Desmognathus fuscus</i>
Little skate	<i>Leucoraja erinacea</i>	Northern leopard frog	<i>Rana pipiens</i>
Little tunny	<i>Euthynnus alletteratus</i>	Red-spotted newt	<i>Notophthalmus viridescens</i>
Longhorn sculpin	<i>Myoxocephalus octodecemspinosus</i>	Spotted salamander	<i>Ambystoma maculatum</i>
Ocean pout	<i>Macrozoarces americanus</i>	Wood frog	<i>Lithobates sylvaticus</i>
Pollock	<i>Pollock virens</i>	SNAKE	
Red hake	<i>Urophycis chuss</i>	<u>Eastern hog-nosed snake</u>	<i>Heterodon platirhinos</i>
Rock gunnel	<i>Pholis gunnellus</i>	<u>Eastern rat snake</u>	<i>Pantherophis alleghaniensis</i>
Searobins	<i>Prionotus spp.</i>	<u>Eastern ribbon snake</u>	<i>Thamnophis sauritus</i>
Silver hake	<i>Merluccius bilinearis</i>	TURTLE	
Skates	<i>Raja spp.</i>	<u>Blanding's turtle</u>	<i>Emydoidea blandingii</i>
Tautog	<i>Tautog onitis</i>	Eastern box turtle	<i>Terrapene carolina carolina</i>
White hake	<i>Urophycis tenuis</i>	<u>Green sea turtle</u>	<i>Chelonia mydas</i>
Winter skate	<i>Leucoraja ocellata</i>	<u>Kemp's ridley sea turtle</u>	<i>Lepidochelys kempii</i>
Witch flounder	<i>Glyptocephalus cynoglossus</i>	<u>Leatherback sea turtle</u>	<i>Dermochelys coriacea</i>
Yellowtail flounder	<i>Pleuronectes ferrugineus</i>	<u>Loggerhead sea turtle</u>	<i>Caretta caretta</i>
Atlantic mackerel	<i>Scomber scombrus</i>	Northern diamondback terrapin	<i>Malaclemys terrapin terrapin</i>
Sand tiger	<i>Carcharias taurus</i>	<u>Plymouth red-bellied turtle</u>	<i>Pseudemys rubriventris bangsi</i>
Spiny dogfish	<i>Squalus acanthias</i>	Rare reptile	-
Tunas	-	Spotted turtle	<i>Clemmys guttata</i>
HABITAT		<u>Wood turtle</u>	<i>Glyptemys insculpta</i>
PLANT		INVERTEBRATES	
<u>Endangered plant</u>	-	BIVALVE	
<u>Rare plant</u>	-	Atlantic jackknife clam	<i>Ensis directus</i>
<u>Seaside sandplant</u>	<i>Honckenya peploides</i>	Atlantic razor	<i>Siliqua costata</i>
<u>Threatened plant</u>	-	Atlantic surfclam	<i>Spisula solidissima</i>
WETLAND		Bay scallop	<i>Argopecten irradians</i>
<u>Rare wetland/aquatic plant</u>	-		
<u>Vernal pool</u>	-		

SPECIES LIST

Common Name	Scientific Name	Common Name	Scientific Name
INVERTEBRATES, cont.		MARINE MAMMALS	
Blue mussel	<i>Mytilus edulis</i>	DOLPHIN	
Eastern oyster	<i>Crassostrea virginica</i>	Atlantic spotted dolphin	<i>Stenella frontalis</i>
<u>Eastern pearlshell</u>	<u><i>Margaritifera</i></u> <u><i>margaritifera</i></u>	Atlantic white-sided dolphin	<i>Lagenorhynchus acutus</i>
European flat oyster	<i>Ostrea edulis</i>	Bottlenose dolphin	<i>Tursiops truncatus</i>
Mussel bed	-	Harbor porpoise	<i>Phocoena phocoena</i>
Northern quahog	<i>Mercenaria mercenaria</i>	Risso's dolphin	<i>Grampus griseus</i>
Ocean quahog	<i>Arctica islandica</i>	Short-beaked common dolphin	<i>Delphinus delphis</i>
<u>Rare freshwater mussel</u>	-	Striped dolphin	<i>Stenella coeruleoalba</i>
Sea scallop	<i>Placopecten magellanicus</i>	White-beaked dolphin	<i>Lagenorhynchus albirostri</i>
Softshell clam	<i>Mya arenaria</i>	PINNIPED	
CEPHALOPOD		Gray seal	<i>Phocoena phocoena</i>
Longfin squid	<i>Loligo pealeii</i>	Harbor seal	<i>Halichoerus grypus</i>
Northern shortfin squid	<i>Illex illecebrosus</i>	Harp seal	<i>Phoca vitulina</i>
CRAB		Hooded seal	<i>Pagophilus groenlandicus</i>
Atlantic rock crab	<i>Cancer irroratus</i>	WHALE	<i>Cystophora cristata</i>
Blue crab	<i>Callinectes sapidus</i>	<u>Fin whale</u>	<u><i>Balaenoptera physalus</i></u>
Horseshoe crab	<i>Limulus polyphemus</i>	<u>Humpback whale</u>	<u><i>Megaptera novaeangliae</i></u>
Jonah crab	<i>Cancer borealis</i>	Minke whale	<i>Balaenoptera acutorostrata</i>
GASTROPOD		<u>North Atlantic right whale</u>	<u><i>Eubalaena glacialis</i></u>
Channeled whelk	<i>Busycon canaliculatum</i>	Pilot whales	<i>Globicephala</i> spp.
Crepidula bed	<i>Crepidula</i> spp.	<u>Sei whale</u>	<u><i>Balaenoptera borealis</i></u>
Knobbed whelk	<i>Busycon carica</i>	<u>Sperm whale</u>	<u><i>Physeter macrocephalus</i></u>
Northern moonsnail	<i>Euspira heros</i>		
Rare snail	-		
Sea snails	-		
INSECT		TERRESTRIAL MAMMALS	
<u>American burying beetle</u>	<u><i>Nicrophorus americanus</i></u>	Northern myotis	<i>Myotis septentrionalis</i>
<u>Rare insect</u>	-	American water shrew	<u><i>Sorex (Otisorex) palustris</i></u>
<u>Ringed boghaunter</u>	<u><i>Williamsonia lintneri</i></u>	Eastern mole	<i>Scalopus aquaticus</i>
<u>Threatened insect</u>	-	Meadow vole	<i>Microtus pennsylvanicus</i>
INVERT		<u>New England cottontail</u>	<u><i>Sylvilagus transitionalis</i></u>
Ampelisca bed	<i>Ampelisca</i> spp.	Smoky shrew	<u><i>Sorex fumeus</i></u> <i>Synaptomys</i>
<u>Coastal swamp amphipod</u>	<u><i>Synurella chamberlaini</i></u>	<u>Southern bog lemming</u>	<u><i>cooperi</i></u>
LOBSTER		Woodland jumping mouse	<i>Napaeozapus insignis</i>
American lobster	<i>Homarus americanus</i>		
SHRIMP			
Daggerblade grass shrimp	<i>Palaemonetes pugio</i>		
Northern shrimp	<i>Pandalus borealis</i>		
Sevenspine bay shrimp	<i>Crangon septemspinosa</i>		

* Underlined species are listed as either threatened or endangered under the federal Endangered Species Act, and/or are listed as Threatened, Endangered, or Special Concern under State (Massachusetts and/or Rhode Island statutes.

SHORELINE DESCRIPTIONS

EXPOSED, ROCKY SHORES

ESI = 1A

DESCRIPTION

- Common along the outer, exposed coast of the study area
- The intertidal zone is steep (greater than 30° slope), solid and composed of large boulders and/or of bedrock
- Sediment accumulations are uncommon because waves and currents remove debris slumped from the eroding cliffs
- There is strong vertical zonation of intertidal biological communities in the estuarine parts of the river
- This shoreline type is regularly exposed to wave action and strong currents
- Wave reflection is a common phenomena along these shorelines
- Species density and diversity vary greatly depending on exposure and salinity, but barnacles, snails, mussels, amphipods, and macroalgae can be abundant



PREDICTED OIL BEHAVIOR

- In the lower estuary and outer coast, oil is held offshore by waves reflecting off the steep, hard surfaces; Any oil that is deposited is rapidly removed from exposed faces
- Along the river, oil can form a band at the high water line
- The most resistant oil would remain as a patchy band at or above the high-water line
- Impacts to intertidal communities are expected to be short-term in duration; An exception would be where heavy concentrations of a light refined product comes ashore very quickly

RESPONSE CONSIDERATIONS

- Cleanup is usually not required
- Access can be difficult and dangerous

SHORELINE DESCRIPTIONS

EXPOSED, SOLID MAN-MADE STRUCTURES

ESI = 1B

DESCRIPTION

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

PREDICTED OIL BEHAVIOR

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



RESPONSE CONSIDERATIONS

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

SHORELINE DESCRIPTIONS

EXPOSED, WAVE-CUT PLATFORMS (BEDROCK/MUD/CLAY)

ESI = 2A

DESCRIPTION

- They are characterized by a narrow shelf or platform that can be flooded depending on water levels
- The substrate is solid and portions of the platform may be covered by a relatively thin veneer of sand or gravel
- Species density and diversity vary greatly, but barnacles, snails, mussels, polychaetes, and macroalgae are often very abundant
- Attached organisms are accustomed to the impacts of the waves and the associated hydraulic pressure
- They are often found with gravel and mixed sediment beaches along the high tide line. Also common at the foot of exposed rocky shores

PREDICTED OIL BEHAVIOR

- Oil will not adhere to the wet rock surface, but could penetrate crevices, sediment veneers, or associated beaches if present
- Persistence of oil is usually short-term, except in wave shadows or where the oil was deposited high above normal wave activity



RESPONSE CONSIDERATIONS

- Cleanup is usually not required except for areas of high recreational use
- Where the high-tide area is accessible, it may be feasible to manually remove heavy oil accumulations and oiled debris

SHORELINE DESCRIPTIONS

EXPOSED SCARPS AND STEEP SLOPES (CLAY)

ESI = 2B

DESCRIPTION

- Regular exposure to high wave energy or tidal currents
- Scarp heights vary from about 1 to 3 feet and usually consist of a heavily rooted, peaty soil
- May be fronted by a narrow beach of fine- to medium-grained sand
- Low biological utilization due to strong currents
- Typically backed by wetland vegetation
- Uncommon in study area

PREDICTED OIL BEHAVIOR

- Oil is not expected to adhere to the wet, impermeable clay surface
- There may be a thin band of oil left at or above the high water line
- Biological impacts can be immediate and severe, particularly if oil is left to pool on the landward side of scarp



RESPONSE CONSIDERATIONS

- Cleanup is usually not required, because any stranded oil is quickly removed by wave action
- Access may be difficult
- Where the high-tide area is accessible, it may be feasible to remove heavy oil accumulations and oiled debris in order to protect a nearshore marine resource, such as marine birds

SHORELINE DESCRIPTIONS

FINE TO MEDIUM GRAINED SAND BEACHES

ESI = 3A

DESCRIPTION

- These beaches are flat to moderately sloping and relatively hard packed
- They are composed of predominantly quartz sand
- There can be heavy accumulations of wrack present
- They are utilized by birds and turtles
- Upper beach fauna are scarce; lower beach fauna can be moderate, but are highly variable
- They are generally areas of heavy recreational use

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 severely limited to prevent contamination of clean areas
- Manual cleanup, rather than road graders and front-end loaders, is advised to minimize the volume of sand removed from the shore and requiring disposal
- All efforts should focus on preventing the mixing of oil deeper into the sediments by vehicular and foot traffic
- Mechanical reworking of lightly oiled sediments from the high-tide line to the upper intertidal zone and be effective along outer beaches

SHORELINE DESCRIPTIONS

SCARPS AND STEEP SLOPES (SAND)

ESI = 3B

DESCRIPTION

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

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

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

SHORELINE DESCRIPTIONS

COARSE GRAINED SAND BEACHES

ESI = 4

DESCRIPTION

- These beaches are moderate to steep sloping, are of variable width and have soft sediments
- Species density and diversity is generally lower than on fine-grained sand beaches
- Substrate permeability is moderate
- They are very common along the shoreline of the bay and banks of major rivers

PREDICTED OIL BEHAVIOR

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



RESPONSE CONSIDERATIONS

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

SHORELINE DESCRIPTIONS

MIXED SAND AND GRAVEL BEACHES

ESI = 5

DESCRIPTION

- Moderately sloping beaches composed of a mixture of sand and gravel (gravel component comprises between 20 to 80 percent of total sediments)
- Because of the mixed sediment sizes, there may be some areas on the beach of pure sand, pebbles, or cobbles
- There can be large-scale changes in the sediment distribution patterns depending upon season, because of transport of the sand offshore during storms
- Because of sediment desiccation and mobility on exposed beaches, there are low densities of attached animals and plants
- The presence of attached algae, mussels and barnacles indicates beaches are relatively sheltered, with the more stable substrate supporting a 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). However, oiled sediments should not be relocated below the mid-tide-zone
- 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 can be steep, with multiple wave-built berms forming the upper bench
- Gravel beaches have the lowest trafficability of all beach types and may contain shell and woody debris
- Because of the high mobility of sediments on exposed gravel beaches, there are low densities of animals and plants
- Most permeable of all beach types

PREDICTED OIL BEHAVIOR

- Deep penetration of stranded oil is likely on wave-built gravel beaches because of their high permeability
- On exposed beaches, oil can be pushed over the high-tide and storm berms, pooling and persisting above the normal zone of wave wash
- Deeply penetrated oil can become sources of chronic sheening
- Long-term persistence will be controlled by the depth of the routine reworking by waves or boat wakes



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
- High-pressure spraying should be avoided because of the potential for transporting contaminated finer sediments (sand) to the lower intertidal or subtidal zones
- Mechanical reworking of oiled sediments from the high-tide line to the upper intertidal zone can be effective in areas regularly exposed to wave activity (as evidenced by storm berms). However, oiled sediments should not be relocated below the mid-tide-zone
- 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 used for shoreline protection and tidal inlet stabilization
- Attached biota are sparse to moderate on exposed riprap
- Common along highly developed commercial waterfronts and residential areas

PREDICTED OIL BEHAVIOR

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



RESPONSE CONSIDERATIONS

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

SHORELINE DESCRIPTIONS

EXPOSED TIDAL FLATS

ESI = 7

DESCRIPTION

- Flat accumulations of sediment, less than three degrees
- Highly permeable substrate is dominated by sand, although there may be silt and gravel components
- Sediments are soft with low trafficability
- Biological utilization can be very high, with large numbers of infauna, heavy use by birds for roosting and foraging, and by foraging fish
- Only present towards the seaward extent for this study area

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, IMPERMEABLE, ROCKY SHORES

ESI = 8A

DESCRIPTION

- The substrate is solid and composed of bedrock
- Sediments (rock debris, etc.) may accumulate at the base of this shoreline type
- The slope of the intertidal zone is generally moderate to steep (greater than 15°)
- Located in calm, interior environments and particularly common throughout the study area

PREDICTED OIL BEHAVIOR

- 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
- Care must be taken during flushing operations to prevent oily effluents from affecting biologically rich, lower intertidal levels
- Where the high-tide area is accessible, it may be feasible to remove heavy oil accumulations and oiled debris

SHORELINE DESCRIPTIONS

SHELTERED, SOLID MAN-MADE STRUCTURES

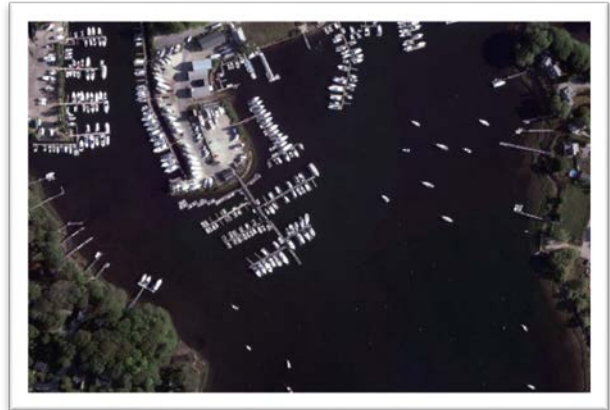
ESI = 8B

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
- Often there is no exposed beach at low tide, but multiple habitats are indicated if present
- High densities of attached biota may be present at lower tidal elevations
- Common in highly developed commercial areas and along residential waterfront areas throughout the bays

PREDICTED OIL BEHAVIOR

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



RESPONSE CONSIDERATIONS

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

SHORELINE DESCRIPTIONS

SHELTERED RIPRAP

ESI = 8C

DESCRIPTION

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



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, ROCKY, RUBBLE SHORES

ESI = 8D

DESCRIPTION

- Relatively steep and narrow rocky shore which is covered by a veneer of angular rubble without any evidence of re-working by waves or sediment transport
- The surface rubble is highly variable in size and packing, but there is always some permeability in the surface materials
- Can co-occur with gravel beaches; the gravel beach can be either at the upper or the lower half of the intertidal zone, depending on the nature of the rock outcrop
- This shoreline type is sheltered from significant wave activity and strong currents
- Species density and diversity vary greatly; barnacles, snails, mussels, clams, polychaetes, rockweed, and crabs are abundant

PREDICTED OIL BEHAVIOR

- Oil tends to adhere to the upper intertidal zone where the rock surface dries out during low tide, and the algal cover is sparse
- On solid bedrock surfaces, the oil will occur as a surface coating
- Oil will pool and penetrate crevices in the surface rubble
- Where the rubble is loosely packed, oil can penetrate deeply, causing long-term contamination of the subsurface



RESPONSE CONSIDERATIONS

- Thick accumulations of pooled oil should be of high priority for removal, to prevent re-mobilization and/or penetration
- Manual removal of heavy oil is likely to leave significant residues, but may be useful for oil in crevices or sediment pockets
- Flushing techniques will be most effective when oil is still fresh and liquid; restrict operations to tidal levels that will prevent oily effluents from impacting lower tidal elevations with rich intertidal communities
- Expect to increase temperature and pressure over time as the oil weathers; Evaluate trade-offs between oil removal and pressure/temperature impacts on intertidal communities
- Consider potential impacts to rich biological communities on the rocky shores when conducting cleanup of associated gravel beaches

SHORELINE DESCRIPTIONS

SHELTERED TIDAL FLATS

ESI = 9A

DESCRIPTION

- 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
- Sheltered tidal flats can be sparsely to heavily covered with algae and/or seagrasses
- 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
- Bird life is seasonally abundant and flats are heavily utilized by birds for feeding
- Common within sheltered coves and bays

PREDICTED OIL BEHAVIOR

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

SHORELINE DESCRIPTIONS

VEGETATED LOW BANKS

ESI = 9B

DESCRIPTION

- These habitats are either low banks with grasses or trees and tree roots exposed to the water
- They are flooded occasionally by high water
- Sporadic along many tidal channels

PREDICTED OIL BEHAVIOR

- During low water stages there is little impact, with the oil coating a narrow band of sediment at the water level
- During high water 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 area

SHORELINE DESCRIPTIONS

SALT- AND BRACKISH-WATER MARSHES

ESI = 10A

DESCRIPTION

- Intertidal wetlands containing emergent, herbaceous vegetation
- Width of the marsh can vary widely, from a narrow fringe to a broad area within estuaries
- 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 must be minimized
- Cutting of oiled vegetation should only be considered when other resources present are at great risk from leaving the oiled vegetation in place

SHORELINE DESCRIPTIONS

FRESHWATER MARSHES

ESI = 10B

DESCRIPTION

- These are grassy wetlands composed of emergent herbaceous vegetation
- They occur upstream of brackish vegetation 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, greater than 6 m
- 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

SHORELINE DESCRIPTIONS

SCRUB AND SHRUB WETLANDS

ESI = 10D

DESCRIPTION

- Scrub-shrub wetlands consist of woody vegetation less than 6 m tall including true shrubs, small trees, and trees and shrubs that are stunted due to environmental conditions
- The sediments are silty clay mixed with organic debris
- They are seasonally flooded, though there are many low, permanently flooded areas
- Resident flora and fauna are abundant and diverse
- Present along sheltered portions of bays and tidal channels



PREDICTED OIL BEHAVIOR

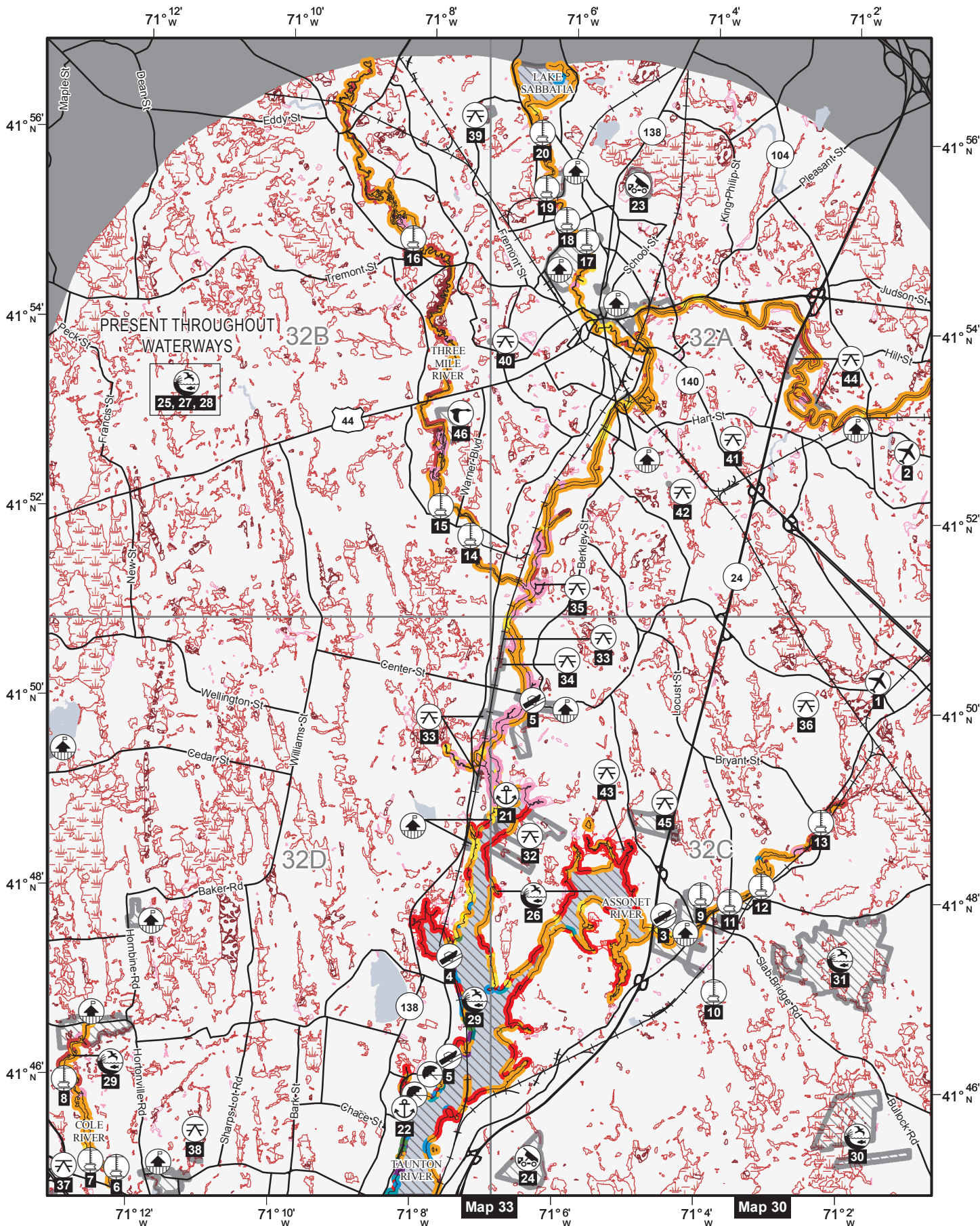
- Oil behavior depends on water level
- During high water, most of the oil passes through the wetland, coating the vegetation above the waterline
- Woody vegetation is less sensitive than grasses to oil
- Some oil can be trapped and pooled on the surface as water levels drop
- Penetration into the soils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

RESPONSE CONSIDERATIONS

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

ENVIRONMENTAL SENSITIVITY INDEX MAPS

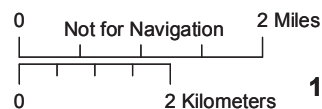




Map 32
Mass. / Rhode Island



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



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Map 32
Massachusetts and Rhode Island

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)				
Map ID	Type	Name	Contact	Phone
1	AIRPORT	BERKELY-MYRICKS AIRPORT		
2	AIRPORT	TAUNTON MUNICIPAL AIRPORT		
3	BOAT RAMP	ASSONET RIVER	MDFG, OFFICE OF FISHING AND BOATING ACCESS	508-389-7810
4	BOAT RAMP	BROAD COVE	MDFG, OFFICE OF FISHING AND BOATING ACCESS	508-389-7810
5	BOAT RAMP	TAUNTON RIVER	MDFG, OFFICE OF FISHING AND BOATING ACCESS	508-389-7810
6	LOCK AND DAM	MONTAUP #3 DAM		
7	LOCK AND DAM	MILFORD POND DAM		
8	LOCK AND DAM	COLE RIVER POND DAM		
9	LOCK AND DAM	TISDALE POND DAM		
10	LOCK AND DAM	MONUMENT POND #2 DAM		
11	LOCK AND DAM	MONUMENT DAM POND		
12	LOCK AND DAM	FORGE POND DAM		
13	LOCK AND DAM	WING POND DAM		
14	LOCK AND DAM	HARODITE DAM		
15	LOCK AND DAM	THREE MILE RIVER DAM		
16	LOCK AND DAM	THREE MILE RIVER #1 DAM		
17	LOCK AND DAM	STATE HOSPITAL DAM		
18	LOCK AND DAM	WEST BRITANNIA DAM		
19	LOCK AND DAM	MILL RIVER DAM		
20	LOCK AND DAM	MOREY'S BRIDGE DAM		
21	MARINA	SHAW'S BOAT YARD		
22	MARINA	SOMERSET MARINA & YACHT SALES		

DISPLAYED ON MAP (POLYGONS)				
Map ID	Type	Name	Contact	Phone
23	LANDFILL	TAUNTON LANDFILL	WASTE MANAGEMENT OF MA, AREA ENGR	508-549-8057
24	LANDFILL	BFI FALL RIVER LANDFILL	BROWNING FERRIS INDUST. (MA), AREA ENV MGR	508-676-1091
25	MANAGEMENT AREA	LOBSTER MANAGEMENT AREA 2		
26	MANAGEMENT AREA	CAPE COD SOUTH CLOSURE AREA		
27	MANAGEMENT AREA	NORTHERN INSHORE STATE TRAP/POT WATERS AREA		
28	MANAGEMENT AREA	NORTHERN NEARSHORE TRAP/POT WATERS AREA		
29	MANAGEMENT AREA	OTHER NORTHEAST GILLNET WATERS AREA		
30	MANAGEMENT AREA	COPICUT WMA	EOEEA, DEPARTMENT OF FISH AND GAME	617-626-1500
31	MANAGEMENT AREA	FREETOWN SWAMP WMA	EOEEA, DEPARTMENT OF FISH AND GAME	617-626-1500
32	REGIONAL OR STATE PARK	DIGHTON ROCK STATE PARK	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250
33	REGIONAL OR STATE PARK	SWEETS KNOLL STATE PARK	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250
34	REGIONAL OR STATE PARK	WAYNE M PHILBROOK PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250
35	REGIONAL OR STATE PARK	OVERLOCK I PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250
36	REGIONAL OR STATE PARK	OVERLOCK II PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250
37	REGIONAL OR STATE PARK	JARABEK PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250

DISPLAYED ON MAP (POLYGONS) (continued)			
38	REGIONAL OR STATE PARK	ETTER PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION 617-626-1250
39	REGIONAL OR STATE PARK	BASSETT PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION 617-626-1250
40	REGIONAL OR STATE PARK	MOZZONE II PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION 617-626-1250
41	REGIONAL OR STATE PARK	MOZZONE I PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION 617-626-1250
42	REGIONAL OR STATE PARK	GORDON PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION 617-626-1250
43	REGIONAL OR STATE PARK	WESTCOTT'S ISLAND PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION 617-626-1250
44	REGIONAL OR STATE PARK	OXBOW PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION 617-626-1250
45	REGIONAL OR STATE PARK	PUDDINGSTONE PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION 617-626-1250
46	WILDLIFE REFUGE	BOYDEN WILDLIFE REFUGE	EOEEA, DEPT. OF CONSERVATION AND RECREATION 617-626-1250

ALSO PRESENT IN MAPPED AREA (POINTS)			
Type	Name	Contact	Phone
ESSENTIAL HABITAT	FACULTATIVE SPECIES -VERNAL POOL	MA DFW NHESP, WESTBOROUGH, MA	508-389-6375
ESSENTIAL HABITAT	OBLIGATE SPECIES -VERNAL POOL	MA DFW NHESP, WESTBOROUGH, MA	508-389-6375
ESSENTIAL HABITAT	OBLIGATE SPECIES, FACULTATIVE SPECIES -VERNAL POOL	MA DFW NHESP, WESTBOROUGH, MA	508-389-6375
ESSENTIAL HABITAT	OBLIGATE SPECIES, FAIRY SHRIMP -VERNAL POOL	MA DFW NHESP, WESTBOROUGH, MA	508-389-6375

ALSO PRESENT IN MAPPED AREA (POLYGONS)			
Type	Name	Contact	Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: ATLANTIC HERRING	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
MANAGEMENT AREA	PRIORITY HABITAT	MDFW NHESP	508-389-6380
STATE PROTECTED AREA	BERKLEY STATE FOREST	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250
STATE PROTECTED AREA	FREETOWN-FALL RIVER STATE FOREST	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250
STATE PROTECTED AREA	REHOBOTH STATE FOREST	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250

JURISDICTIONS			
COUNTY:	BRISTOL, PLYMOUTH	FEMA:	REGION I
COAST GUARD:	DISTRICT 1, SECTOR SE NEW ENGLAND	EPA:	REGION 1
USACE:	NORTH ATLANTIC DIVISION, NEW ENGLAND 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	343.98	0.54
10B	Freshwater Marshes	809.30	1.26
10C	Swamps	11,253.30	17.58
10D	Scrub and Shrub Wetlands	1,413.24	2.21
9A	Sheltered Tidal Flats	84.81	0.13

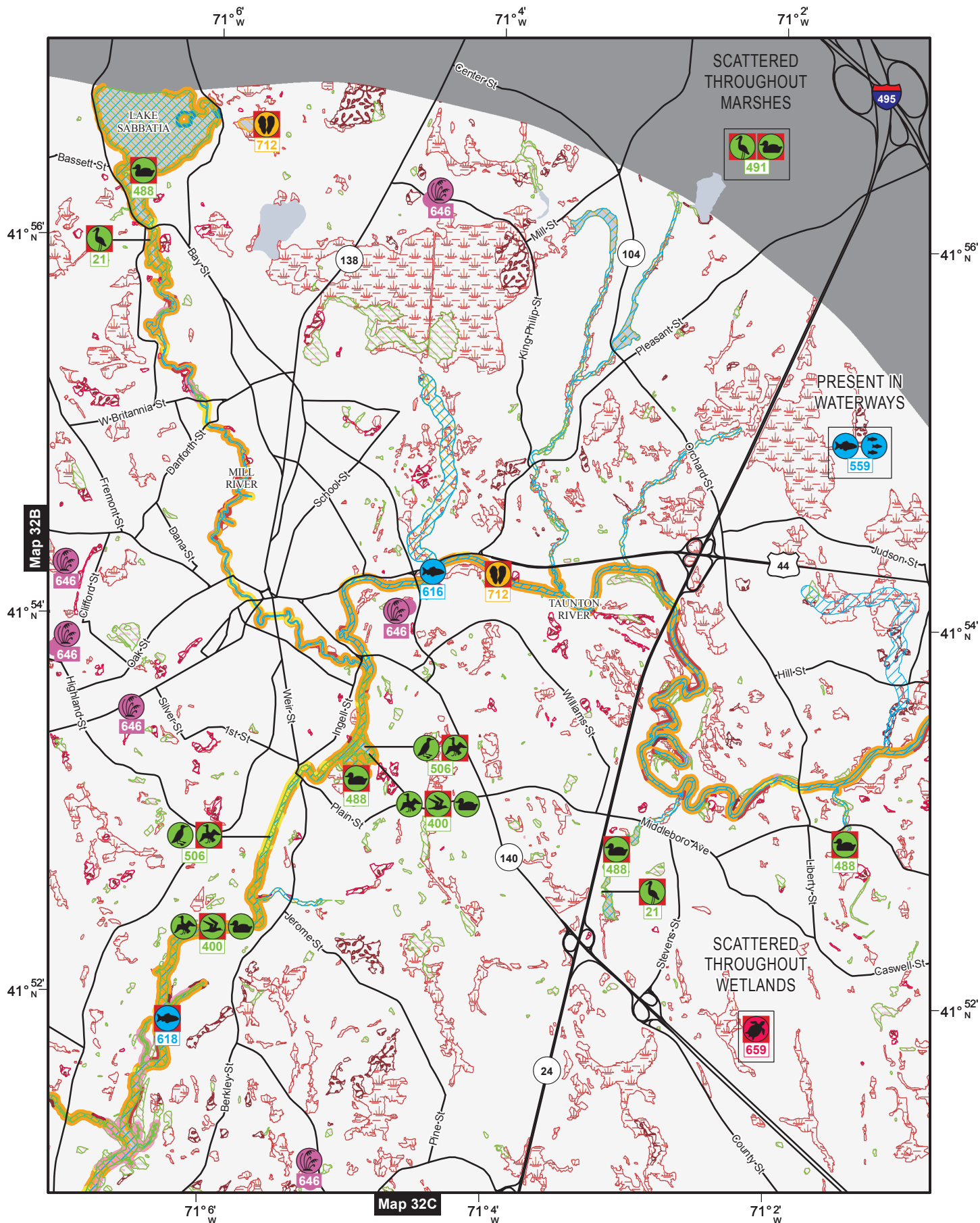
ESI SHORELINE HABITAT TYPES

<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	30,135.76	18.73	11%
10B	Freshwater Marshes	21,962.28	13.65	8%
10C	Swamps	30,691.13	19.07	11%
10D	Scrub and Shrub Wetlands	9,754.99	6.06	3%
9A	Sheltered Tidal Flats	16,815.78	10.45	6%
9B	Vegetated Low Banks	150,380.70	93.44	53%
8A	Sheltered, Impermeable, Rocky Shores	93.48	0.06	< 1%
8B	Sheltered, Solid Man-Made Structures	11,180.43	6.95	4%
8C	Sheltered Riprap	934.11	0.58	< 1%
8D	Sheltered, Rocky, Rubble Shores	22.12	0.01	< 1%
6B	Riprap	1,932.67	1.20	1%
5	Mixed Sand and Gravel Beaches	1,427.12	0.89	1%
4	Coarse Grained Sand Beaches	4,192.09	2.60	1%
1B	Exposed, Solid Man-Made Structures	2,398.06	1.49	1%
Total ESI Shoreline:		281,920.73	175.18	
Total Shoreline:		218,215.50	135.59	

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 32A
Mass. / Rhode Island



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

0 Not for Navigation 1 Miles
0 1 Kilometers

1:50,000



Map 32A
Massachusetts and Rhode Island

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	MA/RI S C/C	F C/C	Concentration	Monthly Presence												Nest	Mig. (S)	Mig. (F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
21	Wading	Marsh birds	General Distribution			Common													-	Mar-May	Aug-Nov	Jul-Aug
400	Diving	Horned grebe	Wintering			Rare													-	Apr-May	Oct-Nov	-
	Gull/Tern	Rare tern	General Distribution		C/-	Common													-	Apr-May	Jul-Sep	-
	Waterfowl	American black duck	Wintering			Abundant													-	Apr	Oct	-
	Waterfowl	Diving ducks	Wintering			Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering			Common													Apr-May	Mar-May	Oct-Nov	-
	Waterfowl	Sea ducks	Wintering			Common													Mar-May	Oct-Nov	-	-
488	Waterfowl	Waterfowl	General Distribution		C/C	Common													May-Jul	Apr-May	Aug-Oct	Aug-Sep
491	Wading	Marsh birds	General Distribution		C/C	Common													-	Mar-May	Aug-Nov	Jul-Aug
	Waterfowl	Waterfowl	General Distribution		C/C	Common													May-Jul	Apr-May	Aug-Oct	Aug-Sep
506	Alcid	Razorbill	Wintering			Common													-	Mar-Apr	Nov	-
	Diving	Loons	General Distribution		C/-	Rare													-	Mar-Jun	Oct-Jan	Jan-Mar

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
559	Diadromous	Alewife	Spawning Area			-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	American eel	Migration			-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	American shad	Spawning Area			-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	Blueback herring	Spawning Area			-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Estuarine Nursery	White perch	Spawning Area			-													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Freshwater	Rainbow smelt	Spawning Area			-													Mar-May	Mar-May	Mar-May	-	Mar-May
616	Diadromous	Sea lamprey	Vulnerable Occurrence			-													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Freshwater	Blacknose dace	Vulnerable Occurrence			-													Mar-Jun	Mar-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Freshwater	Brook trout	Vulnerable Occurrence			-													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Freshwater	Common shiner	Vulnerable Occurrence			-													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
	Freshwater	Creek chub	Vulnerable Occurrence			-													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
	Freshwater	Fallfish	Vulnerable Occurrence			-													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Longnose dace	Vulnerable Occurrence			-													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Slimy sculpin	Vulnerable Occurrence			-													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Tessellated darter	Vulnerable Occurrence			-													May-Jul	May-Jul	May-Aug	Jan-Dec	Jan-Dec
	Freshwater	White sucker	Vulnerable Occurrence			-													Apr-May	May-Jul	May-Jul	Jan-Dec	Jan-Dec
618	Diadromous	Rare sturgeon	Vulnerable Occurrence		E/-	-													Apr-Jun	Apr-Jun	May-Aug	Jan-Dec	Jan-Dec

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence
646	Wetland	Vernal pool	Vulnerable Occurrence				-	J F M A M J J A S O N D

REPTILES & AMPHIBIANS


Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence	Nest	Hatch	Interest	Juveniles	Adults
659	Turtle	Blanding's turtle	General Distribution		T/-		-	J F M A M J J A S O N D	May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence	Spawn	Eggs	Larvae	Juveniles	Adults
712	Bivalve	Rare freshwater mussel	General Distribution		C/C		-	J F M A M J J A S O N D	Aug-Sep	Aug-May	Jun-Jul	Jan-Dec	Jan-Dec



WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

REPTILES & AMPHIBIANS



Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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	B. spotted salamander	General Distribution		C/-		-																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												</

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BIRDS

Subelement	Species	Monthly Presence	Nest	Mig.(S)	Mig.(F)	Molt
 Diving	D. crested cormorant	J F M A M J J A S O N D	-	Mar-Apr	Sep-Oct	-
 Waterfowl	American black duck	J F M A M J J A S O N D	Mar-Jul	Sep-Mar	-	-
	Diving ducks	J F M A M J J A S O N D	Mar-Apr	Sep-Apr	-	-
	Geese	J F M A M J J A S O N D	May	Mar-May	Sep-Nov	-

FISH

Subelement	Species	Monthly Presence	Spawn	Eggs	Larvae	Juveniles	Adults
 Diadromous	Sea lamprey	J F M A M J J A S O N D	Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
 Freshwater	Blacknose dace	J F M A M J J A S O N D	Mar-Jun	Mar-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Brook trout	J F M A M J J A S O N D	Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Common shiner	J F M A M J J A S O N D	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
	Creek chub	J F M A M J J A S O N D	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
	Fallfish	J F M A M J J A S O N D	-	-	-	Jan-Dec	Jan-Dec
	Longnose dace	J F M A M J J A S O N D	-	-	-	Jan-Dec	Jan-Dec
	Slimy sculpin	J F M A M J J A S O N D	-	-	-	Jan-Dec	Jan-Dec
	Tessellated darter	J F M A M J J A S O N D	May-Jul	May-Jul	May-Aug	Jan-Dec	Jan-Dec
	White sucker	J F M A M J J A S O N D	Apr-May	May-Jul	May-Jul	Jan-Dec	Jan-Dec

Massachusetts and Rhode Island: Map 32A

REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Hatch	Internest	Juveniles	Adults
Turtle	Eastern box turtle	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Jun-Jul	Aug-Oct	Jan-Dec

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)
10B	Freshwater Marshes	331.61	0.52
10C	Swamps	2,078.20	3.25
10D	Scrub and Shrub Wetlands	355.72	0.56
9A	Sheltered Tidal Flats	0.88	0.00

ESI SHORELINE HABITAT TYPES

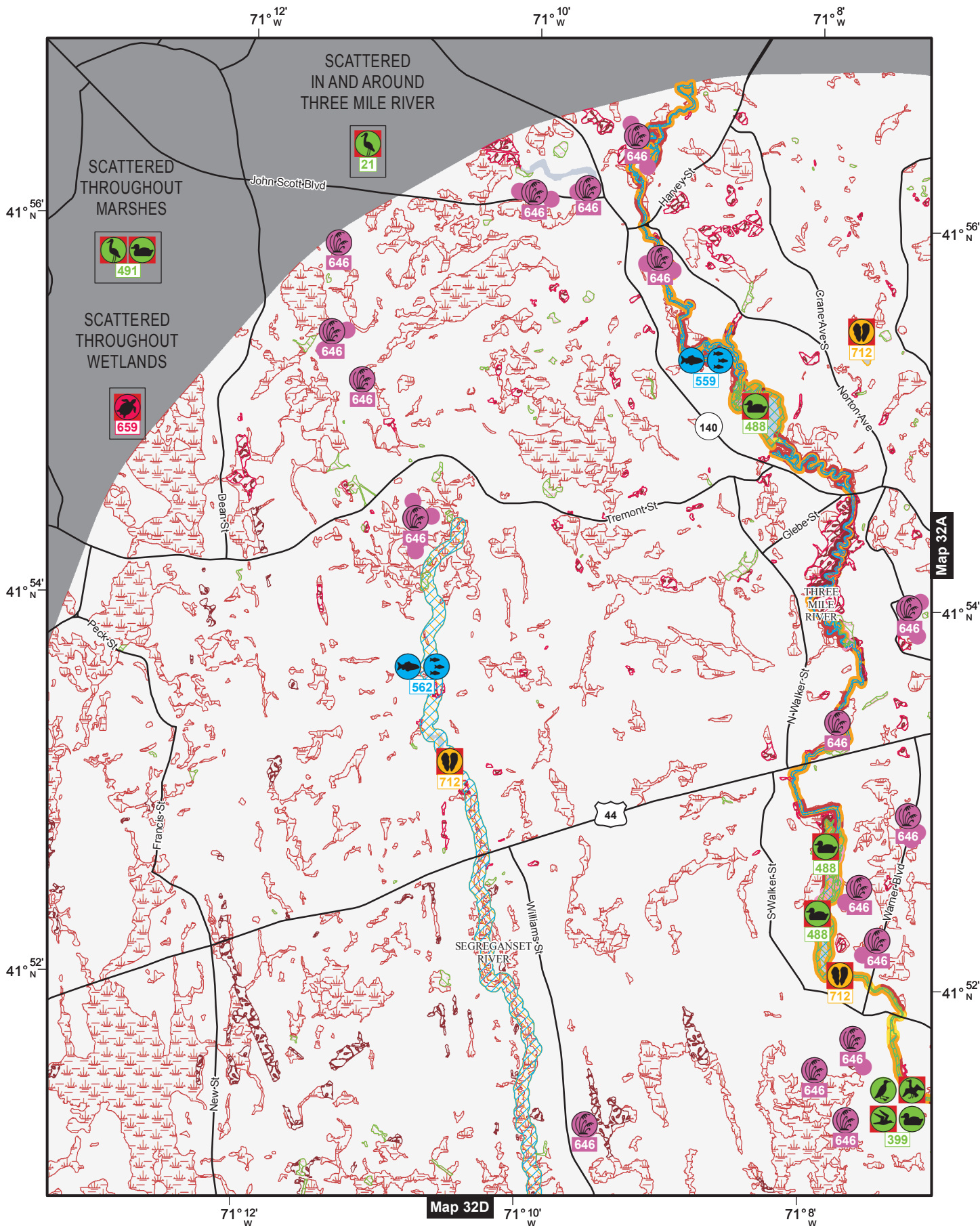
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10B	Freshwater Marshes	5,472.55	3.40	7%
10C	Swamps	7,281.38	4.52	9%
10D	Scrub and Shrub Wetlands	1,916.53	1.19	2%
9A	Sheltered Tidal Flats	242.92	0.15	< 1%
9B	Vegetated Low Banks	58,489.84	36.34	74%
8B	Sheltered, Solid Man-Made Structures	5,326.00	3.31	7%
8C	Sheltered Riprap	174.55	0.11	< 1%
8D	Sheltered, Rocky, Rubble Shores	22.12	0.01	< 1%
4	Coarse Grained Sand Beaches	481.04	0.30	1%

Total ESI Shoreline: 79,406.93 Total ESI Shoreline: 49.34
Total Shoreline: 69,252.05 Total Shoreline: 43.03

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

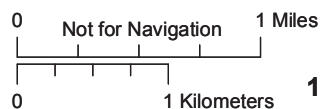




Map 32B
Mass. / Rhode Island



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



1:50,000



Map 32B
Massachusetts and Rhode Island

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	MA/RI S F C/C	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
21	Wading	Marsh birds	General Distribution		Common													-	Mar-May	Aug-Nov	Jul-Aug
399	Aldid	Razorbill	Wintering		Common													-	Mar-Apr	Nov	-
	Diving	Horned grebe	Wintering		Rare													-	Apr-May	Oct-Nov	-
	Diving	Loons	General Distribution	C/-	Rare													-	Mar-Jun	Oct-Jan	Jan-Mar
	Gull/Tern	Rare tern	General Distribution	C/-	Common													-	Apr-May	Jul-Sep	-
	Waterfowl	American black duck	Wintering		Abundant													-	Apr	Oct	-
	Waterfowl	Diving ducks	Wintering		Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering		Common													Apr-May	Mar-May	Oct-Nov	-
	Waterfowl	Sea ducks	Wintering		Common													-	Mar-May	Oct-Nov	-
488	Waterfowl	Waterfowl	General Distribution	C/C	Common													May-Jul	Apr-May	Aug-Oct	Aug-Sep
491	Wading	Marsh birds	General Distribution	C/C	Common													-	Mar-May	Aug-Nov	Jul-Aug
	Waterfowl	Waterfowl	General Distribution	C/C	Common													May-Jul	Apr-May	Aug-Oct	Aug-Sep

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F C/C	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
559	Diadromous	Alewife	Spawning Area		-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	American eel	Migration		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	American shad	Spawning Area		-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	Blueback herring	Spawning Area		-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Estuarine Nursery	White perch	Spawning Area		-													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Freshwater	Rainbow smelt	Spawning Area		-													Mar-May	Mar-May	Mar-May	-	Mar-May
562	Diadromous	Alewife	Spawning Area		-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	American eel	Migration		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	American shad	Spawning Area		-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	Blueback herring	Spawning Area		-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	Sea lamprey	Vulnerable Occurrence		-													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Estuarine Nursery	White perch	Spawning Area		-													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Freshwater	Blacknose dace	Vulnerable Occurrence		-													Mar-Jun	Mar-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Freshwater	Brook trout	Vulnerable Occurrence		-													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Freshwater	Common shiner	Vulnerable Occurrence		-													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
	Freshwater	Creek chub	Vulnerable Occurrence		-													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
	Freshwater	Fallfish	Vulnerable Occurrence		-													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Longnose dace	Vulnerable Occurrence		-													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Rainbow smelt	Spawning Area		-													Mar-May	Mar-May	Mar-May	-	Mar-May
	Freshwater	Slimy sculpin	Vulnerable Occurrence		-													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Tessellated darter	Vulnerable Occurrence		-													May-Jul	May-Jul	May-Aug	Jan-Dec	Jan-Dec
	Freshwater	White sucker	Vulnerable Occurrence		-													Apr-May	May-Jul	May-Jul	Jan-Dec	Jan-Dec

Massachusetts and Rhode Island: Map 32B

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence
646	Wetland	Vernal pool	Vulnerable Occurrence				-	J F M A M J J A S O N D

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence	Nest	Hatch	Interest	Juveniles	Adults
659	Turtle	Blanding's turtle	General Distribution	T/-			-	J F M A M J J A S O N D	May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence	Spawn	Eggs	Larvae	Juveniles	Adults
712	Bivalve	Rare freshwater mussel	General Distribution	C/C			-	J F M A M J J A S O N D	Aug-Sep	Aug-May	Jun-Jul	Jan-Dec	Jan-Dec

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence	Nest	Hatch	Interest	Juveniles	Adults
646	Amphibian	B. spotted salamander	General Distribution	C/-			-	J F M A M J J A S O N D	May-Jul	May-Jul	-	Jan-Dec	Jan-Dec
712	Turtle	Eastern spadefoot	Vulnerable Occurrence	T/E			-	J F M A M J J A S O N D	Apr-Jun	May-Jul	-	Jan-Dec	Jan-Dec
		Marbled salamander	General Distribution	T/-			Common	J F M A M J J A S O N D	Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
		Wood turtle	General Distribution	C/C			-	J F M A M J J A S O N D	May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence	Nest	Mig.(S)	Mig.(F)	Molt
646	Diving	D. crested cormorant	General Distribution	C/-			-	J F M A M J J A S O N D	-	Mar-Apr	Sep-Oct	-
712	Waterfowl	American black duck	Vulnerable Occurrence	T/E			-	J F M A M J J A S O N D	Mar-Jul	Sep-Mar	-	-
		Diving ducks	General Distribution	T/-			Common	J F M A M J J A S O N D	Mar-Apr	Sep-Apr	-	-
		Geese	General Distribution	C/C			-	J F M A M J J A S O N D	May	Mar-May	Sep-Nov	-

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence	Nest	Hatch	Interest	Juveniles	Adults
646	Turtle	Eastern box turtle	General Distribution	C/C			-	J F M A M J J A S O N D	Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

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

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10B	Freshwater Marshes	92.96	0.15
10C	Swamps	3,249.69	5.08
10D	Scrub and Shrub Wetlands	407.87	0.64
9A	Sheltered Tidal Flats	1.22	0.00



ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10B	Freshwater Marshes	4,752.52	2.95	6%
10C	Swamps	18,323.07	11.39	25%
10D	Scrub and Shrub Wetlands	6,488.96	4.03	9%
9A	Sheltered Tidal Flats	422.01	0.26	1%
9B	Vegetated Low Banks	43,775.24	27.20	59%
8B	Sheltered, Solid Man-Made Structures	735.19	0.46	1%

Total ESI Shoreline: 74,496.99 Total ESI Shoreline: 46.29
 Total Shoreline: 49,299.87 Total Shoreline: 30.63

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 32C
Massachusetts and Rhode Island

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	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig. (S)	Mig. (F)	Molt
								J	F	M	A	M	J	J	A	S	O	N	D				
21	Wading	Marsh birds	General Distribution	C/C	-	-	Common													-	Mar-May	Aug-Nov	Jul-Aug
224	Passerine	Marsh passerines	General Distribution	-	-	-	Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Wading	Egrets	Migration	-	-	-	Common													-	Apr-May	Sep-Oct	-
	Wading	Wading birds	General Distribution	-	-	-	Common													-	Mar-May	Jul-Oct	-
225	Passerine	Marsh passerines	General Distribution	-	-	-	Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Wading	Egrets	Migration	-	-	-	Common													-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C	-	-	Common													-	Mar-May	Aug-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-	-	-	Common													-	Mar-May	Jul-Oct	-
227	Passerine	Marsh passerines	General Distribution	-	-	-	Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Wading	Egrets	Migration	-	-	-	Common													-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C	-	-	Common													-	Mar-May	Aug-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-	-	-	Common													-	Mar-May	Jul-Oct	-
	Waterfowl	Waterfowl	General Distribution	C/C	-	-	Common													May-Jul	Apr-May	Aug-Oct	Aug-Sep
399	Acid	Razorbill	Wintering				Common													-	Mar-Apr	Nov	-
	Diving	Horned grebe	Wintering				Rare													-	Apr-May	Oct-Nov	-
	Diving	Loons	General Distribution	C/-	-	-	Rare													-	Mar-Jun	Oct-Jan	Jan-Mar
	Gull/Tern	Rare tern	General Distribution	C/-	-	-	Common													-	Apr-May	Jul-Sep	-
	Waterfowl	American black duck	Wintering				Abundant													-	Apr	Oct	-
	Waterfowl	Diving ducks	Wintering				Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering				Common													Apr-May	Mar-May	Oct-Nov	-
	Waterfowl	Sea ducks	Wintering				Common													-	Mar-May	Oct-Nov	-
488	Waterfowl	Waterfowl	General Distribution	C/C	-	-	Common													May-Jul	Apr-May	Aug-Oct	Aug-Sep
491	Wading	Marsh birds	General Distribution	C/C	-	-	Common													-	Mar-May	Aug-Nov	Jul-Aug
	Waterfowl	Waterfowl	General Distribution	C/C	-	-	Common													May-Jul	Apr-May	Aug-Oct	Aug-Sep

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
559	Diadromous	Alewife	Spawning Area				-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	American shad	Spawning Area				-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	Blueback herring	Spawning Area				-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Estuarine Nursery	White perch	Spawning Area				-													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Freshwater	Rainbow smelt	Spawning Area				-													Mar-May	Mar-May	Mar-May	-	Mar-May
563	Diadromous	Alewife	Spawning Area				-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	American shad	Spawning Area				-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun

FISH (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
				S	F		J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous	Blueback herring	Spawning Area			-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	Rare sturgeon	Vulnerable Occurrence	E/-	E	-													Apr-Jun	Apr-Jun	May-Aug	Jan-Dec	Jan-Dec
	Estuarine Nursery	White perch	Spawning Area			-													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Freshwater	Rainbow smelt	Spawning Area			-													Mar-May	Mar-May	Mar-May	-	Mar-May
564	Diadromous	Alewife	Spawning Area			-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	American eel	Migration			-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	American shad	Spawning Area			-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	Atlantic sturgeon	General Distribution	E/-	T	-													May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec
	Diadromous	Blueback herring	Spawning Area			-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	Rare sturgeon	Vulnerable Occurrence	E/-	E	-													Apr-Jun	Apr-Jun	May-Aug	Jan-Dec	Jan-Dec
	Estuarine Nursery	White perch	Spawning Area			-													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Freshwater	Rainbow smelt	Spawning Area			-													Mar-May	Mar-May	Mar-May	-	Mar-May
616	Diadromous	Sea lamprey	Vulnerable Occurrence			-													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Freshwater	Blacknose dace	Vulnerable Occurrence			-													Mar-Jun	Mar-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Freshwater	Brook trout	Vulnerable Occurrence			-													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Freshwater	Common shiner	Vulnerable Occurrence			-													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
	Freshwater	Creek chub	Vulnerable Occurrence			-													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
	Freshwater	Fallfish	Vulnerable Occurrence			-													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Longnose dace	Vulnerable Occurrence			-													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Slimy sculpin	Vulnerable Occurrence			-													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Tessellated darter	Vulnerable Occurrence			-													May-Jul	May-Jul	May-Aug	Jan-Dec	Jan-Dec
	Freshwater	White sucker	Vulnerable Occurrence			-													Apr-May	May-Jul	May-Jul	Jan-Dec	Jan-Dec
618	Diadromous	Rare sturgeon	Vulnerable Occurrence	E/-	E	-													Apr-Jun	Apr-Jun	May-Aug	Jan-Dec	Jan-Dec
623	Diadromous	Atlantic sturgeon	General Distribution	E/-	T	-													May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence											
				S	F		J	F	M	A	M	J	J	A	S	O	N	D
646	Wetland	Vernal pool	Vulnerable Occurrence			-												


REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
				S	F		J	F	M	A	M	J	J	A	S	O	N	D					
652	Turtle	Rare reptile	Vulnerable Occurrence			-													-	Apr-Jul	Jun-Nov	Jan-Dec	Jan-Dec
659	Turtle	Blanding's turtle	General Distribution	T/-		-													May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
				S	F		J	F	M	A	M	J	J	A	S	O	N	D					
712	Bivalve	Rare freshwater mussel	General Distribution	C/C		-													Aug-Sep	Aug-May	Jun-Jul	Jan-Dec	Jan-Dec

REPTILES & AMPHIBIANS




Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
			S	F		J	F	M	A	M	J	J	A	S	O	N	D					
	B. spotted salamander	General Distribution	C/-		-													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec
	Eastern spadefoot	Vulnerable Occurrence	T/E		-													Apr-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Marbled salamander	General Distribution	T/-		Common													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Wood turtle	General Distribution	C/C		-													May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

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				
	D. crested cormorant													-	Mar-Apr	Sep-Oct	-
	American black duck													Mar-Jul	Sep-Mar	-	-
	Diving ducks													Mar-Apr	Sep-Apr	-	-
	Geese													May	Mar-May	Sep-Nov	-

FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Atlantic salmon													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Sea lamprey													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Striped bass													-	-	-	Apr-Nov	Apr-Nov
	Atlantic herring													Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy													Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass													May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov
	Bluefish													-	-	-	May-Oct	May-Oct
	Hogchoker													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Scup													May-Aug	May-Aug	Jun-Aug	Apr-Nov	Apr-Nov
	Summer flounder													Aug-Nov	Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish													Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	Windowpane													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Winter flounder													Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
	Atlantic silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Stickleback													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Blacknose dace													Mar-Jun	Mar-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Brook trout													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Brook trout (sea run)													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Common shiner													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
	Creek chub													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec

FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Fallfish													-	-	-	Jan-Dec	Jan-Dec
	Longnose dace													-	-	-	Jan-Dec	Jan-Dec
	Slimy sculpin													-	-	-	Jan-Dec	Jan-Dec
	Tessellated darter													May-Jul	May-Jul	May-Aug	Jan-Dec	Jan-Dec
	White sucker													Apr-May	May-Jul	May-Jul	Jan-Dec	Jan-Dec
	American sand lance													Nov-Apr	Nov-May	Jan-May	Jan-Dec	Jan-Dec
	Atlantic cod													-	-	Jan-May	Jan-May	-
	Atlantic tomcod													Dec-Mar	Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec
	Pollock													Nov-Apr	Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Searobins													Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Skates													-	-	-	Jan-Dec	Jan-Dec
	Tautog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Atlantic mackerel													-	May-Aug	May-Aug	May-Sep	May-Sep
	Sand tiger													-	-	-	Apr-Nov	Apr-Nov
	Spiny dogfish													-	-	-	Jan-Dec	Jan-Dec

REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Interest	Juveniles	Adults
Turtle	Eastern box turtle	J	F	M	A	M	J	J	A	S	O	N	D	Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Blue mussel													Mar-Jul	Mar-Jul	Mar-Jul	Jan-Dec	Jan-Dec
	Eastern oyster													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Northern quahog													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Softshell clam													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Longfin squid													May-Aug	May-Aug	May-Aug	May-Nov	May-Nov
	Atlantic rock crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Blue crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Horseshoe crab													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec

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	213.28	0.33
10B	Freshwater Marshes	163.09	0.25
10C	Swamps	2,616.20	4.09
10D	Scrub and Shrub Wetlands	276.11	0.43
9A	Sheltered Tidal Flats	70.99	0.11



ESI SHORELINE HABITAT TYPES

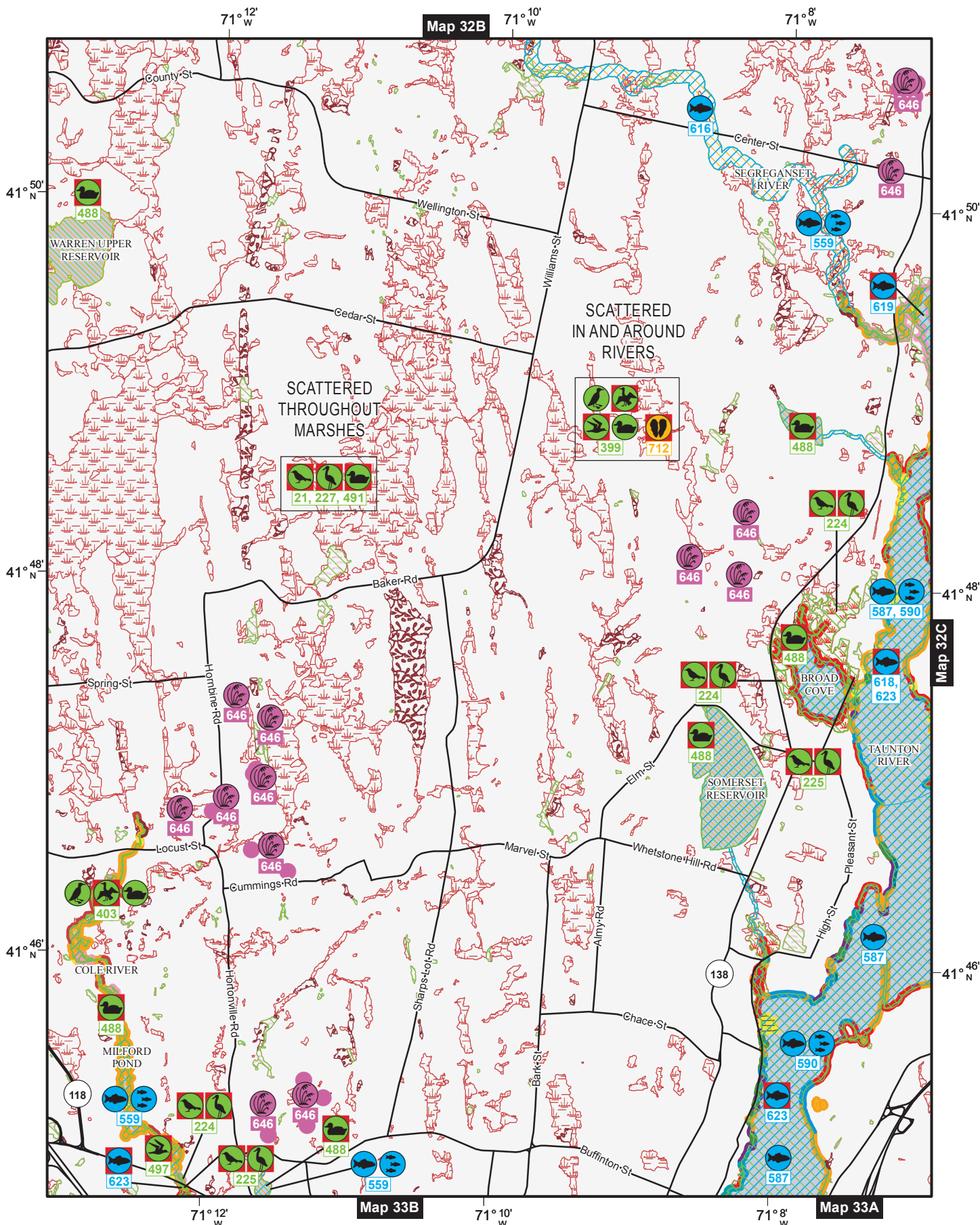
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	19,024.85	11.82	26%
10B	Freshwater Marshes	7,433.93	4.62	10%
10C	Swamps	1,954.86	1.21	3%
10D	Scrub and Shrub Wetlands	154.34	0.10	< 1%
9A	Sheltered Tidal Flats	13,614.64	8.46	19%
9B	Vegetated Low Banks	26,133.41	16.24	36%
8A	Sheltered, Impermeable, Rocky Shores	70.02	0.04	< 1%
8B	Sheltered, Solid Man-Made Structures	2,466.26	1.53	3%
8C	Sheltered Riprap	322.08	0.20	< 1%
6B	Riprap	16.63	0.01	< 1%
5	Mixed Sand and Gravel Beaches	619.88	0.39	1%
4	Coarse Grained Sand Beaches	413.15	0.26	1%
1B	Exposed, Solid Man-Made Structures	35.03	0.02	< 1%

Total ESI Shoreline: 72,259.08 Total ESI Shoreline: 44.90
 Total Shoreline: 55,368.26 Total Shoreline: 34.40

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 32D

Mass. / Rhode Island



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

0 Not for Navigation 1 Miles
0 1 Kilometers

1:50,000



Map 32D
Massachusetts and Rhode Island

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	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig. (S)	Mig. (F)	Molt
								J	F	M	A	M	J	J	A	S	O	N	D				
21	Wading	Marsh birds	General Distribution	C/C	-/C		Common													-	Mar-May	Aug-Nov	Jul-Aug
224	Passerine	Marsh passerines	General Distribution	-/C			Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Wading	Egrets	Migration	-/C			Common													-	Apr-May	Sep-Oct	-
225	Wading	Wading birds	General Distribution	-/C			Common													-	Mar-May	Jul-Oct	-
	Passerine	Marsh passerines	General Distribution	-/C			Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Wading	Egrets	Migration	-/C			Common													-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C			Common													-	Mar-May	Aug-Nov	Jul-Aug
227	Wading	Wading birds	General Distribution	-/C			Common													-	Mar-May	Jul-Oct	-
	Passerine	Marsh passerines	General Distribution	-/C			Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Wading	Egrets	Migration	-/C			Common													-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C			Common													-	Mar-May	Aug-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-/C			Common													-	Mar-May	Jul-Oct	-
	Waterfowl	Waterfowl	General Distribution	C/C			Common													May-Jul	Apr-May	Aug-Oct	Aug-Sep
399	Acid	Razorbill	Wintering				Common													-	Mar-Apr	Nov	-
	Diving	Horned grebe	Wintering				Rare													-	Apr-May	Oct-Nov	-
	Diving	Loons	General Distribution	C/-			Rare													-	Mar-Jun	Oct-Jan	Jan-Mar
	Gull/Tern	Rare tern	General Distribution	C/-			Common													-	Apr-May	Jul-Sep	-
	Waterfowl	American black duck	Wintering				Abundant													-	Apr	Oct	-
	Waterfowl	Diving ducks	Wintering				Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering				Common													Apr-May	Mar-May	Oct-Nov	-
	Waterfowl	Sea ducks	Wintering				Common													-	Mar-May	Oct-Nov	-
403	Acid	Razorbill	Wintering				Common													-	Mar-Apr	Nov	-
	Diving	Horned grebe	Wintering				Rare													-	Apr-May	Oct-Nov	-
	Diving	Loons	General Distribution	C/-			Rare													-	Mar-Jun	Oct-Jan	Jan-Mar
	Waterfowl	American black duck	Wintering				Abundant													-	Apr	Oct	-
	Waterfowl	Diving ducks	Wintering				Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering				Common													Apr-May	Mar-May	Oct-Nov	-
488	Waterfowl	Sea ducks	Wintering				Common													-	Mar-May	Oct-Nov	-
	Waterfowl	Waterfowl	General Distribution	C/C			Common													-	Mar-May	Oct-Nov	-
491	Wading	Marsh birds	General Distribution	C/C			Common													May-Jul	Apr-May	Aug-Oct	Aug-Sep
497	Waterfowl	Waterfowl	General Distribution	C/C			Common													-	Mar-May	Aug-Nov	Jul-Aug
	Gull/Tern	Rare tern	General Distribution	C/-			Common													May-Jul	Apr-May	Aug-Oct	Aug-Sep

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
				S	F		J	F	M	A	M	J	J	A	S	O	N	D					
559	Diadromous	Alewife	Spawning Area			-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	American eel	Migration			-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	American shad	Spawning Area			-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	Blueback herring	Spawning Area			-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Estuarine Nursery	White perch	Spawning Area			-													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
587	Freshwater	Rainbow smelt	Spawning Area			-													Mar-May	Mar-May	Mar-May	-	Mar-May
	Diadromous	Alewife	Spawning Area			-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	American eel	Migration			-													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Rainbow smelt	Spawning Area			-													Mar-May	Mar-May	Mar-May	-	Mar-May
	Diadromous	American shad	Spawning Area			-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
590	Diadromous	Blueback herring	Spawning Area			-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	Blueback herring	Spawning Area			-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Estuarine Nursery	White perch	Spawning Area			-													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Diadromous	Sea lamprey	Vulnerable Occurrence			-													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Freshwater	Blacknose dace	Vulnerable Occurrence			-													Mar-Jun	Mar-Jun	Apr-Jun	Jan-Dec	Jan-Dec
616	Freshwater	Brook trout	Vulnerable Occurrence			-													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Freshwater	Common shiner	Vulnerable Occurrence			-													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
	Freshwater	Creek chub	Vulnerable Occurrence			-													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
	Freshwater	Fallfish	Vulnerable Occurrence			-													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Longnose dace	Vulnerable Occurrence			-													-	-	-	Jan-Dec	Jan-Dec
618	Freshwater	Slimy sculpin	Vulnerable Occurrence			-													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Tessellated darter	Vulnerable Occurrence			-													May-Jul	May-Jul	May-Aug	Jan-Dec	Jan-Dec
	Freshwater	White sucker	Vulnerable Occurrence			-													Apr-May	May-Jul	May-Jul	Jan-Dec	Jan-Dec
	Diadromous	Rare sturgeon	Vulnerable Occurrence	E/-	E	-													Apr-Jun	Apr-Jun	May-Aug	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	General Distribution	E/-	T	-													May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec
619	Diadromous	Rare sturgeon	Vulnerable Occurrence	E/-	E	-													Apr-Jun	Apr-Jun	May-Aug	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	General Distribution	E/-	T	-													May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec
	Diadromous	Rare sturgeon	Vulnerable Occurrence	E/-	E	-													Apr-Jun	Apr-Jun	May-Aug	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	General Distribution	E/-	T	-													May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	General Distribution	E/-	T	-													May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec

HABITATS & RARE PLANTS



Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence											
646	Wetland	Vernal pool	Vulnerable Occurrence	S	F	-	J	F	M	A	M	J	J	A	S	O	N	D
INVERTEBRATES																		
Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence											
712	Bivalve	Rare freshwater mussel	General Distribution	S	F	-	J	F	M	A	M	J	J	A	S	O	N	D
													</					

REPTILES & AMPHIBIANS


Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
	B. spotted salamander	General Distribution	C/-			-													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec
	Eastern spadefoot	Vulnerable Occurrence	T/E			-													Apr-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Marbled salamander	General Distribution	T/-			Common													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Wood turtle	General Distribution	C/C			-													May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)


BIRDS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
	D. crested cormorant																		-	Mar-Apr	Sep-Oct	-
	American black duck																		Mar-Jul	Sep-Mar	-	-
	Diving ducks																		Mar-Apr	Sep-Apr	-	-
	Geese																		May	Mar-May	Sep-Nov	-

FISH

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
	American shad																		Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Atlantic salmon																		Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Blueback herring																		Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Striped bass																		-	-	-	Apr-Nov	Apr-Nov
	Atlantic herring																		Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy																		Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass																		May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov
	Bluefish																		-	-	-	May-Oct	May-Oct
	Hogchoker																		May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Scup																		May-Aug	May-Aug	Jun-Aug	Apr-Nov	Apr-Nov
	Summer flounder																		Aug-Nov	Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish																		Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	White perch																		Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane																		May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Winter flounder																		Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
	Atlantic silverside																		May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish																		May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog																		May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish																		May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow																		May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Stickleback																		May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Brook trout (sea run)																		Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Marine Benthic																		Nov-Apr	Nov-May	Jan-May	Jan-Dec	Jan-Dec
	Atlantic cod																		-	-	Jan-May	Jan-May	-






FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Atlantic tomcod													Dec-Mar	Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec
	Pollock													Nov-Apr	Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Searobins													Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Skates													-	-	-	Jan-Dec	Jan-Dec
	Tautog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Atlantic mackerel													-	May-Aug	May-Aug	May-Sep	May-Sep
	Sand tiger													-	-	-	Apr-Nov	Apr-Nov
	Spiny dogfish													-	-	-	Jan-Dec	Jan-Dec

REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Interest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Eastern box turtle													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Atl. jackknife clam													Apr-May	Apr-May	Apr-May	Jan-Dec	Jan-Dec
	Atlantic razor													Apr-Jun	Apr-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Bay scallop													Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec
	Blue mussel													Mar-Jul	Mar-Jul	Mar-Jul	Jan-Dec	Jan-Dec
	Eastern oyster													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Northern quahog													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Softshell clam													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Longfin squid													May-Aug	May-Aug	May-Aug	May-Nov	May-Nov
	Atlantic rock crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Blue crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Horseshoe crab													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec
	Channeled whelk													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Knobbed whelk													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Northern moonshell													Apr-Sep	Apr-Sep	Apr-Sep	Jan-Dec	Jan-Dec
	Sea snails													May-Jul	May-Aug	Aug-Nov	Jan-Dec	Jan-Dec
	American lobster													Aug-Nov	Jan-Dec	Jun-Oct	Jan-Dec	Jan-Dec

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	130.69	0.20
10B	Freshwater Marshes	221.60	0.35
10C	Swamps	3,308.70	5.17
10D	Scrub and Shrub Wetlands	373.45	0.58
9A	Sheltered Tidal Flats	11.73	0.02



ESI SHORELINE HABITAT TYPES

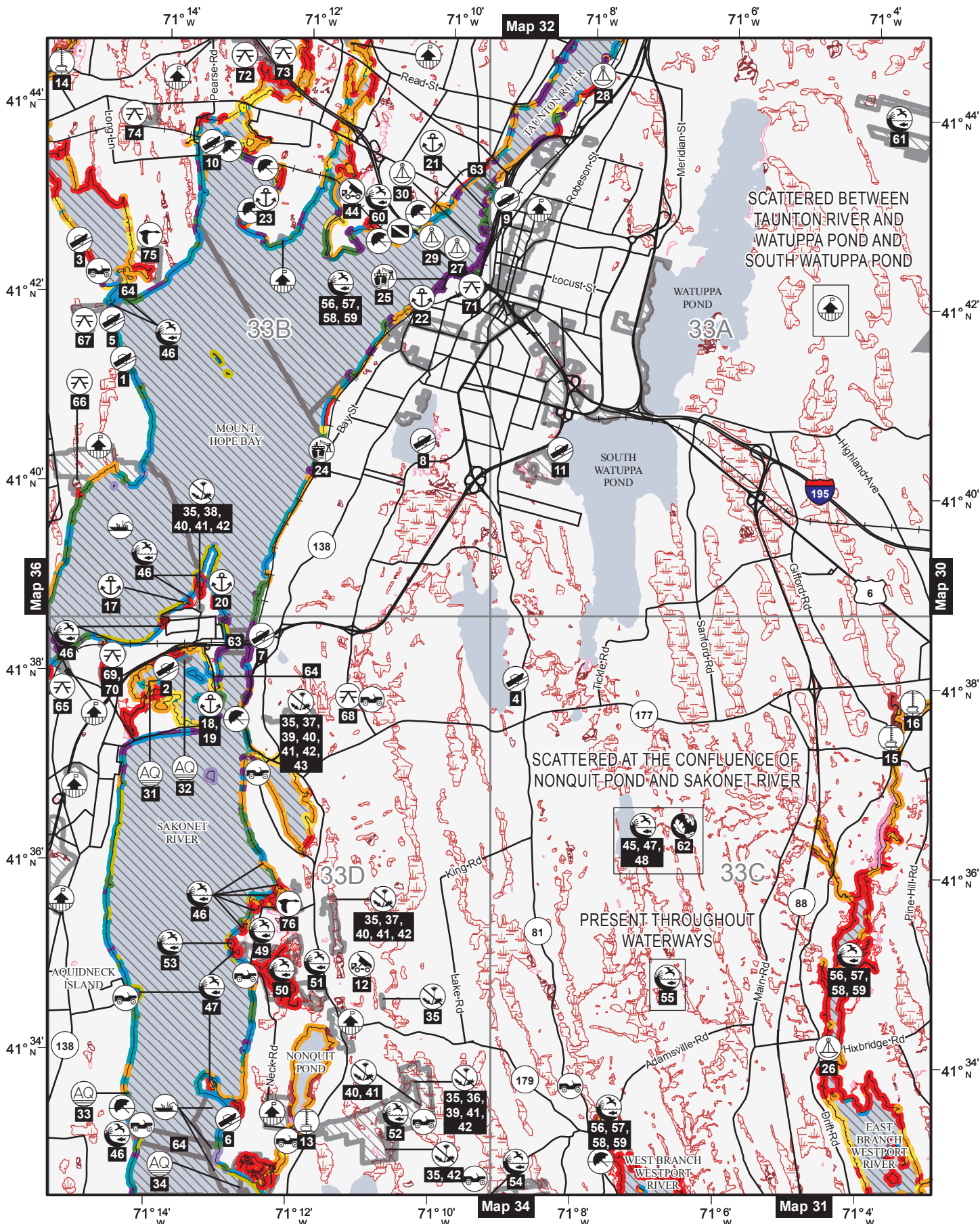
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt and Brackish Water Marshes	11,108.43	6.90	20%
10B	Freshwater Marshes	4,303.27	2.67	8%
10C	Swamps	3,132.28	1.95	6%
10D	Scrub and Shrub Wetlands	1,195.17	0.74	2%
9A	Sheltered Tidal Flats	2,536.22	1.58	5%
9B	Vegetated Low Banks	21,979.96	13.66	39%
8A	Sheltered, Impermeable, Rocky Shores	23.47	0.01	< 1%
8B	Sheltered, Solid Man-Made Structures	2,652.98	1.65	5%
8C	Sheltered Riprap	437.48	0.27	1%
6B	Riprap	1,916.04	1.19	3%
5	Mixed Sand and Gravel Beaches	803.38	0.50	1%
4	Coarse Grained Sand Beaches	3,297.90	2.05	6%
1B	Exposed, Solid Man-Made Structures	2,363.02	1.47	4%

Total ESI Shoreline: 55,749.62 Total ESI Shoreline: 34.64
 Total Shoreline: 44,286.75 Total Shoreline: 27.52

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

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

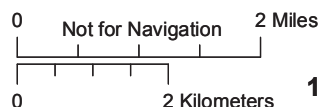




Map 33
Mass. / Rhode Island



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



1:100,000



Map 33
Massachusetts and Rhode Island

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)				
Map ID	Type	Name	Contact	Phone
1	BOAT RAMP	ANNAWANSUTT	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
2	BOAT RAMP	GULL COVE	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
3	BOAT RAMP	SHERMAN AVE	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
4	BOAT RAMP	STAFFORD POND	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
5	BOAT RAMP	BRISTOL NARROWS	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
6	BOAT RAMP	FOGLAND	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
7	BOAT RAMP	SAKONNET BRIDGE ACCESS	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
8	BOAT RAMP	COOK POND	MDFG, OFFICE OF FISHING AND BOATING ACCESS	508-389-7810
9	BOAT RAMP	TAUNTON RIVER BASIN	MDFG, OFFICE OF FISHING AND BOATING ACCESS	508-389-7810
10	BOAT RAMP	COLE RIVER	MDFG, OFFICE OF FISHING AND BOATING ACCESS	508-389-7810
11	BOAT RAMP	SOUTH WATUPPA POND	MDFG, OFFICE OF FISHING AND BOATING ACCESS	508-389-7810
12	LANDFILL	TIVERTON LANDFILL	RIDEM - OWM	401-625-6760
13	LOCK AND DAM	NONQUIT POND DAM		
14	LOCK AND DAM	WARREN RESERVOIR UPPER DAM		
15	LOCK AND DAM	WESTPORT RIVER DAM		
16	LOCK AND DAM	FORGE POND DAM		
17	MARINA	LIGHTHOUSE MARINA		
18	MARINA	STONEBRIDGE MARINA		
19	MARINA	PIRATE COVE MARINA, INC.		
20	MARINA	BREWER'S SAKONNET MARINA		
21	MARINA	POINT GLORIA MARINA		
22	MARINA	BORDEN LIGHT MARINA		
23	MARINA	SWANSEA MARINA, INC.		
24	PORT	COMMERCIAL / INDUSTRIAL - LIQUID CARGO		
25	PORT	PORT OF FALL RIVER		
26	REPEATED MEASUREMENT SITE	TIDE GAUGE - HIX BRIDGE, EAST BRANCH		
27	REPEATED MEASUREMENT SITE	TIDE GAUGE - FALL RIVER, MASSACHUSETTS		
28	REPEATED MEASUREMENT SITE	TIDE GAUGE - STEEP BROOK, TAUNTON RIVER		
29	REPEATED MEASUREMENT SITE	ENV BUOY-STATION BLTM3-8447387-BORDEN FLATS LIGHT		
30	REPEATED MEASUREMENT SITE	ENV BUOY-STATION FRVM3-8447386-FALL RIVER		

DISPLAYED ON MAP (POLYGONS)				
Map ID	Type	Name	Contact	Phone
31	AQUACULTURE	JACKSON - OYSTER/SOFT CLAM		
32	AQUACULTURE	MCGHIE - OYSTER/CLAM		
33	AQUACULTURE	CLARENDON - OYSTER		
34	AQUACULTURE	MELANSON - OYSTER		
35	INVASIVE SPECIES	ASIATIC BITTERSWEET		
36	INVASIVE SPECIES	AUTUMN OLIVE		
37	INVASIVE SPECIES	BORDER PRIVET		

DISPLAYED ON MAP (POLYGONS) (continued)				
38	INVASIVE SPECIES	COMMON REED		
39	INVASIVE SPECIES	JAPANESE BARBERRY		
40	INVASIVE SPECIES	JAPANESE HONEYSUCKLE		
41	INVASIVE SPECIES	MARROWS HONEYSUCKLE		
42	INVASIVE SPECIES	MULTIFLORA ROSE		
43	INVASIVE SPECIES	WINGED EUONYMUS		
44	LANDFILL	BRAYTON POINT POWER PLANT ASH LANDFILL	BRAYTON POINT ENERGY LLC, SUPERV. ENV. REG	508-646-5338
45	MANAGEMENT AREA	2 COASTAL BARRIER - DEVELOPED		
46	MANAGEMENT AREA	5 COASTAL BARRIER - OTHER UNDEVELOPED		
47	MANAGEMENT AREA	6 COASTAL BARRIER - UNDEVELOPED		
48	MANAGEMENT AREA	MAY C DONAVAN MARSH	RI DEM, DFW	401-789-7481
49	MANAGEMENT AREA	SAPOWET MARSH MANAGEMENT AREA - LACERDA	RI DEM, DFW	401-789-7481
50	MANAGEMENT AREA	SAPOWET MARSH MANAGEMENT AREA	RI DEM, DFW	401-789-7481
51	MANAGEMENT AREA	SAPOWET MARSH MANAGEMENT AREA - BABBITT	RI DEM, DFW	401-789-7481
52	MANAGEMENT AREA	EIGHT ROD FARM MANAGEMENT AREA - MORASH/TOSTE FARM	RI DEM	401-667-6200
53	MANAGEMENT AREA	SAPOWET MARSH MGMT AREA - GLENNA HATHAWAY COOKE	RI DEM, DFW	401-789-7481
54	MANAGEMENT AREA	SIMMONS MILL MANAGEMENT AREA - FORT CHURCH	RI DEM, DFW	401-789-7481
55	MANAGEMENT AREA	LOBSTER MANAGEMENT AREA 2		
56	MANAGEMENT AREA	CAPE COD SOUTH CLOSURE AREA		
57	MANAGEMENT AREA	NORTHERN INSHORE STATE TRAP/POT WATERS AREA		
58	MANAGEMENT AREA	NORTHERN NEARSHORE TRAP/POT WATERS AREA		
59	MANAGEMENT AREA	OTHER NORTHEAST GILLNET WATERS AREA		
60	MANAGEMENT AREA	BRAYTON POINT WMA	EOEEA, DEPARTMENT OF FISH AND GAME	617-626-1500
61	MANAGEMENT AREA	COPICUT WMA	EOEEA, DEPARTMENT OF FISH AND GAME	617-626-1500
62	NATURE CONSERVANCY	FOGLAND MARSH PRESERVE	THE NATURE CONSERVANCY IN RHODE ISLAND	401-331-7710
63	PIPELINE	CABLE AND PIPELINE		
64	PIPELINE	PIPELINE		
65	REGIONAL OR STATE PARK	BLACK REGIMENT MEMORIAL PARK	RI DEM	401-667-6200
66	REGIONAL OR STATE PARK	BRISTOL LANDING PRESERVE	RI DEM	401-667-6200
67	REGIONAL OR STATE PARK	WAYPOYSET PRESERVE	RI DEM	401-667-6200
68	REGIONAL OR STATE PARK	TIVERTON TROUT POND	RI DEM, DFW	401-789-7481
69	REGIONAL OR STATE PARK	TOWN POND	RI DEM, DFW	401-789-7481
70	REGIONAL OR STATE PARK	BERTHA K. RUSSEL PRESERVE	RI DEM, DFW	401-789-7481
71	REGIONAL OR STATE PARK	FALL RIVER HERITAGE STATE PARK	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250
72	REGIONAL OR STATE PARK	JARABEK PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250
73	REGIONAL OR STATE PARK	BORGE PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250
74	REGIONAL OR STATE PARK	MEDEIROS SWANSEA PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250
75	WILDLIFE REFUGE	TOUISSET MARSH WILDLIFE REFUGE	AUDUBON SOCIETY OF RHODE ISLAND	401-949-5454
76	WILDLIFE REFUGE	EMILIE RUECKER WILDLIFE REFUGE	AUDUBON SOCIETY OF RHODE ISLAND	401-949-5454

ALSO PRESENT IN MAPPED AREA (POINTS)				
Type	Name	Contact	Phone	
ESSENTIAL HABITAT	FACULTATIVE SPECIES -VERNAL POOL	MA DFW NHESP, WESTBOROUGH, MA	508-389-6375	
ESSENTIAL HABITAT	OBLIGATE SPECIES -VERNAL POOL	MA DFW NHESP, WESTBOROUGH, MA	508-389-6375	
ESSENTIAL HABITAT	OBLIGATE SPECIES, FACULTATIVE SPECIES -VERNAL POOL	MA DFW NHESP, WESTBOROUGH, MA	508-389-6375	
ESSENTIAL HABITAT	OBLIGATE SPECIES, FAIRY SHRIMP -VERNAL POOL	MA DFW NHESP, WESTBOROUGH, MA	508-389-6375	

ALSO PRESENT IN MAPPED AREA (POLYGONS)

<i>Type</i>	<i>Name</i>	<i>Contact</i>	<i>Phone</i>
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: ATLANTIC COD	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: ATLANTIC HERRING	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: ATLANTIC WOLFFISH	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: HADDOCK	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: LITTLE SKATE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: RED HAKE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINDOW PANE FLOUNDER	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINTER FLOUNDER	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINTER SKATE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
MANAGEMENT AREA	PRIORITY HABITAT	MDFW NHESP	508-389-6380
STATE PROTECTED AREA	FREETOWN-FALL RIVER STATE FOREST	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250
STATE PROTECTED AREA	WEETAMOO WOODS	RI DEM, DFW	401-667-6200

JURISDICTIONS

COUNTY: BRISTOL, NEWPORT
COAST GUARD: DISTRICT 1, SECTOR SE NEW ENGLAND
USACE: NORTH ATLANTIC DIVISION, NEW ENGLAND DISTRICT

FEMA: REGION I
EPA: REGION 1

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	861.49	1.35
10B	Freshwater Marshes	380.17	0.59
10C	Swamps	8,450.31	13.20
10D	Scrub and Shrub Wetlands	387.07	0.60
9A	Sheltered Tidal Flats	116.60	0.18
7	Exposed Tidal Flats	9.73	0.02
5	Mixed Sand and Gravel Beaches	1.12	0.00
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	2.01	0.00

ESI SHORELINE HABITAT TYPES

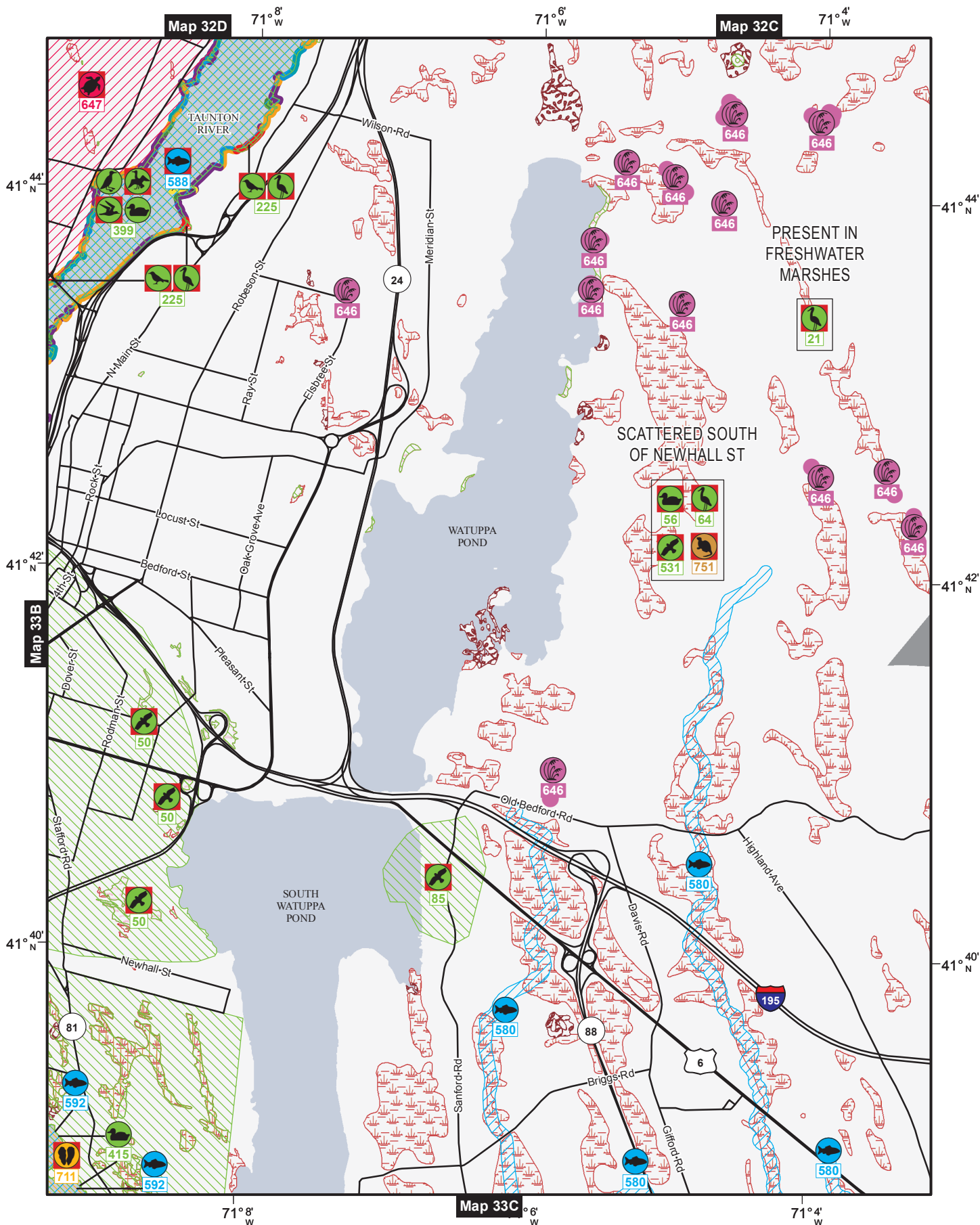
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt and Brackish Water Marshes	80,781.55	50.20	26%
10B	Freshwater Marshes	3,832.87	2.38	1%
10C	Swamps	7,766.47	4.83	2%
10D	Scrub and Shrub Wetlands	1,990.55	1.24	1%
9A	Sheltered Tidal Flats	14,565.69	9.05	5%
9B	Vegetated Low Banks	64,826.79	40.28	20%
8A	Sheltered, Impermeable, Rocky Shores	298.24	0.19	< 1%
8B	Sheltered, Solid Man-Made Structures	13,133.33	8.16	4%
8C	Sheltered Riprap	8,171.24	5.08	3%
8D	Sheltered, Rocky, Rubble Shores	150.96	0.09	< 1%
7	Exposed Tidal Flats	12,384.58	7.70	4%
6A	Gravel Beaches	2,392.06	1.49	1%
6B	Gravel Beaches (Cobbles/Boulders)	782.79	0.49	< 1%
6B	Riprap	18,650.15	11.59	6%
5	Mixed Sand and Gravel Beaches	21,275.61	13.22	7%
4	Coarse Grained Sand Beaches	37,842.59	23.51	12%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	1,723.35	1.07	1%
1A	Exposed, Rocky Shores	37.55	0.02	< 1%
1B	Exposed, Solid Man-Made Structures	25,841.85	16.06	8%

Total ESI Shoreline: 316,448.23 Total ESI Shoreline: 196.63
 Total Shoreline: 250,931.05 Total Shoreline: 155.92

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

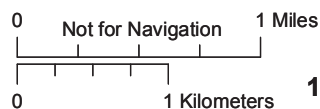




Map 33A Mass. / Rhode Island



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



1:50,000



Map 33A
Massachusetts and Rhode Island

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	MA/RI S F	Concentration	Monthly Presence												Nest	Mig. (S)	Mig. (F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
21	Wading	Marsh birds	General Distribution	C/C	Common													-	Mar-May	Aug-Nov	Jul-Aug
50	Raptor	Peregrine falcon	Nesting	E/E	Rare													Mar-Aug	Mar-Jun	Sep-Nov	-
56	Waterfowl	Waterfowl	General Distribution	C/C	Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
64	Wading	Marsh birds	General Distribution	C/C	Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
85	Raptor	Bald eagle	Nesting	T/E	Rare													Dec-Aug	Mar-Apr	-	-
225	Passerine	Marsh passerines	General Distribution	-/C	Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Wading	Egrets	Migration	-/C	Common													-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C	Common													-	Mar-May	Aug-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-/C	Common													-	Mar-May	Jul-Oct	-
399	Acid	Razorbill	Wintering		Common													-	Mar-Apr	Nov	-
	Diving	Horned grebe	Wintering		Rare													-	Apr-May	Oct-Nov	-
	Diving	Loons	General Distribution	C/-	Rare													-	Mar-Jun	Oct-Jan	Jan-Mar
	Gull/Tern	Rare tern	General Distribution	C/-	Common													-	Apr-May	Jul-Sep	-
	Waterfowl	American black duck	Wintering		Abundant													-	Apr	Oct	-
	Waterfowl	Diving ducks	Wintering		Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering		Common													Apr-May	Mar-May	Oct-Nov	-
	Waterfowl	Sea ducks	Wintering		Common													-	Mar-May	Oct-Nov	-
415	Waterfowl	American black duck	Wintering		Abundant													-	Apr	Oct	-
	Waterfowl	Diving ducks	Wintering		Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering		Common													Apr-May	Mar-May	Oct-Nov	-
531	Raptor	Raptors	General Distribution	-/C	Common													Mar-Aug	Mar-Apr	Jul-Nov	Jun

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
580	Diadromous	Alewife	Spawning Area		-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	American eel	Migration		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Blueback herring	Spawning Area		-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	Sea lamprey	Vulnerable Occurrence		-													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Freshwater	Blacknose dace	Vulnerable Occurrence		-													Mar-Jun	Mar-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Freshwater	Brook trout	Vulnerable Occurrence		-													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Freshwater	Common shiner	Vulnerable Occurrence		-													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
	Freshwater	Creek chub	Vulnerable Occurrence		-													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
	Freshwater	Fallfish	Vulnerable Occurrence		-													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Longnose dace	Vulnerable Occurrence		-													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Slimy sculpin	Vulnerable Occurrence		-													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Tessellated darter	Vulnerable Occurrence		-													May-Jul	May-Jul	May-Aug	Jan-Dec	Jan-Dec

FISH (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence												Larvae	Eggs	Spawn	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
588	Freshwater	White sucker	Vulnerable Occurrence		-													Apr-May	May-Jul	Apr-Jun	Jan-Dec	Jan-Dec
	Diadromous	Alewife	Spawning Area		-													Apr-Jun	Apr-Jun	-	-	Apr-Jun
	Diadromous	American eel	Migration		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic sturgeon	General Distribution	E/- T	-													May-Jun	May-Jun	May-Jun	Jan-Dec	Jan-Dec
592	Freshwater	Rainbow smelt	Spawning Area		-													Mar-May	Mar-May	Mar-May	-	Mar-May
	Diadromous	American eel	Migration		-													-	-	-	Jan-Dec	Jan-Dec

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence											
						J	F	M	A	M	J	J	A	S	O	N	D
646	Wetland	Vernal pool	Vulnerable Occurrence		-												

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F C/C	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
647	Turtle	Wood turtle	General Distribution		-													May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F -IE C/C	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
711	Bivalve	Eastern pearlshell	General Distribution		-													Aug-Sep	Aug-May	May-Jun	Jan-Dec	Jan-Dec
	Bivalve	Rare freshwater mussel	General Distribution		-													Aug-Sep	Aug-May	Jun-Jul	Jan-Dec	Jan-Dec

TERRESTRIAL MAMMALS


Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F C/C	Concentration	Monthly Presence											
						J	F	M	A	M	J	J	A	S	O	N	D
751	Small Mammal	American water shrew	General Distribution		Common												

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)



BIRDS

Subelement	Species	Mapping Qualifier	MA/RI S F C/C	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
					J	F	M	A	M	J	J	A	S	O	N	D				
	Waterfowl	General Distribution		Common													May-Jul	Apr-May	Aug-Oct	Aug-Sep
																				-







REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	MA/RI S F C/- T/-	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
					J	F	M	A	M	J	J	A	S	O	N	D					
	B; spotted salamander	General Distribution		-													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec
	Marbled salamander	General Distribution		Common													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec



BIRDS

Subelement	Species	Monthly Presence												Nest	Mig. (S)	Mig. (F)	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Diving	D. crested cormorant													-	Mar-Apr	Sep-Oct	-	-
 Waterfowl	American black duck													Mar-Jul	Sep-Mar	-	-	-
	Diving ducks													Mar-Apr	Sep-Apr	-	-	-
	Geese													May	Mar-May	Sep-Nov	-	-

FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Diadromous	Alewife													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	American shad													Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Atlantic salmon													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Blueback herring													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Striped bass													-	-	-	Apr-Nov	Apr-Nov
 Estuarine Nursery	Atlantic herring													Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy													Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass													May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov
	Bluefish													-	-	-	May-Oct	May-Oct
	Hogchoker													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Scup													May-Aug	May-Aug	Jun-Aug	Apr-Nov	Apr-Nov
	Summer flounder													Aug-Nov	Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish													Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	White perch													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Winter flounder													Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
 Estuarine Resident	Atlantic silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Stickleback													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
 Freshwater	Brook trout (sea run)													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
 Marine Benthic	American sand lance													Nov-Apr	Nov-May	Jan-May	Jan-Dec	Jan-Dec
	Atlantic cod													-	-	Jan-May	Jan-May	-
	Atlantic tomcod													Dec-Mar	Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec
	Pollock													Nov-Apr	Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Seabrooks													Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Skates													-	-	-	Jan-Dec	Jan-Dec
	Tautog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
 Marine Pelagic	Atlantic mackerel													-	May-Aug	May-Aug	May-Sep	May-Sep
	Sand tiger													-	-	-	Apr-Nov	Apr-Nov
	Spiny dogfish													-	-	-	Jan-Dec	Jan-Dec




REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Interest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Amphibian													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Four-toed salamander													Jun-Jul	Jun-Aug	-	Jan-Dec	Jan-Dec
	Turtle													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Wood frog													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Eastern box turtle													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Bivalve													Mar-Jul	Mar-Jul	Mar-Jul	Jan-Dec	Jan-Dec
	Blue mussel													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Eastern oyster													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Northern quahog													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Softshell clam													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Longfin squid													May-Aug	May-Aug	May-Aug	May-Nov	May-Nov
	Crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Atlantic rock crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Blue crab													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec
	Horseshoe crab													May-Jul	May-Jul	-	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													-	-	-	-
	Atl. wht.-side dolphin													-	-	-	-
	Harbor porpoise													-	-	-	-
	Short-beaked common dolphin													-	-	-	-
	Pinniped													-	-	-	-
	Harbor seal													-	-	-	-
	Whale													-	-	-	-
	Pilot whales													-	-	-	-

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	3.69	0.01
10B	Freshwater Marshes	65.58	0.10
10C	Swamps	2,448.00	3.82
10D	Scrub and Shrub Wetlands	114.28	0.18
9A	Sheltered Tidal Flats	2.70	0.00



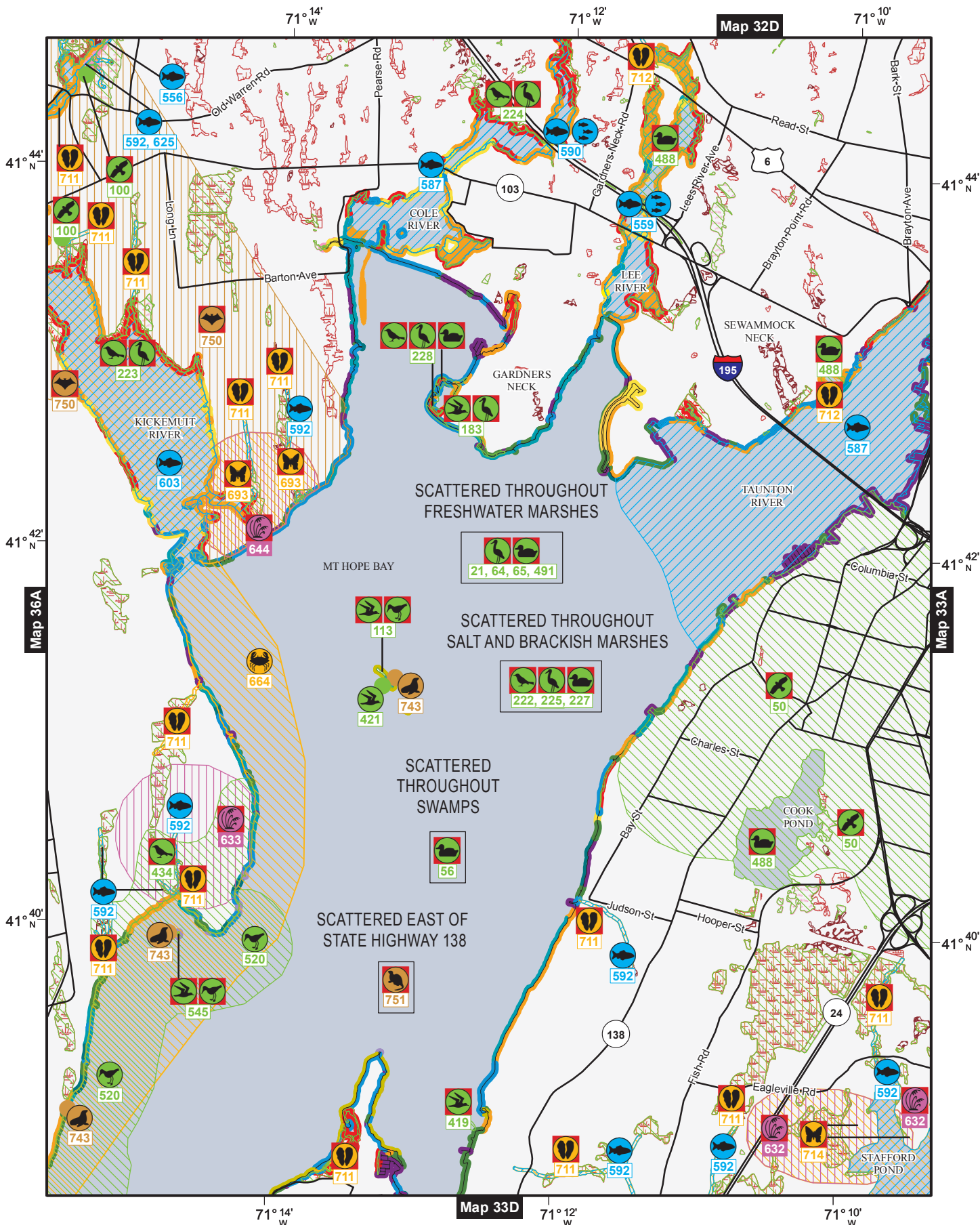
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt and Brackish Water Marshes	533.16	0.33	4%
9A	Sheltered Tidal Flats	647.15	0.40	5%
9B	Vegetated Low Banks	3,183.64	1.98	25%
8B	Sheltered, Solid Man-Made Structures	419.22	0.26	3%
6B	Riprap	946.99	0.59	8%
5	Mixed Sand and Gravel Beaches	1,540.08	0.96	12%
4	Coarse Grained Sand Beaches	940.60	0.58	7%
1B	Exposed, Solid Man-Made Structures	4,369.28	2.71	35%
Total ESI Shoreline:		12,580.12	7.82	
Total Shoreline:		9,687.68	6.02	

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

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





Map 33B
Massachusetts and Rhode Island

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	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig. (S)	Mig. (F)	Molt
								J	F	M	A	M	J	J	A	S	O	N	D				
21	Wading	Marsh birds	General Distribution	C/C	-	-	Common													-	Mar-May	Aug-Nov	Jul-Aug
50	Raptor	Peregrine falcon	Nesting	E/E	-	-	Rare													Mar-Aug	Mar-Jun	Sep-Nov	-
56	Waterfowl	Waterfowl	General Distribution	C/C	-	-	Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
64	Wading	Marsh birds	General Distribution	C/C	-	-	Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
65	Wading	Marsh birds	General Distribution	C/C	-	-	Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Waterfowl	Waterfowl	General Distribution	C/C	-	-	Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
100	Raptor	Osprey	Nesting	-/C	-	-	Nest Site													Apr-Aug	Apr-May	Sep-Nov	-
113	Gull/Tern	Common tern	Nesting	C/-	-	-	Nest Site													May-Sep	-	-	-
	Gull/Tern	Least tern	Nesting	C/T	-	-	Nest Site													May-Aug	-	-	-
	Shorebird	American oystercatcher	Nesting	-/C	-	-	Nest Site													Apr-Aug	-	-	-
183	Gull/Tern	Rare tern	Nesting	C/-	-	-	Rare													May-Aug	-	-	-
	Wading	Wading birds	General Distribution	-/C	-	-	Common													-	Mar-May	Jul-Oct	-
222	Passerine	Marsh passerines	General Distribution	-/C	-	-	Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Wading	Egrets	Migration	-/C	-	-	Common													-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C	-	-	Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-/C	-	-	Common													Apr-Sep	Mar-May	Sep-Oct	-
223	Passerine	Marsh passerines	General Distribution	-/C	-	-	Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Wading	Egrets	Migration	-/C	-	-	Common													-	Apr-May	Sep-Oct	-
	Wading	Wading birds	General Distribution	-/C	-	-	Common													Apr-Sep	Mar-May	Sep-Oct	-
224	Passerine	Marsh passerines	General Distribution	-/C	-	-	Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Wading	Egrets	Migration	-/C	-	-	Common													-	Apr-May	Sep-Oct	-
	Wading	Wading birds	General Distribution	-/C	-	-	Common													-	Mar-May	Jul-Oct	-
225	Passerine	Marsh passerines	General Distribution	-/C	-	-	Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Wading	Egrets	Migration	-/C	-	-	Common													-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C	-	-	Common													-	Mar-May	Aug-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-/C	-	-	Common													-	Mar-May	Jul-Oct	-
227	Passerine	Marsh passerines	General Distribution	-/C	-	-	Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Wading	Egrets	Migration	-/C	-	-	Common													-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C	-	-	Common													-	Apr-May	Aug-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-/C	-	-	Common													-	Mar-May	Jul-Oct	-
	Waterfowl	Waterfowl	General Distribution	C/C	-	-	Common													May-Jul	Apr-May	Aug-Oct	Aug-Sep
228	Passerine	Marsh passerines	General Distribution	-/C	-	-	Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Wading	Egrets	Migration	-/C	-	-	Common													-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C	-	-	Common													-	Mar-May	Aug-Nov	Jul-Aug
	Waterfowl	Waterfowl	General Distribution	-/C	-	-	Common													May-Jul	Apr-May	Aug-Oct	Aug-Sep
419	Gull/Tern	Common tern	Nesting	C/-	-	-	Nest Site													May-Sep	-	-	-
421	Gull/Tern	G. black-backed gull	Nesting	-	-	-	Nest Site													Apr-Jul	-	-	-

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Molt
								J	F	M	A	M	J	J	A	S	O	N	D					
434	Passerine	Passerine birds	General Distribution	-/C			Common													Mar-Aug	Feb-Nov	Sep	-	Jul-Sep
	Passerine	Yellow-billed cuckoo	General Distribution			T	Rare													Apr-Jul	Apr-May		-	-
488	Waterfowl	Waterfowl	General Distribution	C/C			Common													May-Jul	Apr-May	Aug-Oct	-	Aug-Sep
491	Wading	Marsh birds	General Distribution	C/C			Common													-	Mar-May	Aug-Nov	-	Jul-Aug
	Waterfowl	Waterfowl	General Distribution	C/C			Common													May-Jul	Apr-May	Aug-Oct	-	Aug-Sep
520	Shorebird	Purple sandpiper	Wintering				Rare													-	May	Nov	-	-
545	Gull/Tern	Common tern	Nesting	C/-			Nest Site													May-Sep	-	-	-	-
	Gull/Tern	G. black-backed gull	Nesting				Nest Site													Apr-Jul	-	-	-	-
	Gull/Tern	Herring gull	Nesting				Nest Site													May-Aug	-	-	-	-
	Shorebird	American oystercatcher	Nesting	-/C			Nest Site													Apr-Aug	-	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
556	Diadromous	Alewife	Spawning Area				-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	Blueback herring	Spawning Area				-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
559	Diadromous	Alewife	Spawning Area				-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	American eel	Migration				-													-	-	-	-	Jan-Dec
	Diadromous	American shad	Spawning Area				-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	Blueback herring	Spawning Area				-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Estuarine Nursery	White perch	Spawning Area				-													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Freshwater	Rainbow smelt	Spawning Area				-													Mar-May	Mar-May	Mar-May	-	Mar-May
587	Diadromous	Alewife	Spawning Area				-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	American eel	Migration				-													-	-	-	-	Jan-Dec
	Freshwater	Rainbow smelt	Spawning Area				-													Mar-May	Mar-May	Mar-May	-	Mar-May
590	Diadromous	American shad	Spawning Area				-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	Blueback herring	Spawning Area				-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Estuarine Nursery	White perch	Spawning Area				-													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
592	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec
603	Diadromous	Alewife	Migration				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Blueback herring	Migration				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
625	Diadromous	Alewife	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	Blueback herring	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Occurrence	T/C	-/C
								J	F	M	A	M	J	J	A	S	O	N	D			
632	Plant	Endangered plant	Vulnerable Occurrence	-/E		E	-															
633	Plant	Endangered plant	Vulnerable Occurrence	-/E		E	-															
	Plant	Rare plant	Vulnerable Occurrence	T/C			-															
644	Wetland	Rare wetland/aquatic plant	Vulnerable Occurrence	-/C			-															

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D				
664	Crab	Horseshoe crab	Spawning		Abundant													Apr-Jun	-	Apr-Jun	Apr-Jun
693	Insect	Rare insect	Vulnerable Occurrence	E/C T	-													Jan-Dec	Jan-Dec	Jan-Dec	Jan-Dec
711	Bivalve	Eastern pearlshell	General Distribution	-E	-													Aug-Sep	May-Jun	Jan-Dec	Jan-Dec
	Bivalve	Rare freshwater mussel	General Distribution	C/C	-													Aug-Sep	Jun-Jul	Jan-Dec	Jan-Dec
712	Bivalve	Rare freshwater mussel	General Distribution	C/C	-													Aug-Sep	Jun-Jul	Jan-Dec	Jan-Dec
714	Insect	Ringed boghaunter	Vulnerable Occurrence	T/E	-													Apr-Jun	Jan-Dec	-	Apr-Jun

MARINE MAMMALS






Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence												Calving	Pupping	Molt
						J	F	M	A	M	J	J	A	S	O	N	D			
743	Pinniped	Harbor seal	Haul Out		Common													-	-	-

TERRESTRIAL MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence											
						J	F	M	A	M	J	J	A	S	O	N	D
750	Bat	Northern myotis	General Distribution	E/- T	Rare												
751	Small Mammal	American water shrew	General Distribution	C/C	Common												

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)



BIRDS

Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
					J	F	M	A	M	J	J	A	S	O	N	D				
 Alcids	Razorbill	Wintering		Common													-	Mar-Apr	Nov	-
 Diving	Horned grebe	Wintering		Rare													-	Apr-May	Oct-Nov	-
	Loons	General Distribution	C/-	Rare													-	Mar-Jun	Oct-Jan	Jan-Mar
 Gull/Tern	Common tern	General Distribution	C/-	Common													May-Sep	Apr-May	Aug-Oct	-
	Least tern	General Distribution	C/T	Rare													-	Apr-May	Aug-Sep	-
	Rare tern	General Distribution	C/-	Common													-	Apr-May	Jul-Sep	-
 Raptor	Raptors	General Distribution	C/-	Common													-	Mar-Apr	Jul-Nov	Jun
 Waterfowl	American black duck	Wintering	-C	Abundant													-	Apr	Oct	-
	Diving ducks	Wintering		Common													Mar-Apr	Sep-Apr	-	-
	Geese	Wintering		Common													Apr-May	Mar-May	Oct-Nov	-
	Sea ducks	Wintering		Common													-	Mar-May	Oct-Nov	-






FISH

Subelement	Species	Mapping Qualifier	MA/RI 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/- T	-													May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec






REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence												Nest	Hatch	Interest	Juveniles	Adults
					J	F	M	A	M	J	J	A	S	O	N	D					
 Amphibian	B. spotted salamander	General Distribution	C/-	-													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec
	Marbled salamander	General Distribution	T/-	Common													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
 Turtle	Wood turtle	General Distribution	C/C	-													May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

BIRDS

Subelement	Species	Monthly Presence												Nest	Mig. (S)	Mig. (F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
 Diving	D. crested cormorant													-	Mar-Apr	Sep-Oct	-
 Gull/Tern	Gulls													-	Apr-May	Aug-Sep	-
	Gulls													-	Apr-May	Aug-Nov	-
 Passerine	Nashville warbler													May-Jul	Apr-May	Aug-Oct	Aug
 Shorebird	Shorebirds													Apr-Aug	Mar-Dec	-	Aug
	Shorebirds													Mar-Sep	Mar-Dec	-	Aug-Oct
 Waterfowl	American black duck													Mar-Jul	Sep-Mar	-	-
	Diving ducks													Mar-Apr	Sep-Apr	-	-
	Geese													May	Mar-May	Sep-Nov	-

FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Diadromous	Alewife													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	American eel													-	-	-	Jan-Dec	Jan-Dec
	American shad													Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Atlantic salmon													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Blueback herring													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Striped bass													-	-	-	Apr-Nov	Apr-Nov
 Estuarine Nursery	Atlantic herring													Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy													Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass													May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov
	Bluefish													-	-	-	May-Oct	May-Oct
	Hogchoker													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Scup													May-Aug	May-Aug	Jun-Aug	Apr-Nov	Apr-Nov
	Summer flounder													Aug-Nov	Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish													Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	White perch													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Winter flounder													Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
 Estuarine Resident	Atlantic silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Inland silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Stickleback													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
 Freshwater	Brook trout (sea run)													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Rainbow smelt													-	-	-	Jan-Dec	Jan-Dec
 Marine Benthic	American sand lance													Nov-Apr	Nov-May	Jan-May	Jan-Dec	Jan-Dec
	Atlantic cod													-	-	Jan-May	Jan-May	-
	Atlantic tomcod													Dec-Mar	Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec

FISH (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Pollock													Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Searobins													Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Skates													-	-	Jan-Dec	Jan-Dec
	Tautog													May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
Marine Pelagic	Atlantic mackerel													May-Aug	May-Aug	May-Sep	May-Sep
	Sand tiger													-	-	Apr-Nov	Apr-Nov
	Spiny dogfish													-	-	Jan-Dec	Jan-Dec

REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Interest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
Amphibian	Four-toed salamander													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Red-spotted newt													Jun-Jul	Jun-Aug	-	Jan-Dec	Jan-Dec
	Wood frog													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
Turtle	Eastern box turtle													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec



INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
Bivalve	Atl. jackknife clam													Apr-May	Apr-May	Apr-May	Jan-Dec	Jan-Dec
	Atlantic razor													Apr-Jun	Apr-Jun	Apr-Jun	Jan-Dec	Jan-Dec
Cephalopod	Bay scallop													Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec
	Blue mussel													Mar-Jul	Mar-Jul	Mar-Jul	Jan-Dec	Jan-Dec
	Eastern oyster													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Mussel bed													-	-	-	-	-
Crab	Northern quahog													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Softshell clam													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Longfin squid													May-Aug	May-Aug	May-Aug	May-Nov	May-Nov
	Atlantic rock crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
Gastropod	Blue crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Horseshoe crab													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec
	Channeled whelk													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Crepidula bed													-	-	-	-	-
Lobster	Knobbed whelk													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Northern moonshell													Apr-Sep	Apr-Sep	Apr-Sep	Jan-Dec	Jan-Dec
	Sea snails													May-Jul	May-Aug	Aug-Nov	Jan-Dec	Jan-Dec
	Ampelisca bed													-	-	-	-	-
Invertebrate	American lobster													Aug-Nov	Jan-Dec	Jun-Oct	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	Atl. wht.-side dolphin													-	-	-	-
	Harbor porpoise													-	-	-	-

MARINE MAMMALS (continued)

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Short-beaked common dolphin													-	-	-	-
	Harbor seal													-	-	-	-
	Pilot whales													-	-	-	-

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	170.34	0.27
10B	Freshwater Marshes	123.82	0.19
10C	Swamps	879.15	1.37
10D	Scrub and Shrub Wetlands	122.74	0.19
9A	Sheltered Tidal Flats	86.84	0.14
7	Exposed Tidal Flats	3.89	0.01
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	0.65	0.00

ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	20,217.23	12.56	16%
10B	Freshwater Marshes	890.72	0.55	1%
10C	Swamps	879.84	0.55	1%
10D	Scrub and Shrub Wetlands	190.06	0.12	< 1%
9A	Sheltered Tidal Flats	10,327.37	6.42	8%
9B	Vegetated Low Banks	24,207.18	15.04	19%
8A	Sheltered, Impermeable, Rocky Shores	140.16	0.09	< 1%
8B	Sheltered, Solid Man-Made Structures	6,796.00	4.22	5%
8C	Sheltered Riprap	4,303.18	2.67	3%
8D	Sheltered, Rocky, Rubble Shores	92.12	0.06	< 1%
7	Exposed Tidal Flats	3,670.93	2.28	3%
6A	Gravel Beaches	1,304.10	0.81	1%
6B	Gravel Beaches (Cobbles/Boulders)	549.66	0.34	< 1%
6B	Riprap	9,953.54	6.18	8%
5	Mixed Sand and Gravel Beaches	12,030.60	7.48	9%
4	Coarse Grained Sand Beaches	17,746.49	11.03	14%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	406.20	0.25	< 1%
1A	Exposed, Rocky Shores	37.55	0.02	< 1%
1B	Exposed, Solid Man-Made Structures	14,333.15	8.91	11%
Total ESI Shoreline:		128,076.07	79.58	
Total Shoreline:		94,999.04	59.03	

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 33C
Massachusetts and Rhode Island

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	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig. (S)	Mig. (F)	Molt
								J	F	M	A	M	J	J	A	S	O	N	D				
21	Wading	Marsh birds	General Distribution	C/C			Common													-	Mar-May	Aug-Nov	Jul-Aug
56	Waterfowl	Waterfowl	General Distribution	C/C			Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
64	Wading	Marsh birds	General Distribution	C/C			Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
65	Wading	Marsh birds	General Distribution	C/C			Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Waterfowl	Waterfowl	General Distribution	C/C			Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
118	Alcid	Razorbill	Wintering				Common													-	-	Oct-Nov	-
	Diving	Great cormorant	Wintering				Common													-	Feb-Mar	Nov	-
	Diving	Loons	Migration	C/-			Common													-	Mar-Jun	Sep-Dec	Jan-Mar
	Shorebird	Purple sandpiper	Wintering				Common													-	Mar	Oct	-
	Waterfowl	American black duck	Wintering				Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Diving ducks	Wintering				Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering				Common													May	Mar-May	Sep-Nov	-
	Waterfowl	Sea ducks	Wintering				Common													-	Mar-May	Sep-Oct	-
251	Passerine	Marsh passerines	General Distribution	-/C			Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Passerine	Saltmarsh sparrow	Nesting	-/C			Common													May-Jul	May	-	-
	Shorebird	Willet	Nesting	-/C			Common													Apr-May	Apr-May	Aug-Oct	-
	Wading	Egrets	General Distribution	-/C			Common													Apr-Jul	Mar-May	Aug-Sep	-
	Wading	Wading birds	General Distribution	-/C			Common													-	Mar-May	Jul-Oct	-
259	Passerine	Marsh passerines	General Distribution	-/C			Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Shorebird	Willet	Nesting	-/C			Common													Apr-May	Apr-May	Aug-Oct	-
	Wading	Egrets	General Distribution	-/C			Common													Apr-Jul	Mar-May	Aug-Sep	-
	Wading	Wading birds	General Distribution	-/C			Common													-	Mar-May	Jul-Oct	-
265	Passerine	Marsh passerines	General Distribution	-/C			Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Passerine	Saltmarsh sparrow	Nesting	-/C			Common													May-Jul	May	-	-
	Shorebird	Willet	Nesting	-/C			Common													Apr-May	Apr-May	Aug-Oct	-
	Wading	Egrets	General Distribution	-/C			Common													Apr-Jul	Mar-May	Aug-Sep	-
	Wading	Marsh birds	General Distribution	C/C			Common													-	Mar-May	Aug-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-/C			Common													-	Mar-May	Jul-Oct	-
	Waterfowl	Waterfowl	General Distribution	C/C			Common													May-Jul	Apr-May	Aug-Oct	Aug-Sep
271	Passerine	Marsh passerines	General Distribution	-/C			Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Passerine	Marsh wren	Nesting	-/C			Common													May-Jul	May	-	-
	Shorebird	Willet	Nesting	-/C			Common													Apr-May	Apr-May	Aug-Oct	-
	Wading	Egrets	General Distribution	-/C			Common													Apr-Jul	Mar-May	Aug-Sep	-
	Wading	Marsh birds	General Distribution	C/C			Common													-	Mar-May	Aug-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-/C			Common													-	Mar-May	Jul-Oct	-
	Waterfowl	Waterfowl	General Distribution	C/C			Common													May-Jul	Apr-May	Aug-Oct	Aug-Sep
273	Passerine	Marsh passerines	General Distribution	-/C			Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Monthly Presence												Concentration	MA/RI		Mapping Qualifier	Species	Mapping Qualifier	MA/RI	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
				S	F	J	F	M	A	M	J	J	A	S	O	N	D		S	F																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
415	Shorebird	Willet	Nesting	-/C																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
555	Diadromous	Alewife	Spawning Area				-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
581	Diadromous	Alewife	Spawning Area				-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Blueback herring	Spawning Area				-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
586	Estuarine Resident	Threespine stickleback	General Distribution	T/-			Common													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Diadromous	Alewife	Spawning Area				-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Diadromous	Blueback herring	Spawning Area				-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
	Estuarine Resident	Threespine stickleback	General Distribution	T/-			Common													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
589	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Blueback herring	Spawning Area				-													Apr-Jun	Apr-Jun	Apr-Jun	-	Apr-Jun
592	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec
616	Diadromous	Sea lamprey	Vulnerable Occurrence				-													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Freshwater	Blacknose dace	Vulnerable Occurrence				-													Mar-Jun	Mar-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Freshwater	Brook trout	Vulnerable Occurrence				-													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Freshwater	Common shiner	Vulnerable Occurrence				-													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
	Freshwater	Creek chub	Vulnerable Occurrence				-													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
	Freshwater	Fallfish	Vulnerable Occurrence				-													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Longnose dace	Vulnerable Occurrence				-													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Slimy sculpin	Vulnerable Occurrence				-													-	-	-	Jan-Dec	Jan-Dec
	Freshwater	Tessellated darter	Vulnerable Occurrence				-													May-Jul	May-Jul	May-Aug	Jan-Dec	Jan-Dec
	Freshwater	White sucker	Vulnerable Occurrence				-													Apr-May	May-Jul	May-Jul	Jan-Dec	Jan-Dec
622	Estuarine Resident	Threespine stickleback	General Distribution	T/-			Common													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec

INVERTEBRATES

TERRESTRIAL MAMMALS







WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

REPTILES & AMPHIBIANS



ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

FISH





Monthly Presence

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
	Diadromous													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Alewife													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Blueback herring													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Sea lamprey													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Estuarine Nursery													Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Atlantic herring													Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy													Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass													Feb-Jul	Feb-Jul	Mar-Jul	Jan-Dec	Jan-Dec
	Bluefish													-	-	Jun-Aug	May-Nov	May-Nov
	Hogchoker													May-Aug	May-Aug	Jun-Sep	May-Oct	May-Oct
	Northern kingfish													Jun-Jul	Jun-Jul	Jun-Aug	May-Nov	May-Nov
	Scup													May-Aug	May-Aug	Jun-Aug	May-Oct	May-Oct
	Summer flounder													Aug-Nov	Aug-Nov	Sep-Nov	Apr-Nov	Apr-Nov
	Weakfish													Apr-Aug	Apr-Aug	May-Sep	Apr-Nov	Apr-Nov
	White perch													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Winter flounder													Jan-May	Jan-May	Feb-May	Jan-Dec	Jan-Dec
	Estuarine Resident													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Atlantic silverside													May-Jul	May-Jul	May-Sep	Jan-Dec	Jan-Dec
	Fourspine stickleback													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Inland silverside													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Freshwater													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Brook trout (sea run)													-	-	-	Jan-Dec	Jan-Dec
	Marine Benthic													-	-	-	Jan-Dec	Jan-Dec
	Rainbow smelt													-	-	-	Jan-Dec	Jan-Dec
	Atlantic cod													-	-	-	Apr-Aug	Apr-Aug
	Atlantic tomcod													Dec-Feb	Dec-Mar	Dec-Apr	Dec-Jun	Dec-Jun
	Goosefish													-	-	-	-	Jan-Dec
	Haddock													Feb-Jun	Feb-Jun	Mar-Jun	Jan-Dec	Jan-Dec
	Little skate													Jan-Dec	Jan-Dec	-	Jan-Dec	Jan-Dec
	Pollock													-	-	-	Apr-Oct	Apr-Oct
	Red hake													-	-	-	Dec-May	Dec-May
	Red hake													Jun-Sep	Jun-Sep	Jul-Nov	Jun-Nov	Jun-Nov
	Rock gunnel													Nov-Mar	Nov-Apr	Jan-Jun	Jan-Dec	Jan-Dec
	Searobins													Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Silver hake													Jul-Oct	Jul-Oct	Aug-Oct	Jul-Dec	Jul-Dec
	Silver hake													-	-	-	Jan-Jun	Jan-Jun
	Tautog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	White hake													Apr-Sep	May-Nov	May-Nov	Jan-Dec	Jan-Dec
	Winter skate													-	-	-	Feb-Jul	Feb-Jul
	Winter skate													-	-	-	Aug-Jan	Aug-Jan
	Yellowtail flounder													Mar-Jul	Mar-Jul	Apr-Jul	Jan-Dec	Jan-Dec
	Marine Pelagic													May-Jul	May-Aug	May-Aug	Mar-Dec	Mar-Dec
	Atlantic mackerel													-	-	-	Feb-Jul	Feb-Jul
	Spiny dogfish													-	-	-	Aug-Jan	Aug-Jan

REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Four-toed salamander													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Red-spotted newt													Jun-Jul	Jun-Aug	-	Jan-Dec	Jan-Dec
	Wood frog													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Eastern box turtle													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Atl. jackknife clam													Apr-May	Apr-May	Apr-May	Jan-Dec	Jan-Dec
	Bay scallop													Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec
	Eastern oyster													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Northern quahog													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Sea scallop													Jul-Oct	Jul-Oct	Jul-Oct	Jan-Dec	Jan-Dec
	Softshell clam													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Longfin squid													May-Aug	May-Aug	May-Aug	Apr-Nov	Apr-Nov
	Atlantic rock crab													May-Oct	Jun-Oct	Jun-Oct	Jan-Dec	Jan-Dec
	Jonah crab													May-Oct	May-Oct	May-Oct	Jan-Dec	Jan-Dec
	American lobster													Aug-Nov	Jan-Dec	Jun-Oct	Jan-Dec	Jan-Dec
	Db grass shrimp													May-Jul	May-Jul	May-Jul	Jan-Dec	Jan-Dec
	Sevenspine bay shrimp													May-Jul	May-Jul	May-Jul	Jan-Dec	Jan-Dec

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	304.91	0.48
10B	Freshwater Marshes	105.75	0.17
10C	Swamps	3,261.79	5.10
10D	Scrub and Shrub Wetlands	78.69	0.12
9A	Sheltered Tidal Flats	0.25	0.00
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	0.10	0.00

ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	29,409.75	18.27	48%
10B	Freshwater Marshes	2,359.10	1.47	4%
10C	Swamps	5,194.10	3.23	9%
10D	Scrub and Shrub Wetlands	1,222.06	0.76	2%
9A	Sheltered Tidal Flats	28.85	0.02	< 1%
9B	Vegetated Low Banks	17,446.12	10.84	29%
8A	Sheltered, Impermeable, Rocky Shores	158.08	0.10	< 1%
8B	Sheltered, Solid Man-Made Structures	1,611.52	1.00	3%
8C	Sheltered Riprap	2,241.88	1.39	4%
5	Mixed Sand and Gravel Beaches	136.36	0.08	< 1%
4	Coarse Grained Sand Beaches	985.00	0.61	2%

Total ESI Shoreline: 60,792.81 Total ESI Shoreline: 37.77
 Total Shoreline: 53,206.15 Total Shoreline: 33.06

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 33D
Massachusetts and Rhode Island

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	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig. (S)	Mig. (F)	Molt
								J	F	M	A	M	J	J	A	S	O	N	D				
7	Shorebird	Upland sandpiper	Vulnerable Occurrence	E/-			-													May-Jul	May	Sep-Nov	Sep-Oct
28	Shorebird	Shorebirds	Migration				Abundant													-	Mar-Dec	-	-
29	Shorebird	Shorebirds	Migration				Abundant													-	Mar-Dec	-	-
	Shorebird	Willet	Migration				Common													Apr-May	Apr-May	Aug-Oct	-
56	Waterfowl	Waterfowl	General Distribution	C/C			Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
61	Passerine	Acadian flycatcher	Vulnerable Occurrence	-/C			-													Apr-Jul	Apr-May	Sep	-
64	Wading	Marsh birds	General Distribution	C/C			Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
65	Wading	Marsh birds	General Distribution	C/C			Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Waterfowl	Waterfowl	General Distribution	C/C			Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
96	Diving	D. crested cormorant	Nesting				Nest Site													Apr-Jun	-	-	-
	Wading	Cattle egret	Nesting				Nest Site													May-Jul	-	-	-
	Wading	Little blue heron	Nesting				Nest Site													Apr-Jun	Apr	-	-
100	Raptor	Osprey	Nesting				Nest Site													Apr-Aug	Apr-May	Sep-Nov	-
101	Gull/Tern	Least tern	Nesting				Nest Site													May-Aug	-	-	-
102	Gull/Tern	Least tern	Nesting				Nest Site													May-Aug	-	-	-
	Shorebird	Shorebirds	Migration				Abundant													-	Mar-Dec	-	-
	Shorebird	Willet	Migration				Common													Apr-May	Apr-May	Aug-Oct	-
212	Passerine	Marsh passerines	General Distribution	-/C			Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Shorebird	Shorebirds	Migration				Abundant													-	Mar-Dec	-	-
	Shorebird	Willet	Migration				Common													Apr-May	Apr-May	Aug-Oct	-
	Wading	Egrets	Migration				Common													-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C			Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-/C			Common													Apr-Sep	Mar-May	Sep-Oct	-
213	Gull/Tern	Common tern	Nesting	C/-			Nest Site													May-Sep	-	-	-
	Passerine	Marsh passerines	General Distribution	-/C			Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Shorebird	Shorebirds	Migration				Abundant													-	Mar-Dec	-	-
	Shorebird	Willet	Migration				Common													Apr-May	Apr-May	Aug-Oct	-
	Wading	Egrets	Migration				Common													-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C			Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-/C			Common													Apr-Sep	Mar-May	Sep-Oct	-
214	Passerine	Marsh passerines	General Distribution	-/C			Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Shorebird	Shorebirds	Migration				Abundant													-	Mar-Dec	-	-
	Shorebird	Willet	Migration				Common													Apr-May	Apr-May	Aug-Oct	-
	Wading	Egrets	Migration				Common													-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C			Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-/C			Common													Apr-Sep	Mar-May	Sep-Oct	-
215	Passerine	Marsh passerines	General Distribution	-/C			Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Shorebird	Shorebirds	Migration				Abundant													-	Mar-Dec	-	-

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
				S	F		J	F	M	A	M	J	J	A	S	O	N	D				
222	Wading	Egrets	Migration	-/C	-	Common												-	Apr-May	Sep-Oct	-	
	Wading	Marsh birds	General Distribution	C/C	-	Common												Mar-Sep	Mar-May	Sep-Nov	Jul-Aug	
	Wading	Wading birds	General Distribution	-/C	-	Common												Apr-Sep	Mar-May	Sep-Oct	-	
	Passerine	Marsh passerines	General Distribution	-/C	-	Common												Apr-Aug	Apr-May	Aug-Nov	Sep-Oct	
428	Wading	Egrets	Migration	-/C	-	Common												-	Apr-May	Sep-Oct	-	
	Wading	Marsh birds	General Distribution	C/C	-	Common												Mar-Sep	Mar-May	Sep-Nov	Jul-Aug	
	Wading	Wading birds	General Distribution	-/C	-	Common												Apr-Sep	Mar-May	Sep-Oct	-	
	Diving	D. crested cormorant	Vulnerable Occurrence	-	-	-												-	Mar-Apr	Sep-Oct	-	
474	Wading	Cattle egret	Vulnerable Occurrence	-	-	-												-	Mar-Apr	Sep	-	
	Wading	Little blue heron	Vulnerable Occurrence	-	-	-												-	Mar-Apr	Nov	-	
	Shorebird	Purple sandpiper	Wintering	-	-	Rare												-	May	Nov	-	
	Waterfowl	Harlequin duck	Wintering	-	-	Rare												-	Mar-Apr	Nov	-	
480	Gull/Tern	Least tern	Nesting	C/T	-	Common												May-Aug	-	-	-	
	Passerine	Tree swallow	Migration	-	-	Abundant												-	-	Jul-Oct	-	
485	Shorebird	Piping plover	Nesting	T/E	T	Nest Site												Mar-Aug	-	-	-	
	Gull/Tern	Least tern	Nesting	C/T	-	Common												May-Aug	-	-	-	
487	Passerine	Tree swallow	Migration	-	-	Abundant												-	-	Jul-Oct	-	
	Gull/Tern	G. black-backed gull	Nesting	-	-	Nest Site												Apr-Jul	-	-	-	
	Gull/Tern	Herring gull	Nesting	-	-	Nest Site												May-Aug	-	-	-	
	Gull/Tern	Least tern	Nesting	C/T	-	Common												May-Aug	-	-	-	
513	Passerine	Tree swallow	Migration	-	-	Abundant												-	-	Jul-Oct	-	
	Shorebird	American oystercatcher	Nesting	-/C	-	Nest Site												Apr-Aug	-	-	-	
	Wading	BC night-heron	Nesting	-/C	-	Nest Site												Apr-Aug	Apr-May	-	-	
	Wading	Egrets	Nesting	-/C	-	Nest Site												Apr-Aug	-	-	-	
520	Diving	Loons	Migration	C/-	-	Common												-	Mar-Jun	Oct-Jan	Jan-Mar	
	Shorebird	Purple sandpiper	Wintering	-	-	Rare												-	May	Nov	-	

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
				S	F		J	F	M	A	M	J	J	A	S	O	N	D					
592	Diadromous	American eel	Migration	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Jan-Dec	Jan-Dec
625	Diadromous	Alewife	Spawning Area	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Mar-Oct	Mar-Oct
	Diadromous	Blueback herring	Spawning Area	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Mar-Oct	Mar-Oct
628	Diadromous	Alewife	Migration	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Mar-Oct	Mar-Oct
	Diadromous	Blueback herring	Migration	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Mar-Oct	Mar-Oct

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence													
				S	F		J	F	M	A	M	J	J	A	S	O	N	D		
638	Plant	Rare plant	Vulnerable Occurrence	T/C	-															
641	Plant	Rare plant	Vulnerable Occurrence	T/C	-															
643	Wetland	Rare wetland/aquatic plant	Vulnerable Occurrence	-/C	-															
	Plant	Threatened plant	Vulnerable Occurrence	-/T	-															
644	Wetland	Rare wetland/aquatic plant	Vulnerable Occurrence	-/C	-															
645	Plant	Seaside sandplant	Vulnerable Occurrence	-/C	-															

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
648	Amphibian	Northern leopard frog	Vulnerable Occurrence				-													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec
657	Amphibian	Marbled salamander	General Distribution	TI/-			Common													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
664	Crab	Horseshoe crab	Spawning				Abundant													Apr-Jun	Apr-Jun	-	Apr-Jun	Apr-Jun
693	Insect	Rare insect	Vulnerable Occurrence	E/C	T		-													Mar-Oct	Jan-Dec	Jan-Dec	Jan-Dec	Jan-Dec
711	Bivalve	Eastern pearlshell	General Distribution	-I/E			-													Aug-Sep	Aug-May	May-Jun	Jan-Dec	Jan-Dec
713	Insect	Rare freshwater mussel	General Distribution	C/C			-													Aug-Sep	Aug-May	Jun-Jul	Jan-Dec	Jan-Dec
		Threatened insect	Vulnerable Occurrence	-I/E			-													Apr-Aug	Apr-Aug	Jan-Dec	Jan-Dec	Jan-Dec

MARINE MAMMALS






Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
								J	F	M	A	M	J	J	A	S	O	N	D				
732	Pinniped	Harbor seal	Haul Out				Low													-	-	-	-

TERRESTRIAL MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	Monthly Presence														
					S	F	Concentration												
751	Small Mammal	American water shrew	General Distribution	C/C															

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS



Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
	Alcid	Razorbill	Wintering				Common												-	Mar-Apr	Nov	-
	Diving	Horned grebe	Wintering				Rare												-	Apr-May	Oct-Nov	-
	Gull/Tern	Loons	General Distribution	C/-			Rare												-	Mar-Jun	Oct-Jan	Jan-Mar
		Common tern	General Distribution	C/-			Common												May-Sep	Apr-May	Aug-Oct	-
		Least tern	General Distribution	C/T			Rare												-	Apr-May	Aug-Sep	-
	Raptor	Raptors	General Distribution	-I/C			Common												Mar-Aug	Mar-Apr	Jul-Nov	Jun
	Waterfowl	American black duck	Wintering				Abundant												-	Apr	Oct	-
		Diving ducks	Wintering				Common												Mar-Apr	Sep-Apr	-	-
		Geese	Wintering				Common												Apr-May	Mar-May	Oct-Nov	-
		Sea ducks	Wintering				Common												-	Mar-May	Oct-Nov	-

FISH

Subelement	Species	Mapping Qualifier	MA/RI	S	F	T	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/-			-													May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec







BIRDS

Monthly Presence



Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Eggs	Larvae	Juveniles	Molt
 Gull/Tern	Gulls													-	Apr-May	Aug-Sep	-	-
 Passerine	Nashville warbler													May-Jul	Apr-May	Aug-Oct	Aug	-
 Shorebird	Shorebirds													Mar-Sep	Mar-Dec	-	Aug-Oct	-

FISH





Monthly Presence

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
 Diadromous	Alewife													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	American eel													-	-	-	Jan-Dec	Jan-Dec
	American shad													Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Atlantic salmon													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Blueback herring													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Striped bass													-	-	-	Apr-Nov	Apr-Nov
 Estuarine Nursery	Atlantic herring													Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy													Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass													May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov
	Bluefish													-	-	-	May-Oct	May-Oct
	Hogchoker													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Scup													May-Aug	May-Aug	Jun-Aug	Apr-Nov	Apr-Nov
	Summer flounder													Aug-Nov	Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish													Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	White perch													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Winter flounder													Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
 Estuarine Resident	Atlantic silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Inland silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Stickleback													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
 Freshwater	Brook trout (sea run)													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Rainbow smelt													-	-	-	Jan-Dec	Jan-Dec
 Marine Benthic	American sand lance													Nov-Apr	Nov-May	Jan-May	Jan-Dec	Jan-Dec
	Atlantic cod													-	-	Jan-May	Jan-May	-
	Atlantic tomcod													Dec-Mar	Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec
	Little tunny													-	-	-	May-Nov	May-Nov
	Pollock													Nov-Apr	Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Searobins													Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Skates													-	-	-	Jan-Dec	Jan-Dec
	Tautog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
 Marine Pelagic	Atlantic mackerel													-	May-Aug	May-Aug	May-Sep	May-Sep
	Sand tiger													-	-	-	Apr-Nov	Apr-Nov
	Spiny dogfish													-	-	-	Jan-Dec	Jan-Dec



REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Four-toed salamander													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Red-spotted newt													Jun-Jul	Jun-Aug	-	Jan-Dec	Jan-Dec
	Spotted salamander													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Wood frog													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Eastern box turtle													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Atl. jackknife clam													Apr-May	Apr-May	Apr-May	Jan-Dec	Jan-Dec
	Atlantic razor													Apr-Jun	Apr-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic surfclam													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Bay scallop													Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec
	Blue mussel													Mar-Jul	Mar-Jul	Mar-Jul	Jan-Dec	Jan-Dec
	Eastern oyster													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Northern quahog													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Ocean quahog													Jul-Nov	Jul-Nov	Jul-Dec	Jan-Dec	Jan-Dec
	Softshell clam													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Longfin squid													May-Aug	May-Aug	May-Aug	May-Nov	May-Nov
	Atlantic rock crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Blue crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Horseshoe crab													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec
	Jonah crab													May-Oct	May-Oct	May-Oct	Apr-Oct	Apr-Oct
	Channeled whelk													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Knobbed whelk													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Northern moonsnail													Apr-Sep	Apr-Sep	Apr-Sep	Jan-Dec	Jan-Dec
	Sea snails													May-Jul	May-Aug	Aug-Nov	Jan-Dec	Jan-Dec
	American lobster													Aug-Nov	Jan-Dec	Jun-Oct	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				
	Atl. wht.-side dolphin													-	-	-	-
	Harbor porpoise													-	-	-	-
	Short-beaked common dolphin													-	-	-	-
	Harbor seal													-	-	-	-
	Pilot whales													-	-	-	-

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	382.42	0.60
10B	Freshwater Marshes	85.07	0.13
10C	Swamps	1,861.48	2.91
10D	Scrub and Shrub Wetlands	71.37	0.11
9A	Sheltered Tidal Flats	26.81	0.04
7	Exposed Tidal Flats	5.84	0.01
5	Mixed Sand and Gravel Beaches	1.12	0.00
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	1.26	0.00

ESI SHORELINE HABITAT TYPES

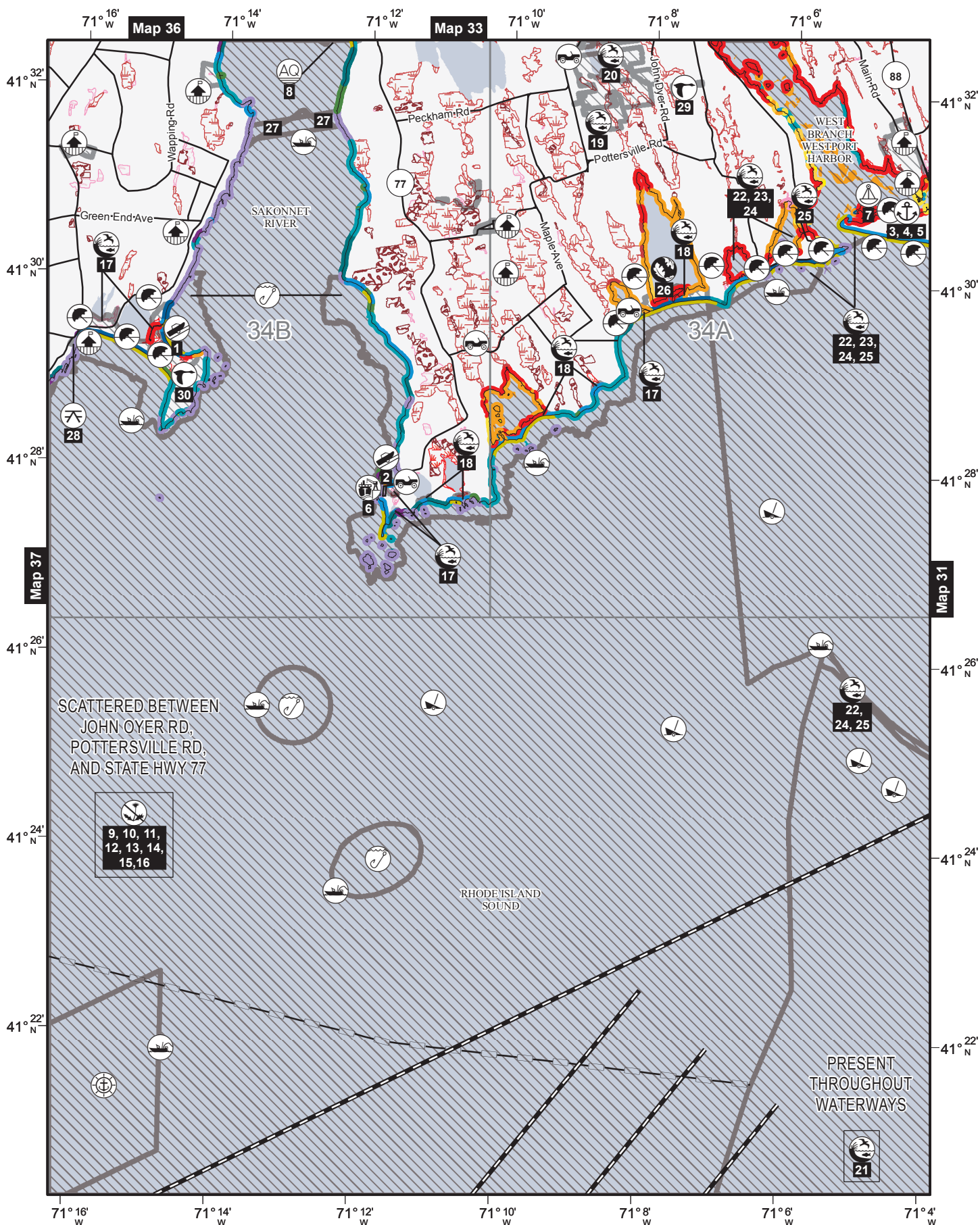
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	30,601.19	19.01	27%
10B	Freshwater Marshes	583.06	0.36	1%
10C	Swamps	1,692.59	1.05	1%
10D	Scrub and Shrub Wetlands	578.44	0.36	1%
9A	Sheltered Tidal Flats	3,562.32	2.21	3%
9B	Vegetated Low Banks	19,989.42	12.42	17%
8B	Sheltered, Solid Man-Made Structures	4,306.59	2.68	4%
8C	Sheltered Riprap	1,626.18	1.01	1%
8D	Sheltered, Rocky, Rubble Shores	58.85	0.04	< 1%
7	Exposed Tidal Flats	8,710.90	5.41	8%
6A	Gravel Beaches	1,087.96	0.68	1%
6B	Gravel Beaches (Cobbles/Boulders)	228.99	0.14	< 1%
6B	Riprap	7,748.62	4.81	7%
5	Mixed Sand and Gravel Beaches	7,569.67	4.70	7%
4	Coarse Grained Sand Beaches	18,168.70	11.29	16%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	1,317.15	0.82	1%
1B	Exposed, Solid Man-Made Structures	7,138.42	4.44	6%

Total ESI Shoreline: 114,969.04 Total ESI Shoreline: 71.44
 Total Shoreline: 93,016.70 Total Shoreline: 57.80

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

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





Map 34
Mass. / Rhode Island



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

0 Not for Navigation 2 Miles
0 2 Kilometers

1:100,000



Map 34
Massachusetts and Rhode Island

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Contact Phone
1	BOAT RAMP	THIRD BEACH	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT 401-222-2776
2	BOAT RAMP	SAKONNET HARBOR FISHING ACCESS	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT 401-222-2776
3	MARINA	F.L. TRIPP AND SONS, INC.	
4	MARINA	LEACH & SON	
5	MARINA	SHAMROCK MARINE, INC.	
6	PORT	COMMERCIAL / INDUSTRIAL - FISHING	
7	REPEATED MEASUREMENT SITE	TIDE GAUGE - WESTPORT HARBOR	

DISPLAYED ON MAP (POLYGONS)			
Map ID	Type	Name	Contact Phone
8	AQUACULTURE	MELANSON - OYSTER	
9	INVASIVE SPECIES	ASIATIC BITTERSWEET	
10	INVASIVE SPECIES	AUTUMN OLIVE	
11	INVASIVE SPECIES	COMMON REED	
12	INVASIVE SPECIES	EUROPEAN PRIVET	
13	INVASIVE SPECIES	JAPANESE HONEYSUCKLE	
14	INVASIVE SPECIES	MARROWS HONEYSUCKLE	
15	INVASIVE SPECIES	MULTIFLORA ROSE	
16	INVASIVE SPECIES	SPOTTED Knapweed	
17	MANAGEMENT AREA	3 COASTAL BARRIER - MODERATELY DEVELOPED	
18	MANAGEMENT AREA	6 COASTAL BARRIER - UNDEVELOPED	
19	MANAGEMENT AREA	SIMMONS MILL MANAGEMENT AREA - ORTON	RI DEM, DFW 401-789-7481
20	MANAGEMENT AREA	SIMMONS MILL MANAGEMENT AREA - FORT CHURCH	RI DEM, DFW 401-789-7481
21	MANAGEMENT AREA	LOBSTER MANAGEMENT AREA 2	
22	MANAGEMENT AREA	CAPE COD SOUTH CLOSURE AREA	
23	MANAGEMENT AREA	NORTHERN INSHORE STATE TRAP/POT WATERS AREA	
24	MANAGEMENT AREA	NORTHERN NEARSHORE TRAP/POT WATERS AREA	
25	MANAGEMENT AREA	OTHER NORTHEAST GILLNET WATERS AREA	
26	NATURE CONSERVANCY	GOOSEWING BEACH PRESERVE	THE NATURE CONSERVANCY IN RHODE ISLAND 401-331-7710
27	PIPELINE	PIPELINE	
28	REGIONAL OR STATE PARK	RESERVATION - PURGATORY CHASM	RI DEM 401-667-6200
29	WILDLIFE REFUGE	ELIZABETH TURNER PRESERVE	AUDUBON SOCIETY OF RHODE ISLAND 401-949-5454
30	WILDLIFE REFUGE	SACHUEST POINT NATIONAL WILDLIFE REFUGE	NICK ERNST, USFWS, RHODE ISLAND NWR COMPLEX 401-213-4406

ALSO PRESENT IN MAPPED AREA (POINTS)			
Type	Name	Contact	Phone
ESSENTIAL HABITAT	OBLIGATE SPECIES - VERNAL POOL	MA DFW NHESP, WESTBOROUGH, MA	508-389-6375
ESSENTIAL HABITAT	OBLIGATE SPECIES, FACULTATIVE SPECIES - VERNAL POOL	MA DFW NHESP, WESTBOROUGH, MA	508-389-6375

ALSO PRESENT IN MAPPED AREA (POLYGONS)

<i>Type</i>	<i>Name</i>	<i>Contact</i>	<i>Phone</i>
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: ATLANTIC COD	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: ATLANTIC HERRING	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: ATLANTIC WOLFFISH	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: HADDOCK	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: LITTLE SKATE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: OCEAN POUT	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: RED HAKE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: SILVER HAKE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINDOW PANE FLOUNDER	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINTER FLOUNDER	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINTER SKATE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
MANAGEMENT AREA	PRIORITY HABITAT	MDFW NHESP	508-389-6380

JURISDICTIONS

COUNTY: BRISTOL, NEWPORT
COAST GUARD: DISTRICT 1, SECTOR SE NEW ENGLAND
USACE: NORTH ATLANTIC DIVISION, NEW ENGLAND DISTRICT

FEMA: REGION I
EPA: REGION 1

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	234.45	0.37
10B	Freshwater Marshes	199.57	0.31
10C	Swamps	2,075.66	3.24
10D	Scrub and Shrub Wetlands	597.85	0.93
9A	Sheltered Tidal Flats	162.62	0.25
7	Exposed Tidal Flats	1.39	0.00
5	Mixed Sand and Gravel Beaches	63.22	0.10
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	17.57	0.03

ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt and Brackish Water Marshes	26,175.59	16.26	20%
10B	Freshwater Marshes	384.86	0.24	< 1%
10C	Swamps	1,134.57	0.70	1%
10D	Scrub and Shrub Wetlands	31.66	0.02	< 1%
9A	Sheltered Tidal Flats	6,478.08	4.03	5%
9B	Vegetated Low Banks	13,630.28	8.47	10%
8A	Sheltered, Impermeable, Rocky Shores	583.94	0.36	< 1%
8B	Sheltered, Permeable, Rocky Structures	18.11	0.01	< 1%
8B	Sheltered, Solid Man-Made Structures	4,461.56	2.77	3%
8C	Sheltered Riprap	1,357.46	0.84	1%
8D	Sheltered, Rocky, Rubble Shores	559.53	0.35	< 1%
7	Exposed Tidal Flats	13,413.62	8.33	10%
6A	Gravel Beaches	4,460.60	2.77	3%
6B	Riprap	2,029.66	1.26	2%
6B	Gravel Beaches (Cobbles/Boulders)	643.58	0.40	< 1%
5	Mixed Sand and Gravel Beaches	17,082.80	10.61	13%
4	Coarse Grained Sand Beaches	13,532.14	8.41	10%
3A	Fine to Medium Grained Sand Beaches	5,474.96	3.40	4%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	18,618.89	11.57	14%
2B	Exposed Scarps and Steep Slopes (Clay)	356.58	0.22	< 1%
1A	Exposed, Rocky Shores	86.77	0.05	< 1%
1B	Exposed, Solid Man-Made Structures	1,159.32	0.72	1%

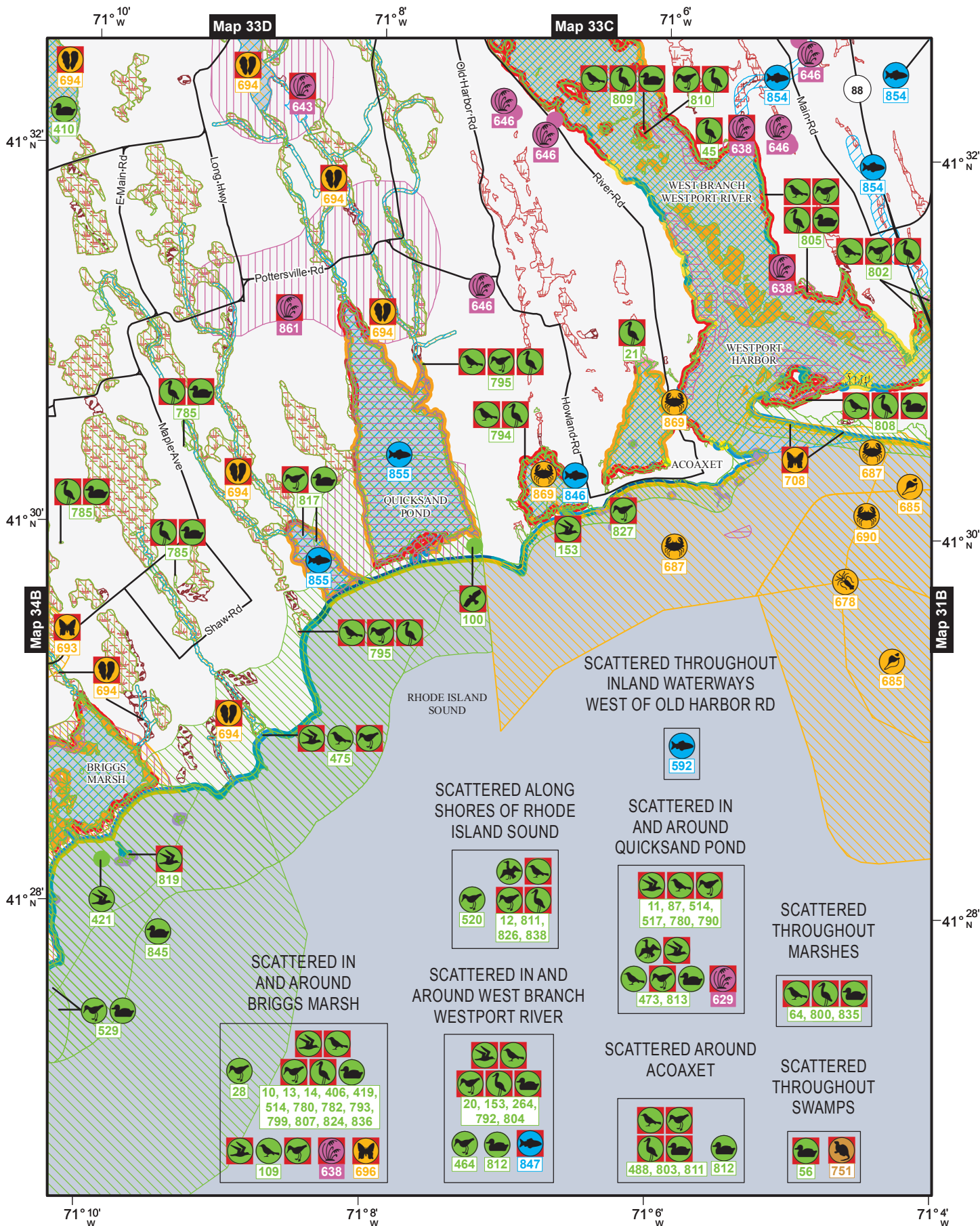
Total ESI Shoreline: 131,674.55
Total Shoreline: 99,256.86

Total ESI Shoreline: 81.82
Total Shoreline: 61.68

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

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





Map 34A
Massachusetts and Rhode Island

BIOLOGICAL RESOURCES

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

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence											
					J	F	M	A	M	J	J	A	S	O	N	D
SAV	Widgeon grass	High Ecological Value		Present												
SAV	Eelgrass	High Ecological Value		Potential												
SAV	Eelgrass	High Ecological Value		Present												
SAV	Widgeon grass	High Ecological Value		Thick												

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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10	Shorebird	Red knot	Migration		T	Common																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
				S	F	J	F	M	A	M	J	J	A	S	O	N	D				
111	Shorebird	Red knot	Migration		T												-	May-Jun	Jul-Sep	-	
	Gull/Tern	Least tern	Nesting	C/T													May-Aug	-	-		
	Passerine	Tree swallow	Migration														-	Jul-Oct	-		
	Shorebird	Willet	Migration	-C													Apr-May	Aug-Oct	-		
153	Gull/Tern	Rare tern	Nesting	C/-													May-Aug	-	-		
167	Gull/Tern	Rare tern	Nesting	C/-													May-Aug	-	-		
	Shorebird	American oystercatcher	Nesting	-C													May-Aug	May	-		
	Shorebird	Piping plover	Nesting	T/E	T												Mar-Apr	Jul-Oct	-		
	Shorebird	Red knot	Migration	T													May-Jun	Jul-Sep	-		
	Shorebird	Shorebirds	Migration														Mar-Jun	Jul-Nov	Aug		
	Passerine	Marsh passerines	General Distribution	-C													Apr-Aug	Aug-Nov	Sep-Oct		
186	Shorebird	Piping plover	Nesting	T/E	T												Mar-Aug	-	-		
	Wading	Egrets	Migration	-C													-	Sep-Oct	-		
	Wading	Marsh birds	General Distribution	C/C													Mar-Sep	Mar-May	Sep-Nov		
	Wading	Marsh birds	General Distribution	-C													Apr-Sep	Mar-May	Sep-Oct		
193	Passerine	Marsh passerines	General Distribution	-C													Apr-Aug	Apr-May	Aug-Nov		
	Passerine	Saltmarsh sparrow	Nesting	-C													May-Jul	May	-		
	Wading	Egrets	Migration	-C													Apr-Jul	Mar-May	Aug-Sep		
	Wading	Marsh birds	General Distribution	C/C													-	Mar-May	Aug-Nov		
212	Passerine	Marsh passerines	General Distribution	-C													Apr-Aug	Apr-May	Aug-Nov		
	Shorebird	Shorebirds	Migration														-	Mar-Dec	-		
	Shorebird	Willet	Migration	-C													Apr-May	Aug-Oct	-		
	Wading	Egrets	Migration	-C													-	Apr-May	Sep-Oct		
218	Wading	Marsh birds	General Distribution	C/C													Mar-Sep	Mar-May	Sep-Nov		
	Wading	Wading birds	General Distribution	-C													Apr-Sep	Mar-May	Sep-Oct		
	Passerine	Marsh passerines	General Distribution	-C													Apr-Aug	Apr-May	Aug-Nov		
	Shorebird	Willet	Migration	-C													Apr-May	Aug-Oct	-		
222	Wading	Egrets	Migration	-C													-	Apr-May	Sep-Oct		
	Wading	Marsh birds	General Distribution	C/C													Mar-Sep	Mar-May	Sep-Nov		
	Wading	Wading birds	General Distribution	-C													Apr-Sep	Mar-May	Sep-Oct		
	Passerine	Marsh passerines	General Distribution	-C													Apr-Aug	Apr-May	Aug-Nov		
248	Wading	Egrets	Migration	-C													-	Apr-May	Sep-Oct		
	Wading	Marsh birds	General Distribution	C/C													Mar-Sep	Mar-May	Sep-Nov		
	Wading	Wading birds	General Distribution	-C													Apr-Sep	Mar-May	Sep-Oct		
	Passerine	Marsh passerines	General Distribution	-C													Apr-Aug	Apr-May	Aug-Nov		
249	Passerine	Saltmarsh sparrow	Nesting	-C													May-Jul	May	-		
	Shorebird	Willet	Nesting	-C													Apr-May	Apr-May	Aug-Oct		
	Wading	Egrets	Migration	-C													Apr-Jul	Mar-May	Aug-Sep		
	Wading	Marsh birds	General Distribution	C/C													-	Mar-May	Aug-Nov		

BIRDS (continued)

[illegible]

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	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	Wintering				Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering				Common													May	Mar-May	Sep-Nov	-
407	Diving	Horned grebe	Wintering				Rare													-	Apr-May	Oct-Nov	-
	Waterfowl	American black duck	Wintering				Abundant													-	Apr	Oct	-
	Waterfowl	Dabbling ducks	Wintering				Common													-	Feb-Apr	Sep-Dec	-
	Waterfowl	Diving ducks	Wintering				Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering				Common													Apr-May	Mar-May	Oct-Nov	-
410	Shorebird	Willet	Nesting				Abundant													May-Jun	May	Aug	-
	Waterfowl	American black duck	Wintering				Abundant													-	Apr	Oct	-
	Waterfowl	Diving ducks	Wintering				Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering				Common													Apr-May	Mar-May	Oct-Nov	-
	Shorebird	Willet	Nesting				Abundant													May-Jun	May	Aug	-
411	Waterfowl	American black duck	Wintering				Abundant													-	Apr	Oct	-
	Waterfowl	Dabbling ducks	Wintering				Common													-	Feb-Apr	Sep-Dec	-
	Waterfowl	Diving ducks	Wintering				Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering				Common													Apr-May	Mar-May	Oct-Nov	-
	Waterfowl	American black duck	Wintering				Common													May-Jun	May	Aug	-
415	Waterfowl	American black duck	Wintering				Common													-	Apr	Oct	-
	Waterfowl	Diving ducks	Wintering				Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering				Common													Apr-May	Mar-May	Oct-Nov	-
	Waterfowl	American black duck	Wintering				Common													May-Jun	May	Aug	-
	Waterfowl	Geese	Wintering				Common													-	Apr	Oct	-
419	Gull/Tern	Common tern	Nesting				Nest Site													May-Sep	-	-	-
	Gull/Tern	Common tern	Nesting				Nest Site													May-Sep	-	-	-
	Gull/Tern	G. black-backed gull	Nesting				Nest Site													Apr-Jul	-	-	-
	Gull/Tern	Herring gull	Nesting				Nest Site													May-Aug	-	-	-
	Gull/Tern	G. black-backed gull	Nesting				Nest Site													Apr-Jul	-	-	-
421	Gull/Tern	Least tern	Nesting				Common													May-Aug	-	-	-
	Passerine	Passerine birds	General Distribution				Common													Mar-Aug	Feb-Nov	-	Jul-Sep
	Passerine	Tree swallow	Migration				Abundant													-	-	Jul-Oct	-
	Passerine	Yellow-billed cuckoo	General Distribution				Rare													Apr-Jul	Apr-May	Sep	-
	Shorebird	Piping plover	Nesting				Nest Site													Mar-Aug	-	-	-
434	Shorebird	Willet	Migration				Common													Apr-May	Apr-May	Aug-Oct	-
	Passerine	Passerine birds	General Distribution				Common													Mar-Aug	Feb-Nov	-	Jul-Sep
	Passerine	Yellow-billed cuckoo	General Distribution				Rare													Apr-Jul	Apr-May	Sep	-
	Shorebird	Piping plover	Nesting				Common													Mar-Aug	Mar-Apr	Jul-Oct	-
	Shorebird	Red knot	Migration				Common													-	May-Jun	Jul-Sep	-
464	Shorebird	Shorebirds	Migration				Common													-	Mar-Jun	Jul-Nov	Aug
	Shorebird	Shorebirds	Migration				Common													-	Mar-Jun	Jul-Nov	Aug
	Gull/Tern	Least tern	Nesting				Common													May-Aug	-	-	-
	Passerine	Tree swallow	Migration				Abundant													-	-	Jul-Oct	-
	Shorebird	Piping plover	Nesting				Nest Site													Mar-Aug	-	-	-
479	Shorebird	Willet	Migration				Common													Apr-May	Apr-May	Aug-Oct	-
	Gull/Tern	Least tern	Nesting				Common													May-Aug	-	-	-
	Passerine	Tree swallow	Migration				Abundant													-	-	Jul-Oct	-
	Shorebird	Piping plover	Nesting				Nest Site													Apr-May	Apr-May	Aug-Oct	-
	Shorebird	Willet	Migration				Common													May-Aug	-	-	-
481	Gull/Tern	Least tern	Nesting				Common													-	-	Jul-Oct	-
	Passerine	Tree swallow	Migration				Abundant													-	-	Jul-Oct	-
	Shorebird	Red knot	Migration				Common													-	-	Jul-Oct	-
	Shorebird	Waterfowl	General Distribution				Common													-	-	Jul-Oct	-
	Waterfowl	Waterfowl	General Distribution				Common													May-Jul	Apr-May	Aug-Oct	Aug-Sep

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
				S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N				
491	Wading	Marsh birds	General Distribution	C/C		Common													Mar-May	Aug-Nov	Jul-Aug
	Waterfowl	Waterfowl	General Distribution	C/C		Common													Apr-May	Aug-Oct	Aug-Sep
499	Waterfowl	Blue-winged teal	Vulnerable Occurrence			-													-	-	-
511	Diving	Horned grebe	Wintering			Rare													Apr-May	Oct-Nov	-
519	Shorebird	Piping plover	Migration	T/E	T	Common													Mar-Apr	Jul-Sep	-
520	Shorebird	Purple sandpiper	Wintering			Rare													May	Nov	-
521	Shorebird	Willet	Nesting	-/C		Abundant													May-Jun	Aug	-
541	Shorebird	Purple sandpiper	Migration			Abundant													May	Nov	-
542	Waterfowl	Harlequin duck	Wintering			Abundant													Mar-Apr	Nov	-
	Waterfowl	Sea ducks	Wintering			Abundant													Mar-May	Oct-Nov	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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557	Diadromous	Alewife	Spawning Area			-													Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun	Apr-Jun

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												
				S	F		J	F	M	A	M	J	J	A	S	O	N	D	
634	Plant	Endangered plant	Vulnerable Occurrence	-/E	E	-													
	Plant	Rare plant	Vulnerable Occurrence	T/C		-													
	Plant	Threatened plant	Vulnerable Occurrence	-/T		-													
638	Plant	Rare plant	Vulnerable Occurrence	T/C		-													
	Plant	Rare plant	Vulnerable Occurrence	T/C		-													
640	Plant	Seaside sandplant	Vulnerable Occurrence	-/C		-													
	Plant	Threatened plant	Vulnerable Occurrence	-/T		-													

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/R	S	F	Concentration	Monthly Presence											
								J	F	M	A	M	J	J	A	S	O	N	D
643	Plant	Threatened plant	Vulnerable Occurrence	-/T			-												
646	Wetland	Vernal pool	Vulnerable Occurrence				-												

INVERTEBRATES






Map ID	Subelement	Species	Mapping Qualifier	MA/R	S	F	Concentration	Monthly Presence											
								J	F	M	A	M	J	J	A	S	O	N	D
666	Crab	Blue crab	Nursery				Common												
	Crab	Horseshoe crab	Nursery				Abundant												
678	Cephalopod	Longfin squid	Concentration Area				Common												
685	Gastropod	Knobbed whelk	Concentration Area				Medium												
687	Crab	Horseshoe crab	Spawning				Abundant												
690	Crab	Horseshoe crab	Concentration Area				Medium												
693	Insect	Rare insect	Vulnerable Occurrence	E/C	T		-												
708	Insect	Rare insect	Vulnerable Occurrence	E/C	T		Potential												
711	Bivalve	Eastern pearlshell	General Distribution	-/E			-												
	Bivalve	Rare freshwater mussel	General Distribution	C/C			-												
713	Insect	Threatened insect	Vulnerable Occurrence	-/E			-												

TERRESTRIAL MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	MA/R	S	F	Concentration	Monthly Presence											
								J	F	M	A	M	J	J	A	S	O	N	D
751	Small Mammal	American water shrew	General Distribution	C/C			Common												

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)



BIRDS

Subelement	Species	Mapping Qualifier	MA/R	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
	Alcid	Razorbill	Wintering				Common												-	Mar-Apr	Nov	-
	Diving	Razorbill	Wintering				Common												-	-	Oct-Nov	-
		Great cormorant	Wintering				Common												-	Feb-Mar	Nov	-
		Loons	Migration	C/-			Common												-	Mar-Jun	Oct-Jan	Jan-Mar
		Loons	Migration	C/-			Common												-	Mar-Jun	Sep-Dec	Jan-Mar
	Gull/Tern	Common tern	General Distribution	C/-			Common												May-Sep	Apr-May	Aug-Oct	-
		Least tern	General Distribution	C/T			Rare												-	Apr-May	Aug-Sep	-
		Rare tern	General Distribution	C/-			Common												-	Apr-May	Jul-Sep	-
		Roseate tern	General Distribution	E/-	E		Common												-	Apr-May	Jul-Sep	-
		Roseate tern	General Distribution	E/-	E		Rare												-	Apr-May	Jul-Sep	-
	Raptor	Raptors	General Distribution	-/C			Common												May-Aug	Mar-Apr	Jul-Nov	Jun
	Shorebird	Purple sandpiper	Wintering				Common												-	Mar	Oct	-
	Waterfowl	Harlequin duck	Wintering				Rare												-	Mar-Apr	Nov	-
		Sea ducks	Wintering				Common												-	Mar-May	Oct-Nov	-
		Sea ducks	Wintering				Common												-	Mar-May	Sep-Oct	-
		Sea ducks	Wintering				Abundant												-	Mar-May	Sep-Oct	-

FISH

Subelement	Species	Mapping Qualifier	MA/RI	Monthly Presence												Eggs	Larvae	Juveniles	Adults			
				S	F	Concentration	J	F	M	A	M	J	J	A	S					O	N	D
Diadromous	Atlantic sturgeon	General Distribution	E/-	T	-	-												May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec


REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	MA/RI	Monthly Presence												Hatch	Interest	Juveniles	Adults				
				S	F	Concentration	J	F	M	A	M	J	J	A	S					O	N	D	Nest
	Marbled salamander	General Distribution	T/-			Common												Mar-Apr	Apr-May	-	-	Jan-Dec	Jan-Dec
	Green sea turtle	General Distribution	T/E			Regular												-	-	-	-	May-Nov	May-Nov
	K. ridley sea turtle	General Distribution	E/E			Regular												-	-	-	-	May-Nov	May-Nov
	Leatherback sea turtle	General Distribution	E/E			Regular												-	-	-	-	May-Nov	May-Nov
	Loggerhead sea turtle	General Distribution	T/E			Regular												-	-	-	-	May-Nov	May-Nov

INVERTEBRATES





Subelement	Species	Mapping Qualifier	MA/RI	Monthly Presence												Eggs	Larvae	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
				S	F	Concentration	J	F	M	A	M	J	J	A	S					O	N	D	Spawn																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
	American lobster	Concentration Area				Medium																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Calving	Pupping	Molt					
			S	F		J	F	M	A	M	J	J	A	S	O	N	D				Mating				
	Fin whale	General Distribution	E/E	E	Rare																				
	Humpback whale	General Distribution	E/E	E	Common																				
	N.A. right whale	General Distribution	E/E	E	Common																				
	Sei whale	General Distribution	E/-	E	Common																				
	Sperm whale	General Distribution	E/-	E	Rare																				






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				
	D. crested cormorant													-	Mar-Apr	Sep-Oct	-
	Gulls													-	Apr-May	Aug-Sep	-
	Gulls													-	Apr-May	Aug-Nov	-
	Nashville warbler													May-Jul	Apr-May	Aug-Oct	Aug
		American black duck												Mar-Jul	Sep-Mar	-	-
American black duck													Apr-Aug	Apr	Oct	-	
	Diving ducks												Mar-Apr	Sep-Apr	-	-	
	Geese												May	Mar-May	Sep-Nov	-	
	Geese												Apr-May	Mar-May	Oct-Nov	-	

FISH



Monthly Presence

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
	Diadromous													-	-	-	Jan-Dec	Jan-Dec
	Alewife													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Alewife													-	-	-	Jan-Dec	Jan-Dec
	American eel													Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	American shad													-	-	-	Jan-Dec	Jan-Dec
	American shad													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Atlantic salmon													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Blueback herring													-	-	-	Jan-Dec	Jan-Dec
	Blueback herring													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Sea lamprey													-	-	-	Jan-Dec	Jan-Dec
	Striped bass													-	-	-	Apr-Nov	Apr-Nov
	Atlantic herring													Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy													Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass													Feb-Jul	Feb-Jul	Mar-Jul	Jan-Dec	Jan-Dec
	Black sea bass													May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov
	Bluefish													-	-	Jun-Aug	May-Nov	May-Nov
	Bluefish													-	-	-	May-Oct	May-Oct
	Hogchoker													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Hogchoker													May-Aug	May-Aug	Jun-Sep	May-Oct	May-Oct
	Northern kingfish													Jun-Jul	Jun-Jul	Jun-Aug	May-Nov	May-Nov
	Scup													May-Aug	May-Aug	Jun-Aug	Apr-Nov	Apr-Nov
	Scup													May-Aug	May-Aug	Jun-Aug	May-Oct	May-Oct
	Summer flounder													Aug-Nov	Aug-Nov	Sep-Nov	Apr-Nov	Apr-Nov
	Summer flounder													Aug-Nov	Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish													Apr-Aug	Apr-Aug	May-Sep	Apr-Nov	Apr-Nov
	Weakfish													Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	White perch													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Windowpane													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Winter flounder													Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
	Winter flounder													Jan-May	Jan-May	Feb-May	Jan-Dec	Jan-Dec
	Atlantic silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Forspine stickleback													May-Jul	May-Jul	May-Aug	Jan-Dec	Jan-Dec
	Inland silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Stickleback													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Brook trout (sea run)													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Rainbow smelt													-	-	-	Jan-Dec	Jan-Dec
	American sand lance													Nov-Apr	Nov-May	Jan-May	Jan-Dec	Jan-Dec
	Atlantic cod													-	-	Jan-May	Jan-May	-
	Atlantic tomcod													Dec-Feb	Dec-Mar	Dec-Apr	Apr-Aug	Apr-Aug


FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Atlantic tomcod													Dec-Mar	Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec
	Atlantic wolffish													Mar-Aug	Mar-Aug	Mar-Sep	Jan-Dec	Jan-Dec
	Goosefish													-	-	-	-	Jan-Dec
	Haddock													Feb-Jun	Feb-Jun	Mar-Jun	Jan-Dec	Jan-Dec
	Little skate													Jan-Dec	Jan-Dec	-	Jan-Dec	Jan-Dec
	Little tunny													-	-	-	-	May-Nov
	Pollock													-	-	-	Apr-Oct	Apr-Oct
	Pollock													Nov-Apr	Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Red hake													-	-	-	Dec-May	Dec-May
	Red hake													Jun-Sep	Jun-Sep	Jul-Nov	Jun-Nov	Jun-Nov
	Rock gunnel													Nov-Mar	Nov-Apr	Jan-Jun	Jan-Dec	Jan-Dec
	Searobins													Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Silver hake													Jul-Oct	Jul-Oct	Aug-Oct	Jul-Dec	Jul-Dec
	Silver hake													-	-	-	Jan-Jun	Jan-Jun
	Skates													-	-	-	Jan-Dec	Jan-Dec
	Tautog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	White hake													Apr-Sep	May-Nov	May-Nov	Jan-Dec	Jan-Dec
	Winter skate													-	-	-	Aug-Jan	Aug-Jan
	Winter skate													-	-	-	Feb-Jul	Feb-Jul
	Yellowtail flounder													Mar-Jul	Mar-Jul	Apr-Jul	Jan-Dec	Jan-Dec
	Atlantic mackerel													-	May-Aug	May-Aug	May-Sep	May-Sep
	Atlantic mackerel													May-Jul	May-Aug	May-Aug	Mar-Dec	Mar-Dec
	Sand tiger													-	-	-	Apr-Nov	Apr-Nov
	Spiny dogfish													-	-	-	Aug-Jan	Aug-Jan
	Spiny dogfish													-	-	-	Jan-Dec	Jan-Dec
	Spiny dogfish													-	-	-	Feb-Jul	Feb-Jul
	Tunas													-	-	-	Jun-Sep	-






REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Interest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Four-toed salamander													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Red-spotted newt													Jun-Jul	Jun-Aug	-	Jan-Dec	Jan-Dec
	Wood frog													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Eastern box turtle													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec



INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Atl. jackknife clam													Apr-May	Apr-May	Apr-May	Jan-Dec	Jan-Dec
	Atlantic razor													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Atlantic surfclam													Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec
	Bay scallop													Mar-Jul	Mar-Jul	Mar-Jul	Jan-Dec	Jan-Dec
	Blue mussel																	

INVERTEBRATES (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Blue mussel													May-Nov	May-Nov	Jan-Dec	Jan-Dec
	Eastern oyster													Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Northern quahog													Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Ocean quahog													Jul-Nov	Jul-Dec	Jan-Dec	Jan-Dec
	Sea scallop													Jul-Oct	Jul-Oct	Jan-Dec	Jan-Dec
	Softshell clam													Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Longfin squid													May-Aug	May-Aug	May-Nov	May-Nov
	Longfin squid													May-Aug	May-Aug	Apr-Nov	Apr-Nov
	Atlantic rock crab													May-Oct	Jun-Oct	Jan-Dec	Jan-Dec
	Atlantic rock crab													May-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Blue crab													May-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Blue crab													-	Jun-Aug	Jan-Dec	Jan-Dec
	Horseshoe crab													May-Jul	May-Jul	Jan-Dec	Jan-Dec
	Jonah crab													May-Oct	May-Oct	Apr-Oct	Apr-Oct
	Jonah crab													May-Oct	May-Oct	Jan-Dec	Jan-Dec
	Jonah crab													Jun-Jul	Aug-Oct	Jan-Dec	Jan-Dec
	Channeled whelk													Jun-Jul	Aug-Oct	Jan-Dec	Jan-Dec
	Knobbed whelk													Jun-Jul	Aug-Oct	Jan-Dec	Jan-Dec
	Northern moonshell													Apr-Sep	Apr-Sep	Jan-Dec	Jan-Dec
	Sea snails													May-Jul	May-Aug	Jan-Dec	Jan-Dec
	American lobster													Aug-Nov	Jan-Dec	Jan-Dec	Jan-Dec
	Db grass shrimp													May-Jul	May-Jul	Jan-Dec	Jan-Dec
	Sevenspine bay shrimp													May-Jul	May-Jul	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				
	Atl. spotted dolphin													-	-	-	-
	Atl. wht.-side dolphin													-	-	-	-
	Bottlenose dolphin													-	-	-	-
	Harbor porpoise													-	-	-	-
	Risso's dolphin													-	-	-	-
	Short-beaked common dolphin													-	-	-	-
	Striped dolphin													-	-	-	-
	White-beaked dolphin													-	-	-	-
	Gray seal													Dec-Feb	Dec-Feb	Mar-May	-
	Harbor seal													-	-	-	-
	Harp seal													-	-	-	-
	Hooded seal													-	-	-	-
	Minke whale													-	-	-	-
	Pilot whales													-	-	-	-
	Pilot whales													-	-	-	-

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	135.88	0.21
10B	Freshwater Marshes	32.80	0.05
10C	Swamps	1,156.20	1.81
10D	Scrub and Shrub Wetlands	132.58	0.21
9A	Sheltered Tidal Flats	155.53	0.24
5	Mixed Sand and Gravel Beaches	20.32	0.03
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	4.65	0.01

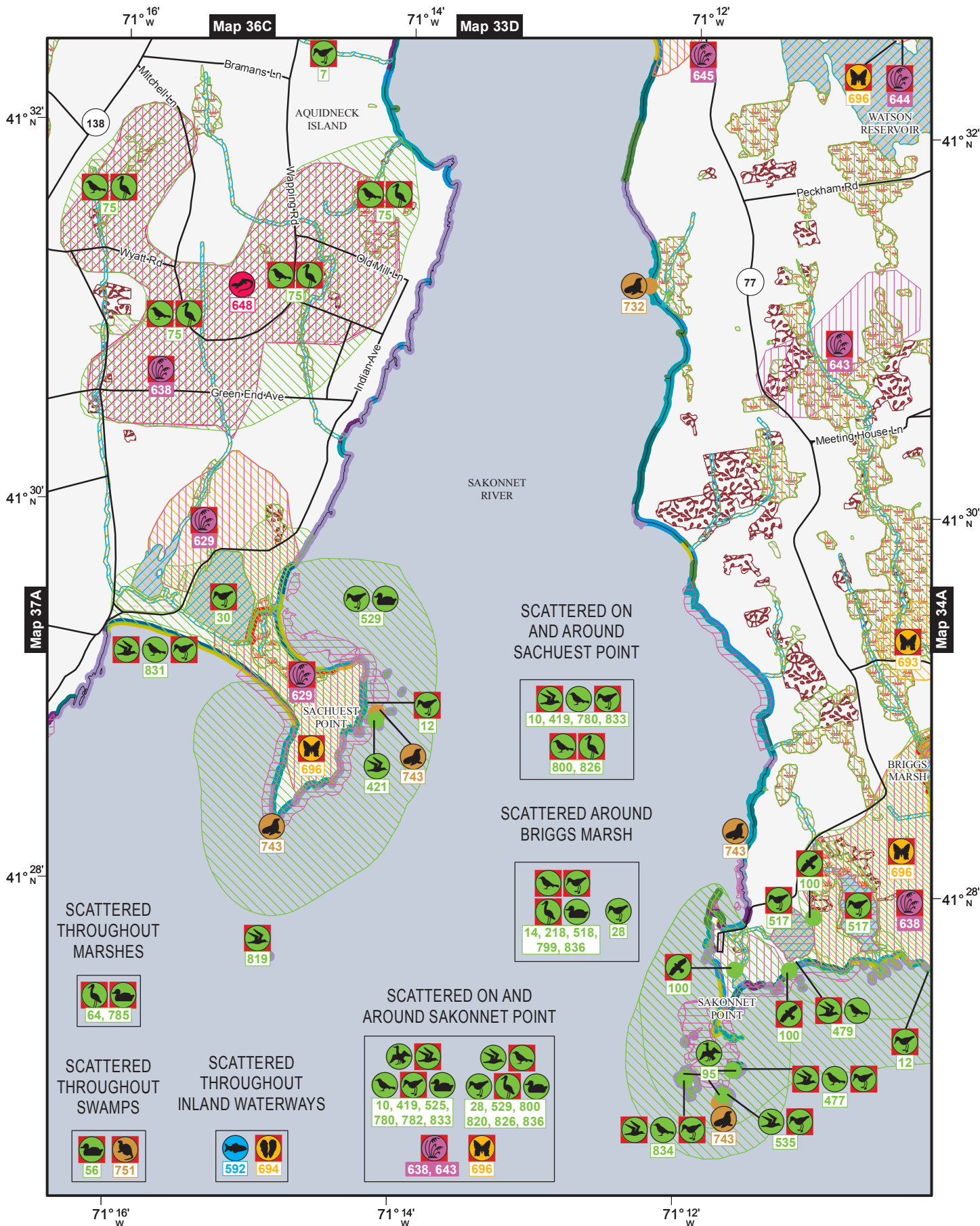
ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	24,422.67	15.18	31%
10B	Freshwater Marshes	384.86	0.24	< 1%
10C	Swamps	1,134.57	0.70	1%
10D	Scrub and Shrub Wetlands	31.66	0.02	< 1%
9A	Sheltered Tidal Flats	5,593.38	3.48	7%
9B	Vegetated Low Banks	13,302.31	8.27	17%
8A	Sheltered, Impermeable, Rocky Shores	583.94	0.36	1%
8B	Sheltered, Permeable, Rocky Structures	18.11	0.01	< 1%
8B	Sheltered, Solid Man-Made Structures	4,183.19	2.60	5%
8C	Sheltered Riprap	1,358.17	0.84	2%
8D	Sheltered, Rocky, Rubble Shores	559.53	0.35	1%
7	Exposed Tidal Flats	8,275.06	5.14	10%
6A	Gravel Beaches	424.55	0.26	1%
6B	Riprap	65.61	0.04	< 1%
5	Mixed Sand and Gravel Beaches	6,862.24	4.26	9%
4	Coarse Grained Sand Beaches	7,308.14	4.54	9%
3A	Fine to Medium Grained Sand Beaches	2,803.15	1.74	4%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	2,011.41	1.25	3%
Total ESI Shoreline:		79,322.56	49.29	
Total Shoreline:		59,910.11	37.23	

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 34B
Massachusetts and Rhode Island

BIOLOGICAL RESOURCES

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

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence											
					J	F	M	A	M	J	J	A	S	O	N	D
SAV	Widgeon grass	High Ecological Value		Present												
SAV	Eelgrass	High Ecological Value		Potential												
Algae	Red macroalgae	High Ecological Value		41-70%												
SAV	Eelgrass	High Ecological Value		Present												
Algae	Green macroalgae	High Ecological Value		41-70%												

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence											
						J	F	M	A	M	J	J	A	S	O	N	D
7	Shorebird	Upland sandpiper	Vulnerable Occurrence	E/-	-												
10	Shorebird	Red knot	Migration	T	Common												
12	Shorebird	Red knot	Migration	T	Common												
	Shorebird	Shorebirds	Migration		Abundant												
	Shorebird	Willet	Migration	-/C	Common												
14	Shorebird	Piping plover	Migration	T/E	T												
	Shorebird	Red knot	Migration	T	Common												
28	Shorebird	Shorebirds	Migration		Abundant												
30	Shorebird	Piping plover	Migration	T/E	T												
	Shorebird	Shorebirds	Migration		Abundant												
	Shorebird	Willet	Migration	-/C	Common												
56	Waterfowl	Waterfowl	General Distribution	C/C	Common												
64	Wading	Marsh birds	General Distribution	C/C	Common												
75	Passerine	Marsh wren	Vulnerable Occurrence	-/C	-												
	Wading	Sora	Vulnerable Occurrence	-/C	-												
95	Diving	D. crested cormorant	Nesting		Nest Site												
100	Raptor	Osprey	Nesting	-/C	Nest Site												
218	Passerine	Marsh passerines	General Distribution	-/C	Common												
	Shorebird	Willet	Migration	-/C	Common												
	Wading	Egrets	Migration	-/C	Common												
	Wading	Wading birds	General Distribution	-/C	Common												
419	Gull/Tern	Common tern	Nesting	C/-	Nest Site												
421	Gull/Tern	G. black-backed gull	Nesting		Nest Site												
477	Gull/Tern	G. black-backed gull	Nesting		Nest Site												
	Gull/Tern	Herring gull	Nesting		Nest Site												
	Gull/Tern	Least tern	Nesting	C/T	Common												
	Passerine	Tree swallow	Migration		Abundant												
	Shorebird	Shorebirds	Migration		Abundant												
	Shorebird	Willet	Migration	-/C	Common												

BIRDS (continued)

[illegible]

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
				S	F		J	F	M	A	M	J	J	A	S	O	N	D				
	Gull/Tern	Herring gull	Nesting			Nest Site												May-Aug	-	-	-	
	Gull/Tern	Least tern	Nesting			Common												May-Aug	-	-	-	
	Passerine	Tree swallow	Migration			Abundant												-		Jul-Oct	-	
	Shorebird	American oystercatcher	Nesting			Nest Site												Apr-Aug	-	-	-	
	Shorebird	Shorebirds	Migration			Abundant												-	Mar-Dec	-	-	
	Shorebird	Willet	Migration			Common												Apr-May	Apr-May	Aug-Oct	-	
836	Waterfowl	Blue-winged teal	Vulnerable Occurrence			-												Apr-Aug	-	-	-	
FISH																						

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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592	Diadromous	American eel	Migration			-																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence																		
				S	F		J	F	M	A	M	J	J	A	S	O	N	D							
629	Plant	Rare plant	Vulnerable Occurrence	T/C		-																			
	Plant	Seaside sandplant	Vulnerable Occurrence	-C		-																			
	Plant	Threatened plant	Vulnerable Occurrence	-T		-																			
638	Plant	Rare plant	Vulnerable Occurrence	T/C		-																			
643	Plant	Threatened plant	Vulnerable Occurrence	-T		-																			
644	Wetland	Rare wetland/aquatic plant	Vulnerable Occurrence	-C		-																			
645	Plant	Seaside sandplant	Vulnerable Occurrence	-C		-																			

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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648	Amphibian	Northern leopard frog	Vulnerable Occurrence				-												May-Jul																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
				S	F		J	F	M	A	M	J	J	A	S	O	N	D					
693	Insect	Rare insect	Vulnerable Occurrence			-														Mar-Oct	Jan-Dec	Jan-Dec	Jan-Dec
694	Bivalve	Eastern pearlshell	General Distribution			-														Aug-Sep	Aug-May	May-Jun	Jan-Dec
	Bivalve	Rare freshwater mussel	General Distribution			C/C														Aug-Sep	Aug-May	Jun-Jul	Jan-Dec
696	Insect	Threatened insect	Vulnerable Occurrence			-/T														Apr-Aug	Apr-Aug	Jan-Dec	Jan-Dec







MARINE MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt		
								J	F	M	A	M	J	J	A	S	O	N	D						
732	Pinniped	Harbor seal	Haul Out				Low																		
743	Pinniped	Harbor seal	Haul Out				Common																		

TERRESTRIAL MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Monthly Presence																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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751	Small Mammal	American water shrew	General Distribution																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											


BIRDS

Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
			S	F		J	F	M	A	M	J	J	A	S	O	N	D				
	Alcid	Wintering			Common													-	Mar-Apr	Nov	-
	Diving	Wintering			Rare													-	Apr-May	Oct-Nov	-
	Loons	Migration	C/-		Common													-	Mar-Jun	Oct-Jan	Jan-Mar
	Common tern	General Distribution	C/-		Common													-	Apr-May	Aug-Oct	-
	Least tern	General Distribution	C/T		Rare													-	May-Sep	Aug-Sep	-
	Roseate tern	General Distribution	E/-	E	Rare													-	Apr-May	Jul-Sep	-
	Raptors	General Distribution	-/C		Common													-	Mar-Aug	Jul-Nov	Jun
	Purple sandpiper	Wintering			Rare													-	May	Nov	-
	American black duck	Wintering			Abundant													-	Apr	Oct	-
	Diving ducks	Wintering			Common													-	Mar-Apr	Sep-Apr	-
	Geese	Wintering			Common													-	Mar-May	Oct-Nov	-
	Harlequin duck	Wintering			Rare													-	Mar-Apr	Nov	-
	Sea ducks	Wintering			Abundant													-	Mar-May	Oct-Nov	-
	Sea ducks	Wintering			Common													-	Mar-May	Oct-Nov	-


FISH

Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
			S	F		J	F	M	A	M	J	J	A	S	O	N	D					
	Atlantic sturgeon	General Distribution	E/-	T	-													May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec

REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
			S	F		J	F	M	A	M	J	J	A	S	O	N	D					
	Green sea turtle	General Distribution	T/E	T	Regular													-	-	-	May-Nov	May-Nov
	K. ridley sea turtle	General Distribution	E/E	E	Regular													-	-	-	May-Nov	May-Nov
	Leatherback sea turtle	General Distribution	E/E	E	Regular													-	-	-	May-Nov	May-Nov
	Loggerhead sea turtle	General Distribution	T/E	T	Regular													-	-	-	May-Nov	May-Nov

MARINE MAMMALS


Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
			S	F		J	F	M	A	M	J	J	A	S	O	N	D				
	Fin whale	General Distribution	E/E	E	Rare													-	-	-	-
	Humpback whale	General Distribution	E/E	E	Rare													-	-	-	-
	N.A. right whale	General Distribution	E/E	E	Rare													-	-	-	-
	Sei whale	General Distribution	E/-	E	Common													-	-	-	-
	Sperm whale	General Distribution	E/-	E	Rare													-	-	-	-

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)







BIRDS

Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
			S	F		J	F	M	A	M	J	J	A	S	O	N	D				
	Gulls	General Distribution			Common													-	Apr-May	Aug-Sep	-
	Nashville warbler	General Distribution			Rare													May-Jul	Apr-May	Aug-Oct	Aug

BIRDS (continued)

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Shorebirds													Mar-Sep	Mar-Dec	-	Aug-Oct
	American black duck													Apr-Aug	Apr	Oct	-
	Diving ducks													Mar-Apr	Sep-Apr	-	-
	Geese													Apr-May	Mar-May	Oct-Nov	-






FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	American eel													-	-	-	Jan-Dec	Jan-Dec
	American shad													Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Atlantic salmon													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Blueback herring													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Striped bass													-	-	-	Apr-Nov	Apr-Nov
	Atlantic herring													Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy													Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass													May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov
	Bluefish													-	-	-	May-Oct	May-Oct
	Hogchoker													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Scup													May-Aug	May-Aug	Jun-Aug	Apr-Nov	Apr-Nov
	Summer flounder													Aug-Nov	Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish													Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	White perch													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Winter flounder													Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
	Atlantic silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Inland silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Stickleback													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Brook trout (sea run)													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Rainbow smelt													-	-	-	Jan-Dec	Jan-Dec
	American sand lance													Nov-Apr	Nov-May	Jan-May	Jan-Dec	Jan-Dec
	Atlantic cod													-	-	Jan-May	Jan-May	-
	Atlantic tomcod													Dec-Mar	Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec
	Little tunny													-	-	-	May-Nov	May-Nov
	Pollock													Nov-Apr	Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Seabroins													Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Skates													-	-	-	Jan-Dec	Jan-Dec
	Tautog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Atlantic mackerel													-	May-Aug	May-Aug	May-Sep	May-Sep
	Sand tiger													-	-	-	Apr-Nov	Apr-Nov
	Spiny dogfish													-	-	-	Jan-Dec	Jan-Dec




REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Amphibian													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Four-toed salamander													Jun-Jul	Jun-Aug	-	Jan-Dec	Jan-Dec
	Turtle													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Red-spotted newt													Jun-Jul	Jun-Aug	-	Jan-Dec	Jan-Dec
	Wood frog													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Eastern box turtle													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Bivalve													Apr-May	Apr-May	Apr-May	Jan-Dec	Jan-Dec
	Atl. jackknife clam													Apr-Jun	Apr-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic razor													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Atlantic surfclam													Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec
	Bay scallop													Mar-Jul	Mar-Jul	Mar-Jul	Jan-Dec	Jan-Dec
	Blue mussel													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Eastern oyster													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Northern quahog													Jul-Nov	Jul-Nov	Jul-Dec	Jan-Dec	Jan-Dec
	Ocean quahog													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Softshell clam													May-Aug	May-Aug	May-Aug	May-Nov	May-Nov
	Cephalopod													May-Oct	May-Oct	May-Oct	Apr-Oct	Apr-Oct
	Longfin squid													May-Oct	May-Oct	May-Oct	Apr-Oct	Apr-Oct
	Crab													May-Oct	May-Oct	May-Oct	Apr-Oct	Apr-Oct
	Atlantic rock crab													Jun-Jul	Jun-Jul	Jun-Jul	Jan-Dec	Jan-Dec
	Blue crab													Jun-Jul	Jun-Jul	Jun-Jul	Jan-Dec	Jan-Dec
	Horseshoe crab													May-Oct	May-Oct	May-Oct	Apr-Oct	Apr-Oct
	Gastropod													Jun-Jul	Jun-Jul	Jun-Jul	Jan-Dec	Jan-Dec
	Jonah crab													Jun-Jul	Jun-Jul	Jun-Jul	Jan-Dec	Jan-Dec
	Channeled whelk													Jun-Jul	Jun-Jul	Jun-Jul	Jan-Dec	Jan-Dec
	Knobbed whelk													Jun-Jul	Jun-Jul	Jun-Jul	Jan-Dec	Jan-Dec
	Northern moonshell													Jun-Jul	Jun-Jul	Jun-Jul	Jan-Dec	Jan-Dec
	Sea snails													Jun-Jul	Jun-Jul	Jun-Jul	Jan-Dec	Jan-Dec
	Lobster													Jun-Jul	Jun-Jul	Jun-Jul	Jan-Dec	Jan-Dec
	American lobster													Jun-Jul	Jun-Jul	Jun-Jul	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													-	-	-	-
	Atl. spotted dolphin													-	-	-	-
	Atl. wht.-side dolphin													-	-	-	-
	Bottlenose dolphin													-	-	-	-
	Harbor porpoise													-	-	-	-
	Risso's dolphin													-	-	-	-
	Short-beaked common dolphin													-	-	-	-
	Striped dolphin													-	-	-	-
	Pinniped													-	-	-	-
	White-beaked dolphin													-	-	-	-
	Gray seal													Dec-Feb	Dec-Feb	Dec-Feb	Mar-May
	Harbor seal													-	-	-	-
	Harbor seal													-	-	-	-
	Harp seal													-	-	-	-
	Whale													-	-	-	-
	Hooded seal													-	-	-	-
	Minke whale													-	-	-	-

MARINE MAMMALS (continued)

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Pilot whales												

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	98.69	0.15
10B	Freshwater Marshes	166.77	0.26
10C	Swamps	919.93	1.44
10D	Scrub and Shrub Wetlands	465.27	0.73
9A	Sheltered Tidal Flats	7.09	0.01
7	Exposed Tidal Flats	1.39	0.00
5	Mixed Sand and Gravel Beaches	42.91	0.07
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	12.92	0.02

ESI SHORELINE HABITAT TYPES

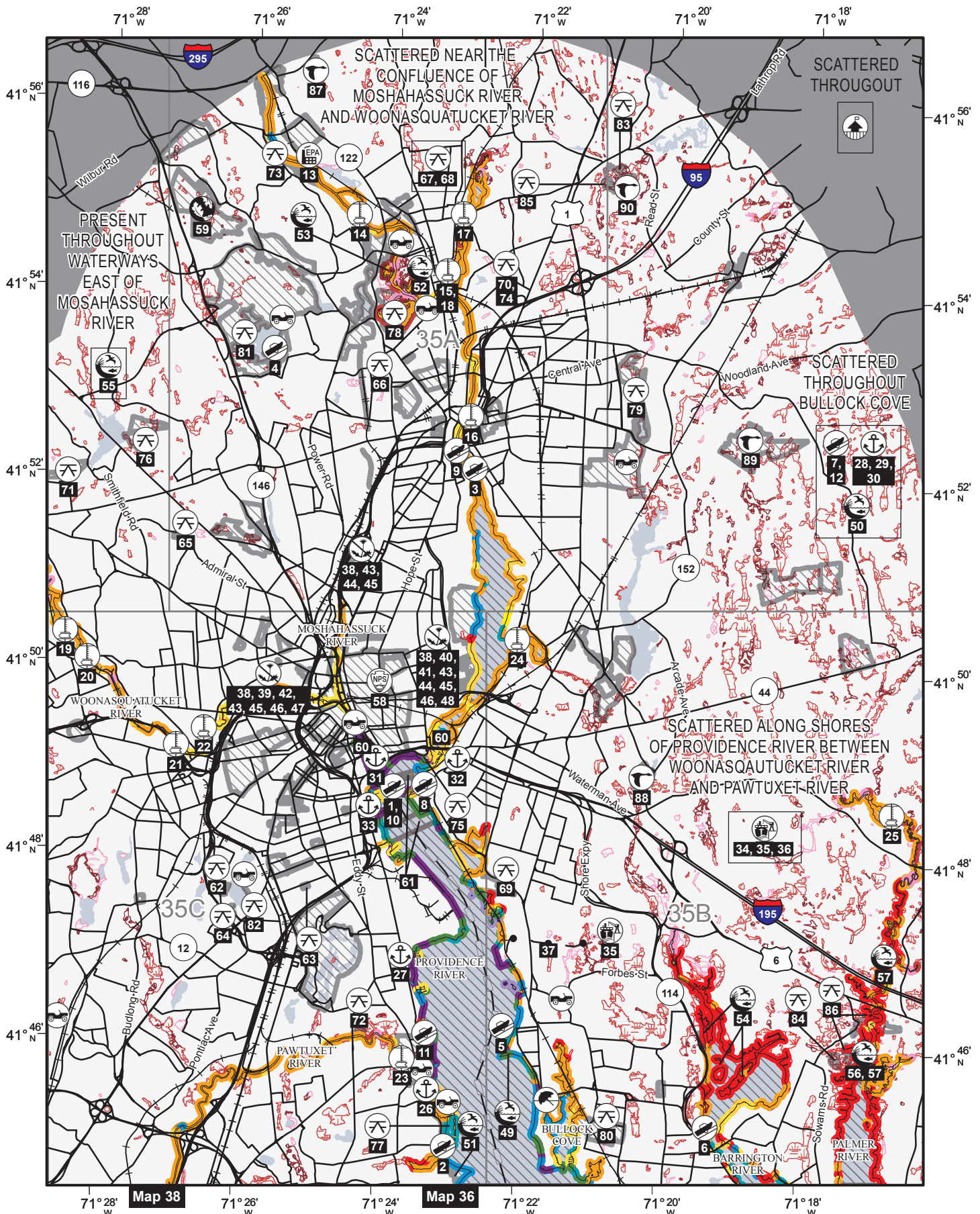
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	1,767.65	1.10	3%
9A	Sheltered Tidal Flats	884.88	0.55	2%
9B	Vegetated Low Banks	327.97	0.20	1%
8B	Sheltered, Solid Man-Made Structures	278.58	0.17	1%
7	Exposed Tidal Flats	5,141.57	3.19	10%
6A	Gravel Beaches	4,036.04	2.51	8%
6B	Gravel Beaches (Cobbles/Boulders)	643.58	0.40	1%
6B	Riprap	1,965.04	1.22	4%
5	Mixed Sand and Gravel Beaches	10,223.32	6.35	20%
4	Coarse Grained Sand Beaches	6,224.25	3.87	12%
3A	Fine to Medium Grained Sand Beaches	2,671.81	1.66	5%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	16,607.47	10.32	32%
2B	Exposed Scarps and Steep Slopes (Clay)	356.58	0.22	1%
1A	Exposed, Rocky Shores	85.33	0.05	< 1%
1B	Exposed, Solid Man-Made Structures	1,160.31	0.72	2%

Total ESI Shoreline: 52,374.38 Total ESI Shoreline: 32.54
Total Shoreline: 39,364.96 Total Shoreline: 24.46

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 35
Mass. / Rhode Island



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

0 Not for Navigation 2 Miles
0 2 Kilometers

1:100,000



Map 35
Massachusetts and Rhode Island

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)				
Map ID	Type	Name	Contact	Phone
1	BOAT RAMP	DOMINION ELECTRIC COMPANY BOAT RAMP	URI, COASTAL RES. CTR, COASTAL AND OCEAN PLN.	401-874-6224
2	BOAT RAMP	GASPEE POINT	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
3	BOAT RAMP	OLD STATE PIER	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
4	BOAT RAMP	OLNEY POND	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
5	BOAT RAMP	SABIN POINT	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
6	BOAT RAMP	WALKER FARM	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
7	BOAT RAMP	HAINES PARK	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
8	BOAT RAMP	BOLD POINT	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
9	BOAT RAMP	PAWTUCKET	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
10	BOAT RAMP	COLLIER PARK RAMP	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
11	BOAT RAMP	ABORN STREET BOAT RAMP	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
12	BOAT RAMP	BAY SPRING AVENUE	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
13	EPA FACILITY	PETERSON-PURITAIN, INC.	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
14	LOCK AND DAM	PRATT DAM	REMEDIAL PROJECT MANAGER	617-918-1275
15	LOCK AND DAM	VALLEY FALLS POND DAM		
16	LOCK AND DAM	PAWTUCKET UPPER DAM		
17	LOCK AND DAM	ROBIN HOLLOW POND DAM		
18	LOCK AND DAM	HAPPY HOLLOW POND DAM		
19	LOCK AND DAM	LYMANVILLE DAM		
20	LOCK AND DAM	MANTON MILL POND DAM		
21	LOCK AND DAM	ATLANTIC MILLS POND DAM		
22	LOCK AND DAM	ISING SUN POND DAM		
23	LOCK AND DAM	PAWTUXET RESERVOIR LOWER DAM		
24	LOCK AND DAM	OMEGA POND DAM		
25	LOCK AND DAM	SHAD FACTORY POND DAM		
26	MARINA	PETTIS MARINE BOAT YARD / MARINA		
27	MARINA	PAWTUXET COVE MARINA		
28	MARINA	BULLOCK'S COVE MARINA		
29	MARINA	LAVINS' MARINA		
30	MARINA	BREWER'S COVE HAVEN MARINA		
31	MARINA	OLD HARBOR MARINA		
32	MARINA	OYSTER HOUSE MARINA		
33	MARINA	COMMERCIAL PASSENGER VESSEL / FISHING		
34	PORT	COMMERCIAL / INDUSTRIAL - DRY BULK CARGO		
35	PORT	COMMERCIAL / INDUSTRIAL - LIQUID CARGO		
36	PORT	COMMERCIAL / INDUSTRIAL - GENERAL BERTHING		

DISPLAYED ON MAP (LINES)			
Map ID	Type	Name	Phone
37	PIPELINE	EXXON MOBIL PIPELINE	
DISPLAYED ON MAP (POLYGONS)			
Map ID	Type	Name	Phone
38	INVASIVE SPECIES	ASIATIC BITTERSWEET	
39	INVASIVE SPECIES	AUTUMN OLIVE	
40	INVASIVE SPECIES	GLOSSY BUCKTHORN	
41	INVASIVE SPECIES	JAPANESE BARBERRY	
42	INVASIVE SPECIES	JAPANESE HONEYSUCKLE	
43	INVASIVE SPECIES	JAPANESE KNOTWEED	
44	INVASIVE SPECIES	MARROWS HONEYSUCKLE	
45	INVASIVE SPECIES	MULTIFLORA ROSE	
46	INVASIVE SPECIES	NORWAY MAPLE	
47	INVASIVE SPECIES	TREE OF HEAVEN	
48	INVASIVE SPECIES	WINGED EUONYMUS	
49	MANAGEMENT AREA	4 COASTAL BARRIER - OTHER MODERATELY DEVELOPED	
50	MANAGEMENT AREA	5 COASTAL BARRIER - OTHER UNDEVELOPED	
51	MANAGEMENT AREA	6 COASTAL BARRIER - UNDEVELOPED	
52	MANAGEMENT AREA	BLACKSTONE RIVER - VALLEY MARSHES	RI DEM, DFW
53	MANAGEMENT AREA	BLACKSTONE RIVER- ARCHAMBEAULT	RI DEM, DFW
54	MANAGEMENT AREA	ONE HUNDRED ACRE COVE	RI DEM, DFW
55	MANAGEMENT AREA	LOBSTER MANAGEMENT AREA 2	
56	MANAGEMENT AREA	CAPE COD SOUTH CLOSURE AREA	
57	MANAGEMENT AREA	NORTHERN NEARSHORE TRAP/POT WATERS AREA	
58	NATIONAL PARK	ROGER WILLIAMS NATIONAL MEMORIAL	
59	NATURE CONSERVANCY	LIME ROCK PRESERVE	THE NATURE CONSERVANCY IN RHODE ISLAND
60	PIPELINE	CABLE AND PIPELINE	
61	PIPELINE	PIPELINE	
62	REGIONAL OR STATE PARK	J. T. OWENS PARK	RI DEM
63	REGIONAL OR STATE PARK	SACKETT STREET PARK	RI DEM
64	REGIONAL OR STATE PARK	MASHPAUG POND	RI DEM, DFW
65	REGIONAL OR STATE PARK	CAPTAIN STEPHEN OLNEY PARK	RI DEM
66	REGIONAL OR STATE PARK	HIGGINSON AVENUE	RI DEM
67	REGIONAL OR STATE PARK	STATION PARK	RI DEM
68	REGIONAL OR STATE PARK	WATERPLACE PARK	RI DEM
69	REGIONAL OR STATE PARK	SQUANTUM WOODS STATE PARK	RI DEM
70	REGIONAL OR STATE PARK	PIERCE PARK RIVERWALK	RI DEM
71	REGIONAL OR STATE PARK	PETER RANDALL RESERVATION	RI DEM
72	REGIONAL OR STATE PARK	PAWTUXET DEPOT	RI DEM
73	REGIONAL OR STATE PARK	BLACKSTONE RIVER STATE PARK	RI DEM
74	REGIONAL OR STATE PARK	CENTRAL FALLS RIVERWALK	RI DEM
75	REGIONAL OR STATE PARK	INDIA POINT PARK	RI DEM
76	REGIONAL OR STATE PARK	CAMP MEEHAN	RI DEM
77	REGIONAL OR STATE PARK	SALTERS GROVE	RI DEM
78	REGIONAL OR STATE PARK	SAYLES FINISHING	RI DEM

DISPLAYED ON MAP (POLYGONS) (continued)				
79	REGIONAL OR STATE PARK	GREENWAY - TEN MILE RIVER	RI DEM	401-667-6200
80	REGIONAL OR STATE PARK	HAINES MEMORIAL STATE PARK	RI DEM	401-667-6200
81	REGIONAL OR STATE PARK	LINCOLN WOODS STATE PARK	RI DEM	401-667-6200
82	REGIONAL OR STATE PARK	MASHAUG POND SHORE	RI DEM, DFW	401-789-7481
83	REGIONAL OR STATE PARK	PETER HALKO NATURE PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250
84	REGIONAL OR STATE PARK	FILLESSEY PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250
85	REGIONAL OR STATE PARK	DAVID W PARFITT NATURE PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250
86	REGIONAL OR STATE PARK	BELL PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250
87	WILDLIFE REFUGE	BOWEN WILDLIFE PRESERVE	RI DEM	401-667-6200
88	WILDLIFE REFUGE	EDNA MARTIN WILDLIFE REFUGE	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250
89	WILDLIFE REFUGE	CARATUNK WILDLIFE REFUGE	AUDUBON SOCIETY OF RHODE ISLAND	401-949-5454
90	WILDLIFE REFUGE	ANTHONY LAWRENCE WILDLIFE PRESERVE	EOEEA, DEPT. OF CONSERVATION AND RECREATION	617-626-1250
ALSO PRESENT IN MAPPED AREA (POINTS)				
Type	Name	Contact	Phone	
COAST GUARD	MSO PROVIDENCE	USCG	401-435-2300	
ESSENTIAL HABITAT	FAIRY SHRIMP -VERNAL POOL	MA DFW NHESP, WESTBOROUGH, MA	508-389-6375	
ESSENTIAL HABITAT	OBLIGATE SPECIES -VERNAL POOL	MA DFW NHESP, WESTBOROUGH, MA	508-389-6375	
ESSENTIAL HABITAT	OBLIGATE SPECIES, FACULTATIVE SPECIES -VERNAL POOL	MA DFW NHESP, WESTBOROUGH, MA	508-389-6375	
ESSENTIAL HABITAT	OBLIGATE SPECIES, FAIRY SHRIMP -VERNAL POOL	MA DFW NHESP, WESTBOROUGH, MA	508-389-6375	
ALSO PRESENT IN MAPPED AREA (POLYGONS)				
Type	Name	Contact	Phone	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: ATLANTIC HERRING	NORTHEAST FISHERIES MANAGEMENT COUNCIL		
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: HADDOCK	NORTHEAST FISHERIES MANAGEMENT COUNCIL		
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: RED HAKE	NORTHEAST FISHERIES MANAGEMENT COUNCIL		
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINDOW PANE FLOUNDER	NORTHEAST FISHERIES MANAGEMENT COUNCIL		
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINTER FLOUNDER	NORTHEAST FISHERIES MANAGEMENT COUNCIL		
MANAGEMENT AREA	PRIORITY HABITAT	MDFW NHESP	508-389-6380	

JURISDICTIONS		
COUNTY:	BRISTOL, KENT, PROVIDENCE	
COAST GUARD:	DISTRICT 1, SECTOR SE NEW ENGLAND	
USACE:	NORTH ATLANTIC DIVISION, NEW ENGLAND DISTRICT	
	FEMA:	REGION I
	EPA:	REGION 1

ESI POLYGON HABITAT TYPES



ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	671.83	1.05
10B	Freshwater Marshes	697.14	1.09
10C	Swamps	3,967.85	6.20
10D	Scrub and Shrub Wetlands	818.67	1.28
9A	Sheltered Tidal Flats	44.21	0.07
5	Mixed Sand and Gravel Beaches	1.61	0.00
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	0.03	0.00

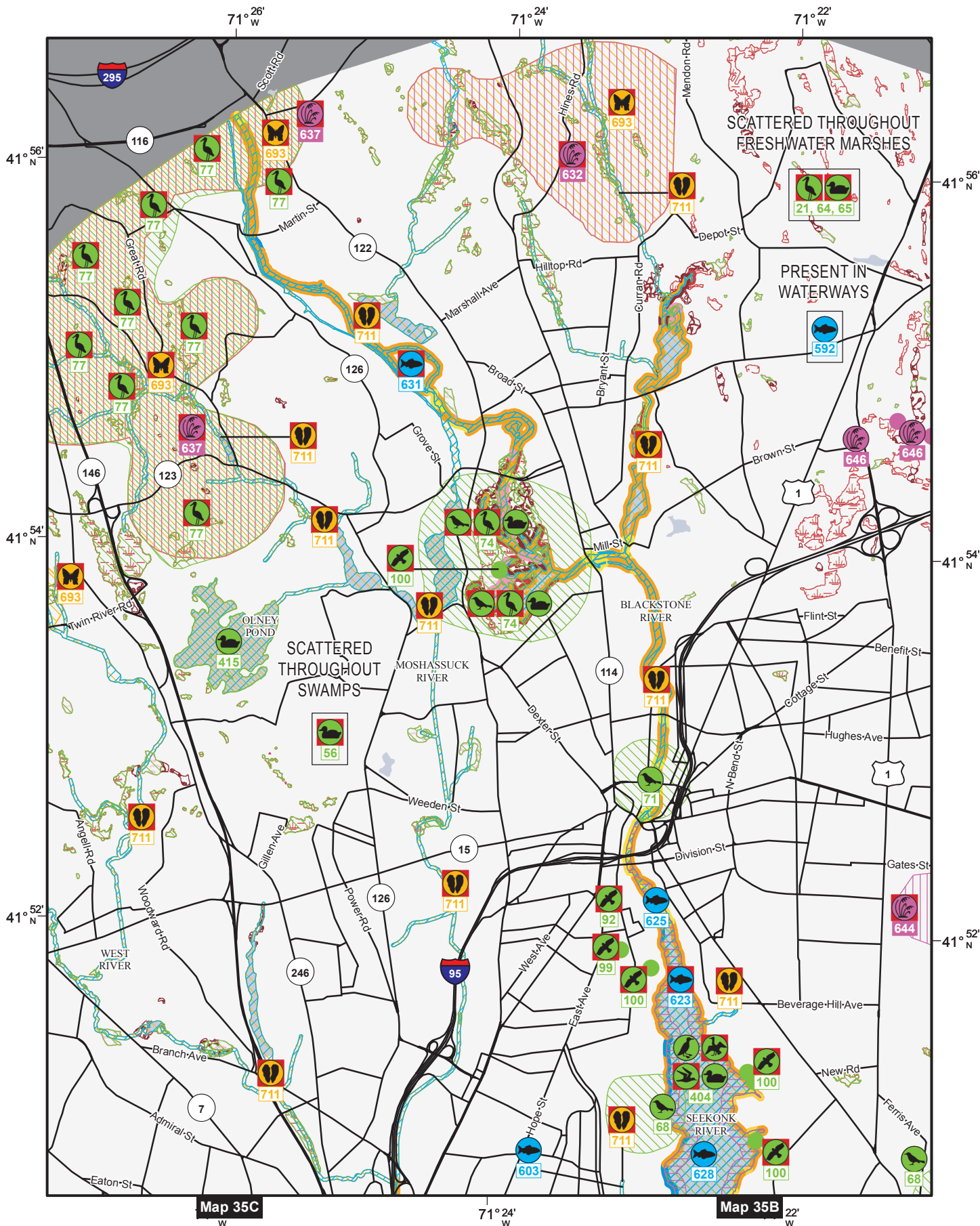
ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	54,140.74	33.64	19%
10B	Freshwater Marshes	7,849.20	4.88	3%
10C	Swamps	13,288.31	8.26	5%
10D	Scrub and Shrub Wetlands	5,683.54	3.53	2%
9A	Sheltered Tidal Flats	7,957.61	4.94	3%
9B	Vegetated Low Banks	119,903.04	74.50	41%
8A	Sheltered, Impermeable, Rocky Shores	701.05	0.44	< 1%
8A	Sheltered Scarps (Bedrock/Mud/Clay)	152.69	0.09	< 1%
8B	Sheltered, Solid Man-Made Structures	29,345.73	18.23	10%
8C	Sheltered Riprap	6,945.90	4.32	2%
8D	Sheltered, Rocky, Rubble Shores	119.50	0.07	< 1%
6A	Gravel Beaches	465.70	0.29	< 1%
6B	Riprap	10,122.13	6.29	3%
5	Mixed Sand and Gravel Beaches	7,671.80	4.77	3%
4	Coarse Grained Sand Beaches	8,904.25	5.53	3%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	1,566.36	0.97	1%
1A	Exposed, Rocky Shores	299.22	0.19	< 1%
1B	Exposed, Solid Man-Made Structures	14,173.71	8.81	5%
Total ESI Shoreline:		289,290.50	179.76	
Total Shoreline:		244,680.11	152.04	

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 35A
Massachusetts and Rhode Island

BIOLOGICAL RESOURCES

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

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence											
							J	F	M	A	M	J	J	A	S	O	N	D
Algae	Green macroalgae	High Ecological Value				71-100%												
Algae	Green macroalgae	High Ecological Value				71-100%												
Algae	Red macroalgae	High Ecological Value				41-70%												
Algae	Red macroalgae	High Ecological Value				41-70%												

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig. (S)	Mig. (F)	Molt
								J	F	M	A	M	J	J	A	S	O	N	D				
21	Wading	Marsh birds	General Distribution	C/C			Common													-	Mar-May	Aug-Nov	Jul-Aug
56	Waterfowl	Waterfowl	General Distribution	C/C			Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
64	Wading	Marsh birds	General Distribution	C/C			Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
65	Wading	Marsh birds	General Distribution	C/C			Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Waterfowl	Waterfowl	General Distribution	C/C			Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
68	Passerine	Fish crow	Vulnerable Occurrence				-													-	-	-	-
71	Passerine	Common nighthawk	Vulnerable Occurrence				-													May-Jul	May-Jun	Aug-Sep	-
74	Passerine	Marsh wren	Vulnerable Occurrence	-/C			-													Apr-Aug	Apr-May	Aug-Oct	-
	Wading	Least bittern	Vulnerable Occurrence	E/T			-													May-Jul	Apr	Oct-Nov	-
	Waterfowl	Green-winged teal	Vulnerable Occurrence				-													Apr-Jul	-	-	-
77	Wading	Sora	Vulnerable Occurrence	-/C			-													Apr-Sep	Mar-May	Sep-Nov	-
92	Raptor	Peregrine falcon	Nesting	E/E			Nest Site													Mar-Aug	Mar-Jun	Sep-Nov	-
99	Raptor	Bald eagle	Nesting	T/E			Nest Site													Dec-Aug	Mar-Apr	-	-
100	Raptor	Osprey	Nesting	-/C			Nest Site													Apr-Aug	Apr-May	Sep-Nov	-
404	Alcid	Razorbill	Wintering				Common													-	Mar-Apr	Nov	-
	Diving	Horned grebe	Wintering				Rare													-	Apr-May	Oct-Nov	-
	Diving	Loons	General Distribution	C/-			Rare													-	Mar-Jun	Oct-Jan	Jan-Mar
	Gull/Tern	Common tern	General Distribution	C/-			Common													May-Sep	Apr-May	Aug-Oct	-
	Gull/Tern	Least tern	General Distribution	C/T			Rare													-	Apr-May	Aug-Sep	-
	Waterfowl	American black duck	Wintering				Abundant													-	Apr	Oct	-
	Waterfowl	Dabbling ducks	Wintering				Common													-	Feb-Apr	Sep-Dec	-
	Waterfowl	Diving ducks	Wintering				Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering				Common													Apr-May	Mar-May	Oct-Nov	-
	Waterfowl	Sea ducks	Wintering				Common													-	Mar-May	Oct-Nov	-
415	Waterfowl	American black duck	Wintering				Abundant													-	Apr	Oct	-
	Waterfowl	Diving ducks	Wintering				Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering				Common													Apr-May	Mar-May	Oct-Nov	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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592	Diadromous	American eel	Migration			-																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	Monthly Presence												Concentration	J	F	M	A	M	J	J	A	S	O	N	D
					S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Mar-Jun								
632	Plant	Endangered plant	Vulnerable Occurrence	-E	E		-																						
637	Plant	Endangered plant	Vulnerable Occurrence	-E	E		-																						
	Wetland	Rare wetland/aquatic plant	Vulnerable Occurrence	-C			-																						
644	Wetland	Rare wetland/aquatic plant	Vulnerable Occurrence	-C			-																						
646	Wetland	Vernal pool	Vulnerable Occurrence				-																						

INVERTEBRATES


Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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693	Insect	Rare insect	Vulnerable Occurrence	E/C	T	-																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)





HABITATS & RARE PLANTS

Subelement	Species	Mapping Qualifier	MA/RI	Monthly Presence												Concentration	J	F	M	A	M	J	J	A	S	O	N	D
				S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Spawn									
	Plant	Rare plant	Vulnerable Occurrence	T/C		-																						
	Threatened plant	Vulnerable Occurrence	-T			-																						






REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	MA/RI		Monthly Presence												Concentration	Nest	Hatch	Internest	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
			S	F	J	F	M	A	M	J	J	A	S	O	N	D																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	B. spotted salamander	General Distribution	C/-																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					


BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Diving	D. crested cormorant													-	Mar-Apr	Sep-Oct	-	-
 Gull/Tern	Gulls													-	Apr-May	Aug-Sep	-	-
 Shorebird	Shorebirds													Mar-Sep	Mar-Dec	-	Aug-Oct	-
 Waterfowl	American black duck													Mar-Jul	Sep-Mar	-	-	-
	Diving ducks													Mar-Apr	Sep-Apr	-	-	-
	Geese													May	Mar-May	Sep-Nov	-	-



FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Diadromous	Alewife													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	American shad													Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Atlantic salmon													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Blueback herring													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
 Estuarine Nursery	Striped bass													-	-	-	Apr-Nov	Apr-Nov
	Atlantic herring													Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy													Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass													May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov
	Bluefish													-	-	-	May-Oct	May-Oct
	Hogchoker													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Scup													May-Aug	May-Aug	Jun-Aug	Apr-Nov	Apr-Nov
	Summer flounder													Aug-Nov	Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish													Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	White perch													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Winter flounder													Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
 Estuarine Resident	Atlantic silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Inland silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
 Freshwater	Stickleback													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Blacknose dace													Mar-Jun	Mar-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Brook trout (sea run)													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Common shiner													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
	Rainbow smelt													-	-	-	Jan-Dec	Jan-Dec
 Marine Benthic	American sand lance													Nov-Apr	Nov-May	Jan-May	Jan-Dec	Jan-Dec
	Atlantic cod													-	-	Jan-May	Jan-May	-
	Atlantic tomcod													Dec-Mar	Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec
	Pollock													Nov-Apr	Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Searobins													Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec





FISH (continued)

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Skates												
	Tautog												
	Sand tiger												
	Spiny dogfish												

REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Four-toed salamander												
	Red-spotted newt												
	Wood frog												
	Eastern box turtle												

INVERTEBRATES

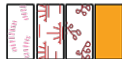
Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Atl. jackknife clam												
	Atlantic razor												
	Bay scallop												
	Blue mussel												
	Eastern oyster												
	Northern quahog												
	Softshell clam												
	Longfin squid												
	Atlantic rock crab												
	Blue crab												
	Horseshoe crab												
	Channeled whelk												
	Knobbed whelk												
	Northern moonshell												
	Sea snails												
	American lobster												

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)
10B	Freshwater Marshes	148.97	0.23
10C	Swamps	578.74	0.90
10D	Scrub and Shrub Wetlands	162.99	0.25
9A	Sheltered Tidal Flats	0.98	0.00



ESI SHORELINE HABITAT TYPES

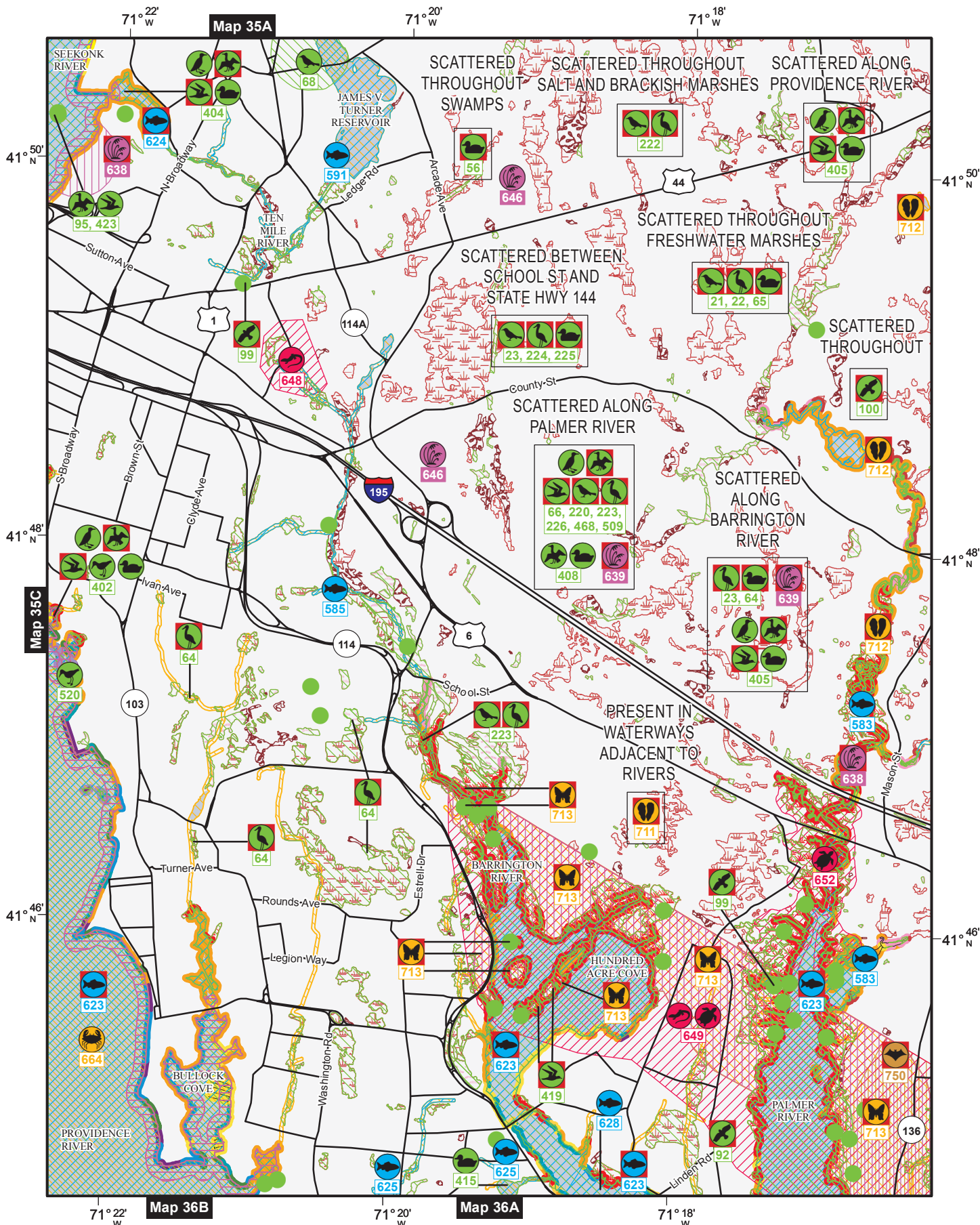
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10B	Freshwater Marshes	2,544.86	1.58	4%
10C	Swamps	5,456.84	3.39	8%
10D	Scrub and Shrub Wetlands	5,223.02	3.25	8%
9A	Sheltered Tidal Flats	91.50	0.06	< 1%
9B	Vegetated Low Banks	42,499.91	26.41	66%
8A	Sheltered, Impermeable, Rocky Shores	282.26	0.18	< 1%
8B	Sheltered, Solid Man-Made Structures	5,723.02	3.56	9%
8C	Sheltered Riprap	1,043.23	0.65	2%
8D	Sheltered, Rocky, Rubble Shores	44.23	0.03	< 1%
5	Mixed Sand and Gravel Beaches	209.86	0.13	< 1%
4	Coarse Grained Sand Beaches	1,193.26	0.74	2%

Total ESI Shoreline: 64,311.99 Total ESI Shoreline: 39.96
 Total Shoreline: 50,992.15 Total Shoreline: 31.69

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 35B
Mass. / Rhode Island



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

0 1 Miles
Not for Navigation
0 1 Kilometers

1:50,000



Map 35B
Massachusetts and Rhode Island

BIOLOGICAL RESOURCES

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

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence											
					J	F	M	A	M	J	J	A	S	O	N	D
Algae	Green macroalgae	High Ecological Value		71-100%												
Algae	Green macroalgae	High Ecological Value		71-100%												
Algae	Red macroalgae	High Ecological Value		41-70%												
Algae	Red macroalgae	High Ecological Value		41-70%												
Algae	Red macroalgae	High Ecological Value		41-70%												
Algae	Red macroalgae	High Ecological Value		41-70%												
Algae	Green macroalgae	High Ecological Value		41-70%												
Algae	Green macroalgae	High Ecological Value		71-100%												
Algae	Green macroalgae	High Ecological Value		71-100%												
Algae	Green macroalgae	High Ecological Value		71-100%												
SAV	Rare aquatic/wetland plant	High Ecological Value		Present												
Algae	Green macroalgae	High Ecological Value		71-100%												

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence											
						J	F	M	A	M	J	J	A	S	O	N	D
21	Wading	Marsh birds	General Distribution	C/C	Common												
22	Passerine	Marsh wren	Nesting	-/C	Common												
	Wading	Marsh birds	General Distribution	C/C	Common												
23	Wading	Marsh birds	General Distribution	C/C	Common												
	Waterfowl	Waterfowl	General Distribution	C/C	Common												
56	Waterfowl	Waterfowl	General Distribution	C/C	Common												
64	Wading	Marsh birds	General Distribution	C/C	Common												
65	Wading	Marsh birds	General Distribution	C/C	Common												
	Waterfowl	Waterfowl	General Distribution	C/C	Common												
66	Wading	Marsh birds	General Distribution	C/C	Common												
	Wading	Wading birds	General Distribution	-/C	Common												
68	Passerine	Fish crow	Vulnerable Occurrence		-												
92	Raptor	Peregrine falcon	Nesting	E/E	Nest Site												
95	Diving	D. crested cormorant	Nesting		Nest Site												
99	Raptor	Bald eagle	Nesting	T/E	Nest Site												
100	Raptor	Osprey	Nesting	-/C	Nest Site												
220	Passerine	Marsh passerines	General Distribution	-/C	Common												
	Wading	Egrets	Migration	-/C	Common												
222	Passerine	Marsh passerines	General Distribution	-/C	Common												
	Wading	Egrets	Migration	-/C	Common												
	Wading	Marsh birds	General Distribution	C/C	Common												

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Mig.(S)		Mig.(F)		Molt
				S	F		J	F	M	A	M	J	J	A	S	O	N	D		Mar-May	Apr-May	May-Sep	Aug-Nov	
223	Wading	Wading birds	General Distribution	-/C		Common												Apr-Sep	Mar-May	Apr-May	Sep-Oct	-		
	Passerine	Marsh passerines	General Distribution	-/C		Common												Apr-Aug	Apr-May	Apr-May	Aug-Nov	Sep-Oct		
	Wading	Egrets	Migration	-/C		Common												-	Apr-May	Apr-May	Sep-Oct	-		
224	Wading	Wading birds	General Distribution	-/C		Common												Apr-Sep	Mar-May	Apr-May	Sep-Oct	-		
	Passerine	Marsh passerines	General Distribution	-/C		Common												Apr-Aug	Apr-May	Apr-May	Aug-Nov	Sep-Oct		
	Wading	Egrets	Migration	-/C		Common												-	Apr-May	Apr-May	Sep-Oct	-		
225	Wading	Wading birds	General Distribution	-/C		Common												-	Mar-May	Mar-May	Jul-Oct	-		
	Passerine	Marsh passerines	General Distribution	-/C		Common												Apr-Aug	Apr-May	Apr-May	Aug-Nov	Sep-Oct		
	Wading	Egrets	Migration	-/C		Common												-	Apr-May	Apr-May	Sep-Oct	-		
226	Wading	Marsh birds	General Distribution	C/C		Common												-	Mar-May	Mar-May	Aug-Nov	Jul-Aug		
	Wading	Wading birds	General Distribution	-/C		Common												-	Mar-May	Mar-May	Jul-Oct	-		
	Passerine	Marsh passerines	General Distribution	-/C		Common												Apr-Aug	Apr-May	Apr-May	Aug-Nov	Sep-Oct		
402	Passerine	Marsh wren	Nesting	-/C		Common												May-Jul	May	May	-	-		
	Wading	Egrets	Migration	-/C		Common												-	Apr-May	Apr-May	Sep-Oct	-		
	Wading	Marsh birds	General Distribution	C/C		Common												-	Mar-May	Mar-May	Aug-Nov	Jul-Aug		
	Wading	Wading birds	General Distribution	-/C		Common												-	Mar-May	Mar-May	Jul-Oct	-		
	Alcid	Razorbill	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Diving	Horned grebe	Wintering			Rare												-	Apr-May	Apr-May	Oct-Nov	-		
	Diving	Loons	General Distribution	C/-		Rare												-	Mar-Jun	Mar-Jun	Oct-Jan	Jan-Mar		
	Gull/Tern	Common tern	General Distribution	C/-		Common												May-Sep	Apr-May	Apr-May	Aug-Oct	-		
	Gull/Tern	Least tern	General Distribution	C/T		Rare												-	Apr-May	Apr-May	Aug-Sep	-		
	Shorebird	Purple sandpiper	Wintering			Rare												-	May	May	Nov	-		
	Waterfowl	American black duck	Wintering			Abundant												-	Apr	Apr	Oct	-		
	Waterfowl	Diving ducks	Wintering			Common												Mar-Apr	Sep-Apr	Sep-Apr	-	-		
	Waterfowl	Geese	Wintering			Common												Apr-May	Mar-May	Mar-May	Oct-Nov	-		
	Waterfowl	Sea ducks	Wintering			Common												-	Mar-Apr	Mar-Apr	Oct-Nov	-		
	Alcid	Razorbill	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
404	Diving	Horned grebe	Wintering			Rare												-	Apr-May	Apr-May	Oct-Nov	-		
	Diving	Loons	General Distribution	C/-		Rare												-	Mar-Jun	Mar-Jun	Oct-Jan	Jan-Mar		
	Gull/Tern	Common tern	General Distribution	C/-		Common												May-Sep	Apr-May	Apr-May	Aug-Oct	-		
	Gull/Tern	Least tern	General Distribution	C/T		Rare												-	Apr-May	Apr-May	Aug-Sep	-		
	Waterfowl	American black duck	Wintering			Abundant												-	Apr	Apr	Oct	-		
	Waterfowl	Dabbling ducks	Wintering			Common												-	Feb-Apr	Feb-Apr	Sep-Dec	-		
	Waterfowl	Diving ducks	Wintering			Common												Mar-Apr	Sep-Apr	Sep-Apr	-	-		
	Waterfowl	Geese	Wintering			Common												Apr-May	Mar-May	Mar-May	Oct-Nov	-		
	Waterfowl	Sea ducks	Wintering			Common												-	Mar-May	Mar-May	Oct-Nov	-		
405	Alcid	Razorbill	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Diving	Horned grebe	Wintering			Rare												-	Apr-May	Apr-May	Oct-Nov	-		
	Diving	Loons	General Distribution	C/-		Rare												-	Mar-Jun	Mar-Jun	Oct-Jan	Jan-Mar		
	Gull/Tern	Common tern	General Distribution	C/-		Common												May-Sep	Apr-May	Apr-May	Aug-Oct	-		
	Gull/Tern	Least tern	General Distribution	C/T		Rare												-	Apr-May	Apr-May	Aug-Sep	-		
	Waterfowl	American black duck	Wintering			Abundant												-	Apr	Apr	Oct	-		
	Waterfowl	Diving ducks	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Waterfowl	Geese	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Waterfowl	Sea ducks	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Alcid	Razorbill	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Diving	Horned grebe	Wintering			Rare												-	Apr-May	Apr-May	Oct-Nov	-		
	Diving	Loons	General Distribution	C/-		Rare												-	Mar-Jun	Mar-Jun	Oct-Jan	Jan-Mar		
	Gull/Tern	Common tern	General Distribution	C/-		Common												May-Sep	Apr-May	Apr-May	Aug-Oct	-		
	Gull/Tern	Least tern	General Distribution	C/T		Rare												-	Apr-May	Apr-May	Aug-Sep	-		
	Waterfowl	American black duck	Wintering			Abundant												-	Apr	Apr	Oct	-		
	Waterfowl	Diving ducks	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Waterfowl	Geese	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Waterfowl	Sea ducks	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Alcid	Razorbill	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Diving	Horned grebe	Wintering			Rare												-	Apr-May	Apr-May	Oct-Nov	-		
	Diving	Loons	General Distribution	C/-		Rare												-	Mar-Jun	Mar-Jun	Oct-Jan	Jan-Mar		
	Gull/Tern	Common tern	General Distribution	C/-		Common												May-Sep	Apr-May	Apr-May	Aug-Oct	-		
	Gull/Tern	Least tern	General Distribution	C/T		Rare												-	Apr-May	Apr-May	Aug-Sep	-		
	Waterfowl	American black duck	Wintering			Abundant												-	Apr	Apr	Oct	-		
	Waterfowl	Diving ducks	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Waterfowl	Geese	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Waterfowl	Sea ducks	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Alcid	Razorbill	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Diving	Horned grebe	Wintering			Rare												-	Apr-May	Apr-May	Oct-Nov	-		
	Diving	Loons	General Distribution	C/-		Rare												-	Mar-Jun	Mar-Jun	Oct-Jan	Jan-Mar		
	Gull/Tern	Common tern	General Distribution	C/-		Common												May-Sep	Apr-May	Apr-May	Aug-Oct	-		
	Gull/Tern	Least tern	General Distribution	C/T		Rare												-	Apr-May	Apr-May	Aug-Sep	-		
	Waterfowl	American black duck	Wintering			Abundant												-	Apr	Apr	Oct	-		
	Waterfowl	Diving ducks	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Waterfowl	Geese	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Waterfowl	Sea ducks	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Alcid	Razorbill	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Diving	Horned grebe	Wintering			Rare												-	Apr-May	Apr-May	Oct-Nov	-		
	Diving	Loons	General Distribution	C/-		Rare												-	Mar-Jun	Mar-Jun	Oct-Jan	Jan-Mar		
	Gull/Tern	Common tern	General Distribution	C/-		Common												May-Sep	Apr-May	Apr-May	Aug-Oct	-		
	Gull/Tern	Least tern	General Distribution	C/T		Rare												-	Apr-May	Apr-May	Aug-Sep	-		
	Waterfowl	American black duck	Wintering			Abundant												-	Apr	Apr	Oct	-		
	Waterfowl	Diving ducks	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Waterfowl	Geese	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Waterfowl	Sea ducks	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Alcid	Razorbill	Wintering			Common												-	Mar-Apr	Mar-Apr	Nov	-		
	Diving	Horned grebe	Wintering			Rare												-	Apr-May	Apr-May	Oct-Nov	-		
	Diving	Loons	General Distribution	C/-		Rare												-	Mar-Jun	Mar-Jun	Oct-Jan	Jan-Mar		
	Gull/Tern	Common tern	General Distribution	C/-		Common												May-Sep	Apr-May	Apr-May	Aug-Oct	-		
	Gull/Tern	Least tern	General Distribution	C/T		Rare												-	Apr-May	Apr-May	Aug-Sep	-		
	Waterfowl	American black duck	Wintering			Abundant		</																

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence												Molt
						J	F	M	A	M	J	J	A	S	O	N	D	
408	Waterfowl	Sea ducks	Wintering		Common													-
	Diving	Horned grebe	Wintering		Rare													-
	Waterfowl	American black duck	Wintering		Abundant													-
	Waterfowl	Diving ducks	Wintering		Common													-
	Waterfowl	Geese	Wintering		Common													-
415	Waterfowl	Sea ducks	Wintering		Common													-
	Waterfowl	American black duck	Wintering		Abundant													-
	Waterfowl	Diving ducks	Wintering		Common													-
	Waterfowl	Geese	Wintering		Common													-
	Gull/Tern	Common tern	Nesting		Nest Site													-
423	Diving	D. crested cormorant	Nesting		Nest Site													-
	Gull/Tern	G. black-backed gull	Nesting		Nest Site													-
	Passerine	Marsh wren	Nesting		Common													-
	Wading	Marsh birds	General Distribution		Common													-
	Wading	Wading birds	General Distribution		Common													-
509	Acid	Razorbill	Wintering		Common													-
	Diving	Loons	General Distribution		Rare													-
	Gull/Tern	Common tern	General Distribution		Common													-
	Gull/Tern	Least tern	General Distribution		Rare													-
	Shorebird	Purple sandpiper	Wintering		Rare													-

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence												Adults
						J	F	M	A	M	J	J	A	S	O	N	D	
583	Diadromous	Alewife	Spawning Area		-													Apr-Jun
	Diadromous	Blueback herring	Spawning Area		-													Apr-Jun
	Freshwater	Rainbow smelt	Spawning Area		-													Mar-May
585	Diadromous	Alewife	Spawning Area		-													Apr-Jun
	Diadromous	American shad	Spawning Area		-													Apr-Jun
	Diadromous	Blueback herring	Spawning Area		-													Apr-Jun
591	Diadromous	American shad	Spawning Area		-													Apr-Jun
	Diadromous	Blueback herring	Spawning Area		-													Apr-Jun
	Diadromous	Atlantic sturgeon	General Distribution		-													Apr-Jun
623	Diadromous	Alewife	Migration		-													Jan-Dec
	Diadromous	Atlantic sturgeon	General Distribution		-													Mar-Oct
	Diadromous	Blueback herring	Migration		-													Jan-Dec
625	Diadromous	Alewife	Spawning Area		-													Mar-Oct
	Diadromous	Blueback herring	Spawning Area		-													Mar-Oct
	Diadromous	Alewife	Migration		-													Mar-Oct
628	Diadromous	Blueback herring	Migration		-													Mar-Oct
	Diadromous	Blueback herring	Migration		-													Mar-Oct
	Diadromous	Blueback herring	Migration		-													Mar-Oct

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence											
								J	F	M	A	M	J	J	A	S	O	N	D
638	Plant	Rare plant	Vulnerable Occurrence	T/C			-												
639	Plant	Rare plant	Vulnerable Occurrence	T/C			-												
646	Plant	Threatened plant	Vulnerable Occurrence	-T			-												
	Wetland	Vernal pool	Vulnerable Occurrence				-												

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence											
								J	F	M	A	M	J	J	A	S	O	N	D
648	Amphibian	Northern leopard frog	Vulnerable Occurrence				-												
649	Amphibian	Northern leopard frog	Vulnerable Occurrence				-												
	Turtle	N. diamondback terrapin	Vulnerable Occurrence				-												
652	Turtle	Rare reptile	Vulnerable Occurrence				-												

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence											
								J	F	M	A	M	J	J	A	S	O	N	D
664	Crab	Horseshoe crab	Spawning				Abundant												
711	Bivalve	Eastern pearlshell	General Distribution	-E			-												
	Bivalve	Rare freshwater mussel	General Distribution	C/C			-												
712	Bivalve	Rare freshwater mussel	General Distribution	C/C			-												
713	Insect	Threatened insect	Vulnerable Occurrence	-E			-												

TERRESTRIAL MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence											
								J	F	M	A	M	J	J	A	S	O	N	D
750	Bat	Northern myotis	General Distribution	E/-			Rare												

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)



BIRDS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence											
							J	F	M	A	M	J	J	A	S	O	N	D
	Waterfowl	Dabbling ducks	Wintering				Abundant											

FISH

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence											
							J	F	M	A	M	J	J	A	S	O	N	D
	Diadromous	American eel	Migration				-											






REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence											
							J	F	M	A	M	J	J	A	S	O	N	D
	Amphibian	B. spotted salamander	General Distribution	C/-			-											
		Eastern spadefoot	Vulnerable Occurrence	T/E			-											
	Turtle	Marbled salamander	General Distribution	T/-			Common											
		Wood turtle	General Distribution	C/C			-											


BIRDS

Subelement	Species	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Diving	D. crested cormorant													-	Mar-Apr	Sep-Oct	-	-
 Gull/Tern	Gulls													-	Apr-May	Aug-Sep	-	-
 Shorebird	Shorebirds													Mar-Sep	Mar-Dec	-	Aug-Oct	-
 Waterfowl	American black duck													Mar-Jul	Sep-Mar	-	-	-
	Diving ducks													Mar-Apr	Sep-Apr	-	-	-
	Geese													May	Mar-May	Sep-Nov	-	-



FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Diadromous	Alewife													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	American shad													Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Atlantic salmon													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Blueback herring													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Striped bass													-	-	-	Apr-Nov	Apr-Nov
 Estuarine Nursery	Atlantic herring													Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy													Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass													May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov
	Bluefish													-	-	-	May-Oct	May-Oct
	Hogchoker													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Scup													May-Aug	May-Aug	Jun-Aug	Apr-Nov	Apr-Nov
	Summer flounder													Aug-Nov	Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish													Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	White perch													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Winter flounder													Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
 Estuarine Resident	Atlantic silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Inland silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Stickleback													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
 Freshwater	Brook trout (sea run)													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Rainbow smelt													-	-	-	Jan-Dec	Jan-Dec
 Marine Benthic	American sand lance													Nov-Apr	Nov-May	Jan-May	Jan-May	-
	Atlantic cod													-	-	Jan-May	Jan-May	-
	Atlantic tomcod													Dec-Mar	Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec
	Pollock													Nov-Apr	Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Searobins													Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Skates													-	-	-	Jan-Dec	Jan-Dec
	Tautog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec





FISH (continued)

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Marine Pelagic												
	Atlantic mackerel												
	Sand tiger												
	Spiny dogfish												




REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Amphibian												
	Four-toed salamander												
	Wood frog												
	Turtle												
	Eastern box turtle												

INVERTEBRATES

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Bivalve												
	Atl. jackknife clam												
	Atlantic razor												
	Bay scallop												
	Blue mussel												
	Eastern oyster												
	Northern quahog												
	Softshell clam												
	Longfin squid												
	Atlantic rock crab												
	Blue crab												
	Horseshoe crab												
	Channeled whelk												
	Knobbed whelk												
	Northern moonshell												
	Sea snails												
	American lobster												

MARINE MAMMALS

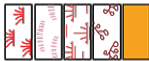
Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Dolphin												
	Atl. wht.-side dolphin												
	Harbor porpoise												
	Short-beaked common dolphin												
	Harbor seal												
	Pinniped												
	Pilot whales												
	Whale												

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	655.12	1.02
10B	Freshwater Marshes	334.67	0.52
10C	Swamps	1,661.68	2.60
10D	Scrub and Shrub Wetlands	287.90	0.45
9A	Sheltered Tidal Flats	38.18	0.06



ESI SHORELINE HABITAT TYPES

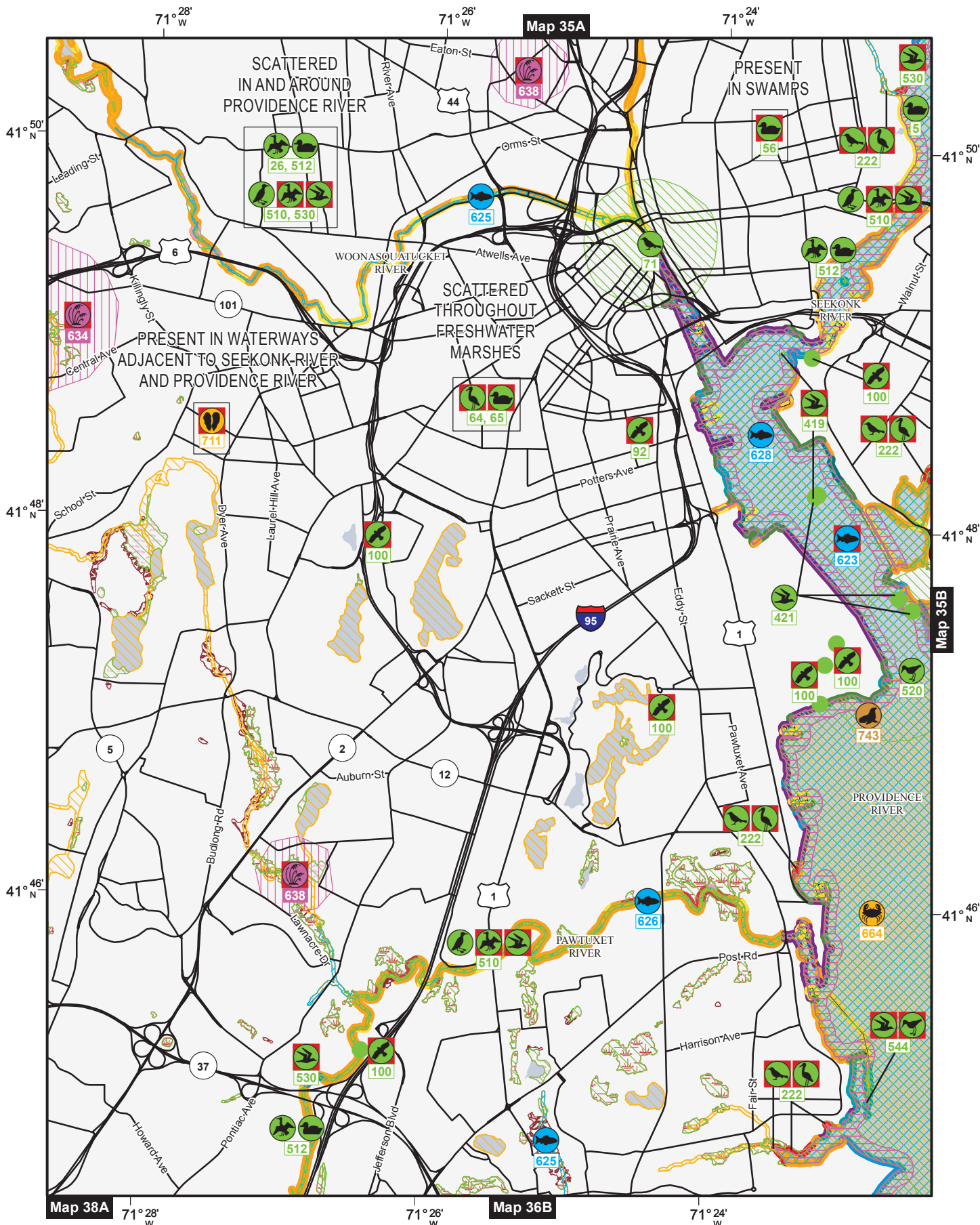
<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt and Brackish Water Marshes	52,513.33	32.63	42%
10B	Freshwater Marshes	3,930.53	2.44	3%
10C	Swamps	4,901.28	3.05	4%
10D	Scrub and Shrub Wetlands	278.38	0.17	< 1%
9A	Sheltered Tidal Flats	6,326.45	3.93	5%
9B	Vegetated Low Banks	34,494.79	21.43	28%
8A	Sheltered, Impermeable, Rocky Shores	239.63	0.15	< 1%
8A	Sheltered Scarps (Bedrock/Mud/Clay)	152.69	0.09	< 1%
8B	Sheltered, Solid Man-Made Structures	6,113.26	3.80	5%
8C	Sheltered Riprap	1,683.66	1.05	1%
6B	Riprap	2,316.72	1.44	2%
5	Mixed Sand and Gravel Beaches	4,203.73	2.61	3%
4	Coarse Grained Sand Beaches	5,303.05	3.30	4%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	1,010.95	0.63	1%
1B	Exposed, Solid Man-Made Structures	1,877.62	1.17	1%

Total ESI Shoreline: 125,346.08 Total ESI Shoreline: 77.89
Total Shoreline: 106,615.54 Total Shoreline: 66.25

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

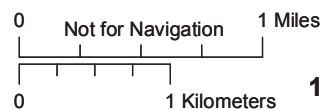




Map 35C
Mass. / Rhode Island



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



1:50,000

Map 35C
Massachusetts and Rhode Island

BIOLOGICAL RESOURCES

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

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence											
					J	F	M	A	M	J	J	A	S	O	N	D
Algae	Red macroalgae	High Ecological Value		41-70%												
Algae	Red macroalgae	High Ecological Value		41-70%												
Algae	Green macroalgae	High Ecological Value		71-100%												
Algae	Green macroalgae	High Ecological Value		71-100%												

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence												Nest	Mig. (S)	Mig. (F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
5	Waterfowl	Dabbling ducks	Wintering		Common													-	Feb-Apr	Sep-Dec	-
26	Waterfowl	Dabbling ducks	Wintering		Abundant													-	Feb-Apr	Sep-Dec	-
56	Waterfowl	Waterfowl	General Distribution	C/C	Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
64	Wading	Marsh birds	General Distribution	C/C	Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
65	Wading	Marsh birds	General Distribution	C/C	Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Waterfowl	Waterfowl	General Distribution	C/C	Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
71	Passerine	Common nighthawk	Vulnerable Occurrence		-													May-Jul	May-Jun	Aug-Sep	-
92	Raptor	Peregrine falcon	Nesting	E/E	Nest Site													Mar-Aug	Mar-Jun	Sep-Nov	-
100	Raptor	Osprey	Nesting	-/C	Nest Site													Apr-Aug	Apr-May	Sep-Nov	-
222	Passerine	Marsh passerines	General Distribution	-/C	Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Wading	Egrets	Migration	-/C	Common													-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C	Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-/C	Common													Apr-Sep	Mar-May	Sep-Oct	-
419	Gull/Tern	Common tern	Nesting	C/-	Nest Site													May-Sep	-	-	-
421	Gull/Tern	G. black-backed gull	Nesting		Nest Site													Apr-Jul	-	-	-
510	Alcid	Razorbill	Wintering		Common													-	Mar-Apr	Nov	-
	Diving	Loons	General Distribution	C/-	Rare													-	Mar-Jun	Oct-Jan	Jan-Mar
	Gull/Tern	Least tern	General Distribution	C/T	Rare													-	Apr-May	Aug-Sep	-
512	Diving	Horned grebe	Wintering		Rare													-	Apr-May	Oct-Nov	-
	Waterfowl	Sea ducks	Wintering		Common													-	Mar-May	Oct-Nov	-
520	Shorebird	Purple sandpiper	Wintering		Rare													-	May	Nov	-
530	Gull/Tern	Common tern	General Distribution	C/-	Common													May-Sep	Apr-May	Aug-Oct	-
544	Gull/Tern	Common tern	Nesting	C/-	Nest Site													May-Sep	-	-	-
	Shorebird	American oystercatcher	Nesting	-/C	Nest Site													Apr-Aug	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
623	Diadromous	Atlantic sturgeon	General Distribution		E/-	T	-													May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec
625	Diadromous	Alewife	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
626	Diadromous	Blueback herring	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	Alewife	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	American shad	Spawning Area				-													Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Oct
	Diadromous	Blueback herring	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
628	Diadromous	Alewife	Migration				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	Blueback herring	Migration				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
634	Plant	Endangered plant	Vulnerable Occurrence		-JE	E	-																	
	Plant	Rare plant	Vulnerable Occurrence		T/C		-																	
	Plant	Threatened plant	Vulnerable Occurrence		-T		-																	
638	Plant	Rare plant	Vulnerable Occurrence		T/C		-																	

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
664	Crab	Horseshoe crab	Spawning				Abundant													Apr-Jun	Apr-Jun	-	Apr-Jun	Apr-Jun
711	Bivalve	Eastern pearlshell	General Distribution		-JE		-													Aug-Sep	Aug-May	May-Jun	Jan-Dec	Jan-Dec
	Bivalve	Rare freshwater mussel	General Distribution		C/C		-													Aug-Sep	Aug-May	Jun-Jul	Jan-Dec	Jan-Dec

MARINE MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Mating	Calving	Pupping	Molt	
743	Pinniped	Harbor seal	Haul Out				Common													-	-	-	-	-

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig.(S)	Mig.(F)	Molt	
743	Waterfowl	American black duck	Wintering				Abundant													-	Apr	Oct	-	-
		Diving ducks	Wintering				Common													Mar-Apr	Sep-Apr	-	-	-
		Geese	Wintering				Common													Apr-May	Mar-May	Oct-Nov	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
743	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec

TERRESTRIAL MAMMALS

Subelement	Species	Mapping Qualifier	MA/RI			Monthly Presence											
			S	F		J	F	M	A	M	J	J	A	S	O	N	D
Bat	Northern myotis	General Distribution	E/-	T													

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)


BIRDS

[illegible]



FISH

[illegible]





FISH (continued)

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Skates												
	Tautog												
	Atlantic mackerel												
	Sand tiger												
	Spiny dogfish												




REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Four-toed salamander												
	Fowler's toad												
	Wood frog												
	Eastern box turtle												

INVERTEBRATES

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Atl. jackknife clam												
	Atlantic razor												
	Bay scallop												
	Blue mussel												
	Eastern oyster												
	Mussel bed												
	Northern quahog												
	Softshell clam												
	Longfin squid												
	Atlantic rock crab												
	Blue crab												
	Horseshoe crab												
	Channeled whelk												
	Crepidula bed												
	Knobbed whelk												
	Northern moonsnail												
	Sea snails												
	American lobster												

MARINE MAMMALS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Atl. wht.-side dolphin												
	Harbor porpoise												
	Short-beaked common dolphin												
	Harbor seal												
	Pilot whales												

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	16.69	0.03
10B	Freshwater Marshes	87.06	0.14
10C	Swamps	328.62	0.51
10D	Scrub and Shrub Wetlands	94.45	0.15
9A	Sheltered Tidal Flats	5.04	0.01
5	Mixed Sand and Gravel Beaches	1.61	0.00
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	0.03	0.00

ESI SHORELINE HABITAT TYPES

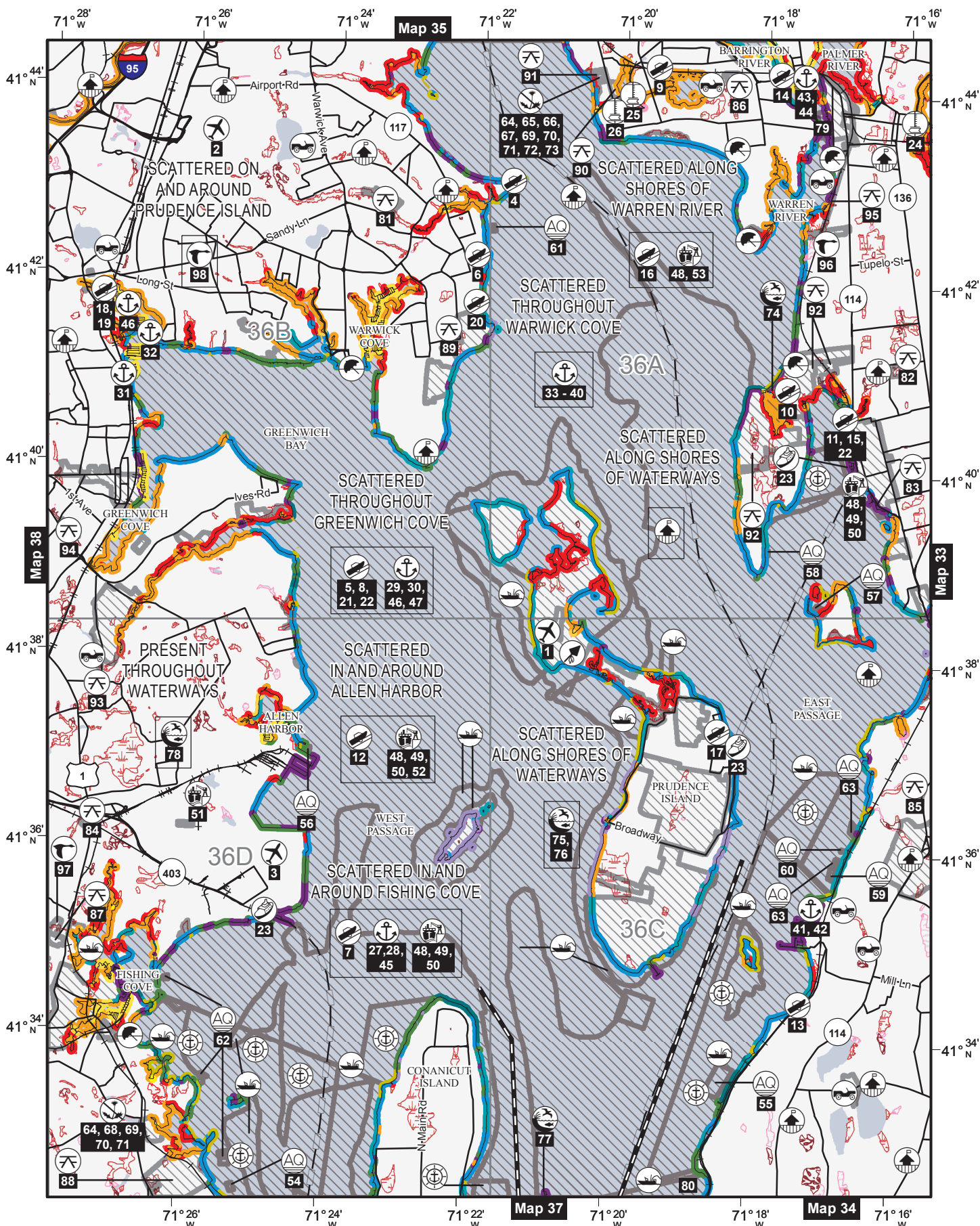
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	1,625.50	1.01	2%
10B	Freshwater Marshes	1,111.71	0.69	1%
10C	Swamps	2,930.18	1.82	3%
10D	Scrub and Shrub Wetlands	182.14	0.11	< 1%
9A	Sheltered Tidal Flats	1,534.33	0.95	2%
9B	Vegetated Low Banks	41,711.60	25.92	43%
8A	Sheltered, Impermeable, Rocky Shores	179.15	0.11	< 1%
8B	Sheltered, Solid Man-Made Structures	17,369.99	10.79	18%
8C	Sheltered Riprap	4,213.65	2.62	4%
8D	Sheltered, Rocky, Rubble Shores	75.27	0.05	< 1%
6A	Gravel Beaches	465.70	0.29	< 1%
6B	Riprap	7,805.41	4.85	8%
5	Mixed Sand and Gravel Beaches	3,249.18	2.02	3%
4	Coarse Grained Sand Beaches	2,398.17	1.49	2%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	555.42	0.35	1%
1A	Exposed, Rocky Shores	299.22	0.19	< 1%
1B	Exposed, Solid Man-Made Structures	12,296.09	7.64	13%

Total ESI Shoreline: 98,002.72 Total ESI Shoreline: 60.90
 Total Shoreline: 85,572.64 Total Shoreline: 53.17

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

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





Map 36
Mass. / Rhode Island



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

0 Not for Navigation 2 Miles
0 2 Kilometers

1:100,000



Map 36
Massachusetts and Rhode Island

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)				
Map ID	Type	Name	Contact	Phone
1	AIRPORT	PRUDENCE ISLAND		
2	AIRPORT	T.F. GREENE		
3	AIRPORT	QUONSET		
4	BOAT RAMP	CONIMICUT POINT	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
5	BOAT RAMP	GODDARD PARK	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
6	BOAT RAMP	LONGMEADOW	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
7	BOAT RAMP	WILSON PARK	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
8	BOAT RAMP	EAST GREENWICH TOWN BOAT LAUNCH	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
9	BOAT RAMP	BRICKYARD POND	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
10	BOAT RAMP	COLT PARK	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
11	BOAT RAMP	INDEPENDENCE PARK	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
12	BOAT RAMP	ALLEN HARBOR	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
13	BOAT RAMP	WEAVER COVE	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
14	BOAT RAMP	BARRINGTON RIVER	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
15	BOAT RAMP	STATE STREET	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
16	BOAT RAMP	TOWN DOCK	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
17	BOAT RAMP	HOMESTEAD	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
18	BOAT RAMP	APPONAUG COVE	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
19	BOAT RAMP	PONAUG MARINA	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
20	BOAT RAMP	OGDEN AVENUE EXTENSION	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
21	BOAT RAMP	LONG STEET	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
22	BOAT RAMP	COMMERCIAL MARINE RECREATION - TRANSIENT SLIPS	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
23	FERRY	COMMERCIAL FERRY	URI, COASTAL RES. CTR, COASTAL AND OCEAN PLN.	401-874-6224
24	LOCK AND DAM	WARREN RESERVOIR LOWER DAM		
25	LOCK AND DAM	ECHO LAKE DAM		
26	LOCK AND DAM	RHODE ISLAND COUNTRY CLUB POND DAM		
27	MARINA	BREWER'S WICKFORD COVE MARINA		
28	MARINA	WICKFORD SHIPYARD		
29	MARINA	GREENWICH BAY MARINA		
30	MARINA	NORTON SHIPYARD & MARINA		
31	MARINA	BREWER YACHT YARD		
32	MARINA	APPONAUG HARBOR MARINA		
33	MARINA	ANGEL'S MARINA		
34	MARINA	AQUA VISTA MARINA & BOAT SALES		
35	MARINA	WARWICK COVE MARINA, INC.		
36	MARINA	HARBOR LIGHT MARINA		
37	MARINA	C-LARK MARINA		
38	MARINA	CARLSON'S MARINA		
39	MARINA	WINSTEAD'S MARINA		
40	MARINA	BREEZY POINT MARINA, INC.		

DISPLAYED ON MAP (POLYGONS) (continued)				
84	REGIONAL OR STATE PARK	DEVILS FOOT ROCK	RI DEM	401-667-6200
85	REGIONAL OR STATE PARK	LEHIGH GROVE	RI DEM	401-667-6200
86	REGIONAL OR STATE PARK	VETERANS MEMORIAL PARK	RI DEM	401-667-6200
87	REGIONAL OR STATE PARK	COCUMCUSOC STATE PARK	RI DEM	401-667-6200
88	REGIONAL OR STATE PARK	ROME POINT	RI DEM	401-667-6200
89	REGIONAL OR STATE PARK	ROCKY POINT PARK	RI DEM	401-667-6200
90	REGIONAL OR STATE PARK	ECHO LAKE	RI DEM	401-667-6200
91	REGIONAL OR STATE PARK	PIC-WIL NATURE PRESERVE	RI DEM	401-667-6200
92	REGIONAL OR STATE PARK	COLT STATE PARK	RI DEM	401-667-6200
93	REGIONAL OR STATE PARK	POTOWOMUT POND ACCESS / ROMANO	RI DEM, DFW	401-789-7481
94	REGIONAL OR STATE PARK	BLEACHERY POND	RI DEM, DFW	401-789-7481
95	REGIONAL OR STATE PARK	EAST BAY BIKEPATH	RI DEM	401-667-6200
96	WILDLIFE REFUGE	CLAIRE D. MCINTOSH REFUGE	AUDUBON SOCIETY OF RHODE ISLAND	401-949-9595
97	WILDLIFE REFUGE	COCUMCUSOC BROOK RESERVE	AUDUBON SOCIETY OF RHODE ISLAND	401-949-5454
98	WILDLIFE REFUGE	NERRS NARRAGANSETT BAY RESERVE	BOB STANKELIS, NB NERR	401-683-7365

ALSO PRESENT IN MAPPED AREA (POINTS)			
Type	Name	Contact	Phone
COAST GUARD	ANT BRISTOL	USCG	401-253-9585
COAST GUARD	CEU PROVIDENCE	USCG	401-736-1700

ALSO PRESENT IN MAPPED AREA (POLYGONS)			
Type	Name	Contact	Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: ATLANTIC HERRING	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: HADDOCK	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: LITTLE SKATE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: RED HAKE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINDOW PANE FLOUNDER	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINTER FLOUNDER	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINTER SKATE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	

JURISDICTIONS			
COUNTY:	BRISTOL, KENT, NEWPORT, PROVIDENCE, WASHINGTON	FEMA:	REGION I
COAST GUARD:	DISTRICT 1, SECTOR SE NEW ENGLAND	EPA:	REGION 1
USACE:	NORTH ATLANTIC DIVISION, NEW ENGLAND DISTRICT		

ESI POLYGON HABITAT TYPES



ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	951.48	1.49
10B	Freshwater Marshes	204.00	0.32
10C	Swamps	1,468.25	2.29
10D	Scrub and Shrub Wetlands	260.56	0.41
9A	Sheltered Tidal Flats	151.10	0.24
7	Exposed Tidal Flats	41.54	0.06
5	Mixed Sand and Gravel Beaches	3.38	0.01
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	1.27	0.00

ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	77,180.02	47.96	18%
10B	Freshwater Marshes	395.39	0.25	< 1%
10C	Swamps	3,342.37	2.08	1%
10D	Scrub and Shrub Wetlands	585.63	0.36	< 1%
9A	Sheltered Tidal Flats	32,680.72	20.31	7%
9B	Vegetated Low Banks	77,101.01	47.91	17%
8A	Sheltered, Impermeable, Rocky Shores	167.43	0.10	< 1%
8B	Sheltered, Solid Man-Made Structures	25,754.40	16.00	6%
8C	Sheltered Riprap	4,864.46	3.02	1%
7	Exposed Tidal Flats	22,735.77	14.13	5%
6A	Gravel Beaches	3,724.32	2.31	1%
6B	Gravel Beaches (Cobbles/Boulders)	1,590.08	0.99	< 1%
6B	Riprap	34,865.84	21.66	8%
5	Mixed Sand and Gravel Beaches	34,415.75	21.39	8%
4	Coarse Grained Sand Beaches	77,376.36	48.08	18%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	7,824.74	4.86	2%
1B	Exposed, Solid Man-Made Structures	36,180.54	22.48	8%
Total ESI Shoreline:		440,784.82	273.89	
Total Shoreline:		337,742.59	209.86	

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

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



Map 36A
Massachusetts and Rhode Island

BIOLOGICAL RESOURCES

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

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence											
					J	F	M	A	M	J	J	A	S	O	N	D
SAV	Eelgrass	High Ecological Value		Potential												
	Green macroalgae	High Ecological Value		41-70%												
Algae	Algae	High Ecological Value		41-70%												
Algae	Algae	High Ecological Value		41-70%												
Algae	Algae	High Ecological Value		41-70%												
Algae	Algae	High Ecological Value		41-70%												
SAV	Eelgrass	High Ecological Value		Present												
Algae	Green macroalgae	High Ecological Value		41-70%												
Algae	Green macroalgae	High Ecological Value		41-70%												
Algae	Green macroalgae	High Ecological Value		41-70%												
Algae	Green macroalgae	High Ecological Value		71-100%												
Algae	Green macroalgae	High Ecological Value		71-100%												

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence											
						J	F	M	A	M	J	J	A	S	O	N	D
56	Waterfowl	Waterfowl	General Distribution	C/C	Common												
64	Wading	Marsh birds	General Distribution	C/C	Common												
65	Wading	Marsh birds	General Distribution	C/C	Common												
67	Waterfowl	Waterfowl	General Distribution	C/C	Common												
100	Raptor	American oystercatcher	Vulnerable Occurrence	-/C	-												
107	Gull/Tern	Osprey	Nesting	-/C	Nest Site												
		Least tern	Nesting	C/T	Nest Site												
	Passerine	Passerine birds	General Distribution	-/C	Common												
	Passerine	Yellow-billed cuckoo	General Distribution	T	Rare												
112	Gull/Tern	Least tern	Nesting	C/T	Nest Site												
	Raptor	Raptors	General Distribution	-/C	Common												
	Wading	Clapper rail	Vulnerable Occurrence	-/C	-												
222	Passerine	Marsh passerines	General Distribution	-/C	Common												
	Wading	Egrets	Migration	-/C	Common												
	Wading	Marsh birds	General Distribution	C/C	Common												
	Wading	Wading birds	General Distribution	-/C	Common												
223	Passerine	Marsh passerines	General Distribution	-/C	Common												
	Wading	Egrets	Migration	-/C	Common												
	Wading	Wading birds	General Distribution	-/C	Common												
334	Passerine	Marsh passerines	General Distribution	-/C	Common												
	Raptor	Raptors	General Distribution	-/C	Common												

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Molt
								J	F	M	A	M	J	J	A	S	O	N	D	
	Wading	Clapper rail	Vulnerable Occurrence	-/C			-													
	Wading	Egrets	Migration	-/C			Common													
	Wading	Marsh birds	General Distribution	C/C			Common													
	Wading	Wading birds	General Distribution	-/C			Common													
419	Gull/Tern	Common tern	Nesting	C/-			Nest Site													
422	Gull/Tern	Black skimmer	Nesting				Nest Site													
	Gull/Tern	G. black-backed gull	Nesting				Nest Site													
520	Shorebird	Purple sandpiper	Wintering				Rare													
531	Raptor	Raptors	General Distribution	-/C			Common													
543	Shorebird	American oystercatcher	Nesting	-/C			Nest Site													
544	Gull/Tern	Common tern	Nesting	C/-			Nest Site													
	Shorebird	American oystercatcher	Nesting	-/C			Nest Site													

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Adults
								J	F	M	A	M	J	J	A	S	O	N	D	
625	Diadromous	Alewife	Spawning Area				-													Mar-Oct
	Diadromous	Blueback herring	Spawning Area				-													Mar-Oct
628	Diadromous	Alewife	Migration				-													Mar-Oct
	Diadromous	Blueback herring	Migration				-													Mar-Oct

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Adults
								J	F	M	A	M	J	J	A	S	O	N	D	
635	Plant	Endangered plant	Vulnerable Occurrence	-/E			-													Mar-Oct
	Plant	Rare plant	Vulnerable Occurrence	T/C			-													Mar-Oct
	Plant	Threatened plant	Vulnerable Occurrence	-/T			-													Mar-Oct
	Wetland	Rare wetland/aquatic plant	Vulnerable Occurrence	-/C			-													Mar-Oct
639	Plant	Rare plant	Vulnerable Occurrence	T/C			-													Mar-Oct
	Plant	Threatened plant	Vulnerable Occurrence	-/T			-													Mar-Oct
641	Plant	Rare plant	Vulnerable Occurrence	T/C			-													Mar-Oct
	Wetland	Rare wetland/aquatic plant	Vulnerable Occurrence	-/C			-													Mar-Oct
644	Wetland	Rare wetland/aquatic plant	Vulnerable Occurrence	-/C			-													Mar-Oct

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Adults
								J	F	M	A	M	J	J	A	S	O	N	D	
648	Amphibian	Northern leopard frog	Vulnerable Occurrence				-													Jan-Dec
649	Amphibian	Northern leopard frog	Vulnerable Occurrence				-													Jan-Dec
	Turtle	N. diamondback terrapin	Vulnerable Occurrence				-													Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
				S	F		J	F	M	A	M	J	J	A	S	O	N	D				
693	Insect	Rare insect	Vulnerable Occurrence	E/C	T	-												Mar-Oct	Jan-Dec	Jan-Dec	Jan-Dec	Jan-Dec
697	Insect	Rare insect	Vulnerable Occurrence	E/C	T	-												Mar-Oct	Jan-Dec	Jan-Dec	Jan-Dec	Jan-Dec
711	Insect	Threatened insect	Vulnerable Occurrence	-E		-												Apr-Aug	Jan-Dec	Jan-Dec	Jan-Dec	Jan-Dec
	Bivalve	Eastern pearlshell	General Distribution	-E		-												Aug-Sep	May-Jun	Jan-Dec	Jan-Dec	Jan-Dec
713	Bivalve	Rare freshwater mussel	General Distribution	C/C		-												Aug-Sep	Jun-Jul	Jan-Dec	Jan-Dec	Jan-Dec
	Insect	Threatened insect	Vulnerable Occurrence	-E		-												Apr-Aug	Jan-Dec	Jan-Dec	Jan-Dec	Jan-Dec

MARINE MAMMALS



Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Calving	Pupping	Molt																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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TERRESTRIAL MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Monthly Presence												Concentration		
				S	F	J	F	M	A	M	J	J	A	S	O	N	D			
745	Small Mammal	New England cottontail	General Distribution	-C																
750	Bat	Northern myotis	General Distribution	E/-	T															

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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FISH

	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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INVERTEBRATES

Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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Massachusetts and Rhode Island: Map 36A






BIRDS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Gulls												
	Nashville warbler												
	Shorebirds												



Subelement	Species	Nest	Mig.(S)	Mig.(F)	Molt
	Gulls	-	Apr-May	Aug-Sep	-
	Nashville warbler	May-Jul	Apr-May	Aug-Oct	Aug
	Shorebirds	Mar-Sep	Mar-Dec	-	Aug-Oct

FISH





Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Alewife												
	American eel												
	American shad												
	Atlantic salmon												
	Blueback herring												
	Striped bass												
	Atlantic herring												
	Bay anchovy												
	Black sea bass												
	Bluefish												
	Hogchoker												
	Scup												
	Summer flounder												
	Weakfish												
	White perch												
	Windowpane												
	Winter flounder												
	Atlantic silverside												
	Inland silverside												
	Killifish												
	Mummichog												
	Oyster toadfish												
	Sheepshead minnow												
	Stickleback												
	Brook trout (sea run)												
	Rainbow smelt												
	American sand lance												
	Atlantic cod												
	Atlantic tomcod												
	Pollock												
	Searobins												
	Skates												
	Tautog												
	Atlantic mackerel												
	Sand tiger												
	Spiny dogfish												

Subelement	Species	Spawn	Eggs	Larvae	Juveniles	Adults
	Alewife	Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	American eel	-	-	-	Jan-Dec	Jan-Dec
	American shad	Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Atlantic salmon	Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Blueback herring	Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Striped bass	-	-	-	Apr-Nov	Apr-Nov
	Atlantic herring	Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy	Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass	May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov
	Bluefish	-	-	-	May-Oct	May-Oct
	Hogchoker	May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Scup	May-Aug	May-Aug	Jun-Aug	Apr-Nov	Apr-Nov
	Summer flounder	Aug-Nov	Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish	Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	White perch	Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane	May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Winter flounder	Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
	Atlantic silverside	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Inland silverside	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog	May-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Stickleback	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Brook trout (sea run)	Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Rainbow smelt	-	-	-	Jan-Dec	Jan-Dec
	American sand lance	Nov-Apr	Nov-May	Jan-May	Jan-Dec	Jan-Dec
	Atlantic cod	-	-	Jan-May	Jan-May	-
	Atlantic tomcod	Dec-Mar	Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec
	Pollock	Nov-Apr	Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Searobins	Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Skates	-	-	-	Jan-Dec	Jan-Dec
	Tautog	May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Atlantic mackerel	-	May-Aug	May-Aug	May-Sep	May-Sep
	Sand tiger	-	-	-	Apr-Nov	Apr-Nov
	Spiny dogfish	-	-	-	Jan-Dec	Jan-Dec



REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Interest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Amphibian													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Four-toed salamander													Apr-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Fowler's toad													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Turtle													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Wood frog													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Eastern box turtle													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Bivalve													Apr-May	Apr-May	Apr-May	Jan-Dec	Jan-Dec
	Atl. jackknife clam													Apr-May	Apr-May	Apr-May	Jan-Dec	Jan-Dec
	Atlantic razor													Apr-Jun	Apr-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Bay scallop													Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec
	Blue mussel													Mar-Jul	Mar-Jul	Mar-Jul	Jan-Dec	Jan-Dec
	Eastern oyster													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Mussel bed													-	-	-	-	-
	Northern quahog													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Softshell clam													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Longfin squid													May-Aug	May-Aug	May-Aug	May-Nov	May-Nov
	Atlantic rock crab													May-Oct	May-Oct	May-Oct	Apr-Oct	Apr-Oct
	Blue crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Horseshoe crab													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec
	Channeled whelk													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Crepidula bed													-	-	-	-	-
	Knobbed whelk													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Northern moonshell													Apr-Sep	Apr-Sep	Apr-Sep	Jan-Dec	Jan-Dec
	Sea snails													May-Jul	May-Aug	Aug-Nov	Jan-Dec	Jan-Dec
	American lobster													Aug-Nov	Jan-Dec	Jun-Oct	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													-	-	-	-
	Atl. wht.-side dolphin													-	-	-	-
	Harbor porpoise													-	-	-	-
	Short-beaked common dolphin													-	-	-	-
	Harbor seal													-	-	-	-
	Pilot whales													-	-	-	-

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	429.68	0.67
10B	Freshwater Marshes	32.45	0.05
10C	Swamps	360.33	0.56
10D	Scrub and Shrub Wetlands	49.08	0.08
9A	Sheltered Tidal Flats	67.90	0.11
7	Exposed Tidal Flats	5.62	0.01
5	Mixed Sand and Gravel Beaches	0.66	0.00
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	1.11	0.00

ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	28,890.64	17.95	22%
10B	Freshwater Marshes	247.34	0.15	< 1%
10C	Swamps	497.30	0.31	< 1%
10D	Scrub and Shrub Wetlands	18.03	0.01	< 1%
9A	Sheltered Tidal Flats	6,431.17	4.00	5%
9B	Vegetated Low Banks	23,812.98	14.80	18%
8B	Sheltered, Solid Man-Made Structures	2,614.15	1.62	2%
8C	Sheltered Riprap	1,397.65	0.87	1%
7	Exposed Tidal Flats	5,119.25	3.18	4%
6A	Gravel Beaches	229.30	0.14	< 1%
6B	Gravel Beaches (Cobbles/Boulders)	41.84	0.03	< 1%
6B	Riprap	10,480.64	6.51	8%
5	Mixed Sand and Gravel Beaches	10,914.63	6.78	8%
4	Coarse Grained Sand Beaches	23,973.14	14.90	18%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	419.82	0.26	< 1%
1B	Exposed, Solid Man-Made Structures	16,222.13	10.08	12%

Total ESI Shoreline: 131,310.02 Total ESI Shoreline: 81.59
 Total Shoreline: 102,698.83 Total Shoreline: 63.81

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 36B
Massachusetts and Rhode Island

BIOLOGICAL RESOURCES

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

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence											
					J	F	M	A	M	J	J	A	S	O	N	D
SAV	Widgeon grass	High Ecological Value		Present												
	Elgrass	High Ecological Value		Potential												
Algae	Red macroalgae	High Ecological Value		41-70%												
	Green macroalgae	High Ecological Value		41-70%												
Algae	Red macroalgae	High Ecological Value		41-70%												
	Red macroalgae	High Ecological Value		41-70%												
Algae	Red macroalgae	High Ecological Value		71-100%												
	Green macroalgae	High Ecological Value		41-70%												
Algae	Red macroalgae	High Ecological Value		41-70%												
	Red macroalgae	High Ecological Value		41-70%												
Algae	Green macroalgae	High Ecological Value		41-70%												
	Green macroalgae	High Ecological Value		41-70%												
Algae	Green macroalgae	High Ecological Value		71-100%												
	Green macroalgae	High Ecological Value		71-100%												
Algae	Green macroalgae	High Ecological Value		71-100%												
	Green macroalgae	High Ecological Value		71-100%												
Algae	Red macroalgae	High Ecological Value		71-100%												
	Red macroalgae	High Ecological Value		71-100%												
Algae	Green macroalgae	High Ecological Value		71-100%												
	Green macroalgae	High Ecological Value		71-100%												
Algae	Red macroalgae	High Ecological Value		71-100%												
	Red macroalgae	High Ecological Value		71-100%												
Algae	Green macroalgae	High Ecological Value		71-100%												
	Green macroalgae	High Ecological Value		71-100%												

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence											
						J	F	M	A	M	J	J	A	S	O	N	D
26	Waterfowl	Dabbling ducks	Wintering		Abundant												
56	Waterfowl	Waterfowl	General Distribution	C/C	Common												
64	Wading	Marsh birds	General Distribution	C/C	Common												
65	Wading	Marsh birds	General Distribution	C/C	Common												
77	Waterfowl	Waterfowl	General Distribution	C/C	Common												
	Wading	Sora	Vulnerable Occurrence	-C	-												
100	Raptor	Osprey	Nesting	-C	Nest Site												
222	Passerine	Marsh passerines	General Distribution	-C	Common												
Wading	Wading	Egrets	Migration	-C	Common												
	Wading	Marsh birds	General Distribution	C/C	Common												
Wading	Wading	Wading birds	General Distribution	-C	Common												
	Shorebird	Purple sandpiper	Wintering	-C	Rare												
520	Raptor	Raptors	General Distribution	-C	Common												
531	Gull/Tern	Common tern	Nesting	C/-	Nest Site												
544	Shorebird	American oystercatcher	Nesting	-C	Nest Site												

Massachusetts and Rhode Island: Map 36B

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
				S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D				
625	Diadromous	Alewife	Spawning Area			-												Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	Blueback herring	Spawning Area			-												Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	Alewife	Spawning Area			-												Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
626	Diadromous	American shad	Spawning Area			-												Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Diadromous	Blueback herring	Spawning Area			-												Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	Alewife	Migration			-												Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
628	Diadromous	Blueback herring	Migration			-												Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	Blueback herring	Migration			-												Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence																								
				S	F		J	F	M	A	M	J	J	A	S	O	N	D													
634	Plant	Endangered plant	Vulnerable Occurrence	-E	E	-																									
	Plant	Rare plant	Vulnerable Occurrence	T/C		-																									
	Plant	Threatened plant	Vulnerable Occurrence	-T		-																									
638	Plant	Rare plant	Vulnerable Occurrence	T/C		-																									
643	Plant	Threatened plant	Vulnerable Occurrence	-T		-																									
644	Wetland	Rare wetland/aquatic plant	Vulnerable Occurrence	-C		-																									

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Monthly Presence												Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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MARINE MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Monthly Presence												Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Mating	Calving	Pupping	Molt
				S	F	J	F	M	A	M	J	J	A	S	O	N	D																	
743	Pinniped	Harbor seal	Haul Out			Common																									-	-		

TERRESTRIAL MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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745	Small Mammal	New England cottontail	General Distribution	-C		Rare																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

BIRDS

Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
			S	F		J	F	M	A	M	J	J	A	S	O	N	D				
 Alcide	Razorbill	Wintering			Common													-	Mar-Apr	Nov	-
 Diving	Horned grebe	Wintering			Rare													-	Apr-May	Oct-Nov	-
	Loons	General Distribution	C/-		Rare													-	Mar-Jun	Oct-Jan	Jan-Mar
 Gull/Tern	Common tern	General Distribution	C/-		Common													-	Apr-May	Aug-Oct	-
	Least tern	General Distribution	C/T		Rare													-	Apr-May	Aug-Sep	-
 Waterfowl	American black duck	Wintering			Abundant													-	Apr	Oct	-
	Dabbling ducks	Wintering			Common													-	Feb-Apr	Sep-Dec	-
	Diving ducks	Wintering			Common													-	Mar-Apr	-	-
	Geese	Wintering			Common													-	Apr-May	Oct-Nov	-
	Sea ducks	Wintering			Common													-	Mar-May	Oct-Nov	-

FISH

Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
			S	F		J	F	M	A	M	J	J	A	S	O	N	D					
 Diadromous	American eel	Migration			-													-	-	-	Jan-Dec	Jan-Dec
	Atlantic sturgeon	General Distribution	E/-	T	-													May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec

INVERTEBRATES




Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
			S	F		J	F	M	A	M	J	J	A	S	O	N	D					
 Crab	Horseshoe crab	Spawning			Abundant													Apr-Jun	Apr-Jun	-	Apr-Jun	Apr-Jun

TERRESTRIAL MAMMALS

Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
			S	F		J	F	M	A	M	J	J	A	S	O	N	D					
 Bat	Northern myotis	General Distribution	E/-	T	Rare																	






ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BIRDS



Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
			S	F		J	F	M	A	M	J	J	A	S	O	N	D				
 Gull/Tern	Gulls																	-	Apr-May	Aug-Sep	-
 Passerine	Nashville warbler																	May-Jul	Apr-May	Aug-Oct	Aug
 Shorebird	Shorebirds																	Mar-Sep	Mar-Dec	-	Aug-Oct

FISH





Monthly Presence

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
	Alewife													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	American eel													-	-	-	Jan-Dec	Jan-Dec
	American shad													Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Atlantic salmon													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Blueback herring													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Striped bass													-	-	-	Apr-Nov	Apr-Nov
	Atlantic herring													Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy													Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass													May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov
	Bluefish													-	-	-	May-Oct	May-Oct
	Hogchoker													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Scup													May-Aug	May-Aug	Jun-Aug	Apr-Nov	Apr-Nov
	Summer flounder													Aug-Nov	Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish													Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	White perch													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Winter flounder													Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
	Atlantic silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Inland silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Stickleback													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Brook trout (sea run)													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Rainbow smelt													-	-	-	Jan-Dec	Jan-Dec
	American sand lance													Nov-Apr	Nov-May	Jan-May	Jan-Dec	Jan-Dec
	Atlantic cod													-	-	Jan-May	Jan-May	-
	Atlantic tomcod													Dec-Mar	Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec
	Pollock													Nov-Apr	Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Searobins													Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Skates													-	-	-	Jan-Dec	Jan-Dec
	Tautog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Atlantic mackerel													-	May-Aug	May-Aug	May-Sep	May-Sep
	Sand tiger													-	-	-	Apr-Nov	Apr-Nov
	Spiny dogfish													-	-	-	Jan-Dec	Jan-Dec



REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Four-toed salamander													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Fowler's toad													Apr-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Red-spotted newt													Jun-Jul	Jun-Aug	-	Jan-Dec	Jan-Dec
	Wood frog													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Eastern box turtle													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Atl. jackknife clam													Apr-May	Apr-May	Apr-May	Jan-Dec	Jan-Dec
	Atlantic razor													Apr-Jun	Apr-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Bay scallop													Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec
	Blue mussel													Mar-Jul	Mar-Jul	Mar-Jul	Jan-Dec	Jan-Dec
	Eastern oyster													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Mussel bed													-	-	-	-	-
	Northern quahog													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Softshell clam													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Longfin squid													May-Aug	May-Aug	May-Aug	May-Nov	May-Nov
	Atlantic rock crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Blue crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Horseshoe crab													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec
	Channeled whelk													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Crepidula bed													-	-	-	-	-
	Knobbed whelk													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Northern moonshell													Apr-Sep	Apr-Sep	Apr-Sep	Jan-Dec	Jan-Dec
	Sea snails													May-Jul	May-Aug	Aug-Nov	Jan-Dec	Jan-Dec
	Ampelisca bed													-	-	-	-	-
	American lobster													Aug-Nov	Jan-Dec	Jun-Oct	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				
	Atl. wht.-side dolphin													-	-	-	-
	Harbor porpoise													-	-	-	-
	Short-beaked common dolphin													-	-	-	-
	Harbor seal													-	-	-	-
	Pilot whales													-	-	-	-

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	219.23	0.34
10B	Freshwater Marshes	40.56	0.06
10C	Swamps	261.13	0.41
10D	Scrub and Shrub Wetlands	59.28	0.09
9A	Sheltered Tidal Flats	46.17	0.07
7	Exposed Tidal Flats	14.27	0.02
5	Mixed Sand and Gravel Beaches	0.22	0.00
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	0.16	0.00

ESI SHORELINE HABITAT TYPES

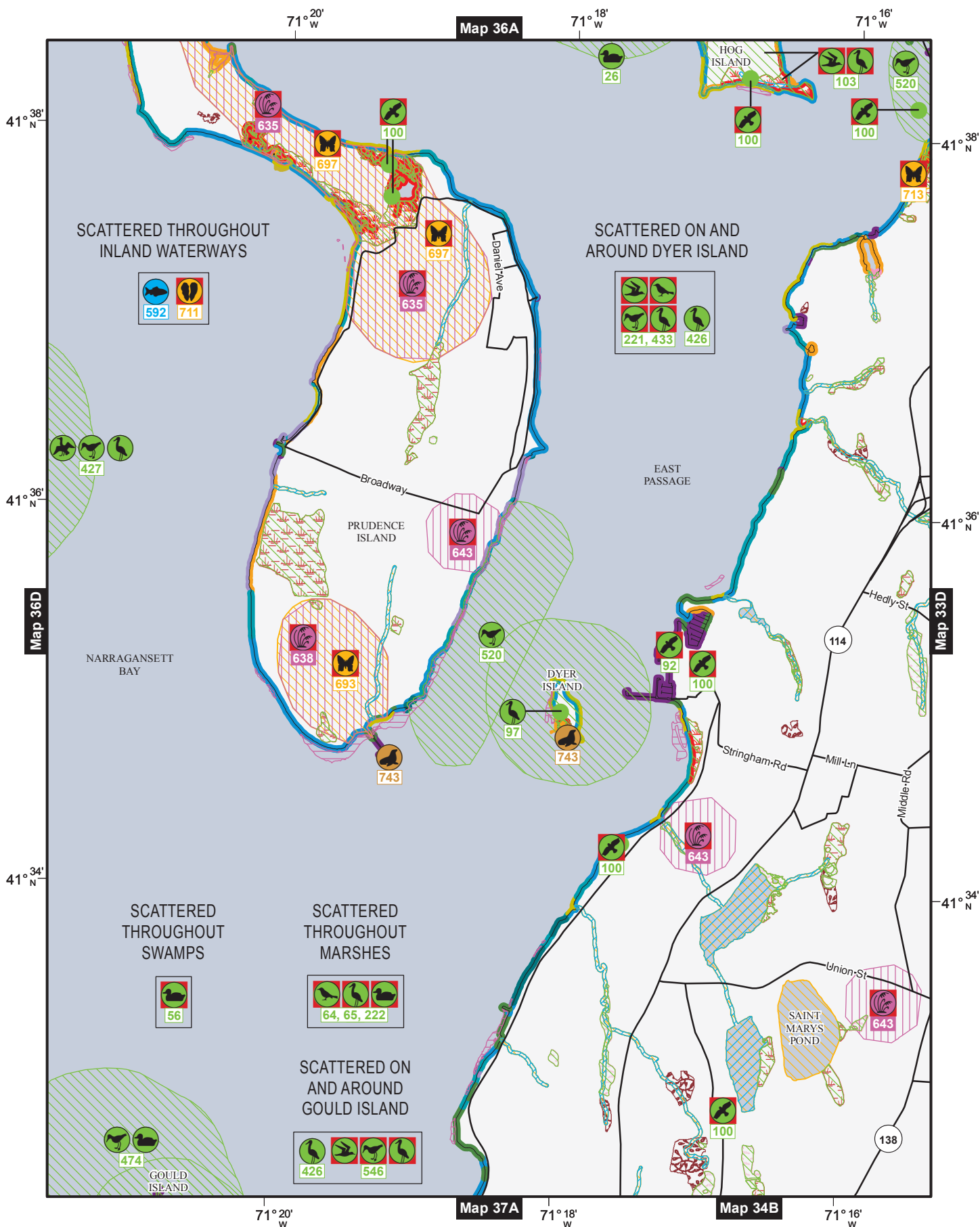
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	22,810.31	14.17	18%
10C	Swamps	1,680.27	1.04	1%
10D	Scrub and Shrub Wetlands	567.61	0.35	< 1%
9A	Sheltered Tidal Flats	12,777.81	7.94	10%
9B	Vegetated Low Banks	31,560.69	19.61	25%
8A	Sheltered, Impermeable, Rocky Shores	40.53	0.03	< 1%
8B	Sheltered, Solid Man-Made Structures	15,523.75	9.65	12%
8C	Sheltered Riprap	1,590.55	0.99	1%
7	Exposed Tidal Flats	1,681.32	1.04	1%
6A	Gravel Beaches	600.75	0.37	< 1%
6B	Riprap	9,228.33	5.73	7%
5	Mixed Sand and Gravel Beaches	6,155.53	3.82	5%
4	Coarse Grained Sand Beaches	16,683.14	10.37	13%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	26.55	0.02	< 1%
1B	Exposed, Solid Man-Made Structures	5,413.53	3.36	4%

Total ESI Shoreline: 126,340.66 Total ESI Shoreline: 78.50
 Total Shoreline: 102,039.50 Total Shoreline: 63.40

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

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

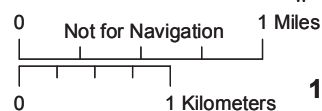




Map 36C
Mass. / Rhode Island



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



1:50,000



Map 36C
Massachusetts and Rhode Island

BIOLOGICAL RESOURCES

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

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence											
							J	F	M	A	M	J	J	A	S	O	N	D
SAV	Eelgrass	High Ecological Value				Potential												
SAV	Eelgrass	High Ecological Value				Present												

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence											
								J	F	M	A	M	J	J	A	S	O	N	D
26	Waterfowl	Dabbling ducks	Wintering				Abundant												
56	Waterfowl	Waterfowl	General Distribution		C/C		Common												
64	Wading	Marsh birds	General Distribution		C/C		Common												
65	Wading	Marsh birds	General Distribution		C/C		Common												
	Waterfowl	Waterfowl	General Distribution		C/C		Common												
92	Raptor	Peregrine falcon	Nesting		E/E		Nest Site												
97	Wading	Cattle egret	Nesting				Nest Site												
	Wading	Little blue heron	Nesting				Nest Site												
100	Raptor	Osprey	Nesting		-C		Nest Site												
103	Gull/Tern	Least tern	Nesting		C/T		Nest Site												
	Wading	Clapper rail	Vulnerable Occurrence		-C		-												
221	Passerine	Marsh passerines	General Distribution		-C		Common												
	Wading	Egrets	Migration		-C		Common												
	Wading	Marsh birds	General Distribution		C/C		Common												
222	Passerine	Marsh passerines	General Distribution		-C		Common												
	Wading	Egrets	Migration		-C		Common												
	Wading	Marsh birds	General Distribution		C/C		Common												
	Wading	Wading birds	General Distribution		-C		Common												
426	Wading	Cattle egret	Vulnerable Occurrence				-												
	Wading	Little blue heron	Vulnerable Occurrence				-												
427	Diving	D. crested cormorant	Vulnerable Occurrence				-												
	Shorebird	Purple sandpiper	Wintering				Rare												
	Wading	Cattle egret	Vulnerable Occurrence				-												
	Wading	Little blue heron	Vulnerable Occurrence				-												
433	Gull/Tern	Common tern	Nesting		C/-		Nest Site												
	Gull/Tern	G. black-backed gull	Nesting				Nest Site												
	Gull/Tern	Herring gull	Nesting				Nest Site												
	Gull/Tern	Least tern	Nesting		C/T		Common												
	Passerine	Passerine birds	General Distribution		-C		Common												
	Passerine	Tree swallow	Migration				Abundant												
	Passerine	Yellow-billed cuckoo	General Distribution			T	Rare												

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
	Shorebird	American oystercatcher	Nesting	-/C			Nest Site													Apr-Aug	-	-	-	-
	Wading	BC night-heron	Nesting	-/C			Nest Site													Apr-Aug	Apr-May	-	-	-
	Wading	Glossy ibis	Nesting	-/C			Nest Site													Apr-Aug	-	-	-	-
474	Shorebird	Purple sandpiper	Wintering				Rare													-	May	Nov	-	-
	Waterfowl	Harlequin duck	Wintering				Rare													-	Mar-Apr	Nov	-	-
520	Shorebird	Purple sandpiper	Wintering				Rare													-	May	Nov	-	-
546	Gull/Tern	Common tern	Nesting	C/-			Nest Site													May-Sep	-	-	-	-
	Gull/Tern	G. black-backed gull	Nesting				Nest Site													Apr-Jul	-	-	-	-
	Gull/Tern	Herring gull	Nesting				Nest Site													May-Aug	-	-	-	-
	Shorebird	American oystercatcher	Nesting	-/C			Nest Site													Apr-Aug	-	-	-	-
	Wading	BC night-heron	Nesting	-/C			Nest Site													Apr-Aug	Apr-May	-	-	-
	Wading	Egrets	Nesting	-/C			Nest Site													Apr-Aug	-	-	-	-
	Wading	Glossy ibis	Nesting	-/C			Nest Site													Apr-Aug	-	-	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
592	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
635	Plant	Endangered plant	Vulnerable Occurrence	-/E	E		-																	
	Plant	Rare plant	Vulnerable Occurrence	T/C			-																	
	Plant	Threatened plant	Vulnerable Occurrence	-/T			-																	
	Wetland	Rare wetland/aquatic plant	Vulnerable Occurrence	-/C			-																	
638	Plant	Rare plant	Vulnerable Occurrence	T/C			-																	
643	Plant	Threatened plant	Vulnerable Occurrence	-/T			-																	





INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
693	Insect	Rare insect	Vulnerable Occurrence	E/C	T		-													Mar-Oct	Jan-Dec	Jan-Dec	Jan-Dec	Jan-Dec
697	Insect	Rare insect	Vulnerable Occurrence	E/C	T		-													Mar-Oct	Jan-Dec	Jan-Dec	Jan-Dec	Jan-Dec
711	Insect	Threatened insect	Vulnerable Occurrence	-/E			-													Apr-Aug	Apr-Aug	Jan-Dec	Jan-Dec	Jan-Dec
	Bivalve	Eastern pearlshell	General Distribution	-/E			-													Aug-Sep	Aug-May	May-Jun	Jan-Dec	Jan-Dec
	Bivalve	Rare freshwater mussel	General Distribution	C/C			-													Aug-Sep	Aug-May	Jun-Jul	Jan-Dec	Jan-Dec
713	Insect	Threatened insect	Vulnerable Occurrence	-/E			-													Apr-Aug	Apr-Aug	Jan-Dec	Jan-Dec	Jan-Dec

MARINE MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
								J	F	M	A	M	J	J	A	S	O	N	D				
743	Pinniped	Harbor seal	Haul Out				Common													-	-	-	-

BIRDS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
 Alcide	Razorbill	Wintering				Common													-	Mar-Apr	Nov	-	-
 Diving	Horned grebe	Wintering				Rare													-	Apr-May	Oct-Nov	-	-
	Loons	General Distribution				Rare													-	Mar-Jun	Oct-Jan	Jan-Mar	-
 Gull/Tern	Common tern	General Distribution				Common													May-Sep	Apr-May	Aug-Oct	-	-
	Least tern	General Distribution				Rare													-	Apr-May	Aug-Sep	-	-
 Raptor	Raptors	General Distribution				Common													Mar-Aug	Mar-Apr	Jul-Nov	Jun	-
 Waterfowl	American black duck	Wintering				Abundant													-	Apr	Oct	-	-
	Diving ducks	Wintering				Common													Mar-Apr	Sep-Apr	-	-	-
	Geese	Wintering				Common													Apr-May	Mar-May	Oct-Nov	-	-
	Sea ducks	Wintering				Common													-	Mar-May	Oct-Nov	-	-

FISH

Subelement	Species	Mapping Qualifier	MA/RI	S	F	T	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					-													May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec

INVERTEBRATES



Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
 Crab	Horseshoe crab	Spawning				Abundant													Apr-Jun	Apr-Jun	-	Apr-Jun	Apr-Jun

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)





BIRDS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
 Gull/Tern	Gulls																		-	Apr-May	Aug-Sep	-	-
 Passerine	Nashville warbler																		May-Jul	Apr-May	Aug-Oct	Aug	-
 Shorebird	Shorebirds																		Mar-Sep	Mar-Dec	-	Aug-Oct	-



FISH

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
 Diadromous	Alewife																		Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	American eel																		-	-	-	Jan-Dec	Jan-Dec
	American shad																		Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Atlantic salmon																		Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Blueback herring																		Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Striped bass																		-	-	-	Apr-Nov	Apr-Nov
 Estuarine Nursery	Atlantic herring																		Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy																		Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass																		May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov


FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Bluefish																	
	Hogchoker													May-Oct	May-Oct	Jun-Nov	Jan-Dec	May-Oct
	Scup													May-Aug	May-Aug	Jun-Aug	Apr-Nov	Jan-Dec
	Summer flounder													Aug-Nov	Aug-Nov	Sep-Nov	Apr-Nov	Apr-Nov
	Weakfish													Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	White perch													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Winter flounder													Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
	Atlantic silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Inland silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Stickleback													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Brook trout (sea run)													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Rainbow smelt																Jan-Dec	Jan-Dec
	American sand lance													Nov-Apr	Nov-May	Jan-May	Jan-Dec	Jan-Dec
	Atlantic cod															Jan-May	Jan-Dec	
	Atlantic tomcod													Dec-Mar	Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec
	Little tunny																	May-Nov
	Pollock													Nov-Apr	Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Searobins													Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Skates																Jan-Dec	Jan-Dec
	Tautog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Atlantic mackerel														May-Aug	May-Aug	May-Sep	May-Sep
	Sand tiger																Apr-Nov	Apr-Nov
	Spiny dogfish																Jan-Dec	Jan-Dec





REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Four-toed salamander													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Fowler's toad													Apr-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Wood frog													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Eastern box turtle													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec




INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Atl. jackknife clam													Apr-May	Apr-May	Apr-May	Jan-Dec	Jan-Dec
	Atlantic razor													Apr-Jun	Apr-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic surfclam													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Bay scallop													Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec

INVERTEBRATES (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Blue mussel													Mar-Jul	Mar-Jul	Mar-Jul	Jan-Dec	Jan-Dec
	Eastern oyster													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Mussel bed													-	-	-	-	-
	Northern quahog													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Ocean quahog													Jul-Nov	Jul-Nov	Jul-Dec	Jan-Dec	Jan-Dec
	Softshell clam													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Longfin squid													May-Aug	May-Aug	May-Aug	May-Nov	May-Nov
	Atlantic rock crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Blue crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Horseshoe crab													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec
	Jonah crab													May-Oct	May-Oct	May-Oct	Apr-Oct	Apr-Oct
	Channeled whelk													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Crepidula bed													-	-	-	-	-
	Knobbed whelk													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Northern moonshell													Apr-Sep	Apr-Sep	Apr-Sep	Jan-Dec	Jan-Dec
	Sea snails													May-Jul	May-Aug	Aug-Nov	Jan-Dec	Jan-Dec
	American lobster													Aug-Nov	Jan-Dec	Jun-Oct	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				
	Atl. wht.-side dolphin													-	-	-	-
	Harbor porpoise													-	-	-	-
	Short-beaked common dolphin													-	-	-	-
	Harbor seal													-	-	-	-
	Pilot whales													-	-	-	-

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	160.23	0.25
10B	Freshwater Marshes	98.17	0.15
10C	Swamps	244.92	0.38
10D	Scrub and Shrub Wetlands	73.79	0.12
9A	Sheltered Tidal Flats	5.65	0.01
7	Exposed Tidal Flats	9.89	0.02

ESI SHORELINE HABITAT TYPES

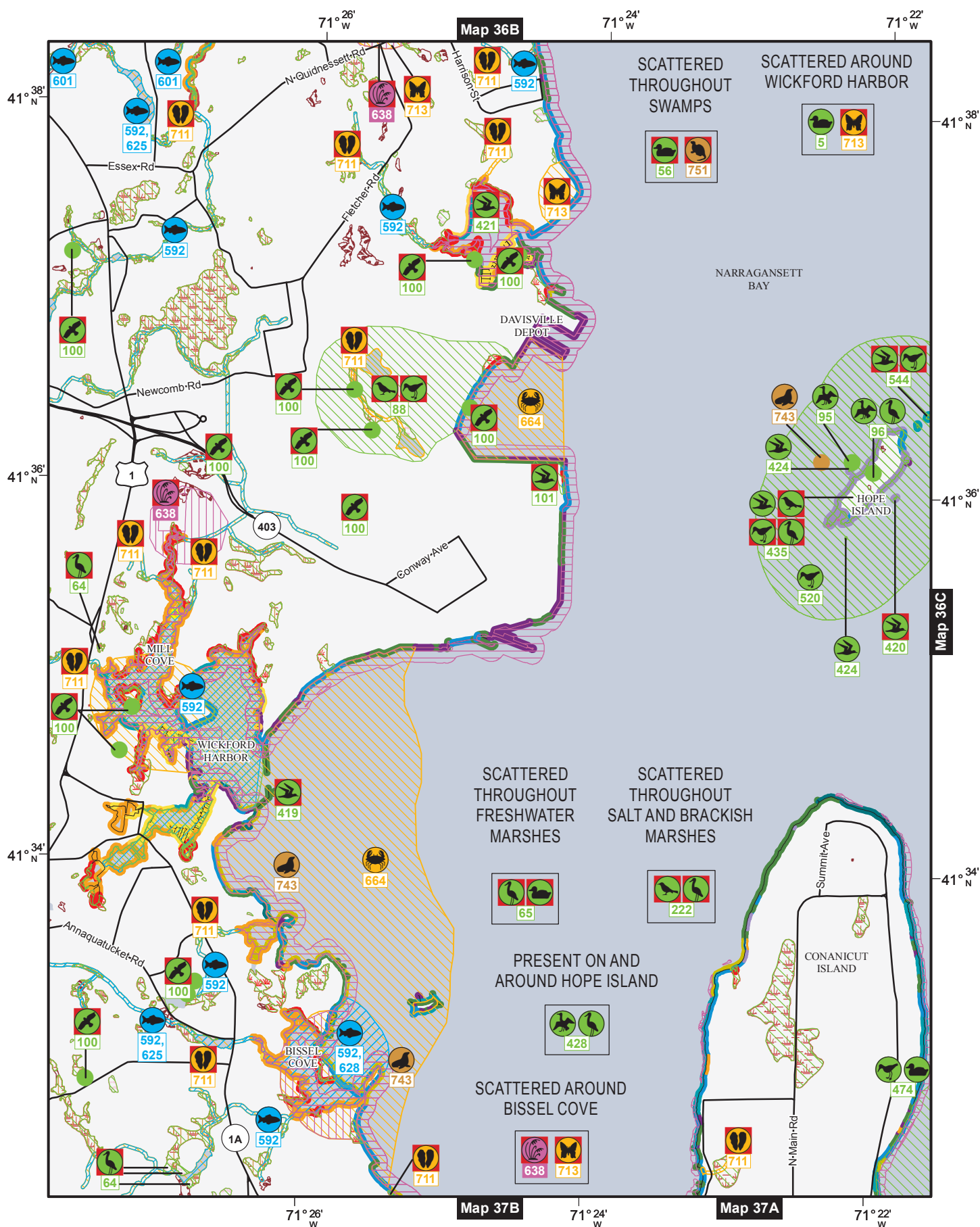
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	12,170.09	7.56	17%
10B	Freshwater Marshes	148.05	0.09	< 1%
9A	Sheltered Tidal Flats	819.89	0.51	1%
9B	Vegetated Low Banks	5,212.48	3.24	7%
8C	Sheltered Riprap	29.21	0.02	< 1%
7	Exposed Tidal Flats	9,110.37	5.66	12%
6A	Gravel Beaches	934.49	0.58	1%
6B	Riprap	4,310.98	2.68	6%
5	Mixed Sand and Gravel Beaches	8,854.11	5.50	12%
4	Coarse Grained Sand Beaches	21,692.61	13.48	30%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	3,918.55	2.43	5%
1B	Exposed, Solid Man-Made Structures	5,952.57	3.70	8%

Total ESI Shoreline: 73,153.40 Total ESI Shoreline: 45.46
 Total Shoreline: 55,233.45 Total Shoreline: 34.32

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

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





Map 36D
Massachusetts and Rhode Island

BIOLOGICAL RESOURCES

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

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence											
					J	F	M	A	M	J	J	A	S	O	N	D
SAV	Elgrass	High Ecological Value		Potential												
Algae	Red macroalgae	High Ecological Value		41-70%												
Algae	Red macroalgae	High Ecological Value		41-70%												
Algae	Red macroalgae	High Ecological Value		41-70%												
SAV	Elgrass	High Ecological Value		Present												
Algae	Green macroalgae	High Ecological Value		41-70%												
Algae	Green macroalgae	High Ecological Value		41-70%												
Algae	Green macroalgae	High Ecological Value		71-100%												
Algae	Green macroalgae	High Ecological Value		71-100%												
Algae	Red macroalgae	High Ecological Value		41-70%												
Algae	Red macroalgae	High Ecological Value		71-100%												
Algae	Red macroalgae	High Ecological Value		71-100%												

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence											
						J	F	M	A	M	J	J	A	S	O	N	D
5	Waterfowl	Dabbling ducks	Wintering		Common												
56	Waterfowl	Waterfowl	General Distribution	C/C	Common												
64	Wading	Marsh birds	General Distribution	C/C	Common												
65	Wading	Marsh birds	General Distribution	C/C	Common												
88	Waterfowl	Waterfowl	General Distribution	C/C	Common												
88	Passerine	Grasshopper sparrow	Vulnerable Occurrence	T/T	E												
95	Shorebird	Upland sandpiper	Vulnerable Occurrence	E/-	-												
95	Diving	D. crested cormorant	Nesting		Nest Site												
96	Diving	D. crested cormorant	Nesting		Nest Site												
	Wading	Cattle egret	Nesting		Nest Site												
	Wading	Little blue heron	Nesting		Nest Site												
100	Raptor	Osprey	Nesting	-C	Nest Site												
101	Gull/Tern	Least tern	Nesting	C/T	Nest Site												
222	Passerine	Marsh passerines	General Distribution	-C	Common												
	Wading	Egrets	Migration	-C	Common												
	Wading	Marsh birds	General Distribution	C/C	Common												
	Wading	Wading birds	General Distribution	-C	Common												
419	Gull/Tern	Common tern	Nesting	C/-	Nest Site												
420	Gull/Tern	Common tern	Nesting	C/-	Nest Site												
	Gull/Tern	G. black-backed gull	Nesting		Nest Site												
	Gull/Tern	Herring gull	Nesting		Nest Site												

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
				S	F		J	F	M	A	M	J	J	A	S	O	N	D				
421	Gull/Tern	G. black-backed gull	Nesting			Nest Site												Apr-Jul	-	-	-	
424	Gull/Tern	G. black-backed gull	Nesting			Nest Site												Apr-Jul	-	-	-	
	Gull/Tern	Herring gull	Nesting			Nest Site												May-Aug	-	-	-	
428	Diving	D. crested cormorant	Vulnerable Occurrence			-												-	Mar-Apr	Sep-Oct	-	
	Wading	Cattle egret	Vulnerable Occurrence			-												-	Mar-Apr	Sep	-	
	Wading	Little blue heron	Vulnerable Occurrence			-												-	Mar-Apr	Nov	-	
435	Gull/Tern	G. black-backed gull	Nesting			Nest Site												Apr-Jul	-	-	-	
	Gull/Tern	Herring gull	Nesting			Nest Site												May-Aug	-	-	-	
	Passerine	Passerine birds	General Distribution			Common												Mar-Aug	Feb-Nov	-	Jul-Sep	
	Passerine	Yellow-billed cuckoo	General Distribution			Rare												Apr-Jul	Apr-May	Sep	-	
	Shorebird	American oystercatcher	Nesting			Nest Site												Apr-Aug	-	-	-	
	Wading	BC night-heron	Nesting			Nest Site												Apr-Aug	Apr-May	-	-	
	Wading	Egrets	Nesting			Nest Site												Apr-Aug	-	-	-	
	Wading	Glossy ibis	Nesting			Nest Site												Apr-Aug	-	-	-	
474	Shorebird	Purple sandpiper	Wintering			Rare												-	May	Nov	-	
	Waterfowl	Harlequin duck	Wintering			Rare												-	Mar-Apr	Nov	-	
520	Shorebird	Purple sandpiper	Wintering			Rare												-	May	Nov	-	
544	Gull/Tern	Common tern	Nesting			Nest Site												May-Sep	-	-	-	
	Shorebird	American oystercatcher	Nesting			Nest Site												Apr-Aug	-	-	-	

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
592	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec
601	Diadromous	Alewife	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Blueback herring	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
625	Diadromous	Alewife	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	Blueback herring	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
628	Diadromous	Alewife	Migration				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	Blueback herring	Migration				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	Monthly Presence											
					S	F	Concentration									
638	Plant	Rare plant	Vulnerable Occurrence													
					T/C	-										

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
664	Crab	Horseshoe crab	Spawning				Abundant													Apr-Jun	Apr-Jun	-	Apr-Jun	Apr-Jun
711	Bivalve	Eastern pearlshell	General Distribution				-													Aug-Sep	Aug-May	May-Jun	Jan-Dec	Jan-Dec
	Bivalve	Rare freshwater mussel	General Distribution				-													Aug-Sep	Aug-May	Jun-Jul	Jan-Dec	Jan-Dec
713	Insect	Threatened insect	Vulnerable Occurrence				-													Apr-Aug	Apr-Aug	Jan-Dec	Jan-Dec	Jan-Dec

MARINE MAMMALS






Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Mating	Calving	Pupping	Molt
743	Pinniped	Harbor seal	Haul Out				Common													-	-	-	-

TERRESTRIAL MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D				
751	Small Mammal	American water shrew	General Distribution				Common																

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)



BIRDS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig.(S)	Mig.(F)	Molt
 Alcids	Razorbill	Wintering				Common													-	Mar-Apr	Nov	-
 Diving	Horned grebe	Wintering				Rare													-	Apr-May	Oct-Nov	-
	Loons	General Distribution				Rare													-	Mar-Jun	Oct-Jan	Jan-Mar
 Gull/Tern	Common tern	General Distribution				Common													May-Sep	Apr-May	Aug-Oct	-
	Least tern	General Distribution				Rare													-	Apr-May	Aug-Sep	-
 Raptor	Raptors	General Distribution				Common													Mar-Aug	Mar-Apr	Jul-Nov	Jun
 Waterfowl	American black duck	Wintering				Abundant													-	Apr	Oct	-
	Diving ducks	Wintering				Common													Mar-Apr	Sep-Apr	-	-
	Geese	Wintering				Common													Apr-May	Mar-May	Oct-Nov	-
	Sea ducks	Wintering				Common													-	Mar-May	Oct-Nov	-

FISH




Subelement	Species	Mapping Qualifier	MA/RI	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				-													May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec

TERRESTRIAL MAMMALS





Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D				
 Bat	Northern myotis	General Distribution				Rare																
 Small Mammal	New England cottontail	General Distribution				Rare																

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BIRDS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig.(S)	Mig.(F)	Molt
 Gull/Tern	Gulls	General Distribution				Rare													-	Apr-May	Aug-Sep	-
 Passerine	Nashville warbler	General Distribution				Rare													May-Jul	Apr-May	Aug-Oct	Aug
 Shorebird	Shorebirds	General Distribution				Rare													Mar-Sep	Mar-Dec	-	Aug-Oct





FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	American eel													-	-	-	Jan-Dec	Jan-Dec
	American shad													Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Atlantic salmon													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Blueback herring													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Striped bass													-	-	-	Apr-Nov	Apr-Nov
	Atlantic herring													Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy													Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass													May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov
	Bluefish													-	-	-	May-Oct	May-Oct
	Hogchoker													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Scup													May-Aug	May-Aug	Jun-Aug	Apr-Nov	Apr-Nov
	Summer flounder													Aug-Nov	Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish													Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	White perch													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Winter flounder													Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
	Atlantic silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Inland silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Stickleback													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Brook trout (sea run)													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Rainbow smelt													-	-	-	Jan-Dec	Jan-Dec
	American sand lance													Nov-Apr	Nov-May	Jan-May	Jan-Dec	Jan-Dec
	Atlantic cod													-	-	Jan-May	Jan-May	-
	Atlantic tomcod													Dec-Mar	Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec
	Little tunny													-	-	-	May-Nov	May-Nov
	Pollock													Nov-Apr	Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Searobins													Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Skates													-	-	-	Jan-Dec	Jan-Dec
	Tautog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Atlantic mackerel													-	May-Aug	May-Aug	May-Sep	May-Sep
	Sand tiger													-	-	-	Apr-Nov	Apr-Nov
	Spiny dogfish													-	-	-	Jan-Dec	Jan-Dec




REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Amphibian													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Four-toed salamander													Apr-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Fowler's toad													Jun-Jul	Jun-Aug	-	Jan-Dec	Jan-Dec
	Turtle													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Red-spotted newt													Jun-Jul	Jun-Aug	-	Jan-Dec	Jan-Dec
	Wood frog													Aug-Oct	Aug-Oct	-	Jan-Dec	Jan-Dec
	Eastern box turtle																	

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Bivalve													Apr-May	Apr-May	Apr-May	Jan-Dec	Jan-Dec
	Atl. jackknife clam													Apr-Jun	Apr-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic razor													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Atlantic surfclam													Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec
	Bay scallop													Mar-Jul	Mar-Jul	Mar-Jul	Jan-Dec	Jan-Dec
	Blue mussel													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Eastern oyster													-	-	-	-	-
	Mussel bed													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Northern quahog													Jul-Nov	Jul-Nov	Jul-Dec	Jan-Dec	Jan-Dec
	Ocean quahog													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Softshell clam													May-Aug	May-Aug	May-Aug	May-Nov	May-Nov
	Longfin squid													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Atlantic rock crab													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec
	Blue crab													May-Oct	May-Oct	May-Oct	Apr-Oct	Apr-Oct
	Horseshoe crab													Jun-Jul	Jun-Jul	Jun-Jul	Jan-Dec	Jan-Dec
	Jonah crab													Jun-Jul	Jun-Jul	Jun-Jul	Jan-Dec	Jan-Dec
	Channelled whelk													Aug-Oct	Aug-Oct	-	Jan-Dec	Jan-Dec
	Gastropod													-	-	-	-	-
	Crepidula bed													Jun-Jul	Jun-Jul	Jun-Jul	Jan-Dec	Jan-Dec
	Knobbed whelk													Apr-Sep	Apr-Sep	Apr-Sep	Jan-Dec	Jan-Dec
	Northern moonshell													May-Jul	May-Jul	May-Jul	Jan-Dec	Jan-Dec
	Sea snails													Aug-Nov	Aug-Nov	Aug-Nov	Jan-Dec	Jan-Dec
	Ampelisca bed													-	-	-	-	-
	Lobster													Aug-Nov	Aug-Nov	Aug-Nov	Jan-Dec	Jan-Dec
	American lobster																	

MARINE MAMMALS

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
	Dolphin													-	-	-	-
	Atl. wht.-side dolphin													-	-	-	-
	Harbor porpoise													-	-	-	-
	Pinniped													-	-	-	-
	Short-beaked common dolphin													-	-	-	-
	Harbor seal													-	-	-	-
	Whale													-	-	-	-
	Pilot whales													-	-	-	-
														-	-	-	-

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	142.37	0.22
10B	Freshwater Marshes	32.88	0.05
10C	Swamps	601.93	0.94
10D	Scrub and Shrub Wetlands	78.38	0.12
9A	Sheltered Tidal Flats	31.40	0.05
7	Exposed Tidal Flats	11.75	0.02
5	Mixed Sand and Gravel Beaches	2.49	0.00

ESI SHORELINE HABITAT TYPES

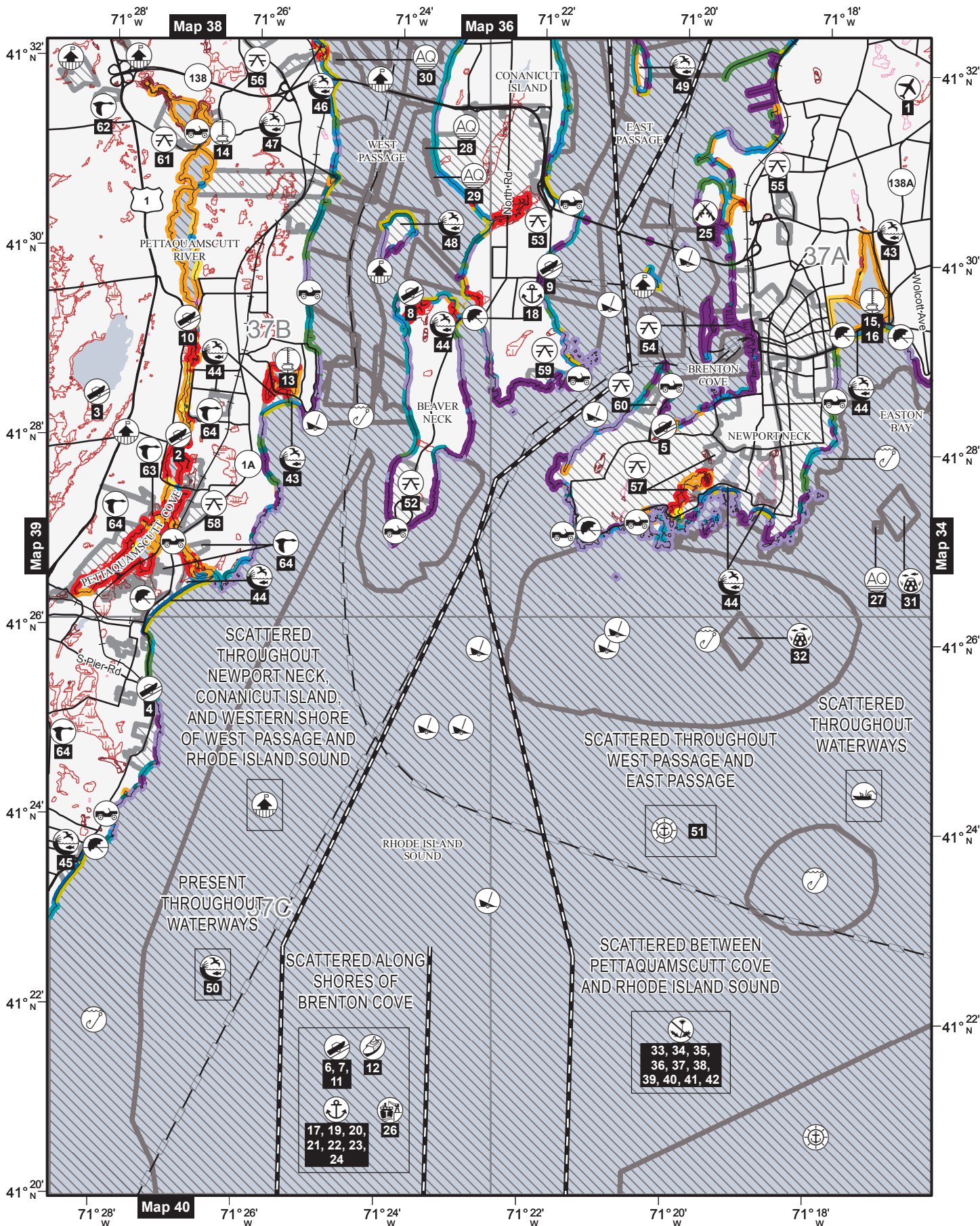
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	13,319.95	8.28	12%
10C	Swamps	1,164.79	0.72	1%
9A	Sheltered Tidal Flats	12,657.17	7.86	12%
9B	Vegetated Low Banks	16,524.50	10.27	15%
8A	Sheltered, Impermeable, Rocky Shores	126.89	0.08	< 1%
8B	Sheltered, Solid Man-Made Structures	7,616.49	4.73	7%
8C	Sheltered Riprap	1,852.42	1.15	2%
7	Exposed Tidal Flats	6,820.77	4.24	6%
6A	Gravel Beaches	1,959.77	1.22	2%
6B	Gravel Beaches (Cobbles/Boulders)	1,552.37	0.96	1%
6B	Riprap	10,841.78	6.74	10%
5	Mixed Sand and Gravel Beaches	8,496.39	5.28	8%
4	Coarse Grained Sand Beaches	15,028.57	9.34	14%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	3,459.84	2.15	3%
1B	Exposed, Solid Man-Made Structures	8,585.36	5.33	8%

Total ESI Shoreline: 110,007.07 Total ESI Shoreline: 68.36
 Total Shoreline: 77,785.95 Total Shoreline: 48.33

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

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





Map 37
Mass. / Rhode Island



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

0 Not for Navigation 2 Miles
0 2 Kilometers

1:100,000



Map 37
Massachusetts and Rhode Island

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)				
Map ID	Type	Name	Contact	Phone
1	AIRPORT	NEWPORT		
2	BOAT RAMP	NARROW RIVER	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
3	BOAT RAMP	INDIAN LAKE	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
4	BOAT RAMP	MONAHAN'S DOCK	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
5	BOAT RAMP	FORT ADAMS	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
6	BOAT RAMP	WASHINGTON ST	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
7	BOAT RAMP	KINGS PARK	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
8	BOAT RAMP	FORT GETTY	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
9	BOAT RAMP	JAMESTOWN	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
10	BOAT RAMP	PETTAQUAMSCUTT AVENUE	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
11	BOAT RAMP	COMMERCIAL MARINE RECREATION - TRANSIENT SLIPS	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
12	FERRY	COMMERCIAL FERRY	URI, COASTAL RES. CTR, COASTAL AND OCEAN PLN.	401-874-6224
13	LOCK AND DAM	WESQUAGE POND DAM		
14	LOCK AND DAM	CARR POND DAM		
15	LOCK AND DAM	EASTON POND NORTH DAM		
16	LOCK AND DAM	EASTON POND SOUTH DAM		
17	MARINA	NEWPORT ON-SHORE MARINA		
18	MARINA	CONANICUT MARINE SERVICES / MARINA		
19	MARINA	GOAT ISLAND MARINA		
20	MARINA	AMERICAN (NEWPORT) SHIPYARD		
21	MARINA	NEWPORT YACHTING CENTER MARINA		
22	MARINA	NEWPORT HARBOR HOTEL & MARINA		
23	MARINA	COMMERCIAL MARINE RECREATION - SEASONAL LAYDOWN		
24	MARINA	COMMERCIAL PASSENGER VESSEL / FISHING		
25	MILITARY	US NAVY NEWPORT		
26	PORT	COMMERCIAL / INDUSTRIAL - FISHING		

DISPLAYED ON MAP (POLYGONS)				
Map ID	Type	Name	Contact	Phone
27	AQUACULTURE	MARCHETTI - OYSTER		
28	AQUACULTURE	GOERNER - OYSTER		
29	AQUACULTURE	SILKES - BLUE MUSSEL		
30	AQUACULTURE	BLANK - OYSTER		
31	ARTIFICIAL REEF	SHEEP POINT		
32	ARTIFICIAL REEF	GOOSEBERRY ISLAND		
33	INVASIVE SPECIES	WINEBERRY		
34	INVASIVE SPECIES	ASIATIC BITTERSWEET		
35	INVASIVE SPECIES	BLACK SWALLOW WORT		
36	INVASIVE SPECIES	COMMON REED		
37	INVASIVE SPECIES	EUROPEAN PRIVET		

DISPLAYED ON MAP (POLYGONS) (continued)				
38	INVASIVE SPECIES	JAPANESE HONEYSUCKLE		
39	INVASIVE SPECIES	JAPANESE KNOTWEED		
40	INVASIVE SPECIES	MARROWS HONEYSUCKLE		
41	INVASIVE SPECIES	MULTIFLORA ROSE		
42	INVASIVE SPECIES	PORCELAINBERRY		
43	MANAGEMENT AREA	2 COASTAL BARRIER - DEVELOPED		
44	MANAGEMENT AREA	3 COASTAL BARRIER - MODERATELY DEVELOPED		
45	MANAGEMENT AREA	4 COASTAL BARRIER - OTHER MODERATELY DEVELOPED		
46	MANAGEMENT AREA	5 COASTAL BARRIER - OTHER UNDEVELOPED		
47	MANAGEMENT AREA	6 COASTAL BARRIER - UNDEVELOPED		
48	MANAGEMENT AREA	BAY ISLANDS - DUTCH ISLAND	RI DEM, DFW	401-789-7481
49	MANAGEMENT AREA	BAY ISLANDS - GOULD ISLAND	RI DEM, DFW	401-789-7481
50	MANAGEMENT AREA	LOBSTER MANAGEMENT AREA 2		
51	PIPELINE	PIPELINE		
52	REGIONAL OR STATE PARK	BEAVERTAIL STATE PARK	RI DEM	401-667-6200
53	REGIONAL OR STATE PARK	CANANICUT ISLAND SANCTUARY	RI DEM	401-667-6200
54	REGIONAL OR STATE PARK	STATE PIER #9	RI DEM	401-667-6200
55	REGIONAL OR STATE PARK	SUNSET HILL/MIANTONOMI PARK	RI DEM	401-667-6200
56	REGIONAL OR STATE PARK	ROME POINT	RI DEM	401-667-6200
57	REGIONAL OR STATE PARK	BALLARD PARK	RI DEM	401-667-6200
58	REGIONAL OR STATE PARK	BRIDGEPOINT COMMONS	RI DEM	401-667-6200
59	REGIONAL OR STATE PARK	FORT WETHERILL	RI DEM	401-667-6200
60	REGIONAL OR STATE PARK	FORT ADAMS	RI DEM	401-667-6200
61	REGIONAL OR STATE PARK	CAMP NOKEWA	RI DEM, DFW	401-789-7481
62	WILDLIFE REFUGE	I.B. STEARNS MEMORIAL REFUGE	AUDUBON SOCIETY OF RHODE ISLAND	401-949-5454
63	WILDLIFE REFUGE	SHADBLOW PRESERVE	AUDUBON SOCIETY OF RHODE ISLAND	401-949-5454
64	WILDLIFE REFUGE	JOHN H. CHAFEE NATIONAL WILDLIFE REFUGE	NICK ERNST, USFWS, RHODE ISLAND NWR COMPLEX	401-213-4406

ALSO PRESENT IN MAPPED AREA (POINTS)			
Type	Name	Contact	Phone
COAST GUARD	CGC IDA LEWIS (WLM-551)	USCG	401-841-6948
COAST GUARD	CGC JUNIPER (WLB 201)	USCG	401-841-6953
COAST GUARD	CGC TIGER SHARK (WPB-87359)		
COAST GUARD	CGC WILLOW (WLB 202)	USCG	401-843-0022
COAST GUARD	COAST GUARD LIAISON OFFICER	USCG	401-841-1386
COAST GUARD	ESDD CASTLE HILL		
COAST GUARD	F/NER		
COAST GUARD	HDCU NEWPORT	USCG	401-841-4364
COAST GUARD	NAVAL JUSTICE SCHOOL		
COAST GUARD	STA CASTLE HILL	USCG	401-846-3676

ALSO PRESENT IN MAPPED AREA (POLYGONS)

Type	Name	Contact	Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: ATLANTIC COD	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: ATLANTIC HERRING	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: HADDOCK	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: LITTLE SKATE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: MONKFISH	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: OCEAN POUT	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: RED HAKE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: SILVER HAKE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINDOW PANE FLOUNDER	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINTER FLOUNDER	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINTER SKATE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WITCH FLOUNDER	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: YELLOWTAIL FLOUNDER	NORTHEAST FISHERIES MANAGEMENT COUNCIL	

JURISDICTIONS

COUNTY:	NEWPORT, WASHINGTON	FEMA:	REGION I
COAST GUARD:	DISTRICT 1, SECTOR SE NEW ENGLAND	EPA:	REGION 1
USACE:	NORTH ATLANTIC DIVISION, NEW ENGLAND DISTRICT		

ESI POLYGON HABITAT TYPES



ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	387.83	0.61
10B	Freshwater Marshes	99.94	0.16
10C	Swamps	1,173.41	1.83
10D	Scrub and Shrub Wetlands	175.27	0.27
9A	Sheltered Tidal Flats	115.92	0.18
7	Exposed Tidal Flats	27.48	0.04
5	Mixed Sand and Gravel Beaches	26.47	0.04
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	59.97	0.09

ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	34,572.48	21.48	12%
10B	Freshwater Marshes	132.34	0.08	< 1%
10C	Swamps	1,055.70	0.66	< 1%
10D	Scrub and Shrub Wetlands	3,491.68	2.17	1%
9A	Sheltered Tidal Flats	11,188.01	6.95	4%
9B	Vegetated Low Banks	35,284.63	21.92	13%
8A	Sheltered, Impermeable, Rocky Shores	206.97	0.13	< 1%
8B	Sheltered, Solid Man-Made Structures	2,945.04	1.83	1%
8C	Sheltered Riprap	2,331.67	1.45	1%
8D	Sheltered, Rocky, Rubble Shores	61.04	0.04	< 1%
7	Exposed Tidal Flats	18,369.54	11.41	7%
6A	Gravel Beaches	8,677.57	5.39	3%
6B	Gravel Beaches (Cobbles/Boulders)	2,205.56	1.37	1%
6B	Riprap	16,608.74	10.32	6%
5	Mixed Sand and Gravel Beaches	19,542.68	12.14	7%
4	Coarse Grained Sand Beaches	19,381.35	12.04	7%
3A	Fine to Medium Grained Sand Beaches	4,740.73	2.95	2%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	47,383.14	29.44	17%
1A	Exposed, Rocky Shores	19,767.98	12.28	7%
1B	Exposed, Solid Man-Made Structures	31,870.47	19.80	11%
Total ESI Shoreline:		279,817.32	173.87	
Total Shoreline:		211,291.22	131.29	

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

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



Map 37A
Massachusetts and Rhode Island

BIOLOGICAL RESOURCES

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

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence											
							J	F	M	A	M	J	J	A	S	O	N	D
SAV	Eelgrass	High Ecological Value				Potential												
Algae	Red macroalgae	High Ecological Value				41-70%												
SAV	Eelgrass	High Ecological Value				Present												

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	E	Concentration	Monthly Presence											
									J	F	M	A	M	J	J	A	S	O	N	D
8	Gull/Tern	Roseate tern	Vulnerable Occurrence				E/-	-												
56	Waterfowl	Waterfowl	General Distribution				C/C	Common												
64	Wading	Marsh birds	General Distribution				C/C	Common												
73	Passerine	Marsh wren	Vulnerable Occurrence				-C	-												
	Wading	Least bittern	Vulnerable Occurrence				E/T	-												
91	Gull/Tern	Black skimmer	Nesting					Nest Site												
	Wading	Cattle egret	Nesting					Nest Site												
	Wading	Little blue heron	Nesting					Nest Site												
92	Raptor	Peregrine falcon	Nesting				E/E	Nest Site												
94	Diving	D. crested cormorant	Nesting					Nest Site												
	Wading	Cattle egret	Nesting					Nest Site												
	Wading	Little blue heron	Nesting					Nest Site												
95	Diving	D. crested cormorant	Nesting					Nest Site												
100	Raptor	Osprey	Nesting				-C	Nest Site												
419	Gull/Tern	Common tern	Nesting				C/-	Nest Site												
421	Gull/Tern	G. black-backed gull	Nesting					Nest Site												
431	Shorebird	American oystercatcher	Vulnerable Occurrence				-C	-												
	Wading	BC night-heron	Vulnerable Occurrence				-C	-												
	Wading	Little blue heron	Vulnerable Occurrence					-												
479	Gull/Tern	Least tern	Nesting				C/T	Common												
	Passerine	Tree swallow	Migration					Abundant												
524	Diving	D. crested cormorant	Vulnerable Occurrence					-												
529	Shorebird	Purple sandpiper	Migration					Abundant												
	Waterfowl	Harlequin duck	Wintering					Abundant												
533	Gull/Tern	Common tern	Nesting				C/-	Nest Site												
	Gull/Tern	G. black-backed gull	Nesting					Nest Site												
	Gull/Tern	Herring gull	Nesting					Nest Site												
	Shorebird	American oystercatcher	Nesting				-C	Nest Site												
534	Gull/Tern	Common tern	Nesting				C/-	Nest Site												
	Gull/Tern	G. black-backed gull	Nesting					Nest Site												

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
				S	F		J	F	M	A	M	J	J	A	S	O	N	D				
535	Gull/Tern	Herring gull	Nesting			Nest Site												May-Aug	-	-	-	
	Shorebird	American oystercatcher	Nesting	-C		Nest Site												Apr-Aug	-	-	-	
	Wading	BC night-heron	Nesting	-C		Nest Site												Apr-Aug	Apr-May	-	-	
	Wading	Egrets	Nesting	-C		Nest Site												Apr-Aug	-	-	-	
	Wading	Glossy ibis	Nesting	-C		Nest Site												Apr-Aug	-	-	-	
535	Gull/Tern	G. black-backed gull	Nesting			Nest Site												Apr-Jul	-	-	-	
	Gull/Tern	Herring gull	Nesting			Nest Site												May-Aug	-	-	-	
785	Shorebird	American oystercatcher	Nesting	-C		Nest Site												Apr-Aug	-	-	-	
	Wading	Marsh birds	General Distribution	C/C		Common												Mar-Sep	Mar-May	Sep-Nov	Jul-Aug	
	Waterfowl	Waterfowl	General Distribution	C/C		Common												Mar-Sep	Feb-May	Sep-Nov	Aug-Sep	
800	Passerine	Marsh passerines	General Distribution	-C		Common												Apr-Aug	Apr-May	Aug-Nov	Sep-Oct	
	Wading	Egrets	Migration	-C		Common												-	Apr-May	Sep-Oct	-	
	Wading	Marsh birds	General Distribution	C/C		Common												Mar-Sep	Mar-May	Sep-Nov	Jul-Aug	
	Wading	Wading birds	General Distribution	-C		Common												Apr-Sep	Mar-May	Sep-Oct	-	
820	Gull/Tern	G. black-backed gull	Nesting			Nest Site												Apr-Jul	-	-	-	
	Gull/Tern	Herring gull	Nesting			Nest Site												May-Aug	-	-	-	
821	Gull/Tern	G. black-backed gull	Nesting			Nest Site												Apr-Jul	-	-	-	
	Gull/Tern	Herring gull	Nesting			Nest Site												May-Aug	-	-	-	
	Wading	Egrets	Nesting	-C		Nest Site												Apr-Aug	-	-	-	
	Wading	Glossy ibis	Nesting	-C		Nest Site												Apr-Aug	-	-	-	
822	Wading	Cattle egret	Vulnerable Occurrence			-												-	Mar-Apr	Sep	-	
	Wading	Little blue heron	Vulnerable Occurrence			-												-	Mar-Apr	Nov	-	
823	Diving	D. crested cormorant	Vulnerable Occurrence			-												-	Mar-Apr	Sep-Oct	-	
	Wading	Cattle egret	Vulnerable Occurrence			-												-	Mar-Apr	Sep	-	
	Wading	Little blue heron	Vulnerable Occurrence			-												-	Mar-Apr	Nov	-	
	Passerine	Passerine birds	General Distribution	-C		Common												Mar-Aug	Feb-Nov	-	Jul-Sep	
826	Passerine	Yellow-billed cuckoo	General Distribution		T	Rare												Apr-Jul	Apr-May	Sep	-	

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
592	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D
632	Plant	Endangered plant	Vulnerable Occurrence		-E	E	-												
638	Plant	Rare plant	Vulnerable Occurrence		T/C		-												
643	Plant	Threatened plant	Vulnerable Occurrence		-T		-												

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Hatch	Interest	Juveniles	Adults
648	Amphibian	Northern leopard frog	Vulnerable Occurrence				-													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D			
694	Bivalve	Eastern pearlshell	General Distribution	-/E			-													Aug-Sep	May-Jun	Jan-Dec
	Bivalve	Rare freshwater mussel	General Distribution	C/C			-													Aug-Sep	Jun-Jul	Jan-Dec
696	Insect	Threatened insect	Vulnerable Occurrence	-/T			-													Apr-Aug	Jan-Dec	Jan-Dec

MARINE MAMMALS







Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Calving	Pupping	Molt
								J	F	M	A	M	J	J	A	S	O	N	D			
743	Pinniped	Harbor seal	Haul Out				Common													-	-	-

TERRESTRIAL MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Mating	Molt
								J	F	M	A	M	J	J	A	S	O	N	D		
750	Bat	Northern myotis	General Distribution	E/-			Rare													-	-

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)


BIRDS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig. (S)	Mig. (F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
	Alcid	Razorbill	Wintering			Common													-	Mar-Apr	Nov	-
	Diving	Horned grebe	Wintering			Rare													-	Apr-May	Oct-Nov	-
		Loons	General Distribution	C/-		Rare													-	Mar-Jun	Oct-Jan	Jan-Mar
		Loons	Migration	C/-		Common													-	Mar-Jun	Oct-Jan	Jan-Mar
	Gull/Tern	Common tern	General Distribution	C/-		Common													May-Sep	Apr-May	Aug-Oct	-
		Least tern	General Distribution	C/T		Rare													-	Apr-May	Aug-Sep	-
		Roseate tern	General Distribution	E/-		Rare													May-Aug	Apr-May	Jul-Sep	-
	Raptor	General Distribution	-/C			Common													Mar-Aug	Mar-Apr	Jul-Nov	Jun
	Shorebird	Raptors	Wintering			Rare													-	May	Nov	-
	Waterfowl	Purple sandpiper	Wintering			Abundant													-	Apr	Oct	-
		American black duck	Wintering			Common													Mar-Apr	Sep-Apr	-	-
		Diving ducks	Wintering			Common													Apr-May	Mar-May	Oct-Nov	-
		Geese	Wintering			Rare													-	Mar-Apr	Nov	-
		Harlequin duck	Wintering			Common													-	Mar-May	Oct-Nov	-
		Sea ducks	Wintering			Abundant													-	Mar-May	Oct-Nov	-
		Sea ducks	Wintering			Abundant													-	Mar-May	Oct-Nov	-


FISH

Subelement	Species	Mapping Qualifier	MA/RI	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/-		-													May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec

REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	MA/RI	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
				S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D		
	Turtle																			
	Green sea turtle	General Distribution	T/E	T	Regular														May-Nov	May-Nov
	K. ridley sea turtle	General Distribution	E/E	E	Regular														May-Nov	May-Nov
	Leatherback sea turtle	General Distribution	E/E	E	Regular														May-Nov	May-Nov
	Loggerhead sea turtle	General Distribution	T/E	T	Regular														May-Nov	May-Nov

MARINE MAMMALS



Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
			S	F		J	F	M	A	M	J	J	A	S	O	N	D				
	Fin whale	General Distribution	E/E	E	Rare													-	-	-	
	Humpback whale	General Distribution	E/E	E	Rare													-	-	-	
	N.A. right whale	General Distribution	E/E	E	Rare													-	-	-	
	Sei whale	General Distribution	E/-	E	Common													-	-	-	
	Sperm whale	General Distribution	E/-	E	Rare													-	-	-	

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BIRDS






Subelement	Species	Mapping Qualifier	MA/RI	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
				J	F	M	A	M	J	J	A	S	O	N	D				
	Alcid																		
	Razorbill																Mar-Apr	Nov	-
	Gulls																Apr-May	Aug-Sep	-
	Nashville warbler																Apr-May	Aug-Oct	Aug
	Northern gannet																Mar-May	Sep-Dec	-
	Shearwaters																Jun-Aug	-	-
	Shorebirds																Mar-Dec	-	Aug-Oct
	Waterfowl																Mar-May	Oct-Nov	-

FISH


Subelement	Species	Mapping Qualifier	MA/RI	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
				J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous																			
	Alewife																Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct
	American eel																-	-	Jan-Dec	Jan-Dec
	American shad																Apr-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Atlantic salmon																Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec
	Blueback herring																Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct
	Striped bass																-	-	Apr-Nov	Apr-Nov
	Estuarine Nursery																Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy																Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass																May-Jul	Jun-Jul	May-Nov	May-Nov
	Bluefish																-	-	May-Oct	May-Oct
	Hogchoker																May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Scup																May-Aug	Jun-Aug	Apr-Nov	Apr-Nov
	Summer flounder																Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish																Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct

Massachusetts and Rhode Island: Map 37A



FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	White perch													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Winter flounder													Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
	Atlantic silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Inland silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Stickleback													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Brook trout (sea run)													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Rainbow smelt													-	-	-	Jan-Dec	Jan-Dec
	American sand lance													Nov-Apr	Nov-May	Jan-May	Jan-Dec	Jan-Dec
	Atlantic cod													-	-	Jan-May	Jan-May	-
	Atlantic tomcod													Dec-Mar	Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec
	Little tunny													-	-	-	-	May-Nov
	Pollock													Nov-Apr	Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Searobins													Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Skates													-	-	-	Jan-Dec	Jan-Dec
	Tautog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Atlantic mackerel													-	May-Aug	May-Aug	May-Sep	May-Sep
	Sand tiger													-	-	-	Apr-Nov	Apr-Nov
	Spiny dogfish													-	-	-	Jan-Dec	Jan-Dec






REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Four-toed salamander													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Wood frog													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Eastern box turtle													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec




INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Atl. jackknife clam													Apr-May	Apr-May	Apr-May	Jan-Dec	Jan-Dec
	Atlantic razor													Apr-Jun	Apr-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic surfclam													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Bay scallop													Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec
	Blue mussel													Mar-Jul	Mar-Jul	Mar-Jul	Jan-Dec	Jan-Dec
	Eastern oyster													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Mussel bed													-	-	-	-	-
	Northern quahog													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Ocean quahog													Jul-Nov	Jul-Nov	Jul-Dec	Jan-Dec	Jan-Dec
	Softshell clam													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec

INVERTEBRATES (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
 Cephalopod	Longfin squid													May-Aug	May-Aug	May-Aug	May-Nov	May-Nov
	Atlantic rock crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
 Crab	Blue crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Horseshoe crab													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec
 Gastropod	Jonah crab													May-Oct	May-Oct	May-Oct	Apr-Oct	Apr-Oct
	Channeled whelk													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
 Knobbed whelk	Knobbed whelk													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Northern moonsnail													Apr-Sep	Apr-Sep	Apr-Sep	Jan-Dec	Jan-Dec
 Sea snails	Sea snails													May-Jul	May-Aug	Aug-Nov	Jan-Dec	Jan-Dec
	American lobster													Aug-Nov	Jan-Dec	Jun-Oct	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	Atl. spotted dolphin													-	-	-	-
	Atl. wht.-side dolphin													-	-	-	-
	Bottlenose dolphin													-	-	-	-
	Harbor porpoise													-	-	-	-
	Risso's dolphin													-	-	-	-
	Short-beaked common dolphin													-	-	-	-
 Pinniped	Striped dolphin													-	-	-	-
	White-beaked dolphin													-	-	-	-
	Gray seal													Dec-Feb	Dec-Feb	Dec-Feb	Mar-May
	Harbor seal													-	-	-	-
	Harbor seal													-	-	-	-
	Harp seal													-	-	-	-
 Whale	Hooded seal													-	-	-	-
	Minke whale													-	-	-	-
	Pilot whales													-	-	-	-

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	81.74	0.13
10B	Freshwater Marshes	86.10	0.13
10C	Swamps	99.99	0.16
10D	Scrub and Shrub Wetlands	58.38	0.09
9A	Sheltered Tidal Flats	1.09	0.00
7	Exposed Tidal Flats	4.08	0.01
5	Mixed Sand and Gravel Beaches	8.30	0.01
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	7.44	0.01

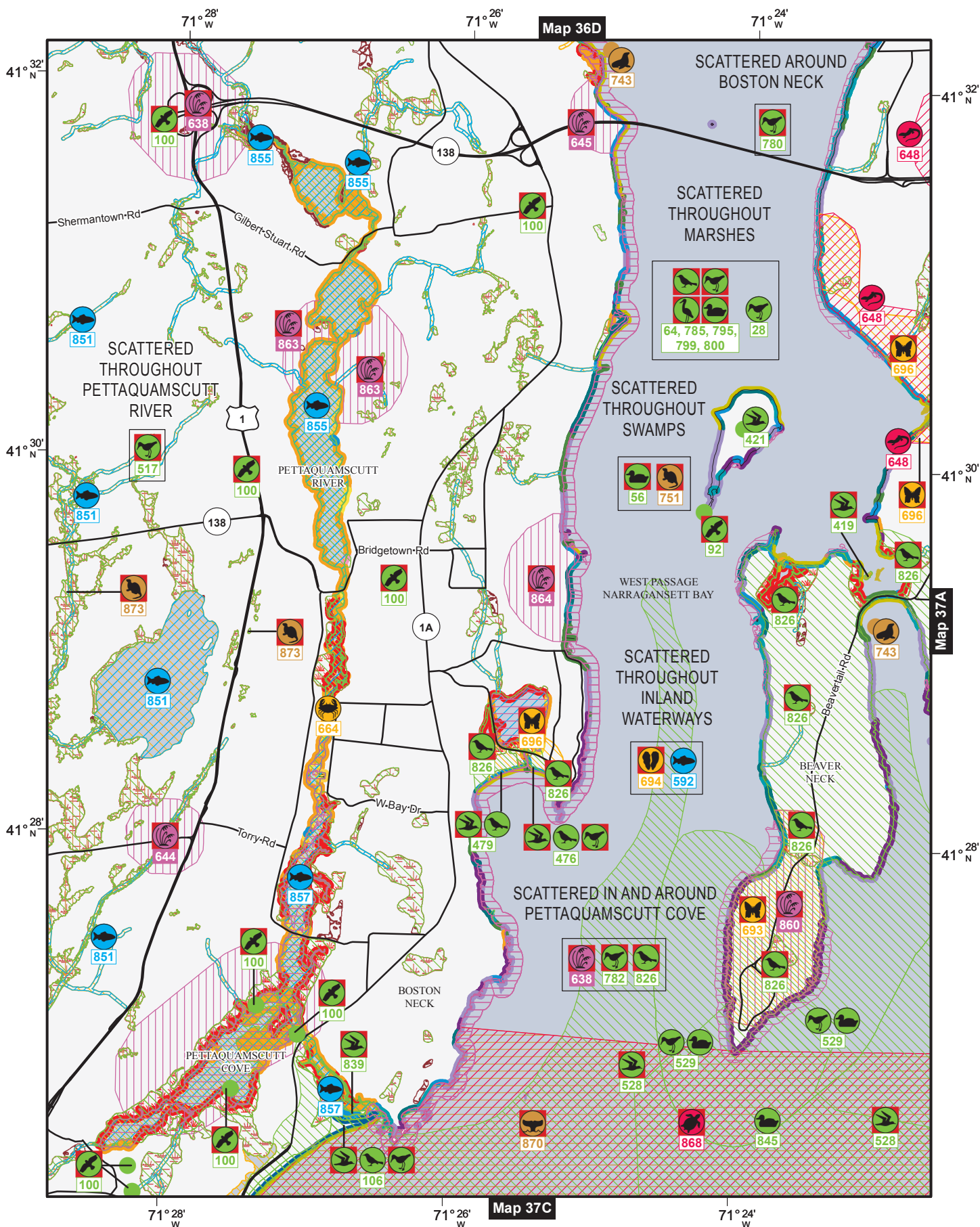
ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	7,282.02	4.52	6%
10C	Swamps	198.21	0.12	< 1%
10D	Scrub and Shrub Wetlands	101.67	0.06	< 1%
9A	Sheltered Tidal Flats	239.72	0.15	< 1%
9B	Vegetated Low Banks	12,437.83	7.73	10%
8A	Sheltered, Impermeable, Rocky Shores	95.79	0.06	< 1%
8B	Sheltered, Solid Man-Made Structures	650.31	0.40	1%
8C	Sheltered Riprap	1,142.39	0.71	1%
7	Exposed Tidal Flats	6,947.98	4.32	5%
6A	Gravel Beaches	1,977.21	1.23	2%
6B	Gravel Beaches (Cobbles/Boulders)	401.99	0.25	< 1%
6B	Riprap	11,754.26	7.30	9%
5	Mixed Sand and Gravel Beaches	9,647.21	5.99	8%
4	Coarse Grained Sand Beaches	10,227.93	6.36	8%
3A	Fine to Medium Grained Sand Beaches	1,123.51	0.70	1%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	26,221.50	16.29	21%
1A	Exposed, Rocky Shores	8,798.47	5.47	7%
1B	Exposed, Solid Man-Made Structures	27,794.26	17.27	22%
Total ESI Shoreline:		127,042.29	78.94	
Total Shoreline:		105,617.04	65.63	

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 37B
Mass. / Rhode Island



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

0 1 Miles
Not for Navigation
0 1 Kilometers

1:50,000



Map 37B
Massachusetts and Rhode Island

BIOLOGICAL RESOURCES

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

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence											
					J	F	M	A	M	J	J	A	S	O	N	D
SAV	Eelgrass	High Ecological Value		Potential												
Algae	Red macroalgae	High Ecological Value		41-70%												
SAV	Eelgrass	High Ecological Value		Present												
Algae	Green macroalgae	High Ecological Value		41-70%												
Algae	Green macroalgae	High Ecological Value		41-70%												
Algae	Red macroalgae	High Ecological Value		41-70%												
Algae	Red macroalgae	High Ecological Value		71-100%												
Algae	Red macroalgae	High Ecological Value		71-100%												
SAV	Widgeon grass	High Ecological Value		Thick												

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence											
						J	F	M	A	M	J	J	A	S	O	N	D
28	Shorebird	Shorebirds	Migration		Abundant												
56	Waterfowl	Waterfowl	General Distribution	C/C	Common												
64	Wading	Marsh birds	General Distribution	C/C	Common												
92	Raptor	Peregrine falcon	Nesting	E/E	Nest Site												
100	Raptor	Osprey	Nesting	-/C	Nest Site												
106	Gull/Tern	Least tern	Nesting	C/T	Nest Site												
	Passerine	Tree swallow	Migration		Abundant												
	Shorebird	Piping plover	Nesting	T/E T	Nest Site												
419	Gull/Tern	Common tern	Nesting	C/-	Nest Site												
421	Gull/Tern	G. black-backed gull	Nesting		Nest Site												
476	Gull/Tern	Least tern	Nesting	C/T	Common												
	Passerine	Tree swallow	Migration		Abundant												
	Shorebird	Shorebirds	Migration		Abundant												
	Shorebird	Willet	Migration	-/C	Common												
479	Gull/Tern	Least tern	Nesting	C/T	Common												
	Passerine	Tree swallow	Migration		Abundant												
517	Shorebird	Willet	Nesting	-/C	Abundant												
528	Gull/Tern	Roseate tern	General Distribution	E/- E	Rare												
529	Shorebird	Purple sandpiper	Migration		Abundant												
	Waterfowl	Harlequin duck	Wintering		Abundant												
780	Shorebird	Shorebirds	Migration	-/C	Abundant												
	Shorebird	Willet	Migration		Common												
782	Shorebird	Willet	Migration	-/C	Common												
785	Wading	Marsh birds	General Distribution	C/C	Common												

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Monthly Presence												Nest	Mig.(S)		Mig.(F)	Molt
				S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N		D	Feb-May		
795	Waterfowl	Waterfowl	General Distribution	C/C		Common												Mar-Sep	Feb-May	Sep-Nov	Aug-Sep	-
	Passerine	Marsh passerines	General Distribution	-/C		Common												Apr-Aug	Apr-May	Aug-Nov	Sep-Oct	-
	Shorebird	Shorebirds	Migration			Abundant												-	Mar-Dec	-	-	-
	Shorebird	Willet	Migration	-/C		Common												Apr-May	Apr-May	Aug-Oct	-	-
	Wading	Egrets	Migration	-/C		Common												-	Apr-May	Sep-Oct	-	-
799	Wading	Marsh birds	General Distribution	C/C		Common												Mar-Sep	Mar-May	Sep-Nov	Jul-Aug	-
	Wading	Wading birds	General Distribution	-/C		Common												Apr-Sep	Mar-May	Sep-Oct	-	-
	Passerine	Marsh passerines	General Distribution	-/C		Common												Apr-Aug	Apr-May	Aug-Nov	Sep-Oct	-
	Shorebird	Willet	Migration	-/C		Common												Apr-May	Apr-May	Aug-Oct	-	-
	Wading	Egrets	Migration	-/C		Common												-	Apr-May	Sep-Oct	-	-
800	Wading	Marsh birds	General Distribution	C/C		Common												Mar-Sep	Mar-May	Sep-Nov	Jul-Aug	-
	Wading	Wading birds	General Distribution	-/C		Common												Apr-Sep	Mar-May	Sep-Oct	-	-
	Passerine	Marsh passerines	General Distribution	-/C		Common												Apr-Aug	Apr-May	Aug-Nov	Sep-Oct	-
	Wading	Egrets	Migration	-/C		Common												-	Apr-May	Sep-Oct	-	-
	Wading	Marsh birds	General Distribution	C/C		Common												Mar-Sep	Mar-May	Sep-Nov	Jul-Aug	-
826	Wading	Wading birds	General Distribution	-/C		Common												Apr-Sep	Mar-May	Sep-Oct	-	-
	Passerine	Passerine birds	General Distribution	-/C		Common												Apr-Aug	Feb-Nov	-	Jul-Sep	-
	Passerine	Yellow-billed cuckoo	General Distribution	T		Rare												Apr-Jul	Apr-May	Sep	-	-
839	Gull/Tern	Common tern	Migration	C/-		Common												-	-	Jul-Sep	-	-
845	Waterfowl	Sea ducks	Wintering			Abundant												-	Mar-May	Oct-Nov	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
592	Diadromous	American eel	Migration	-	-	-	-													-	-	-	Jan-Dec	Jan-Dec
851	Diadromous	Alewife	Spawning Area	-	-	-	-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
855	Diadromous	American eel	Migration	-	-	-	-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Blueback herring	Spawning Area	-	-	-	-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
857	Diadromous	Alewife	Spawning Area	-	-	-	-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	Blueback herring	Spawning Area	-	-	-	-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	Blueback herring	Migration	-	-	-	-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
857	Diadromous	Blueback herring	Migration	-	-	-	-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	Blueback herring	Migration	-	-	-	-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence																		
				S	F		J	F	M	A	M	J	J	A	S	O	N	D							
638	Plant	Rare plant	Vulnerable Occurrence	T/C		-																			
644	Wetland	Rare wetland/aquatic plant	Vulnerable Occurrence	-/C		-																			
645	Plant	Seaside sandplant	Vulnerable Occurrence	-/C		-																			
860	Plant	Endangered plant	Vulnerable Occurrence	-/E	E	-																			
863	Plant	Rare plant	Vulnerable Occurrence	T/C		-																			
	Plant	Rare plant	Vulnerable Occurrence	T/C		-																			
864	Plant	Threatened plant	Vulnerable Occurrence	-/T		-																			
	Plant	Rare plant	Vulnerable Occurrence	T/C		-																			
	Plant	Seaside sandplant	Vulnerable Occurrence	-/C		-																			

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults	
				S	F		J	F	M	A	M	J	J	A	S	O	N	D						
648	Amphibian	Northern leopard frog	Vulnerable Occurrence			-														May-Jul	May-Jul	-	Jan-Dec	Jan-Dec
868	Turtle	Green sea turtle	General Distribution	T/E	T	Regular														-	-	-	May-Nov	May-Nov
	Turtle	K. ridley sea turtle	General Distribution	E/E	E	Regular														-	-	-	May-Nov	May-Nov
	Turtle	Leatherback sea turtle	General Distribution	E/E	E	Regular														-	-	-	May-Nov	May-Nov
	Turtle	Loggerhead sea turtle	General Distribution	T/E	T	Regular														-	-	-	May-Nov	May-Nov

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
				S	F		J	F	M	A	M	J	J	A	S	O	N	D					
664	Crab	Horseshoe crab	Spawning			Abundant											Apr-Jun	Apr-Jun	-	Apr-Jun	Apr-Jun		
693	Insect	Rare insect	Vulnerable Occurrence	E/C	T	-											Mar-Oct	Jan-Dec	Jan-Dec	Jan-Dec	Jan-Dec		
694	Bivalve	Eastern pearlshell	General Distribution	-E		-											Aug-Sep	Aug-May	May-Jun	Jan-Dec	Jan-Dec		
	Bivalve	Rare freshwater mussel	General Distribution	C/C		-											Aug-Sep	Aug-May	Jun-Jul	Jan-Dec	Jan-Dec		
696	Insect	Threatened insect	Vulnerable Occurrence	-T		-											Apr-Aug	Apr-Aug	Jan-Dec	Jan-Dec	Jan-Dec		

MARINE MAMMALS





Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
				S	F		J	F	M	A	M	J	J	A	S	O	N	D				
743	Pinniped	Harbor seal	Haul Out			Common													-	-	-	-
870	Whale	Fin whale	General Distribution	E/E	E	Rare													-	-	-	-
	Whale	Humpback whale	General Distribution	E/E	E	Rare													-	-	-	-
	Whale	N.A. right whale	General Distribution	E/E	E	Rare													-	-	-	-
	Whale	Sei whale	General Distribution	E/-	E	Common													-	-	-	-
	Whale	Sperm whale	General Distribution	E/-	E	Rare													-	-	-	-

TERRESTRIAL MAMMALS


Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Monthly Presence												Concentration	
				S	F	J	F	M	A	M	J	J	A	S	O	N	D		
751	Small Mammal	American water shrew	General Distribution	C/C															Common
873	Small Mammal	Southern bog lemming	General Distribution	C/C															Rare

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
				S	F		J	F	M	A	M	J	J	A	S	O	N	D				
	Aldid	Razorbill	Wintering			Common													-	Mar-Apr	Nov	-
	Diving	Horned grebe	Wintering			Rare													-	Apr-May	Oct-Nov	-
		Loons	General Distribution	C/-		Rare													-	Mar-Jun	Oct-Jan	Jan-Mar
		Loons	Migration	C/-		Common													-	Mar-Jun	Oct-Jan	Jan-Mar
	Gull/Tern	Common tern	General Distribution	C/-		Common												May-Sep	Apr-May	Aug-Oct	-	-
		Least tern	General Distribution	C/T		Rare												-	Apr-May	Aug-Sep	-	-
	Raptor	Raptors	General Distribution	-/C		Common												Mar-Aug	Mar-Apr	Jul-Nov	Jun	-
	Shorebird	Purple sandpiper	Wintering			Rare												-	May	Nov	-	-



BIRDS (continued)

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
	Waterfowl	American black duck				Abundant													-	Apr	Oct	-
		Diving ducks				Common													Mar-Apr	Sep-Apr	-	-
		Geese				Common													Apr-May	Mar-May	Oct-Nov	-
		Harlequin duck				Rare													-	Mar-Apr	Nov	-
		Sea ducks				Common													-	Mar-May	Oct-Nov	-

FISH

Subelement	Species	Mapping Qualifier	MA/RI	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				-													May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec

TERRESTRIAL MAMMALS



Subelement	Species	Mapping Qualifier	MA/RI	Monthly Presence															
				S	F	Concentration		J	F	M	A	M	J	J	A	S	O	N	D
	Bat	Northern myotis	General Distribution	E/-	T	Rare													
	Small Mammal	New England cottontail	General Distribution	-/C	Rare														

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)





BIRDS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
	Gull/Tern	Gulls																	-	Apr-May	Aug-Sep	-
	Passerine	Nashville warbler																	May-Jul	Apr-May	Aug-Oct	Aug
	Shorebird	Shorebirds																	Mar-Sep	Mar-Dec	-	Aug-Oct
	Waterfowl	American black duck																	Apr-Aug	Apr	Oct	-
		Diving ducks																	Mar-Apr	Sep-Apr	-	-
	Geese																		Apr-May	Mar-May	Oct-Nov	-



FISH

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous	Alewife																	Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
		American eel																	-	-	-	Jan-Dec	Jan-Dec
		American shad																	Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
		Atlantic salmon																	Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
		Blueback herring																	Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Estuarine Nursery	Striped bass																	-	-	-	Apr-Nov	Apr-Nov
		Atlantic herring																	Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
		Bay anchovy																	Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
		Black sea bass																	May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov
		Bluefish																	-	-	-	May-Oct	May-Oct
		Hogchoker																	May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
		Scup																	May-Aug	May-Aug	Jun-Aug	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					
	Summer flounder													Aug-Nov	Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish													Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	White perch													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Winter flounder													Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
	Atlantic silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Inland silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Stickleback													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Brook trout (sea run)													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Rainbow smelt													-	-	-	Jan-Dec	Jan-Dec
	American sand lance													Nov-Apr	Nov-May	Jan-May	Jan-Dec	Jan-Dec
	Atlantic cod													-	-	Jan-May	Jan-May	-
	Atlantic tomcod													Dec-Mar	Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec
	Little tunny													-	-	-	-	May-Nov
	Pollock													Nov-Apr	Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Searobins													Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Skates													-	-	-	Jan-Dec	Jan-Dec
	Tautog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Atlantic mackerel													-	May-Aug	May-Aug	May-Sep	May-Sep
	Sand tiger													-	-	-	Apr-Nov	Apr-Nov
	Spiny dogfish													-	-	-	Jan-Dec	Jan-Dec






REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Four-toed salamander													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Red-spotted newt													Jun-Jul	Jun-Aug	-	Jan-Dec	Jan-Dec
	Wood frog													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Eastern box turtle													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec





INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Atl. jackknife clam													Apr-May	Apr-May	Apr-May	Jan-Dec	Jan-Dec
	Atlantic razor													Apr-Jun	Apr-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic surfclam													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Bay scallop													Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec
	Blue mussel													Mar-Jul	Mar-Jul	Mar-Jul	Jan-Dec	Jan-Dec
	Eastern oyster													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Mussel bed													-	-	-	-	-

INVERTEBRATES (continued)

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
 	Northern quahog												
	Ocean quahog												
	Softshell clam												
	Longfin squid												
	Atlantic rock crab												
	Blue crab												
	Horseshoe crab												
	Jonah crab												
	Channeled whelk												
	Knobbed whelk												
	Northern moonshell												
	Sea snails												
	American lobster												

MARINE MAMMALS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Atl. spotted dolphin												
	Atl. wht.-side dolphin												
	Bottlenose dolphin												
	Harbor porpoise												
	Risso's dolphin												
	Short-beaked common dolphin												
	Striped dolphin												
	White-beaked dolphin												
	Gray seal												
	Harbor seal												
	Harbor seal												
	Harbor seal												
	Harp seal												
	Hooded seal												
	Minke whale												
	Pilot whales												

TERRESTRIAL MAMMALS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Woodland jumping mouse												

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	306.12	0.48
10B	Freshwater Marshes	13.15	0.02
10C	Swamps	853.49	1.33
10D	Scrub and Shrub Wetlands	90.19	0.14
9A	Sheltered Tidal Flats	114.83	0.18
7	Exposed Tidal Flats	18.24	0.03
5	Mixed Sand and Gravel Beaches	10.02	0.02
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	40.07	0.06

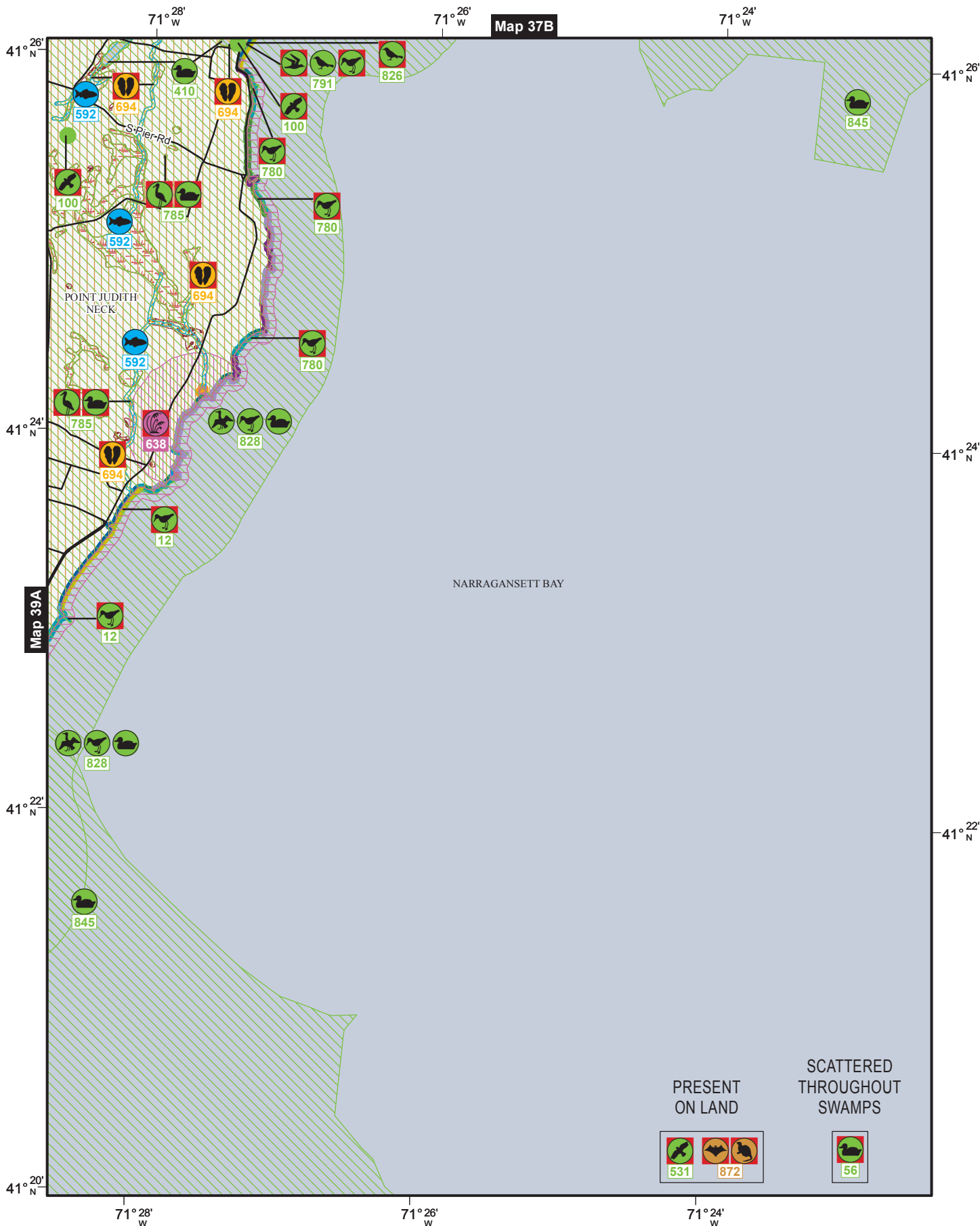
ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	27,290.46	16.96	20%
10B	Freshwater Marshes	132.34	0.08	< 1%
10C	Swamps	857.49	0.53	1%
10D	Scrub and Shrub Wetlands	3,390.01	2.11	2%
9A	Sheltered Tidal Flats	10,948.29	6.80	8%
9B	Vegetated Low Banks	22,665.02	14.08	16%
8A	Sheltered, Impermeable, Rocky Shores	111.18	0.07	< 1%
8B	Sheltered, Solid Man-Made Structures	2,235.51	1.39	2%
8C	Sheltered Riprap	1,189.28	0.74	1%
8D	Sheltered, Rocky, Rubble Shores	61.04	0.04	< 1%
7	Exposed Tidal Flats	9,428.51	5.86	7%
6A	Gravel Beaches	6,205.66	3.86	4%
6B	Gravel Beaches (Cobbles/Boulders)	1,803.56	1.12	1%
6B	Riprap	3,253.44	2.02	2%
5	Mixed Sand and Gravel Beaches	7,872.74	4.89	6%
4	Coarse Grained Sand Beaches	8,857.51	5.50	6%
3A	Fine to Medium Grained Sand Beaches	1,843.47	1.15	1%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	17,421.41	10.83	13%
1A	Exposed, Rocky Shores	9,572.42	5.95	7%
1B	Exposed, Solid Man-Made Structures	3,860.10	2.40	3%
Total ESI Shoreline:		138,999.42	86.37	
Total Shoreline:		97,128.31	60.35	

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 37C
Massachusetts and Rhode Island

BIOLOGICAL RESOURCES

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

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D
Algae	Red macroalgae	High Ecological Value				41-70%												

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig. (S)	Mig. (F)	Molt
12	Shorebird	Red knot	Migration				Common													-	May-Jun	Jul-Sep	-
	Shorebird	Shorebirds	Migration				Abundant													-	Mar-Dec	-	-
	Shorebird	Willet	Migration																	Apr-May	Apr-May	Aug-Oct	-
56	Waterfowl	Waterfowl	General Distribution			-C	Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
100	Raptor	Osprey	Nesting			C/C	Common													Apr-Aug	Apr-May	Sep-Nov	-
410	Waterfowl	American black duck	Wintering			-C	Nest Site													-	Apr	Oct	-
	Waterfowl	Diving ducks	Wintering				Abundant													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering				Common													Apr-May	Mar-May	Oct-Nov	-
531	Raptor	Raptors	General Distribution			-C	Common													Mar-Aug	Mar-Apr	Jul-Nov	Jun
780	Shorebird	Shorebirds	Migration				Abundant													-	Mar-Dec	-	-
	Shorebird	Willet	Migration			-C	Common													Apr-May	Apr-May	Aug-Oct	-
785	Wading	Marsh birds	General Distribution			C/C	Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Waterfowl	Waterfowl	General Distribution			C/C	Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
791	Gull/Tern	Least tern	Nesting			C/T	Nest Site													May-Aug	-	-	-
	Passerine	Tree swallow	Migration				Abundant													-	-	Jul-Oct	-
	Shorebird	Piping plover	Nesting			T/E	Nest Site													Mar-Aug	-	-	-
	Shorebird	Shorebirds	Migration			-C	Abundant													-	Mar-Dec	-	-
	Shorebird	Willet	Migration			-C	Common													Apr-May	Apr-May	Aug-Oct	-
826	Passerine	Passerine birds	General Distribution			-C	Common													Mar-Aug	Feb-Nov	-	Jul-Sep
	Passerine	Yellow-billed cuckoo	General Distribution				Common													Apr-Jul	Apr-May	Sep	-
828	Diving	Horned grebe	Wintering			T	Rare													-	Apr-May	Oct-Nov	-
	Shorebird	Purple sandpiper	Wintering				Rare													-	May	Nov	-
	Waterfowl	Harlequin duck	Wintering				Rare													-	Mar-Apr	Nov	-
845	Waterfowl	Sea ducks	Wintering				Abundant													-	Mar-May	Oct-Nov	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
592	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec

HABITATS & RARE PLANTS


[illegible]

TERRESTRIAL MAMMALS

[illegible]

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

			MA/R/I		Concentration	Monthly Presence												Molt																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
			S	F		J	F	M	A	M	J	J	A	S	O	N	D		Nest	Mig.(S)	Mig.(F)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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FISH

[illegible]

REPTILES & AMPHIBIANS



[illegible]

MARINE MAMMALS




Subelement	Species	Mapping Qualifier	MA/RI		Monthly Presence												Mating	Calving	Pupping	Molt
			S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D			
	Fin whale	General Distribution	E/E	E	Rare												-	-	-	-
	Humpback whale	General Distribution	E/E	E	Rare												-	-	-	-
	N.A. right whale	General Distribution	E/E	E	Rare												-	-	-	-
	Sei whale	General Distribution	E/-	E	Common												-	-	-	-
	Sperm whale	General Distribution	E/-	E	Rare												-	-	-	-

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				
	Razorbill													-	Mar-Apr	Nov	-
	Gulls													-	Apr-May	Aug-Sep	-
	Nashville warbler													May-Jul	Apr-May	Aug-Oct	Aug
	Pelagic													-	Mar-May	Sep-Dec	-
	Shearwaters													-	Jun-Aug	-	-
	American black duck													Apr-Aug	Apr	Oct	-
	Diving ducks													Mar-Apr	Sep-Apr	-	-
	Geese													Apr-May	Mar-May	Oct-Nov	-
	Sea ducks													-	Mar-May	Oct-Nov	-



FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	American eel													-	-	-	Jan-Dec	Jan-Dec
	American shad													Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Atlantic salmon													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Blueback herring													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Striped bass													-	-	-	Apr-Nov	Apr-Nov
	Atlantic herring													Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy													Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass													May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov
	Bluefish													-	-	-	May-Oct	May-Oct
	Scup													May-Aug	May-Aug	Jun-Aug	Apr-Nov	Apr-Nov
	Summer flounder													Aug-Nov	Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish													Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	White perch													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Winter flounder													Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
	Atlantic silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Inland silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec





FISH (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Oyster toadfish													May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Brook trout (sea run)													Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Rainbow smelt													-	-	Jan-Dec	Jan-Dec
	American sand lance													Nov-Apr	Jan-May	Jan-Dec	Jan-Dec
	Atlantic cod													-	Jan-May	Jan-May	Jan-Dec
	Atlantic cod													-	Jan-May	Jan-May	-
	Little tunny													-	-	-	May-Nov
	Pollock													Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Searobins													Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Skates													-	-	Jan-Dec	Jan-Dec
	Tautog													May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Atlantic mackerel													May-Aug	May-Aug	May-Sep	May-Sep
	Sand tiger													-	-	Apr-Nov	Apr-Nov
	Spiny dogfish													-	-	Jan-Dec	Jan-Dec


REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Four-toed salamander													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Red-spotted newt													Jun-Jul	Jun-Aug	-	Jan-Dec	Jan-Dec
	Wood frog													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Eastern box turtle													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Atlantic surfclam													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Blue mussel													Mar-Jul	Mar-Jul	Mar-Jul	Jan-Dec	Jan-Dec
	Ocean quahog													Jul-Nov	Jul-Dec	Jul-Dec	Jan-Dec	Jan-Dec
	Longfin squid													May-Aug	May-Aug	May-Nov	May-Nov	May-Nov
	Atlantic rock crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Blue crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Horseshoe crab													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec
	Jonah crab													May-Oct	May-Oct	May-Oct	Apr-Oct	Apr-Oct
	Northern moonsnail													Apr-Sep	Apr-Sep	Apr-Sep	Jan-Dec	Jan-Dec
	Sea snails													May-Jul	May-Aug	Aug-Nov	Jan-Dec	Jan-Dec
	American lobster													Aug-Nov	Jan-Dec	Jun-Oct	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				
	Atl. spotted dolphin													-	-	-	-
	Atl. wht.-side dolphin													-	-	-	-
	Bottlenose dolphin													-	-	-	-
	Harbor porpoise													-	-	-	-

MARINE MAMMALS (continued)

Subelement	Species	Monthly Presence												Mating	Calving	Pupping	Molt
		J	F	M	A	M	J	J	A	S	O	N	D				
Pinniped	Risso's dolphin													-	-	-	-
	Short-beaked common dolphin													-	-	-	-
	Striped dolphin													-	-	-	-
	White-beaked dolphin													-	-	-	-
	Gray seal													Dec-Feb	Dec-Feb	Dec-Feb	Mar-May
Whale	Harbor seal													-	-	-	-
	Harp seal													-	-	-	-
	Hooded seal													-	-	-	-
	Minke whale													-	-	-	-
	Pilot whales													-	-	-	-

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)
10B	Freshwater Marshes	0.73	0.00
10C	Swamps	219.66	0.34
10D	Scrub and Shrub Wetlands	26.72	0.04
7	Exposed Tidal Flats	5.15	0.01
5	Mixed Sand and Gravel Beaches	8.15	0.01
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	12.45	0.02

ESI SHORELINE HABITAT TYPES

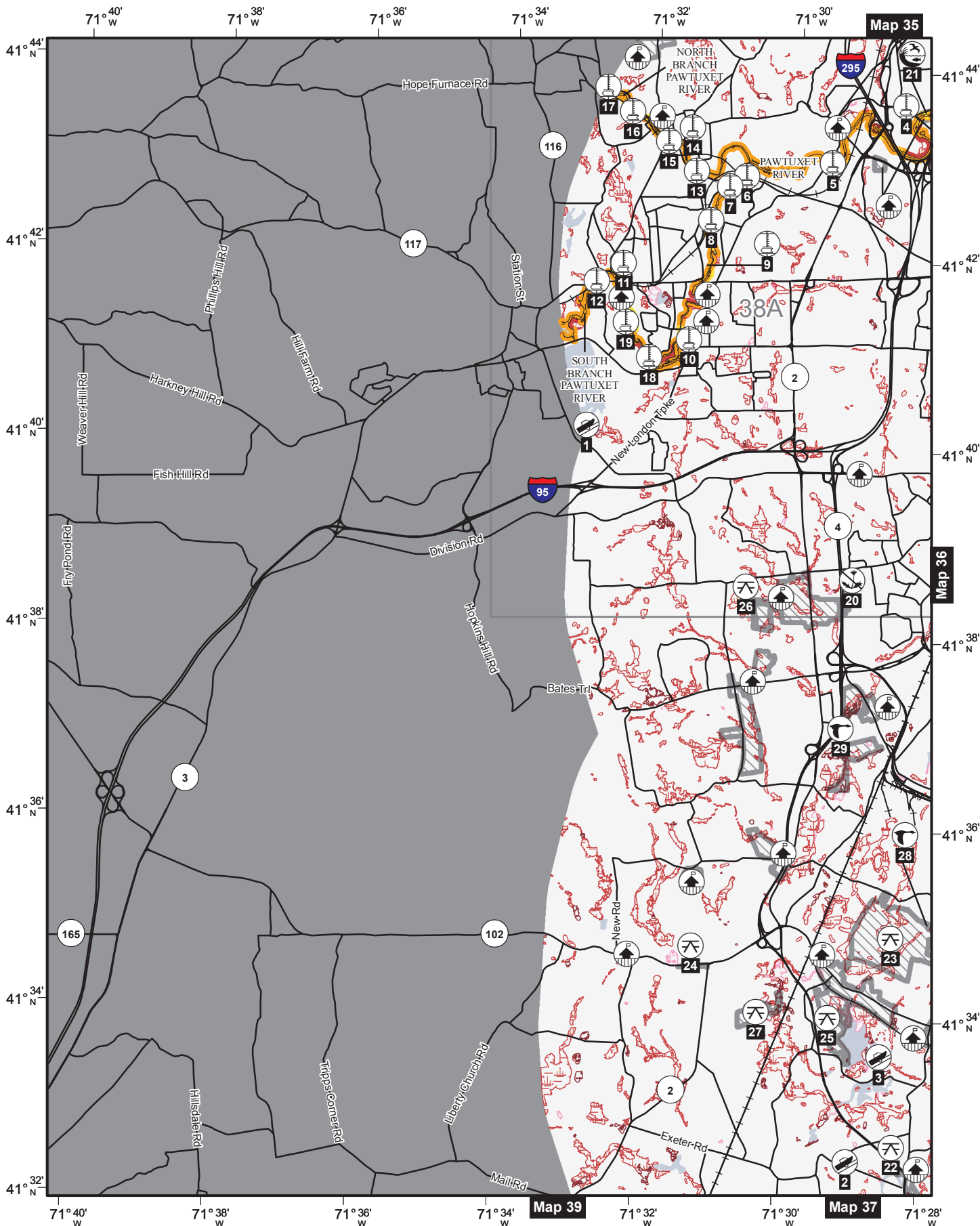
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
9B	Vegetated Low Banks	181.78	0.11	1%
8B	Sheltered, Solid Man-Made Structures	59.22	0.04	< 1%
7	Exposed Tidal Flats	1,997.12	1.24	14%
6A	Gravel Beaches	494.71	0.31	4%
6B	Riprap	1,605.15	1.00	12%
5	Mixed Sand and Gravel Beaches	2,026.08	1.26	15%
4	Coarse Grained Sand Beaches	306.33	0.19	2%
3A	Fine to Medium Grained Sand Beaches	1,773.75	1.10	13%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	3,740.23	2.32	27%
1A	Exposed, Rocky Shores	1,398.53	0.87	10%
1B	Exposed, Solid Man-Made Structures	223.06	0.14	2%

Total ESI Shoreline: 13,805.94
Total ESI Shoreline: 8.58
Total Shoreline: 8,568.02
Total Shoreline: 5.32

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

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





Map 38
Mass. / Rhode Island



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

0 Not for Navigation 2 Miles
0 2 Kilometers

1:100,000



Map 38
Massachusetts and Rhode Island

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Contact Phone
1	BOAT RAMP	TIOGUE LAKE / NORTH GLEN DRIVE	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT 401-222-2776
2	BOAT RAMP	SILVER SPRING LAKE	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT 401-222-2776
3	BOAT RAMP	BELLVILLE POND	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT 401-222-2776
4	LOCK AND DAM	FRUIT OF THE LOOM DAM	
5	LOCK AND DAM	NATICK POND DAM	
6	LOCK AND DAM	RIVERPOINT POND LOWER DAM	
7	LOCK AND DAM	RIVERPOINT POND UPPER DAM	
8	LOCK AND DAM	ARCTIC DAM	
9	LOCK AND DAM	CENTERVILLE POND DAM	
10	LOCK AND DAM	CROMPTON LOWER DAM	
11	LOCK AND DAM	QUIDNICK POND/UPPER/DAM	
12	LOCK AND DAM	MILL POND DAM (ANTHONY)	
13	LOCK AND DAM	CLYDE POND DAM	
14	LOCK AND DAM	RIVERPOINT MILL POND DAM	
15	LOCK AND DAM	PHENIX MILL POND DAM	
16	LOCK AND DAM	HARRIS POND DAM - (COV.)	
17	LOCK AND DAM	ARKWRIGHT POND DAM	
18	LOCK AND DAM	CROMPTON POND/UPPER/DAM	
19	LOCK AND DAM	QUIDNICK POND/LOWER/DAM	

DISPLAYED ON MAP (POLYGONS)			
Map ID	Type	Name	Contact Phone
20	INVASIVE SPECIES	MILE A MINUTE VINE	
21	MANAGEMENT AREA	LOBSTER MANAGEMENT AREA 2	
22	REGIONAL OR STATE PARK	SHADY LEA PARK	RI DEM 401-667-6200
23	REGIONAL OR STATE PARK	COCUMCUSOC STATE PARK	RI DEM 401-667-6200
24	REGIONAL OR STATE PARK	RTE 102 PICNIC GROVE	RI DEM 401-667-6200
25	REGIONAL OR STATE PARK	CENTRAL PARK / BELLEVILLE POND	RI DEM 401-667-6200
26	REGIONAL OR STATE PARK	FRY FAMILY PRESERVE	RI DEM 401-667-6200
27	REGIONAL OR STATE PARK	LAFAYETTE HATCHERY	RI DEM, DFW 401-789-7481
28	WILDLIFE REFUGE	COCUMCUSOC BROOK RESERVE	AUDUBON SOCIETY OF RHODE ISLAND 401-949-5454
29	WILDLIFE REFUGE	DAVIS MEMORIAL WILDLIFE REFUGE	AUDUBON SOCIETY OF RHODE ISLAND 401-949-5454

JURISDICTIONS

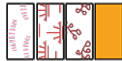
COUNTY: KENT, PROVIDENCE, WASHINGTON
COAST GUARD: DISTRICT 1, SECTOR SE NEW ENGLAND
USACE: NORTH ATLANTIC DIVISION, NEW ENGLAND DISTRICT

FEMA: REGION I
EPA: REGION 1

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10B	Freshwater Marshes	156.00	0.24
10C	Swamps	2,740.68	4.28
10D	Scrub and Shrub Wetlands	260.43	0.41
9A	Sheltered Tidal Flats	2.95	0.00



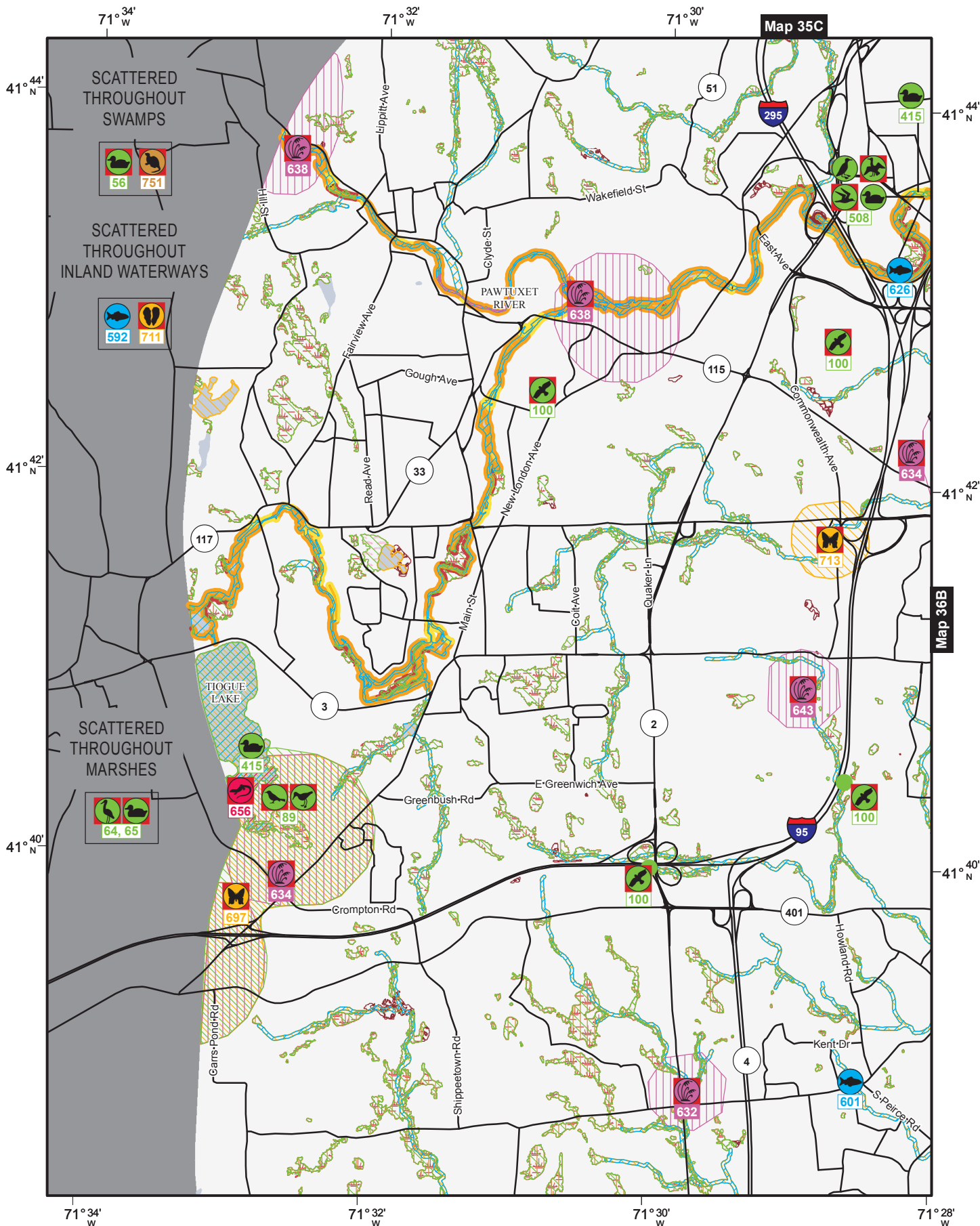
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10C	Swamps	8,404.94	5.22	13%
10D	Scrub and Shrub Wetlands	365.64	0.23	1%
9A	Sheltered Tidal Flats	1,055.42	0.66	2%
9B	Vegetated Low Banks	46,769.90	29.06	72%
8B	Sheltered, Solid Man-Made Structures	7,829.32	4.86	12%
8C	Sheltered Riprap	128.04	0.08	< 1%
4	Coarse Grained Sand Beaches	75.03	0.05	< 1%
Total ESI Shoreline:		64,628.28	40.16	
Total Shoreline:		54,020.27	33.57	

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

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

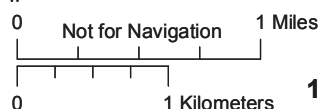




Map 38A
Mass. / Rhode Island



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



1:50,000

Map 38A
Massachusetts and Rhode Island

BIOLOGICAL RESOURCES

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

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Monthly Presence
SAV	Hornleaf riverweed	Vulnerable Occurrence	-/C			Present													

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig.(S)	Mig.(F)	Juveniles	Molt
56	Waterfowl	Waterfowl	General Distribution	C/C			Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep	-
64	Wading	Marsh birds	General Distribution	C/C			Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug	-
65	Wading	Marsh birds	General Distribution	C/C			Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug	-
89	Waterfowl	Waterfowl	General Distribution	C/C			Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep	-
	Passerine	Grasshopper sparrow	Vulnerable Occurrence	T/T	E		-													Apr-Aug	Mar-Apr	Sep-Oct	-	-
	Passerine	White-throated sparrow	Vulnerable Occurrence				-													May-Jun	Apr-May	Sep-Nov	Jul-Aug	-
	Passerine	Winter wren	Vulnerable Occurrence				-													May-Jul	-	-	-	-
	Shorebird	Upland sandpiper	Vulnerable Occurrence	E/-			-													May-Jul	May	Sep-Nov	Sep-Oct	-
100	Raptor	Osprey	Nesting	-/C			Nest Site													Apr-Aug	Apr-May	Sep-Nov	-	-
415	Waterfowl	American black duck	Wintering				Abundant													-	Apr	Oct	-	-
	Waterfowl	Diving ducks	Wintering				Common													Mar-Apr	Sep-Apr	-	-	-
	Waterfowl	Geese	Wintering				Common													Apr-May	Mar-May	Oct-Nov	-	-
508	Alcid	Razorbill	Wintering				Common													-	Mar-Apr	Nov	-	-
	Diving	Horned grebe	Wintering				Rare													-	Apr-May	Oct-Nov	-	-
	Diving	Loons	General Distribution	C/-			Rare													-	Mar-Jun	Oct-Jan	Jan-Mar	-
	Gull/Tern	Common tern	General Distribution	C/-			Common													May-Sep	Apr-May	Aug-Oct	-	-
	Gull/Tern	Least tern	General Distribution	C/T			Rare													-	Apr-May	Aug-Sep	-	-
	Waterfowl	Sea ducks	Wintering				Common													-	Mar-May	Oct-Nov	-	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
592	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec
601	Diadromous	Alewife	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Blueback herring	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
626	Diadromous	Alewife	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	American shad	Spawning Area				-													Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Diadromous	Blueback herring	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
632	Plant	Endangered plant	Vulnerable Occurrence	-/E	E	-														Jun-Jul	Aug-Sep	-	Jan-Dec	Jan-Dec
634	Plant	Endangered plant	Vulnerable Occurrence	-/E	E	-																		
	Plant	Rare plant	Vulnerable Occurrence	T/C		-																		
	Plant	Threatened plant	Vulnerable Occurrence	-/T		-																		
638	Plant	Rare plant	Vulnerable Occurrence	T/C		-																		
643	Plant	Threatened plant	Vulnerable Occurrence	-/T		-																		

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
656	Snake	Eastern ribbon snake	Vulnerable Occurrence	-/C		-														Jun-Jul	Aug-Sep	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
697	Insect	Rare insect	Vulnerable Occurrence	E/C	T	-														Mar-Oct	Jan-Dec	Jan-Dec	Jan-Dec	Jan-Dec
	Insect	Threatened insect	Vulnerable Occurrence	-/E		-														Apr-Aug	Apr-Aug	Jan-Dec	Jan-Dec	Jan-Dec
711	Bivalve	Eastern pearlshell	General Distribution	-/E		-														Aug-Sep	Aug-May	May-Jun	Jan-Dec	Jan-Dec
	Bivalve	Rare freshwater mussel	General Distribution	C/C		-														Aug-Sep	Aug-May	Jun-Jul	Jan-Dec	Jan-Dec
713	Insect	Threatened insect	Vulnerable Occurrence	-/E		-														Apr-Aug	Apr-Aug	Jan-Dec	Jan-Dec	Jan-Dec

TERRESTRIAL MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence																
								J	F	M	A	M	J	J	A	S	O	N	D					
751	Small Mammal	American water shrew	General Distribution	C/C		Common																		





WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

TERRESTRIAL MAMMALS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence																
							J	F	M	A	M	J	J	A	S	O	N	D					
	Bat	Northern myotis	General Distribution	E/-	T	Rare																	

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

FISH

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous	Alewife																	Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
		American shad																	Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
		Blueback herring																	Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Estuarine Nursery	White perch																	Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Estuarine Resident	Inland silverside																	May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Freshwater	Brook trout (sea run)																	Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
		Rainbow smelt																	-	-	-	Jan-Dec	Jan-Dec

REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Interest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Four-toed salamander													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Fowler's toad													Apr-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Red-spotted newt													Jun-Jul	Jun-Aug	-	Jan-Dec	Jan-Dec
	Wood frog													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Eastern box turtle													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

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

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES		
ESI Rank	Habitat Classification	Area (Sq. Miles)
10B	Freshwater Marshes	0.05
10C	Swamps	1.56
10D	Scrub and Shrub Wetlands	0.07
9A	Sheltered Tidal Flats	0.00

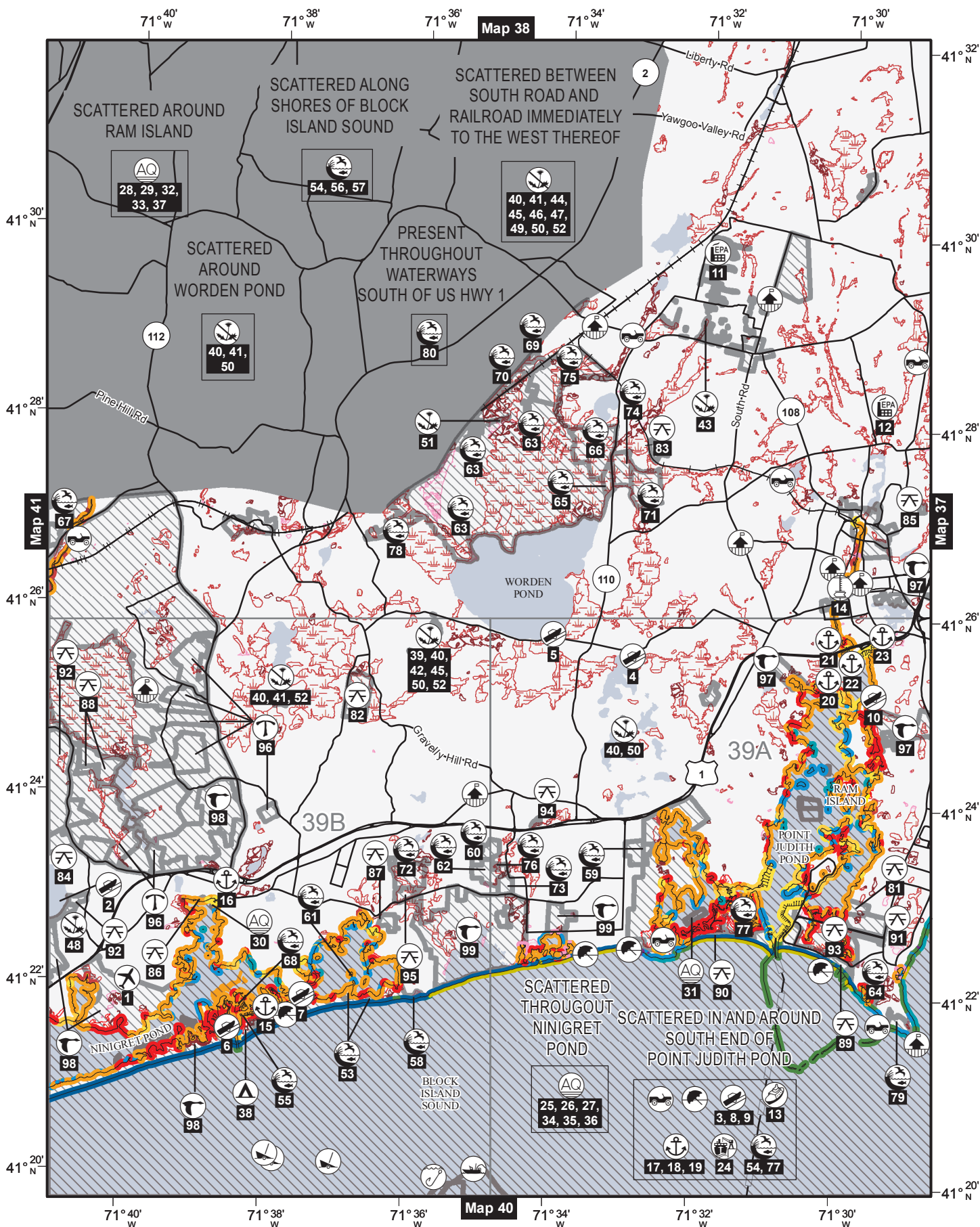
ESI SHORELINE HABITAT TYPES		
ESI Rank	Shoreline Habitat Classification	% of ESI Shoreline
10C	Swamps	13%
10D	Scrub and Shrub Wetlands	1%
9A	Sheltered Tidal Flats	2%
9B	Vegetated Low Banks	72%
8B	Sheltered, Solid Man-Made Structures	12%
8C	Sheltered Riprap	< 1%
4	Coarse Grained Sand Beaches	< 1%

Total ESI Shoreline: 64,629.80 Total ESI Shoreline: 40.16
Total Shoreline: 54,021.78 Total Shoreline: 33.57

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

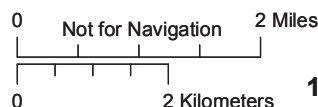




Map 39
Mass. / Rhode Island



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



Map 39
Massachusetts and Rhode Island

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)				
Map ID	Type	Name	Contact	Phone
1	AIRPORT	CHARLESTOWN NAS		
2	BOAT RAMP	BARTON C. HURLEY LANDING	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
3	BOAT RAMP	GALILEE	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
4	BOAT RAMP	TUCKER POND	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
5	BOAT RAMP	WORDEN POND	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
6	BOAT RAMP	CHARLESTOWN BREACHWAY	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
7	BOAT RAMP	CHARLESTOWN	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
8	BOAT RAMP	KENPORT MARINA	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
9	BOAT RAMP	GOOSEBERRY ROAD TOWN RAMP	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
10	BOAT RAMP	LONG COVE MARINA	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
11	EPA FACILITY	WEST KINGSTON TOWN DUMP - URI DISPOSAL AREA	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
12	EPA FACILITY	ROSE HILL REGIONAL LANDFILL	REMEDIAL PROJECT MANAGER	617-918-1232
13	FERRY	COMMERCIAL FERRY	REMEDIAL PROJECT MANAGER	617-918-1275
14	LOCK AND DAM	WAKEFIELD POND DAM		
15	MARINA	RAIN-BRO MARINA		
16	MARINA	OCEAN HOUSE MARINA		
17	MARINA	KENPORT MARINA		
18	MARINA	POINT JUDITH MARINA		
19	MARINA	SNUG HARBOR MARINA		
20	MARINA	BILLINGTON COVE MARINA		
21	MARINA	SILVER SPRING MARINE		
22	MARINA	RAM POINT MARINA		
23	MARINA	STONE COVE MARINA		
24	PORT	COMMERCIAL / INDUSTRIAL - FISHING		

DISPLAYED ON MAP (POLYGONS)				
Map ID	Type	Name	Contact	Phone
25	AQUACULTURE	BEHAN - OYSTER/CLAM		
26	AQUACULTURE	PAPA - OYSTER		
27	AQUACULTURE	KRAUSE - HARD CLAM		
28	AQUACULTURE	HOXSIE - OYSTER		
29	AQUACULTURE	HUGGINS - OYSTER		
30	AQUACULTURE	KRAUSE - OYSTER		
31	AQUACULTURE	RASO - OYSTER/HARD CLAM		
32	AQUACULTURE	ROEBUCK - OYSTER		
33	AQUACULTURE	SIPPERLEY - OYSTER		
34	AQUACULTURE	PINSKY - OYSTER		
35	AQUACULTURE	ARNOUX - OYSTER		
36	AQUACULTURE	OPTON-HIMMEL - OYSTER		
37	AQUACULTURE	WEST - OYSTER		

DISPLAYED ON MAP (POLYGONS) (continued)				
38	CAMPGROUND	CHARLESTOWN BREACHWAY CAMPGROUND		
39	INVASIVE SPECIES	BLACK LOCUST		
40	INVASIVE SPECIES	ASIATIC BITTERSWEET		
41	INVASIVE SPECIES	AUTUMN OLIVE		
42	INVASIVE SPECIES	BLACK SWALLOW WORT		
43	INVASIVE SPECIES	COMMON REED		
44	INVASIVE SPECIES	EUROPEAN PRIVET		
45	INVASIVE SPECIES	JAPANESE BARBERRY		
46	INVASIVE SPECIES	JAPANESE HONEYSUCKLE		
47	INVASIVE SPECIES	JAPANESE KNOTWEED		
48	INVASIVE SPECIES	JAPANESE STILTGRASS		
49	INVASIVE SPECIES	MARROWS HONEYSUCKLE		
50	INVASIVE SPECIES	MULTIFLORA ROSE		
51	INVASIVE SPECIES	SPOTTED Knapweed		
52	INVASIVE SPECIES	WINGED EUONYMUS		
53	MANAGEMENT AREA	SOUTH SHORE MANAGEMENT AREA - GOOSE ISLAND ACCESS	RI DEM, DFW	401-789-7481
54	MANAGEMENT AREA	2 COASTAL BARRIER - DEVELOPED		
55	MANAGEMENT AREA	3 COASTAL BARRIER - MODERATELY DEVELOPED		
56	MANAGEMENT AREA	5 COASTAL BARRIER - OTHER UNDEVELOPED		
57	MANAGEMENT AREA	6 COASTAL BARRIER - UNDEVELOPED		
58	MANAGEMENT AREA	7 COASTAL BARRIER - WELDED		
59	MANAGEMENT AREA	SOUTH SHORE MANAGEMENT AREA - FORD/CARPENTAR	RI DEM, DFW	401-789-7481
60	MANAGEMENT AREA	SOUTH SHORE MANAGEMENT AREA - TEFFT HILL-PARCEL B	RI DEM, DFW	401-789-7481
61	MANAGEMENT AREA	SOUTH SHORE MANAGEMENT AREA - GRAHAM	RI DEM, DFW	401-789-7481
62	MANAGEMENT AREA	SOUTH SHORE MANAGEMENT AREA - WHITFORD	RI DEM, DFW	401-789-7481
63	MANAGEMENT AREA	GREAT SWAMP MANAGEMENT AREA	RI DEM, DFW	401-789-7481
64	MANAGEMENT AREA	SOUTH SHORE MANAGEMENT AREA - DIMEO/NOEL	RI DEM, DFW	401-789-7481
65	MANAGEMENT AREA	GREAT SWAMP MANAGEMENT AREA - GIFFORD	RI DEM, DFW	401-789-7481
66	MANAGEMENT AREA	GREAT SWAMP MANAGEMENT AREA - FAELLA	RI DEM, DFW	401-789-7481
67	MANAGEMENT AREA	CAROLINA MANAGEMENT AREA - WRIGHT	RI DEM, DFW	401-789-7481
68	MANAGEMENT AREA	SOUTH SHORE MANAGEMENT AREA - WARD ISLAND	RI DEM, DFW	401-789-7481
69	MANAGEMENT AREA	GREAT SWAMP MANAGEMENT AREA - URI FOUNDATION	RI DEM, DFW	401-789-7481
70	MANAGEMENT AREA	GREAT SWAMP MANAGEMENT AREA - PERREAULT	RI DEM, DFW	401-789-7481
71	MANAGEMENT AREA	GREAT SWAMP MANAGEMENT AREA - PHILLIP M GREENE	RI DEM, DFW	401-789-7481
72	MANAGEMENT AREA	SOUTH SHORE MANAGEMENT AREA - J. FIENERMAN/FERRICK	RI DEM, DFW	401-789-7481
73	MANAGEMENT AREA	SOUTH SHORE MANAGEMENT AREA - CHEESMAN	RI DEM, DFW	401-789-7481
74	MANAGEMENT AREA	GREAT SWAMP MANAGEMENT AREA - KELLY-YOUNG	RI DEM, DFW	401-789-7481
75	MANAGEMENT AREA	GREAT SWAMP MANAGEMENT AREA - BUTSON	RI DEM, DFW	401-789-7481
76	MANAGEMENT AREA	SOUTH SHORE MANAGEMENT AREA - TEFFT HILL-PARCEL A	RI DEM, DFW	401-789-7481
77	MANAGEMENT AREA	SUCCOTASH MARSH MANAGEMENT AREA - SUCCOTASH MARSH	RI DEM, DFW	401-789-7481
78	MANAGEMENT AREA	GREAT SWAMP MANAGEMENT AREA - LACHAPPELLE	RI DEM, DFW	401-789-7481
79	MANAGEMENT AREA	SOUTH SHORE MANAGEMENT AREA - CAMP CRONIN	RI DEM, DFW	401-789-7481
80	MANAGEMENT AREA	LOBSTER MANAGEMENT AREA 2		
81	REGIONAL OR STATE PARK	SALTY ACRES	RI DEM	401-667-6200
82	REGIONAL OR STATE PARK	CLARK MEMORIAL PARK	RI DEM	401-667-6200
83	REGIONAL OR STATE PARK	TEFFT HISTORICAL PARK	RI DEM	401-667-6200

DISPLAYED ON MAP (POLYGONS) (continued)					
84	REGIONAL OR STATE PARK	BURLINGAME - CAMP PASTORE	RI DEM		401-667-6200
85	REGIONAL OR STATE PARK	ST DOMINIC SAVIO	RI DEM		401-667-6200
86	REGIONAL OR STATE PARK	FORT NINIGRET	RI DEM		401-667-6200
87	REGIONAL OR STATE PARK	GREEN HILL PARK	RI DEM		401-667-6200
88	REGIONAL OR STATE PARK	SCHOOLHOUSE POND PRESERVE	RI DEM		401-667-6200
89	REGIONAL OR STATE PARK	ROGER WHEELER STATE BEACH	RI DEM		401-667-6200
90	REGIONAL OR STATE PARK	EAST MATUNUNUCK STATE BEACH	RI DEM		401-667-6200
91	REGIONAL OR STATE PARK	FISHERMANS MEMORIAL STATE PARK	RI DEM		401-667-6200
92	REGIONAL OR STATE PARK	BURLINGAME STATE PARK	RI DEM		401-667-6200
93	REGIONAL OR STATE PARK	SOUTH SHORE MANAGEMENT AREA-GALILEE BIRD SANCTUARY	RI DEM, DFW		401-789-7481
94	REGIONAL OR STATE PARK	PERRYVILLE HATCHERY	RI DEM, DFW		401-789-7481
95	REGIONAL OR STATE PARK	EAST BAY BIKEPATH	RI DEM		401-667-6200
96	TRIBAL LANDS	NARRAGANSETT RESERVATION			
97	WILDLIFE REFUGE	JOHN H. CHAFEE NATIONAL WILDLIFE REFUGE	NICK ERNST, USFWS, RHODE ISLAND NWR COMPLEX		401-213-4406
98	WILDLIFE REFUGE	NINIGRET NATIONAL WILDLIFE REFUGE	NICK ERNST, USFWS, RHODE ISLAND NWR COMPLEX		401-213-4406
99	WILDLIFE REFUGE	TRUSTOM POND NATIONAL WILDLIFE REFUGE	NICK ERNST, USFWS, RHODE ISLAND NWR COMPLEX		401-213-4406
ALSO PRESENT IN MAPPED AREA (POINTS)					
Type	Name		Contact	Phone	
COAST GUARD	STA POINT JUDITH		USCG	401-789-0444	
ALSO PRESENT IN MAPPED AREA (POLYGONS)					
Type	Name		Contact	Phone	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: ATLANTIC COD		NORTHEAST FISHERIES MANAGEMENT COUNCIL		
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: ATLANTIC HERRING		NORTHEAST FISHERIES MANAGEMENT COUNCIL		
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: LITTLE SKATE		NORTHEAST FISHERIES MANAGEMENT COUNCIL		
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: MONKFISH		NORTHEAST FISHERIES MANAGEMENT COUNCIL		
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: OCEAN POUT		NORTHEAST FISHERIES MANAGEMENT COUNCIL		
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: RED HAKE		NORTHEAST FISHERIES MANAGEMENT COUNCIL		
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: SILVER HAKE		NORTHEAST FISHERIES MANAGEMENT COUNCIL		
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINDOW PANE FLOUNDER		NORTHEAST FISHERIES MANAGEMENT COUNCIL		
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINTER FLOUNDER		NORTHEAST FISHERIES MANAGEMENT COUNCIL		
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINTER SKATE		NORTHEAST FISHERIES MANAGEMENT COUNCIL		
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WITCH FLOUNDER		NORTHEAST FISHERIES MANAGEMENT COUNCIL		
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: YELLOWTAIL FLOUNDER		NORTHEAST FISHERIES MANAGEMENT COUNCIL		

JURISDICTIONS			
COUNTY:	WASHINGTON	FEMA:	REGION I
COAST GUARD:	DISTRICT 1, SECTOR SE NEW ENGLAND	EPA:	REGION 1
USACE:	NORTH ATLANTIC DIVISION, NEW ENGLAND DISTRICT		

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES

ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	585.91	0.92
10B	Freshwater Marshes	193.46	0.30
10C	Swamps	6,497.74	10.15
10D	Scrub and Shrub Wetlands	833.87	1.30
9A	Sheltered Tidal Flats	222.11	0.35
7	Exposed Tidal Flats	0.46	0.00
5	Mixed Sand and Gravel Beaches	15.57	0.02

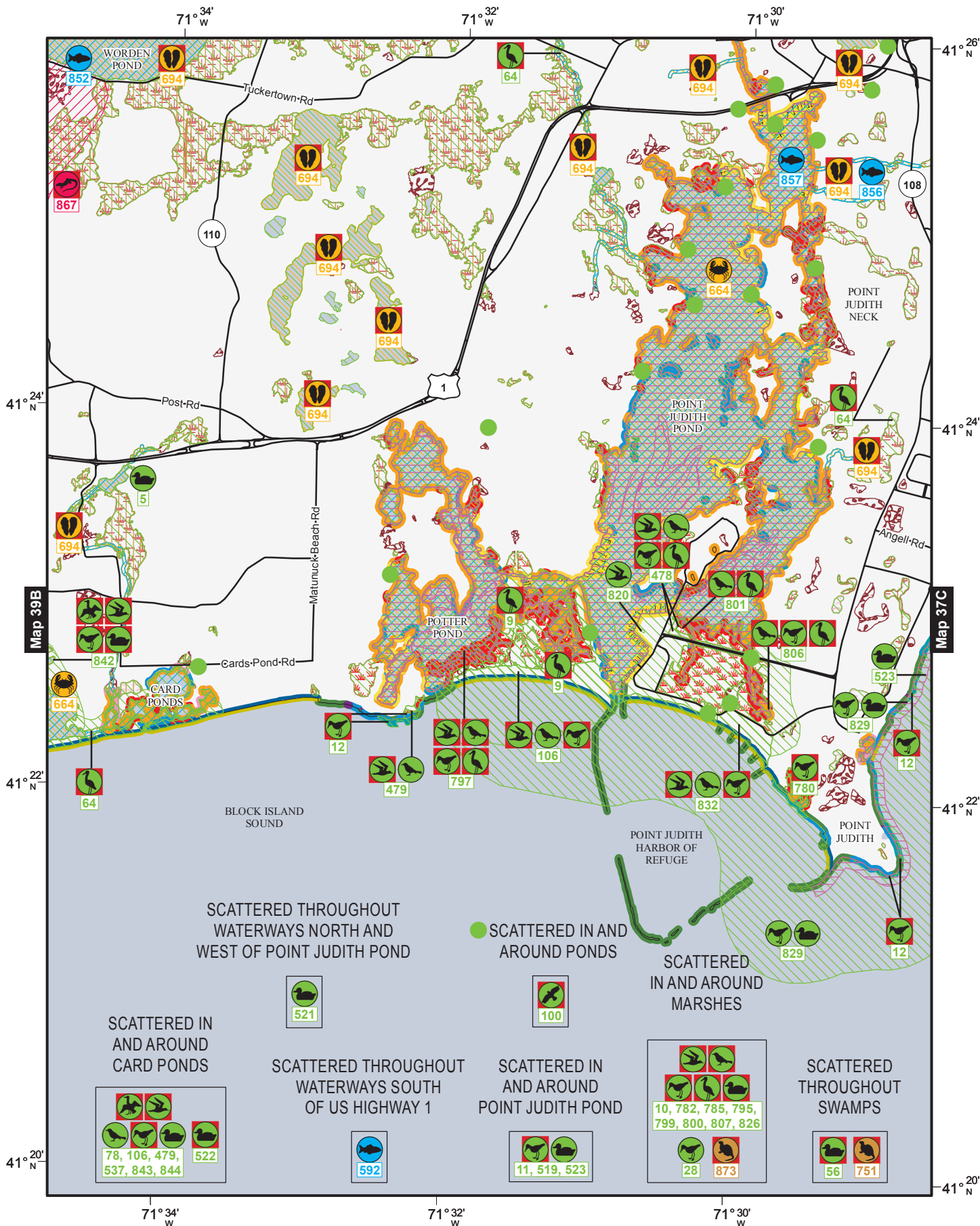
ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	56,201.16	34.92	20%
10B	Freshwater Marshes	1,950.33	1.21	1%
10C	Swamps	5,359.95	3.33	2%
10D	Scrub and Shrub Wetlands	3,057.74	1.90	1%
9A	Sheltered Tidal Flats	42,623.73	26.49	15%
9B	Vegetated Low Banks	82,694.61	51.38	30%
8A	Sheltered, Impermeable, Rocky Shores	453.58	0.28	< 1%
8A	Sheltered Scarps (Bedrock/Mud/Clay)	202.32	0.13	< 1%
8B	Sheltered, Solid Man-Made Structures	17,005.64	10.57	6%
8C	Sheltered Riprap	9,417.79	5.85	3%
8D	Sheltered, Rocky, Rubble Shores	1,496.68	0.93	1%
7	Exposed Tidal Flats	8,066.46	5.01	3%
6A	Gravel Beaches	162.05	0.10	< 1%
6B	Riprap	10,312.96	6.41	4%
5	Mixed Sand and Gravel Beaches	5,402.08	3.36	2%
4	Coarse Grained Sand Beaches	19,641.81	12.20	7%
3A	Fine to Medium Grained Sand Beaches	15,305.14	9.51	5%
1B	Exposed, Solid Man-Made Structures	280.40	0.17	< 1%
Total ESI Shoreline:		279,634.44	173.76	
Total Shoreline:		204,130.95	126.84	

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

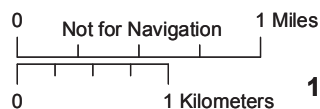




Map 39A
Mass. / Rhode Island



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



1:50,000



Map 39A
Massachusetts and Rhode Island

BIOLOGICAL RESOURCES

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

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence											
							J	F	M	A	M	J	J	A	S	O	N	D
SAV	Eelgrass	High Ecological Value				Potential												
Algae	Red macroalgae	High Ecological Value				41-70%												
SAV	Eelgrass	High Ecological Value				Present												
Algae	Green macroalgae	High Ecological Value				41-70%												

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig. (S)	Mig. (F)	Molt
								J	F	M	A	M	J	J	A	S	O	N	D				
5	Waterfowl	Dabbling ducks	Wintering				Common													-	Feb-Apr	Sep-Dec	-
9	Wading	American bittern	Vulnerable Occurrence			E/-	-													-	Apr-May	Sep	-
10	Shorebird	Red knot	Migration			T	Common													-	May-Jun	Jul-Sep	-
11	Shorebird	Red knot	Migration			T	Common													-	May-Jun	Jul-Sep	-
	Shorebird	Shorebirds	Migration				Abundant													-	Mar-Dec	-	-
12	Shorebird	Red knot	Migration			T	Common													-	May-Jun	Jul-Sep	-
	Shorebird	Shorebirds	Migration				Abundant													-	Mar-Dec	-	-
	Shorebird	Willet	Migration			-C	Common													-	Apr-May	Aug-Oct	-
28	Shorebird	Shorebirds	Migration				Abundant													-	Mar-Dec	-	-
56	Waterfowl	Waterfowl	General Distribution			C/C	Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
64	Wading	Marsh birds	General Distribution			C/C	Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
78	Waterfowl	Dabbling ducks	Wintering				Rare													-	Feb-Apr	Sep-Dec	-
100	Raptor	Osprey	Nesting			-C	Nest Site													Apr-Aug	Apr-May	Sep-Nov	-
106	Gull/Tern	Least tern	Nesting			C/T	Nest Site													May-Aug	-	-	-
	Passerine	Tree swallow	Migration				Abundant													-	-	Jul-Oct	-
	Shorebird	Piping plover	Nesting			T/E	Nest Site													Mar-Aug	-	-	-
478	Gull/Tern	Least tern	Nesting			C/T	Common													May-Aug	-	-	-
	Passerine	Tree swallow	Migration				Abundant													-	-	Jul-Oct	-
	Shorebird	Willet	Migration			-C	Common													Apr-May	Apr-May	Aug-Oct	-
	Wading	Marsh birds	General Distribution			C/C	Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
479	Gull/Tern	Least tern	Nesting			C/T	Common													May-Aug	-	-	-
	Passerine	Tree swallow	Migration				Abundant													-	-	Jul-Oct	-
519	Shorebird	Willet	Nesting			-C	Abundant													May-Jun	May	Aug	-
	Waterfowl	American black duck	Wintering				Abundant													-	Apr	Oct	-
521	Waterfowl	American black duck	Wintering				Abundant													-	Apr	Oct	-
522	Waterfowl	Hooded merganser	Wintering			-C	Common													-	Mar	Oct	-
523	Waterfowl	Sea ducks	Wintering				Common													-	Mar-May	Oct-Nov	-
537	Gull/Tern	Roseate tern	Migration			E/-	Rare													May-Aug	Apr-May	Jul-Sep	-
780	Shorebird	Shorebirds	Migration				Abundant													-	Mar-Dec	-	-

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
				S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N				
782	Shorebird	Willet	Migration	-/C		Common												Apr-May	Apr-May	Aug-Oct	-
	Shorebird	Willet	Migration	-/C		Common												Apr-May	Apr-May	Aug-Oct	-
785	Wading	Marsh birds	General Distribution	C/C		Common												Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Waterfowl	Waterfowl	General Distribution	C/C		Common												Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
795	Passerine	Marsh passerines	General Distribution	-/C		Common												Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Shorebird	Shorebirds	Migration			Abundant												-	Mar-Dec	-	-
	Shorebird	Willet	Migration	-/C		Common												Apr-May	Apr-May	Aug-Oct	-
	Wading	Egrets	Migration	-/C		Common												-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C		Common												Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-/C		Common												Apr-Sep	Mar-May	Sep-Oct	-
797	Gull/Tern	Common tern	Nesting	C/-		Nest Site												May-Sep	-	-	-
	Passerine	Marsh passerines	General Distribution	-/C		Common												Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Shorebird	Shorebirds	Migration			Abundant												-	Mar-Dec	-	-
	Shorebird	Willet	Migration	-/C		Common												Apr-May	Apr-May	Aug-Oct	-
	Wading	Egrets	Migration	-/C		Common												-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C		Common												Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-/C		Common												Apr-Sep	Mar-May	Sep-Oct	-
	Wading	Marsh passerines	General Distribution	-/C		Common												Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
799	Passerine	Marsh passerines	General Distribution	-/C		Common												Apr-May	Apr-May	Aug-Oct	-
	Shorebird	Willet	Migration	-/C		Common												Apr-May	Apr-May	Aug-Oct	-
	Wading	Egrets	Migration	-/C		Common												-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C		Common												Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-/C		Common												Apr-Sep	Mar-May	Sep-Oct	-
	Wading	Marsh passerines	General Distribution	-/C		Common												Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
800	Passerine	Marsh passerines	General Distribution	-/C		Common												Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Wading	Egrets	Migration	-/C		Common												-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C		Common												Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-/C		Common												Apr-Sep	Mar-May	Sep-Oct	-
	Wading	Marsh passerines	General Distribution	-/C		Common												Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Wading	Marsh passerines	General Distribution	-/C		Common												Apr-May	Apr-May	Aug-Nov	Sep-Oct
801	Passerine	Marsh passerines	General Distribution	-/C		Common												Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Wading	Egrets	Migration	-/C		Common												-	Apr-May	Sep-Oct	-
	Wading	Wading birds	General Distribution	-/C		Common												Apr-Sep	Mar-May	Sep-Oct	-
	Wading	Marsh passerines	General Distribution	-/C		Common												Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
806	Passerine	Marsh passerines	General Distribution	-/C		Common												-	-	Jul-Oct	-
	Passerine	Tree swallow	Migration			Abundant												Apr-May	Apr-May	Aug-Oct	-
	Shorebird	Willet	Migration	-/C		Common												Apr-May	Apr-May	Aug-Oct	-
	Wading	Egrets	Migration	-/C		Common												-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C		Common												Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-/C		Common												Apr-Sep	Mar-May	Sep-Oct	-
807	Gull/Tern	Least tern	Nesting	C/T		Common												May-Aug	-	-	-
	Passerine	Marsh passerines	General Distribution	-/C		Common												Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Passerine	Tree swallow	Migration			Abundant												-	-	Jul-Oct	-
	Shorebird	Willet	Migration	-/C		Common												Apr-May	Apr-May	Aug-Oct	-
	Wading	Egrets	Migration	-/C		Common												-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C		Common												Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-/C		Common												Apr-Sep	Mar-May	Sep-Oct	-
	Gull/Tern	Least tern	Nesting			Common												May-Aug	-	-	-
	Passerine	Marsh passerines	General Distribution	-/C		Common												Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Passerine	Tree swallow	Migration			Abundant												-	-	Jul-Oct	-
	Shorebird	Willet	Migration	-/C		Common												Apr-May	Apr-May	Aug-Oct	-
	Wading	Egrets	Migration	-/C		Common												-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C		Common												Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-/C		Common												Apr-Sep	Mar-May	Sep-Oct	-
	Wading	Marsh passerines	General Distribution	-/C		Common												Apr-Sep	Mar-May	Sep-Oct	-
	Wading	Wading birds	General Distribution	-/C		Common												Apr-Sep	Mar-May	Sep-Oct	-
820	Gull/Tern	G. black-backed gull	Nesting			Nest Site												Apr-Jul	-	-	-
	Gull/Tern	Herring gull	Nesting			Nest Site												May-Aug	-	-	-

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
								J	F	M	A	M	J	J	A	S	O	N	D				
826	Passerine	Passerine birds	General Distribution	-/C		T	Common													Mar-Aug	Feb-Nov	-	Jul-Sep
	Passerine	Yellow-billed cuckoo	General Distribution				Rare													Apr-Jul	Apr-May	Sep	-
829	Shorebird	Purple sandpiper	Wintering				Rare													-	May	Nov	-
	Waterfowl	Harlequin duck	Wintering																	-	Mar-Apr	Nov	-
832	Gull/Tern	Least tern	Nesting	C/T			Common													May-Aug	-	-	-
	Passerine	Tree swallow	Migration				Abundant													-	-	Jul-Oct	-
	Shorebird	Piping plover	Nesting	T/E	T		Nest Site													Mar-Aug	-	-	-
	Shorebird	Red knot	Migration		T		Common													-	May-Jun	Jul-Sep	-
842	Diving	Pied-billed grebe	Nesting	E/E			Nest Site													Apr-Sep	Apr	Sep	-
	Gull/Tern	Roseate tern	Migration	E/-	E		Common													May-Aug	Apr-May	Jul-Sep	-
	Shorebird	Willet	Nesting	-/C			Abundant													May-Jun	May	Aug	-
	Waterfowl	American black duck	Nesting				Common													Apr-Aug	-	-	-
	Waterfowl	Dabbling ducks	Wintering				Common													-	Feb-Apr	Sep-Dec	-
	Waterfowl	Gadwall	Wintering				Common													-	Mar	Nov	-
	Waterfowl	Green-winged teal	Wintering				Common													-	Mar	Nov	-
	Waterfowl	Hooded merganser	Wintering	-/C			Common													-	Mar	Oct	-
	Waterfowl	Sea ducks	Wintering				Common													-	Mar-May	Oct-Nov	-
843	Diving	Pied-billed grebe	Nesting	E/E			Nest Site													Apr-Sep	Apr	Sep	-
	Gull/Tern	Roseate tern	Migration	E/-	E		Common													May-Aug	Apr-May	Jul-Sep	-
	Shorebird	Willet	Nesting	-/C			Abundant													May-Jun	May	Aug	-
	Waterfowl	American black duck	Nesting				Common													Apr-Aug	-	-	-
	Waterfowl	Dabbling ducks	Wintering				Common													-	Feb-Apr	Sep-Dec	-
	Waterfowl	Gadwall	Wintering				Common													-	Mar	Nov	-
	Waterfowl	Green-winged teal	Wintering				Common													-	Mar	Nov	-
	Waterfowl	Hooded merganser	Wintering	-/C			Common													-	Mar	Oct	-
	Waterfowl	Sea ducks	Wintering				Common													-	Mar-May	Oct-Nov	-
844	Shorebird	Willet	Nesting	-/C			Abundant													May-Jun	May	Aug	-
	Waterfowl	American black duck	Wintering				Abundant													-	Apr	Oct	-
	Waterfowl	Sea ducks	Wintering				Common													-	Mar-May	Oct-Nov	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
592	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec
852	Diadromous	Alewife	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic salmon	Harvest Area				-													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
856	Diadromous	Blueback herring	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	Blueback herring	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
857	Diadromous	Alewife	Migration				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	Blueback herring	Migration				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
867	Snake	Eastern hog-nosed snake	General Distribution	-/C			Rare													Jun-Jul	Aug-Sep	-	Jan-Dec	Jan-Dec

Massachusetts and Rhode Island: Map 39A

INVERTEBRATES






Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D				
664	Crab	Horseshoe crab	Spawning				Abundant													Apr-Jun	-	Apr-Jun	Apr-Jun
694	Bivalve	Eastern pearlshell	General Distribution			-/E	-													Aug-Sep	May-Jun	Jan-Dec	Jan-Dec
	Bivalve	Rare freshwater mussel	General Distribution			C/C	-													Aug-Sep	Jun-Jul	Jan-Dec	Jan-Dec

TERRESTRIAL MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D				
751	Small Mammal	American water shrew	General Distribution			C/C	Common																
873	Small Mammal	Southern bog lemming	General Distribution			C/C	Rare																

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)



BIRDS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig. (S)	Mig. (F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
	Alcid	Razorbill	Wintering			Common													-	Mar-Apr	Nov	-
	Diving	Horned grebe	Wintering			Rare													-	Apr-May	Oct-Nov	-
		Loons	Migration			C/-													-	Mar-Jun	Oct-Jan	Jan-Mar
	Gull/Tern	Common tern	General Distribution			C/-	Common												-	May-Sep	Aug-Oct	-
		Least tern	General Distribution			C/T	Rare												-	Apr-May	Aug-Sep	-
		Roseate tern	General Distribution			E/-	Rare												-	May-Aug	Jul-Sep	-
	Passerine	Grasshopper sparrow	Vulnerable Occurrence			T/T	E												-	Mar-Apr	Sep-Oct	-
	Raptor	Raptors	General Distribution			-/C	Common												-	Mar-Apr	Jul-Nov	Jun
	Waterfowl	Diving ducks	Wintering				Common												-	Sep-Apr	-	-
		Geese	Wintering				Common												-	Mar-May	Oct-Nov	-
		Sea ducks	Wintering				Abundant												-	Mar-May	Oct-Nov	-



FISH

Subelement	Species	Mapping Qualifier	MA/RI	S	F	T	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/-	-													May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec



HABITATS & RARE PLANTS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	E	Concentration	Monthly Presence												Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D				
	Plant	Endangered plant	Vulnerable Occurrence			-/E	-																
		Rare plant	Vulnerable Occurrence			T/C	-																
		Threatened plant	Vulnerable Occurrence			-/T	-																
	Wetland	Rare wetland/aquatic plant	Vulnerable Occurrence			-/C	-																


REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults	
			S	F		J	F	M	A	M	J	J	A	S	O	N	D						
 Snake	Eastern ribbon snake	Vulnerable Occurrence	-/C		-														Jun-Jul	Aug-Sep	-	Jan-Dec	Jan-Dec
 Turtle	Green sea turtle	General Distribution	T/E	T	Regular														-	-	-	May-Nov	May-Nov
	K. ridley sea turtle	General Distribution	E/E	E	Regular														-	-	-	May-Nov	May-Nov
	Leatherback sea turtle	General Distribution	E/E	E	Regular														-	-	-	May-Nov	May-Nov
	Loggerhead sea turtle	General Distribution	T/E	T	Regular														-	-	-	May-Nov	May-Nov

INVERTEBRATES

Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
			S	F		J	F	M	A	M	J	J	A	S	O	N	D					
 Insect	Rare insect	Vulnerable Occurrence	E/C	T	-													Mar-Oct	Jan-Dec	Jan-Dec	Jan-Dec	
	Threatened insect	Vulnerable Occurrence	-/T															Apr-Aug	Jan-Dec	Jan-Dec	Jan-Dec	
 Invertebrate	Coastal swamp amphipod	Vulnerable Occurrence	C/C		-													Dec-May	Dec-May	Aug-Nov	Dec-Jul	

MARINE MAMMALS

<div></div>	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
				S	F		J	F	M	A	M	J	J	A	S	O	N	D				
	Whale	Fin whale	General Distribution	E/E	E	Rare												-	-	-		
		Humpback whale	General Distribution	E/E	E	Rare												-	-	-		
		N.A. right whale	General Distribution	E/E	E	Rare												-	-	-		
		Sei whale	General Distribution	E/-	E	Common												-	-	-		
		Sperm whale	General Distribution	E/-	E	Rare												-	-	-		

TERRESTRIAL MAMMALS

Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												
			S	F		J	F	M	A	M	J	J	A	S	O	N	D	
 Bat	Northern myotis	General Distribution	E/-	T	Rare													
 Small Mammal	New England cottontail	General Distribution	-/C		Rare													

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						
 Gull/Tern	Gulls																		
 Passerine	Nashville warbler																		
 Shorebird	Shorebirds																		
 Waterfowl	American black duck																		
	Diving ducks																		
	Geese																		





FISH

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
Diadromous	Alewife													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	American eel													-	-	-	Jan-Dec	Jan-Dec
	American shad													Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Atlantic salmon													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
Estuarine Nursery	Blueback herring													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Striped bass													-	-	-	Apr-Nov	Apr-Nov
	Atlantic herring													Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy													Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass													May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov
	Bluefish													-	-	-	May-Oct	May-Oct
	Hogchoker													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Scup													May-Aug	May-Aug	Jun-Aug	Apr-Nov	Apr-Nov
	Summer flounder													Aug-Nov	Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish													Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	White perch													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
Estuarine Resident	Winter flounder													Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
	Atlantic silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Inland silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Stickleback													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
Freshwater	Brook trout (sea run)													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Rainbow smelt													-	-	-	Jan-Dec	Jan-Dec
Marine Benthic	American sand lance													Nov-Apr	Nov-May	Jan-May	Jan-Dec	Jan-Dec
	Atlantic cod													-	-	Jan-May	Jan-May	-
	Atlantic tomcod													Dec-Mar	Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec
	Little tunny													-	-	-	-	May-Nov
	Pollock													Nov-Apr	Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Searobins													Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Skates													-	-	-	Jan-Dec	Jan-Dec
	Tautog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
Marine Pelagic	Atlantic mackerel													-	May-Aug	May-Aug	May-Sep	May-Sep
	Sand tiger													-	-	-	Apr-Nov	Apr-Nov
	Spiny dogfish													-	-	-	Jan-Dec	Jan-Dec




REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Four-toed salamander													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Fowler's toad													Apr-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Red-spotted newt													Jun-Jul	Jun-Aug	-	Jan-Dec	Jan-Dec
	Wood frog													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Eastern box turtle													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Spotted turtle													May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Atl. jackknife clam													Apr-May	Apr-May	Apr-May	Jan-Dec	Jan-Dec
	Atlantic razor													Apr-Jun	Apr-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic surfclam													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Bay scallop													Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec
	Blue mussel													Mar-Jul	Mar-Jul	Mar-Jul	Jan-Dec	Jan-Dec
	Eastern oyster													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Northern quahog													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Ocean quahog													Jul-Nov	Jul-Nov	Jul-Dec	Jan-Dec	Jan-Dec
	Softshell clam													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Longfin squid													May-Aug	May-Aug	May-Aug	May-Nov	May-Nov
	Atlantic rock crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Blue crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Horseshoe crab													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec
	Jonah crab													May-Oct	May-Oct	May-Oct	Apr-Oct	Apr-Oct
	Channelled whelk													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Knobbed whelk													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Northern moonsnail													Apr-Sep	Apr-Sep	Apr-Sep	Jan-Dec	Jan-Dec
	Sea snails													May-Jul	May-Aug	Aug-Nov	Jan-Dec	Jan-Dec
	American lobster													Aug-Nov	Jan-Dec	Jun-Oct	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				
	Atl. spotted dolphin													-	-	-	-
	Atl. wht.-side dolphin													-	-	-	-
	Bottlenose dolphin													-	-	-	-
	Harbor porpoise													-	-	-	-
	Risso's dolphin													-	-	-	-
	Short-beaked common dolphin													-	-	-	-
	Striped dolphin													-	-	-	-
	White-beaked dolphin													-	-	-	-
	Gray seal													Dec-Feb	Dec-Feb	Dec-Feb	Mar-May
	Harbor seal													-	-	-	-
	Harp seal													-	-	-	-
	Hooded seal													-	-	-	-
	Minke whale													-	-	-	-
	Pilot whales													-	-	-	-

TERRESTRIAL MAMMALS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Woodland jumping mouse												

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	386.80	0.60
10B	Freshwater Marshes	46.64	0.07
10C	Swamps	955.30	1.49
10D	Scrub and Shrub Wetlands	229.33	0.36
9A	Sheltered Tidal Flats	118.90	0.19
7	Exposed Tidal Flats	0.46	0.00
5	Mixed Sand and Gravel Beaches	15.57	0.02

ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	34,500.02	21.44	20%
10B	Freshwater Marshes	1,807.97	1.12	1%
10C	Swamps	579.61	0.36	< 1%
10D	Scrub and Shrub Wetlands	254.31	0.16	< 1%
9A	Sheltered Tidal Flats	30,872.58	19.18	18%
9B	Vegetated Low Banks	40,067.70	24.90	23%
8A	Sheltered, Impermeable, Rocky Shores	316.43	0.20	< 1%
8A	Sheltered Scarps (Bedrock/Mud/Clay)	202.32	0.13	< 1%
8B	Sheltered, Solid Man-Made Structures	14,011.94	8.71	8%
8C	Sheltered Riprap	7,383.46	4.59	4%
8D	Sheltered, Rocky, Rubble Shores	623.92	0.39	< 1%
7	Exposed Tidal Flats	6,789.23	4.22	4%
6A	Gravel Beaches	162.05	0.10	< 1%
6B	Riprap	9,900.22	6.15	6%
5	Mixed Sand and Gravel Beaches	5,037.25	3.13	3%
4	Coarse Grained Sand Beaches	12,425.03	7.72	7%
3A	Fine to Medium Grained Sand Beaches	6,377.51	3.96	4%
1B	Exposed, Solid Man-Made Structures	157.88	0.10	< 1%
Total ESI Shoreline:		171,469.42	Total ESI Shoreline:	106.55
Total Shoreline:		122,611.36	Total Shoreline:	76.19

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 39B
Massachusetts and Rhode Island

BIOLOGICAL RESOURCES

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

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence											
							J	F	M	A	M	J	J	A	S	O	N	D
SAV	Eelgrass	High Ecological Value				Potential												
SAV	Eelgrass	High Ecological Value				Present												
Algae	Green macroalgae	High Ecological Value				41-70%												
SAV	Seagrass	High Ecological Value				Present												

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig. (S)	Mig. (F)	Molt
								J	F	M	A	M	J	J	A	S	O	N	D				
5	Waterfowl	Dabbling ducks	Wintering				Common													-	Feb-Apr	Sep-Dec	-
28	Shorebird	Shorebirds	Migration				Abundant													-	Mar-Dec	-	-
31	Gull/Tern	Roseate tern	Migration			E/-	E													May-Aug	Apr-May	Jul-Sep	-
	Shorebird	Piping plover	Migration			T/E	T													Mar-Aug	Mar-Apr	Jul-Sep	-
	Shorebird	Shorebirds	Migration				Abundant													-	Mar-Dec	-	-
56	Waterfowl	Waterfowl	General Distribution			C/C	Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
62	Waterfowl	American black duck	Nesting				Common													Apr-Aug	-	-	-
64	Wading	Marsh birds	General Distribution			C/C	Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
79	Passerine	Northern parula	Nesting			-T	Common													Apr-Jul	-	-	-
100	Raptor	Osprey	Nesting			-C	Nest Site													Apr-Aug	Apr-May	Sep-Nov	-
410	Waterfowl	American black duck	Wintering				Abundant													-	Apr	Oct	-
	Waterfowl	Diving ducks	Wintering				Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering				Common													Apr-May	Mar-May	Oct-Nov	-
419	Gull/Tern	Common tern	Nesting			C/-	Nest Site													May-Sep	-	-	-
421	Gull/Tern	G. black-backed gull	Nesting				Nest Site													Apr-Jul	-	-	-
429	Passerine	Passerine birds	General Distribution			-C	Common													Mar-Aug	Feb-Nov	-	Jul-Sep
	Passerine	Yellow-billed cuckoo	General Distribution			T	Rare													Apr-Jul	Apr-May	Sep	-
	Wading	YC night-heron	Nesting			-C	Nest Site													Apr-Aug	Apr-May	-	-
473	Gull/Tern	Least tern	Nesting			C/T	Common													May-Aug	-	-	-
	Passerine	Tree swallow	Migration				Abundant													-	-	Jul-Oct	-
	Shorebird	Piping plover	Nesting			T/E	T													Mar-Aug	-	-	-
	Shorebird	Willet	Migration			-C	Common													Apr-May	Apr-May	Aug-Oct	-
515	Gull/Tern	Roseate tern	Migration			E/-	Rare													May-Aug	Apr-May	Jul-Sep	-
	Shorebird	Piping plover	Migration			T/E	T													Mar-Aug	Mar-Apr	Jul-Sep	-
522	Waterfowl	Hooded merganser	Wintering			-C	Common													-	Mar	Oct	-
523	Waterfowl	Sea ducks	Wintering				Common													-	Mar-May	Oct-Nov	-
537	Gull/Tern	Roseate tern	Migration			E/-	E													May-Aug	Apr-May	Jul-Sep	-
781	Passerine	Yellow-breasted chat	Nesting			-E	Potential													Apr-Jul	May-Jun	Jul-Sep	-
	Shorebird	Shorebirds	Migration				Abundant													-	Mar-Dec	-	-

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
				S	F		J	F	M	A	M	J	J	A	S	O	N	D				
782	Shorebird	Willet	Migration	-/C		Common											Apr-May	Apr-May	Aug-Oct	-		
	Shorebird	Willet	Migration	-/C		Common											Apr-May	Apr-May	Aug-Oct	-		
	Passerine	Yellow-breasted chat	Nesting	-/E		Potential											Apr-Jul	May-Jun	Jul-Sep	-		
784	Diving	Pied-billed grebe	Nesting	E/E		Nest Site											Apr-Sep	Apr	Sep	-		
785	Wading	Marsh birds	General Distribution	C/C		Common											Mar-Sep	Mar-May	Sep-Nov	Jul-Aug		
786	Waterfowl	Waterfowl	General Distribution	C/C		Common											Mar-Sep	Feb-May	Sep-Nov	Aug-Sep		
	Wading	Marsh birds	General Distribution	C/C		Common											Mar-Sep	Mar-May	Sep-Nov	Jul-Aug		
	Waterfowl	Hooded merganser	Wintering	-/C		Common											-	Mar	Oct	-		
789	Gull/Tern	Least tern	Nesting	C/T		Nest Site											May-Aug	-	-	-		
795	Passerine	Passerine birds	General Distribution	-/C		Common											Mar-Aug	Feb-Nov	-	Jul-Sep		
	Passerine	Tree swallow	Migration			Abundant											-	-	Jul-Oct	-		
	Passerine	Yellow-billed cuckoo	General Distribution	T		Rare											Apr-Jul	Apr-May	Sep	-		
	Shorebird	Piping plover	Nesting	T/E	T	Nest Site											Mar-Aug	-	-	-		
	Passerine	Marsh passerines	General Distribution	-/C		Common											Apr-Aug	Apr-May	Aug-Nov	Sep-Oct		
	Shorebird	Shorebirds	Migration			Abundant											-	Mar-Dec	-	-		
796	Shorebird	Willet	Migration	-/C		Common											Apr-May	Apr-May	Aug-Oct	-		
	Wading	Egrets	Migration	-/C		Common											-	Apr-May	Sep-Oct	-		
	Wading	Marsh birds	General Distribution	C/C		Common											Mar-Sep	Mar-May	Sep-Nov	Jul-Aug		
	Wading	Marsh birds	General Distribution	-/C		Common											Mar-Sep	Mar-May	Sep-Nov	Jul-Aug		
	Wading	Wading birds	General Distribution	-/C		Common											Apr-Sep	Mar-May	Sep-Oct	-		
	Wading	Wading birds	General Distribution	-/C		Common											Apr-Aug	Apr-May	Aug-Nov	Sep-Oct		
799	Passerine	Marsh passerines	General Distribution	-/C		Potential											Apr-Jul	May-Jun	Jul-Sep	-		
	Passerine	Yellow-breasted chat	Nesting	-/E		Abundant											-	Mar-Dec	-	-		
	Shorebird	Shorebirds	Migration			Common											Apr-May	Apr-May	Aug-Oct	-		
	Shorebird	Willet	Migration	-/C		Common											-	Apr-May	Sep-Oct	-		
	Wading	Egrets	Migration	-/C		Common											Mar-Sep	Mar-May	Sep-Nov	Jul-Aug		
	Wading	Marsh birds	General Distribution	C/C		Common											Apr-May	Apr-May	Sep-Oct	-		
800	Wading	Wading birds	General Distribution	-/C		Common											Mar-Sep	Mar-May	Sep-Oct	-		
	Wading	Wading birds	General Distribution	-/C		Common											Apr-Sep	Mar-May	Sep-Oct	-		
	Passerine	Marsh passerines	General Distribution	-/C		Common											Apr-Aug	Apr-May	Aug-Nov	Sep-Oct		
	Wading	Egrets	Migration	-/C		Common											Apr-May	Apr-May	Aug-Oct	-		
	Wading	Marsh birds	General Distribution	C/C		Common											-	Apr-May	Sep-Oct	-		
	Wading	Wading birds	General Distribution	-/C		Common											Mar-Sep	Mar-May	Sep-Nov	Jul-Aug		
814	Wading	Wading birds	General Distribution	-/C		Common											Apr-Sep	Mar-May	Sep-Oct	-		
	Gull/Tern	Roseate tern	Migration	E/-	E	Common											May-Aug	Apr-May	Jul-Sep	-		
	Shorebird	Willet	Nesting	-/C		Abundant											May-Jun	May	Aug	-		
	Waterfowl	Diving ducks	Wintering			Common											Mar-Apr	Sep-Apr	-	-		
	Waterfowl	Gadwall	Wintering			Common											-	Mar	Nov	-		
	Waterfowl	Geese	Wintering			Common											Apr-May	Mar-May	Oct-Nov	-		
816	Waterfowl	Green-winged teal	Wintering			Common											-	Mar	Nov	-		
	Waterfowl	Sea ducks	Wintering			Common											-	Mar-May	Oct-Nov	-		
	Shorebird	Purple sandpiper	Wintering			Rare											-	May	Nov	-		
	Shorebird	Willet	Nesting	-/C		Abundant											May-Jun	May	Aug	-		

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Molt								
				S	F		J	F	M	A	M	J	J	A	S	O	N	D		Nest	Mig.(S)	Mig.(F)					
	Waterfowl	American black duck	Wintering			Abundant																					
	Waterfowl	Diving ducks	Wintering			Common																					
	Waterfowl	Geese	Wintering			Common																					
826	Passerine	Passerine birds	General Distribution		-C	Common																					
	Passerine	Yellow-billed cuckoo	General Distribution		T	Rare																					
833	Gull/Tern	Least tern	Nesting		C/T	Common																					
	Passerine	Tree swallow	Migration			Abundant																					
	Shorebird	Piping plover	Nesting		T/E	Nest Site																					
840	Gull/Tern	Common tern	Migration		C/-	Common																					
	Gull/Tern	Roseate tern	Migration		E/-	Common																					
	Shorebird	Piping plover	Migration		T/E	Common																					

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Hatch	Interst	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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
INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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TERRESTRIAL MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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751	Small Mammal	American water shrew	General Distribution	C/C	C/C	Common																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													



BIRDS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
	Alcid	Wintering				Common													-	Mar-Apr	Nov	-	-
	Diving	Wintering				Rare													-	Apr-May	Oct-Nov	-	-
	Loons	Migration				Common													-	Mar-Jun	Oct-Jan	Jan-Mar	-
	Common tern	General Distribution				Common													May-Sep	Apr-May	Aug-Oct	-	-
	Least tern	General Distribution				Rare													-	Apr-May	Aug-Sep	-	-
	Roseate tern	General Distribution				Rare													May-Aug	Apr-May	Jul-Sep	-	-
	Grasshopper sparrow	Vulnerable Occurrence				-													Apr-Aug	Mar-Apr	Sep-Oct	-	-
	Raptors	General Distribution				Common													Mar-Aug	Mar-Apr	Jul-Nov	Jun	-
	Waterfowl	Wintering				Rare													-	Feb-Apr	Sep-Dec	-	-
	Sea ducks	Wintering				Abundant													-	Mar-May	Oct-Nov	-	-




FISH

Subelement	Species	Mapping Qualifier	MA/RI	S	F	T	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
	Diadromous	General Distribution					-													May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec



HABITATS & RARE PLANTS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	T	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
	Endangered plant	Vulnerable Occurrence				-/E	-																	
	Rare plant	Vulnerable Occurrence				T/C	-																	
	Threatened plant	Vulnerable Occurrence				-/T	-																	
	Rare wetland/aquatic plant	Vulnerable Occurrence				-/C	-																	


REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	T	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
	Snake	General Distribution				-/C	Rare													Jun-Jul	Aug-Sep	-	Jan-Dec	Jan-Dec
	Eastern hog-nosed snake	Vulnerable Occurrence				-/C	-													Jun-Jul	Aug-Sep	-	Jan-Dec	Jan-Dec
	Turtle	General Distribution				T/E	Regular													-	-	-	May-Nov	May-Nov
	K. ridley sea turtle	General Distribution				E/E	Regular													-	-	-	May-Nov	May-Nov
	Leatherback sea turtle	General Distribution				E/E	Regular													-	-	-	May-Nov	May-Nov
	Loggerhead sea turtle	General Distribution				T/E	Regular													-	-	-	May-Nov	May-Nov


INVERTEBRATES

Subelement	Species	Mapping Qualifier	MA/RI	S	F	T	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
	Insect	Vulnerable Occurrence				E/C	-													Mar-Oct	Jan-Dec	Jan-Dec	Jan-Dec	Jan-Dec
	Threatened insect	Vulnerable Occurrence				-/T	-													Apr-Aug	Apr-Aug	Jan-Dec	Jan-Dec	Jan-Dec
	Invertebrate	Coastal swamp amphipod				C/C	-													Dec-May	Dec-May	Dec-May	Aug-Nov	Dec-Jul

MARINE MAMMALS




Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
	Fin whale	General Distribution	E/E	E	Rare														-	-	-	-
	Humpback whale	General Distribution	E/E	E	Rare														-	-	-	-
	N.A. right whale	General Distribution	E/E	E	Rare														-	-	-	-
	Sei whale	General Distribution	E/-	E	Common														-	-	-	-
	Sperm whale	General Distribution	E/-	E	Rare														-	-	-	-

TERRESTRIAL MAMMALS


Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
	Northern myotis	General Distribution	E/-	T	Rare																	
	New England cottontail	General Distribution	-/C		Rare																	

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)





BIRDS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
	Gulls																		-	Apr-May	Aug-Sep	-
	Nashville warbler																		May-Jul	Apr-May	Aug-Oct	Aug
	Shorebirds																		Mar-Sep	Mar-Dec	-	Aug-Oct
	American black duck																		Apr-Aug	Apr	Oct	-
	Diving ducks																		Mar-Apr	Sep-Apr	-	-
	Geese																		Apr-May	Mar-May	Oct-Nov	-




FISH

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
							J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife																		Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	American eel																		-	-	-	Jan-Dec	Jan-Dec
	American shad																		Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Atlantic salmon																		Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Blueback herring																		Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Striped bass																		-	-	-	Apr-Nov	Apr-Nov
	Atlantic herring																		Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy																		Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass																		May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov
	Bluefish																		-	-	-	May-Oct	May-Oct
	Hogchoker																		May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Scup																		May-Aug	May-Aug	Jun-Aug	Apr-Nov	Apr-Nov
	Summer flounder																		Aug-Nov	Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish																		Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	White perch																		Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane																		May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Winter flounder																		Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec



FISH (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Estuarine Resident													May-Aug	May-Dec	Jan-Dec	Jan-Dec
	Atlantic silverside													May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish													May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish													May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Freshwater													May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow													May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Stickleback													May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Brook trout (sea run)													Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Rainbow smelt													-	-	Jan-Dec	Jan-Dec
	Marine Benthic													Nov-Apr	Jan-May	Jan-Dec	Jan-Dec
	American sand lance													-	Jan-May	Jan-May	-
	Atlantic cod													Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec
	Atlantic tomcod													-	-	-	May-Nov
	Little tunny													Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Marine Pelagic													May-Aug	May-Aug	May-Sep	May-Sep
	Atlantic mackerel													-	-	Apr-Nov	Apr-Nov
	Sand tiger													-	-	Jan-Dec	Jan-Dec
	Spiny dogfish													-	-	-	Jan-Dec
														-	-	-	Jan-Dec






REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Amphibian													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Four-toed salamander													Apr-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Fowler's toad													Jun-Jul	Jun-Aug	-	Jan-Dec	Jan-Dec
	Red-spotted newt													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Turtle													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Spotted salamander													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Wood frog													May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Eastern box turtle													May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Spotted turtle													May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
														-	-	-	Jan-Dec	Jan-Dec
														-	-	-	Jan-Dec	Jan-Dec
														-	-	-	Jan-Dec	Jan-Dec





INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Bivalve													Apr-May	Apr-May	Apr-May	Jan-Dec	Jan-Dec
	Atl. jackknife clam													Apr-Jun	Apr-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Atlantic razor													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Atlantic surfclam													Jun-Sep	Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec
	Bay scallop													Mar-Jul	Mar-Jul	Mar-Jul	Jan-Dec	Jan-Dec
	Blue mussel													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Eastern oyster													Jul-Nov	Jul-Nov	Jul-Dec	Jan-Dec	Jan-Dec
	Northern quahog													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Ocean quahog													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Softshell clam													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec

INVERTEBRATES (continued)

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
 Cephalopod	Longfin squid													May-Aug	May-Aug	May-Nov	May-Nov
	Atlantic rock crab													May-Oct	Jun-Oct	Apr-Oct	Apr-Oct
 Crab	Blue crab													May-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Horseshoe crab													May-Jul	-	Jan-Dec	Jan-Dec
 Gastropod	Jonah crab													May-Oct	May-Oct	Apr-Oct	Apr-Oct
	Channeled whelk													Jun-Jul	-	Jan-Dec	Jan-Dec
 Knobbed whelk	Knobbed whelk													Aug-Oct	-	Jan-Dec	Jan-Dec
	Northern moonshell													Apr-Sep	Apr-Sep	Jan-Dec	Jan-Dec
 Sea snails	Sea snails													May-Jul	Aug-Nov	Jan-Dec	Jan-Dec
	American lobster													Aug-Nov	Jun-Oct	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	Atl. spotted dolphin													-	-	-	-
	Atl. wht.-side dolphin													-	-	-	-
	Bottlenose dolphin													-	-	-	-
	Harbor porpoise													-	-	-	-
	Risso's dolphin													-	-	-	-
 Short-beaked common dolphin	Short-beaked common dolphin													-	-	-	-
	Striped dolphin													-	-	-	-
	White-beaked dolphin													-	-	-	-
	Gray seal													Dec-Feb	Dec-Feb	Mar-May	-
	Harbor seal													-	-	-	-
 Pinniped	Harbor seal													-	-	-	-
	Harp seal													-	-	-	-
	Hooded seal													-	-	-	-
 Whale	Minke whale													-	-	-	-
	Pilot whales													-	-	-	-

TERRESTRIAL MAMMALS

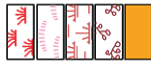
Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
 Small Mammal	Woodland jumping mouse												

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	199.10	0.31
10B	Freshwater Marshes	26.01	0.04
10C	Swamps	2,041.52	3.19
10D	Scrub and Shrub Wetlands	228.96	0.36
9A	Sheltered Tidal Flats	102.13	0.16



ESI SHORELINE HABITAT TYPES

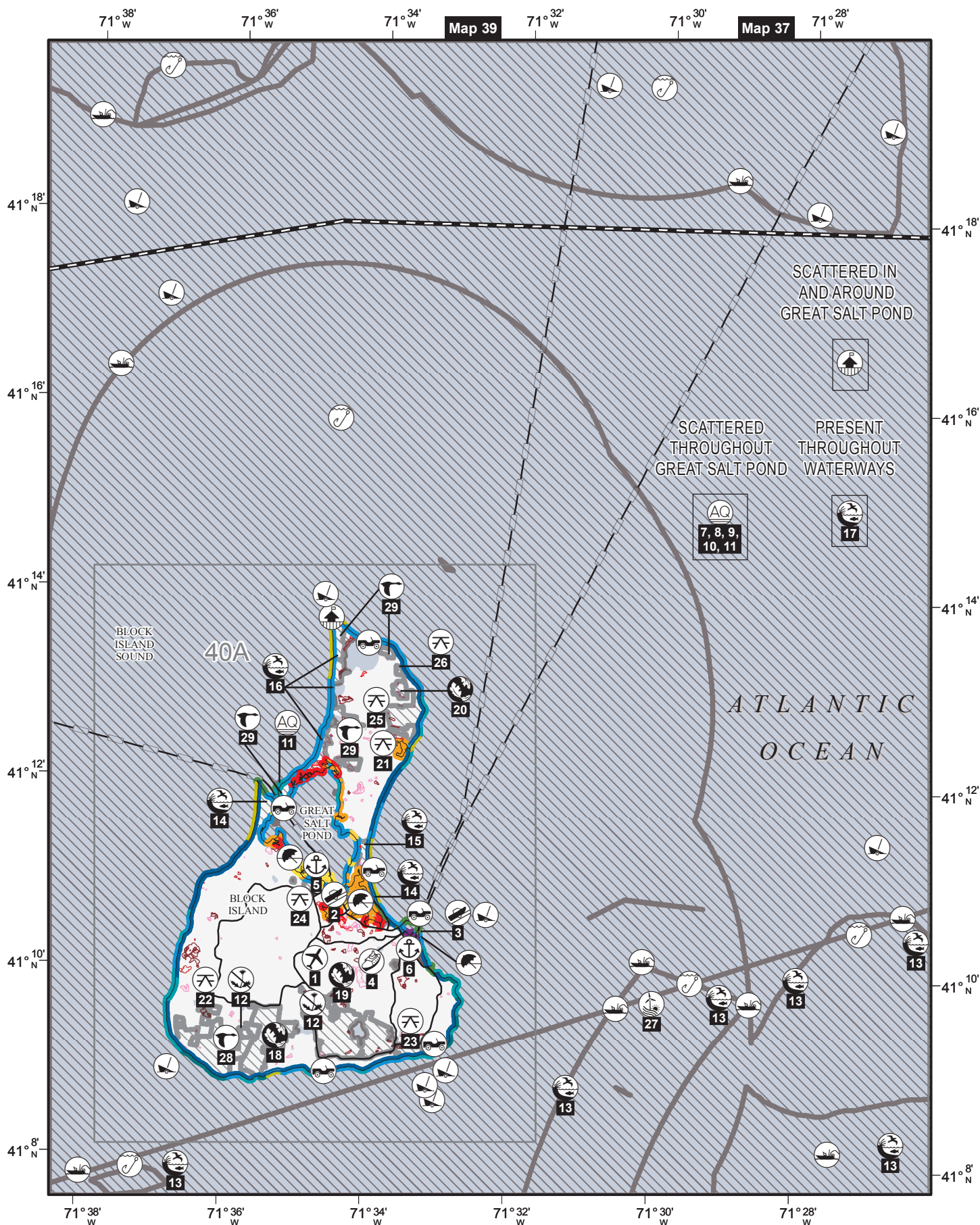
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	21,700.83	13.48	23%
10C	Swamps	1,151.29	0.72	1%
10D	Scrub and Shrub Wetlands	2,452.36	1.52	3%
9A	Sheltered Tidal Flats	11,106.56	6.90	12%
9B	Vegetated Low Banks	34,409.85	21.38	37%
8A	Sheltered, Impermeable, Rocky Shores	137.16	0.09	< 1%
8B	Sheltered, Solid Man-Made Structures	1,753.86	1.09	2%
8C	Sheltered Riprap	2,034.33	1.26	2%
8D	Sheltered, Rocky, Rubble Shores	872.76	0.54	1%
7	Exposed Tidal Flats	1,277.22	0.79	1%
6B	Riprap	412.75	0.26	< 1%
5	Mixed Sand and Gravel Beaches	365.60	0.23	< 1%
4	Coarse Grained Sand Beaches	7,216.78	4.48	8%
3A	Fine to Medium Grained Sand Beaches	8,927.47	5.55	10%
1B	Exposed, Solid Man-Made Structures	122.51	0.08	< 1%

Total ESI Shoreline: 93,941.33 Total ESI Shoreline: 58.37
Total Shoreline: 71,920.62 Total Shoreline: 44.69

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 40
Mass. / Rhode Island



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

0 2 Miles
Not for Navigation
0 2 Kilometers

1:100,000



Map 40
Massachusetts and Rhode Island

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)			
Map ID	Type	Name	Contact Phone
1	AIRPORT	BLOCK ISLAND	
2	BOAT RAMP	INDIAN HEAD NECK ROAD	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT 401-222-2776
3	BOAT RAMP	COMMERCIAL MARINE RECREATION - TRANSIENT SLIPS	URI, COASTAL RES. CTR, COASTAL AND OCEAN PLN. 401-874-6224
4	FERRY	COMMERCIAL FERRY	
5	MARINA	CHAMPLIN'S MARINA	
6	MARINA	COMMERCIAL PASSENGER VESSEL / FISHING	

DISPLAYED ON MAP (POLYGONS)			
Map ID	Type	Name	Contact Phone
7	AQUACULTURE	LITTLEFIELD - OYSTER	
8	AQUACULTURE	COREY - OYSTER/CLAM	
9	AQUACULTURE	NEW SHOREHAM - OYSTER	
10	AQUACULTURE	PHILIPS & DEFFLEY - OYSTER	
11	AQUACULTURE	WARFEL - OYSTER	
12	INVASIVE SPECIES	MILE A MINUTE VINE	
13	MANAGEMENT AREA	NARW SMA - MID-ATLANTIC BLOCK ISLAND SOUND	
14	MANAGEMENT AREA	2 COASTAL BARRIER - DEVELOPED	
15	MANAGEMENT AREA	3 COASTAL BARRIER - MODERATELY DEVELOPED	
16	MANAGEMENT AREA	6 COASTAL BARRIER - UNDEVELOPED	
17	MANAGEMENT AREA	LOBSTER MANAGEMENT AREA 2	
18	NATURE CONSERVANCY	RODMAN'S HOLLOW	THE NATURE CONSERVANCY ON BLOCK ISLAND 401-466-2129
19	NATURE CONSERVANCY	FRESH SWAMP PRESERVE	THE NATURE CONSERVANCY ON BLOCK ISLAND 401-466-2129
20	NATURE CONSERVANCY	CLAY HEAD PRESERVE	THE NATURE CONSERVANCY ON BLOCK ISLAND 401-466-2129
21	REGIONAL OR STATE PARK	CLAY HEAD SWAMP - HEMENWAY	RI DEM 401-667-6200
22	REGIONAL OR STATE PARK	WIN DODGE PRESERVE	BLOCK ISLAND CONSERVANCY 401-466-3111
23	REGIONAL OR STATE PARK	SOUTHEAST LIGHT - PHELAN	RI DEM 401-667-6200
24	REGIONAL OR STATE PARK	O'BRIEN PARK	RI DEM 401-667-6200
25	REGIONAL OR STATE PARK	CLAY HEAD SWAMP - LAPHAM	RI DEM 401-667-6200
26	REGIONAL OR STATE PARK	CLAY HEAD / WHITMAN	RI DEM 401-667-6200
27	RENEWABLE ENERGY	RENEWABLE ENERGY ZONE	
28	WILDLIFE REFUGE	LEWIS-DICKENS FARM	AUDUBON SOCIETY OF RHODE ISLAND 401-949-5454
29	WILDLIFE REFUGE	BLOCK ISLAND NATIONAL WILDLIFE REFUGE	NICK ERNST, USFWS, RHODE ISLAND NWR COMPLEX 401-213-4406

ALSO PRESENT IN MAPPED AREA (POLYGONS)

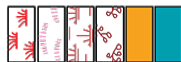
Type	Name	Contact	Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: ATLANTIC COD	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: ATLANTIC HERRING	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: LITTLE SKATE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: MONKFISH	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: OCEAN POUT	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: RED HAKE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: SILVER HAKE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINDOW PANE FLOUNDER	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINTER FLOUNDER	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINTER SKATE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WITCH FLOUNDER	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: YELLOWTAIL FLOUNDER	NORTHEAST FISHERIES MANAGEMENT COUNCIL	

JURISDICTIONS

COUNTY:	WASHINGTON	FEMA:	REGION I
COAST GUARD:	DISTRICT 1, SECTOR LONG ISLAND SOUND, SECTOR SE NEW ENGLAND	EPA:	REGION 1
USACE:	NORTH ATLANTIC DIVISION, NEW ENGLAND DISTRICT		

SHORELINE RESOURCES

ESI POLYGON HABITAT TYPES



ESI Rank	Habitat Classification	Area (Acres)	Area (Sq. Miles)
10A	Salt and Brackish Water Marshes	58.88	0.09
10B	Freshwater Marshes	71.09	0.11
10C	Swamps	14.00	0.02
10D	Scrub and Shrub Wetlands	91.51	0.14
9A	Sheltered Tidal Flats	7.41	0.01
5	Mixed Sand and Gravel Beaches	7.97	0.01

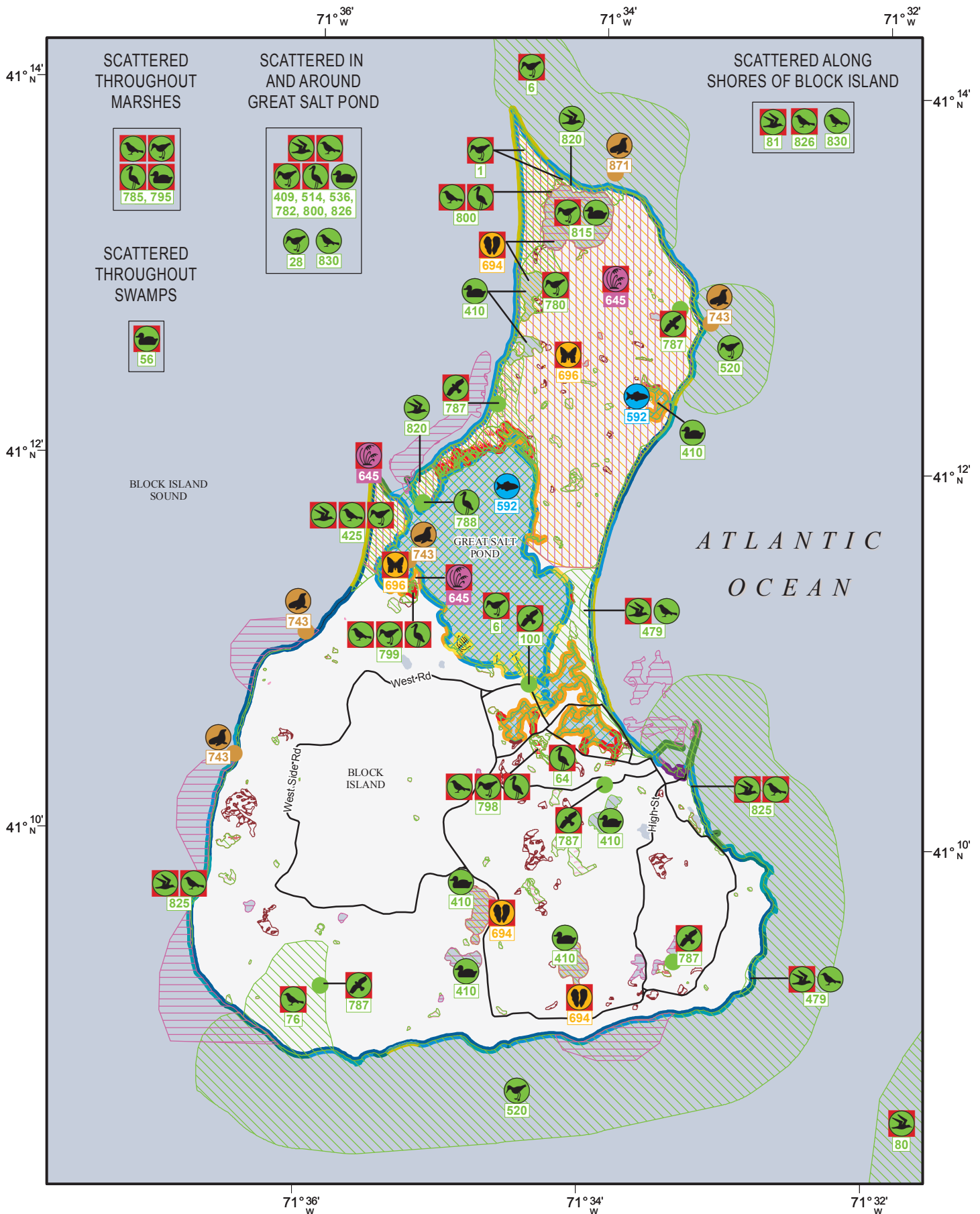
ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	4,984.58	3.10	6%
10B	Freshwater Marshes	12.02	0.01	< 1%
10C	Swamps	196.76	0.12	< 1%
10D	Scrub and Shrub Wetlands	86.36	0.05	< 1%
9A	Sheltered Tidal Flats	1,343.08	0.83	2%
9B	Vegetated Low Banks	9,825.78	6.11	12%
8B	Sheltered, Solid Man-Made Structures	2,118.37	1.32	3%
8C	Sheltered Riprap	1,001.37	0.62	1%
7	Exposed Tidal Flats	5,508.30	3.42	7%
6A	Gravel Beaches	2,457.84	1.53	3%
6B	Riprap	2,713.21	1.69	3%
5	Mixed Sand and Gravel Beaches	7,323.91	4.55	9%
4	Coarse Grained Sand Beaches	21,251.77	13.21	27%
3A	Fine to Medium Grained Sand Beaches	3,942.81	2.45	5%
3B	Scarps and Steep Slopes (Sand)	16,703.85	10.38	21%
1B	Exposed, Solid Man-Made Structures	716.64	0.45	1%
Total ESI Shoreline:		80,186.66	49.83	
Total Shoreline:		52,304.90	32.50	

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

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

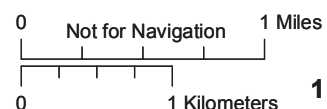




Map 40A
Mass. / Rhode Island



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



1:50,000



Map 40A
Massachusetts and Rhode Island

BIOLOGICAL RESOURCES

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

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	MA/RI S F C/T	Concentration	Monthly Presence											
					J	F	M	A	M	J	J	A	S	O	N	D
SAV	Cutleaf watermilfoil	Vulnerable Occurrence		Present												
SAV	Eelgrass	High Ecological Value		Potential												
SAV	Eelgrass	High Ecological Value		Present												
SAV	Widgeon grass	High Ecological Value		Thick												

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F T/E -C	Concentration	Monthly Presence												Nest	Mig. (S)	Mig. (F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
1	Shorebird	Piping plover	Nesting		Nest Site													Mar-Aug	-	-	-
6	Shorebird	American oystercatcher	Migration	-C	Common													-	Mar	Sep	-
28	Shorebird	Shorebirds	Migration		Abundant													-	Mar-Dec	-	-
56	Waterfowl	Waterfowl	General Distribution	C/C	Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
64	Wading	Marsh birds	General Distribution	C/C	Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
76	Passerine	Grasshopper sparrow	Nesting	T/T E	Nest Site													Apr-Aug	-	-	-
80	Gull/Tern	Common tern	General Distribution	C/-	Rare													May-Sep	Apr-May	Aug-Oct	-
81	Gull/Tern	Least tern	Nesting	C/T	Common													May-Aug	-	-	-
100	Raptor	Osprey	Nesting	-C	Nest Site													Apr-Aug	Apr-May	Sep-Nov	-
409	Gull/Tern	Roseate tern	Migration	E/- E	Rare													May-Aug	Apr-May	Jul-Sep	-
	Shorebird	Willet	Nesting	-C	Abundant													May-Jun	May	Aug	-
	Waterfowl	American black duck	Wintering		Abundant													-	Apr	Oct	-
	Waterfowl	Diving ducks	Wintering		Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering		Common													Apr-May	Mar-May	Oct-Nov	-
410	Waterfowl	American black duck	Wintering		Abundant													-	Apr	Oct	-
	Waterfowl	Diving ducks	Wintering		Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering		Common													Apr-May	Mar-May	Oct-Nov	-
425	Gull/Tern	Least tern	Nesting	C/T	Common													May-Aug	-	-	-
	Passerine	Passerine birds	General Distribution	-C	Common													Mar-Aug	Feb-Nov	-	Jul-Sep
	Passerine	Tree swallow	Migration		Abundant													-	-	Jul-Oct	-
	Passerine	Yellow-billed cuckoo	General Distribution	T	Rare													Apr-Jul	Apr-May	Sep	-
	Shorebird	Willet	Migration	-C	Common													Apr-May	Apr-May	Aug-Oct	-
479	Gull/Tern	Least tern	Nesting	C/T	Common													May-Aug	-	-	-
	Passerine	Tree swallow	Migration		Abundant													-	-	Jul-Oct	-
514	Shorebird	Piping plover	Migration	T/E T	Common													Mar-Aug	Mar-Apr	Jul-Sep	-
520	Shorebird	Purple sandpiper	Wintering	-C	Rare													-	May	Nov	-
536	Shorebird	American oystercatcher	Nesting	-C	Nest Site													Apr-Aug	-	-	-
	Wading	BC night-heron	Nesting	-C	Nest Site													Apr-Aug	Apr-May	-	-
	Wading	Egrets	Nesting	-C	Nest Site													Apr-Aug	-	-	-

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
								J	F	M	A	M	J	J	A	S	O	N	D				
780	Wading	YC night-heron	Nesting	-/C			Nest Site													Apr-Aug	Apr-May	-	-
	Shorebird	Shorebirds	Migration	-/C			Abundant													-	Mar-Dec	-	-
	Shorebird	Willet	Migration	-/C			Common													Apr-May	Apr-May	Aug-Oct	-
782	Shorebird	Willet	Migration	-/C			Common													Apr-May	Apr-May	Aug-Oct	-
785	Wading	Marsh birds	General Distribution	C/C			Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Waterfowl	Waterfowl	General Distribution	C/C			Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
787	Raptor	Northern harrier	Nesting	T/E			Nest Site													Mar-Jul	-	-	-
788	Wading	Little blue heron	Nesting				Nest Site													Apr-Jun	Apr	-	-
795	Passerine	Marsh passerines	General Distribution	-/C			Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Shorebird	Shorebirds	Migration				Abundant													-	Mar-Dec	-	-
	Shorebird	Willet	Migration	-/C			Common													Apr-May	Apr-May	Aug-Oct	-
	Wading	Egrets	Migration	-/C			Common													-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C			Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
798	Wading	Wading birds	General Distribution	-/C			Common													Apr-Sep	Mar-May	Sep-Oct	-
	Passerine	Marsh passerines	General Distribution	-/C			Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Shorebird	Shorebirds	Migration	-/C			Abundant													Apr-Aug	Apr-May	Aug-Nov	-
	Shorebird	Willet	Migration	-/C			Common													-	Mar-Dec	-	-
	Wading	Egrets	Migration	-/C			Common													Apr-May	Apr-May	Sep-Oct	-
799	Wading	Wading birds	General Distribution	-/C			Common													Apr-Sep	Mar-May	Sep-Oct	-
	Passerine	Marsh passerines	General Distribution	-/C			Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Shorebird	Willet	Migration	-/C			Common													Apr-May	Apr-May	Aug-Oct	-
	Wading	Egrets	Migration	-/C			Common													-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C			Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
800	Wading	Wading birds	General Distribution	-/C			Common													Apr-Sep	Mar-May	Sep-Oct	-
	Passerine	Marsh passerines	General Distribution	-/C			Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Wading	Egrets	Migration	-/C			Common													Apr-May	Apr-May	Aug-Oct	-
	Wading	Marsh birds	General Distribution	-/C			Common													-	Apr-May	Sep-Oct	-
	Wading	Wading birds	General Distribution	C/C			Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
815	Wading	Wading birds	General Distribution	-/C			Common													Apr-Sep	Mar-May	Sep-Oct	-
	Shorebird	Piping plover	Migration	T/E	T		Common													Mar-Aug	Mar-Apr	Jul-Sep	-
	Waterfowl	American black duck	Wintering				Abundant													-	Apr	Oct	-
	Waterfowl	Dabbling ducks	Wintering				Common													-	Feb-Apr	Sep-Dec	-
	Waterfowl	Diving ducks	Wintering				Common													Mar-Apr	Sep-Apr	-	-
820	Waterfowl	Geese	Wintering				Common													Apr-May	Mar-May	Oct-Nov	-
	Gull/Tern	G. black-backed gull	Nesting				Nest Site													Apr-Jul	-	-	-
	Gull/Tern	Herring gull	Nesting				Nest Site													May-Aug	-	-	-
	Gull/Tern	Least tern	Nesting	C/T			Common													May-Aug	-	-	-
	Passerine	Passerine birds	General Distribution	-/C			Common													Mar-Aug	Feb-Nov	-	Jul-Sep
825	Passerine	Tree swallow	Migration				Abundant													-	-	Jul-Oct	-
	Passerine	Yellow-billed cuckoo	General Distribution	T			Rare													Apr-Jul	Apr-May	Sep	-
	Passerine	Passerine birds	General Distribution	-/C			Common													Mar-Aug	Feb-Nov	-	Jul-Sep
	Passerine	Yellow-billed cuckoo	General Distribution	T			Rare													Apr-Jul	Apr-May	Sep	-
	Passerine	Tree swallow	Migration				Abundant													-	-	Jul-Oct	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
592	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
645	Plant	Seaside sandplant	Vulnerable Occurrence			-/C	-																	

INVERTEBRATES








Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
694	Bivalve	Eastern pearlshell	General Distribution			-/E	-													Aug-Sep	Aug-May	May-Jun	Jan-Dec	Jan-Dec
	Bivalve	Rare freshwater mussel	General Distribution			C/C	-													Aug-Sep	Aug-May	Jun-Jul	Jan-Dec	Jan-Dec
696	Insect	Threatened insect	Vulnerable Occurrence			-/T	-													Apr-Aug	Apr-Aug	Jan-Dec	Jan-Dec	Jan-Dec

MARINE MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Mating	Calving	Pupping	Molt
743	Pinniped	Harbor seal	Haul Out				Common													-	-	-	-
871	Pinniped	Gray seal	Haul Out				Common													-	-	-	-
	Pinniped	Harbor seal	Haul Out				Common													-	-	-	-

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)


BIRDS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Mig. (S)	Mig. (F)	Molt
 Aldid	Razorbill	Wintering				Common													-	Mar-Apr	Nov	-
 Diving	Horned grebe	Wintering				Rare													-	Apr-May	Oct-Nov	-
	Loons	General Distribution			C/-	Rare													-	Mar-Jun	Oct-Jan	Jan-Mar
	Loons	Migration			C/-	Common													-	Mar-Jun	Oct-Jan	Jan-Mar
 Gull/Tern	Common tern	General Distribution			C/-	Common													May-Sep	Apr-May	Aug-Oct	-
	Least tern	General Distribution			C/T	Rare													-	Apr-May	Aug-Sep	-
	Roseate tern	General Distribution			E/-	Rare													May-Aug	Apr-May	Jul-Sep	-
 Raptor	Raptors	General Distribution			-/C	Common													Mar-Aug	Mar-Apr	Jul-Nov	Jun
 Shorebird	Upland sandpiper	Vulnerable Occurrence			E/-	-													May-Jul	May	Sep-Nov	Sep-Oct
 Wading	American bittern	Vulnerable Occurrence			E/-	-													-	Apr-May	Sep	-
 Waterfowl	Gadwall	Vulnerable Occurrence				-													Apr-May	May	Sep	-
	Sea ducks	Wintering				Common													-	Mar-May	Oct-Nov	-
	Sea ducks	Wintering				Abundant													-	Mar-May	Oct-Nov	-


FISH

Subelement	Species	Mapping Qualifier	MA/RI	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/-	T	-												May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec

HABITATS & RARE PLANTS

Subelement	Species	Mapping Qualifier	MA/RI	Monthly Presence											
				S	F	Concentration	J	F	M	A	M	J	J	A	S
	Endangered plant	Vulnerable Occurrence	-/E	E	-	-									
	Rare plant	Vulnerable Occurrence	T/C			-									
	Threatened plant	Vulnerable Occurrence	-/T			-									


REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	MA/RI	Monthly Presence											
				S	F	Concentration	J	F	M	A	M	J	J	A	S
	Green sea turtle	General Distribution	T/E	T	Regular										
	K. ridley sea turtle	General Distribution	E/E	E	Regular										
	Leatherback sea turtle	General Distribution	E/E	E	Regular										
	Loggerhead sea turtle	General Distribution	T/E	T	Regular										

INVERTEBRATES






Subelement	Species	Mapping Qualifier	MA/RI	Monthly Presence											
				S	F	Concentration	J	F	M	A	M	J	J	A	S
	American burying beetle	Vulnerable Occurrence	E/E	E	-	-									
	Rare insect	Vulnerable Occurrence	E/C	T	-	-									

MARINE MAMMALS

Subelement	Species	Mapping Qualifier	MA/RI	Monthly Presence											
				S	F	Concentration	J	F	M	A	M	J	J	A	S
	Fin whale	General Distribution	E/E	E	Rare										
	Humpback whale	General Distribution	E/E	E	Rare										
	N.A. right whale	General Distribution	E/E	E	Rare										
	Sei whale	General Distribution	E/-	E	Common										
	Sperm whale	General Distribution	E/-	E	Rare										





ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BIRDS

Subelement	Species	Mapping Qualifier	MA/RI	Monthly Presence											
				S	F	Concentration	J	F	M	A	M	J	J	A	S
	Razorbill														
	Gulls														
	Nashville warbler														
	Northern gannet														
	Shearwaters														
	Shorebirds														
	American black duck														
	Diving ducks														
	Geese														
	Sea ducks														

FISH

Monthly Presence






Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Spawn	Eggs	Larvae	Juveniles	Adults
	Diadromous													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Alewife													-	-	-	Jan-Dec	Jan-Dec
	American eel																	
	American shad													Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Atlantic salmon													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Blueback herring													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Striped bass													-	-	-	Apr-Nov	Apr-Nov
	Atlantic herring													Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy													Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass													May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov
	Bluefish													-	-	-	May-Oct	May-Oct
	Hogchoker													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Scup													May-Aug	May-Aug	Jun-Aug	Apr-Nov	Apr-Nov
	Summer flounder													Aug-Nov	Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish													Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	Windowpane													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Winter flounder													Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
	Atlantic silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Stickleback													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Brook trout (sea run)													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	American sand lance													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Atlantic cod													Nov-Apr	Nov-May	Jan-May	Jan-Dec	Jan-Dec
	Atlantic cod													-	-	Jan-May	Jan-May	Jan-Dec
	Atlantic tomcod													-	-	Jan-May	Jan-May	-
	Little tunny													Dec-Mar	Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec
	Pollock													-	-	-	May-Nov	May-Nov
	Searobins													Nov-Apr	Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Skates													Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Tautog													-	-	-	Jan-Dec	Jan-Dec
	Atlantic mackerel													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Sand tiger													-	May-Aug	May-Aug	May-Sep	May-Sep
	Spiny dogfish													-	-	-	Apr-Nov	Apr-Nov
														-	-	-	Jan-Dec	Jan-Dec

REPTILES & AMPHIBIANS




Monthly Presence

Subelement	Species	J	F	M	A	M	J	J	A	S	O	N	D	Nest	Hatch	Internest	Juveniles	Adults
Amphibian	Red-spotted newt													Jun-Jul	Jun-Aug	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Atl. jackknife clam												
	Atlantic razor												
	Atlantic surfclam												
	Bay scallop												
	Blue mussel												
	Eastern oyster												
	Northern quahog												
	Ocean quahog												
	Softshell clam												
	Longfin squid												
	Atlantic rock crab												
	Blue crab												
	Horseshoe crab												
	Jonah crab												
	Channeled whelk												
	Knobbed whelk												
	Northern moonshell												
	Sea snails												
	American lobster												
													

MARINE MAMMALS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Atl. spotted dolphin												
	Atl. wht.-side dolphin												
	Bottlenose dolphin												
	Harbor porpoise												
	Risso's dolphin												
	Short-beaked common dolphin												
	Striped dolphin												
	White-beaked dolphin												
	Gray seal												
	Harbor seal												
	Harp seal												
	Hooded seal												
	Minke whale												
	Pilot whales												

TERRESTRIAL MAMMALS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Meadow vole												

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	58.88	0.09
10B	Freshwater Marshes	71.09	0.11
10C	Swamps	14.00	0.02
10D	Scrub and Shrub Wetlands	91.51	0.14
9A	Sheltered Tidal Flats	7.41	0.01
5	Mixed Sand and Gravel Beaches	7.97	0.01

ESI SHORELINE HABITAT TYPES

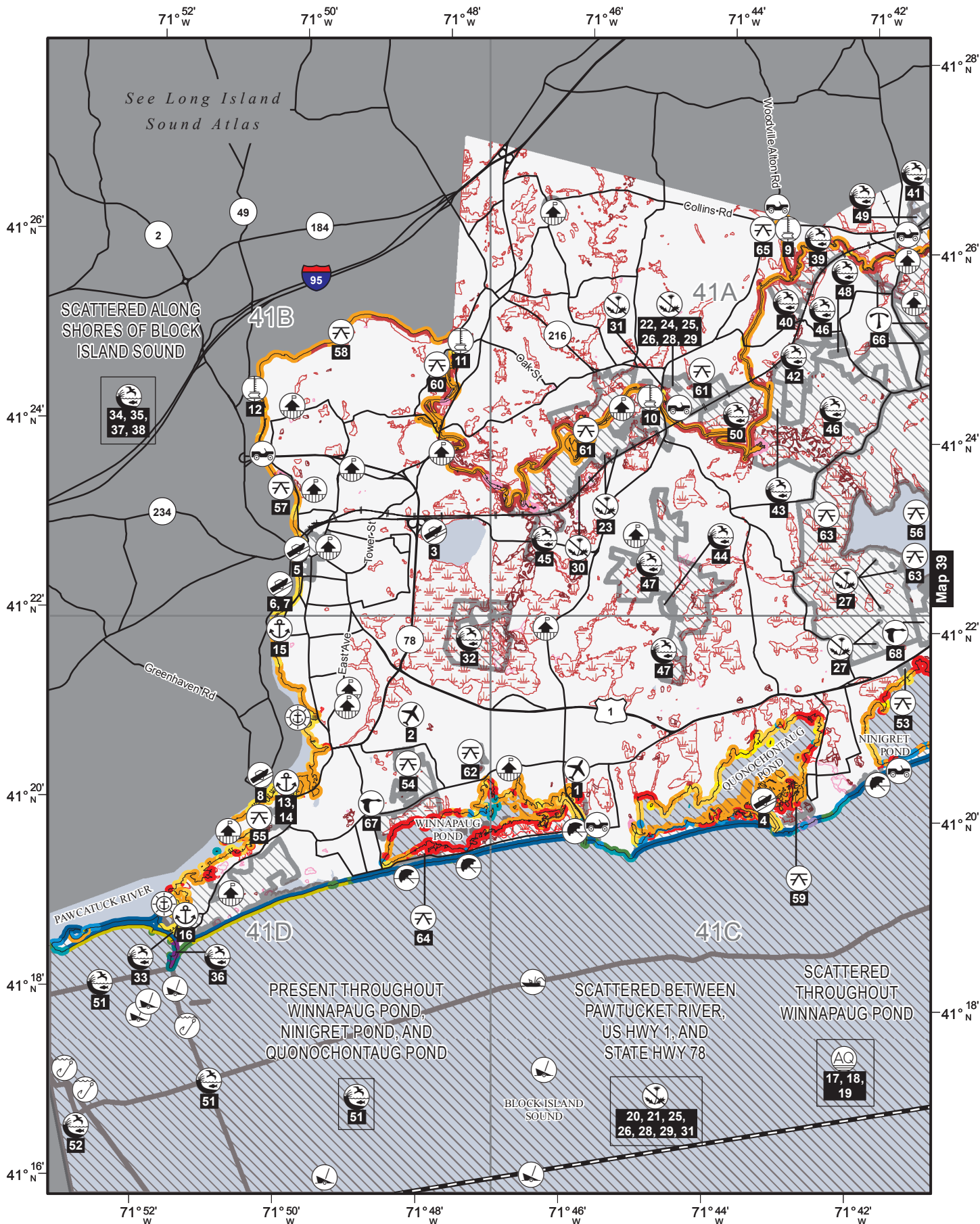
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	4,984.58	3.10	6%
10B	Freshwater Marshes	12.02	0.01	< 1%
10C	Swamps	196.76	0.12	< 1%
10D	Scrub and Shrub Wetlands	86.36	0.05	< 1%
9A	Sheltered Tidal Flats	1,343.08	0.83	2%
9B	Vegetated Low Banks	9,825.78	6.11	12%
8B	Sheltered, Solid Man-Made Structures	2,118.37	1.32	3%
8C	Sheltered Riprap	1,001.37	0.62	1%
7	Exposed Tidal Flats	5,508.30	3.42	7%
6A	Gravel Beaches	2,457.84	1.53	3%
6B	Riprap	2,713.21	1.69	3%
5	Mixed Sand and Gravel Beaches	7,323.91	4.55	9%
4	Coarse Grained Sand Beaches	21,251.77	13.21	27%
3A	Fine to Medium Grained Sand Beaches	3,942.81	2.45	5%
3B	Scarps and Steep Slopes (Sand)	16,703.85	10.38	21%
1B	Exposed, Solid Man-Made Structures	716.64	0.45	1%

Total ESI Shoreline: 80,186.66 Total ESI Shoreline: 49.83
 Total Shoreline: 52,304.90 Total Shoreline: 32.50

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

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

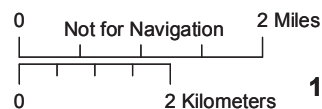




Map 41
Mass. / Rhode Island



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



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Map 41
Massachusetts and Rhode Island

HUMAN USE RESOURCES

DISPLAYED ON MAP (POINTS)				
Map ID	Type	Name	Contact	Phone
1	AIRPORT	RICONN		
2	AIRPORT	WESTERLY		
3	BOAT RAMP	CHAPMAN POND	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
4	BOAT RAMP	QUONONCHONTAUG BREACHWAY	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
5	BOAT RAMP	MAIN STREET	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
6	BOAT RAMP	VIKING MARINA	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
7	BOAT RAMP	MARGIN STREET LAUNCH	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
8	BOAT RAMP	LOTTERYVILLE MARINA	RI DEM, DIVISION OF PLANNING AND DEVELOPMENT	401-222-2776
9	LOCK AND DAM	ALTON POND DAM		
10	LOCK AND DAM	BRADFORD POND DAM		
11	LOCK AND DAM	POTTER HILL DAM		
12	LOCK AND DAM	WHITE ROCK DAM		
13	MARINA	AVONDALE BOATYARD INC.		
14	MARINA	FRANK HALL BOATYARD / MARINA		
15	MARINA	PIER 65 MARINA		
16	MARINA	COMMERICAL MARINE RECREATION - BERTHING		

DISPLAYED ON MAP (POLYGONS)				
Map ID	Type	Name	Contact	Phone
17	AQUACULTURE	GARDNER - OYSTER		
18	AQUACULTURE	GARDNER - HARD CLAM		
19	AQUACULTURE	CRANDALL - OYSTER/HARD CLAM		
20	INVASIVE SPECIES	ASIATIC BITTERSWEET		
21	INVASIVE SPECIES	AUTUMN OLIVE		
22	INVASIVE SPECIES	BLACK SWALLOW WORT		
23	INVASIVE SPECIES	COMMON BUCKTHORN		
24	INVASIVE SPECIES	GLOSSY BUCKTHORN		
25	INVASIVE SPECIES	JAPANESE BARBERRY		
26	INVASIVE SPECIES	JAPANESE HONEYSUCKLE		
27	INVASIVE SPECIES	JAPANESE STILTGRASS		
28	INVASIVE SPECIES	MARROWS HONEYSUCKLE		
29	INVASIVE SPECIES	MULTIFLORA ROSE		
30	INVASIVE SPECIES	NORWAY MAPLE		
31	INVASIVE SPECIES	WINGED EUONYMUS		
32	MANAGEMENT AREA	CRANDALL SWAMP - PRESERVE	RI DEM	401-667-6200
33	MANAGEMENT AREA	1 COASTAL BARRIER - OTHER DEVELOPED		
34	MANAGEMENT AREA	2 COASTAL BARRIER - DEVELOPED		
35	MANAGEMENT AREA	3 COASTAL BARRIER - MODERATELY DEVELOPED		
36	MANAGEMENT AREA	5 COASTAL BARRIER - OTHER UNDEVELOPED		
37	MANAGEMENT AREA	6 COASTAL BARRIER - UNDEVELOPED		

DISPLAYED ON MAP (POLYGONS) (continued)				
38	MANAGEMENT AREA	7 COASTAL BARRIER - WELDED		
39	MANAGEMENT AREA	BURLINGAME MANAGEMENT AREA - GARDINER	RI DEM, DFW	401-789-7481
40	MANAGEMENT AREA	BURLINGAME MANAGEMENT AREA - HOLLEY	RI DEM, DFW	401-789-7481
41	MANAGEMENT AREA	CAROLINA MANAGEMENT AREA - WRIGHT	RI DEM, DFW	401-789-7481
42	MANAGEMENT AREA	BURLINGAME MANAGEMENT AREA - DREW	RI DEM, DFW	401-789-7481
43	MANAGEMENT AREA	BURLINGAME MANAGEMENT AREA - CARY	RI DEM, DFW	401-789-7481
44	MANAGEMENT AREA	WOODY HILL MANAGEMENT AREA - KDBF REALTY	RI DEM, DFW	401-789-7481
45	MANAGEMENT AREA	NEWTON SWAMP MANAGEMENT AREA	RI DEM, DFW	401-789-7481
46	MANAGEMENT AREA	BURLINGAME MANAGEMENT AREA	RI DEM, DFW	401-789-7481
47	MANAGEMENT AREA	WOODY HILL MANAGEMENT AREA	RI DEM, DFW	401-789-7481
48	MANAGEMENT AREA	BURLINGAME MANAGEMENT AREA - BURDICK	RI DEM, DFW	401-789-7481
49	MANAGEMENT AREA	CAROLINA MANAGEMENT AREA - MEADOWBROOK POND	RI DEM, DFW	401-789-7481
50	MANAGEMENT AREA	BURLINGAME MANAGEMENT AREA - PHANTOM BOG	RI DEM, DFW	401-789-7481
51	MANAGEMENT AREA	LOBSTER MANAGEMENT AREA 2		
52	MANAGEMENT AREA	LOBSTER MANAGEMENT AREA 6		
53	REGIONAL OR STATE PARK	MUD COVE - NEIGHBORHOOD PARK	RI DEM	401-667-6200
54	REGIONAL OR STATE PARK	GLACIER PARK / CHAMPLAIN WOODS	RI DEM	401-667-6200
55	REGIONAL OR STATE PARK	AVONDALE FARM PRESERVE	RI DEM	401-667-6200
56	REGIONAL OR STATE PARK	BURLINGAME - CAMP PASTORE	RI DEM	401-667-6200
57	REGIONAL OR STATE PARK	PAWCATUCK RIVER GREENWAY	RI DEM	401-667-6200
58	REGIONAL OR STATE PARK	BERIAH LEWIS FARM PRESERVE	RI DEM	401-667-6200
59	REGIONAL OR STATE PARK	HARRY HATHAWAY PRESERVE	RI DEM	401-667-6200
60	REGIONAL OR STATE PARK	FLORA WHITELEY PRESERVE	RI DEM	401-667-6200
61	REGIONAL OR STATE PARK	GRILLS PRESERVE	RI DEM	401-667-6200
62	REGIONAL OR STATE PARK	LEWIS POND PRESERVE	RI DEM	401-667-6200
63	REGIONAL OR STATE PARK	BURLINGAME STATE PARK	RI DEM	401-667-6200
64	REGIONAL OR STATE PARK	MISQUAMICUT STATE BEACH	RI DEM	401-667-6200
65	REGIONAL OR STATE PARK	ALTON POND FISHING ACCESS	RI DEM, DFW	401-789-7481
66	TRIBAL LANDS	NARRAGANSETT RESERVATION		
67	WILDLIFE REFUGE	LATHROP WILDLIFE REFUGE	AUDUBON SOCIETY OF RHODE ISLAND	401-949-5454
68	WILDLIFE REFUGE	NINIGRET NATIONAL WILDLIFE REFUGE	NICK ERNST, USFWS, RHODE ISLAND NWR COMPLEX	401-213-4406

ALSO PRESENT IN MAPPED AREA (POLYGONS)			
Type	Name	Contact	Phone
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: ATLANTIC COD	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: ATLANTIC HERRING	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: LITTLE SKATE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	
ESSENTIAL HABITAT	ESSENTIAL FISH HABITAT: WINTER SKATE	NORTHEAST FISHERIES MANAGEMENT COUNCIL	

JURISDICTIONS			
COUNTY:	WASHINGTON	FEMA:	REGION I
COAST GUARD:	DISTRICT 1, SECTOR LONG ISLAND SOUND, SECTOR SE NEW ENGLAND	EPA:	REGION 1
USACE:	NORTH ATLANTIC DIVISION, NEW ENGLAND DISTRICT		

ESI POLYGON HABITAT TYPES

<i>ESI Rank</i>	<i>Habitat Classification</i>	<i>Area (Acres)</i>	<i>Area (Sq. Miles)</i>
10A	Salt and Brackish Water Marshes	369.40	0.58
10B	Freshwater Marshes	323.58	0.51
10C	Swamps	5,267.70	8.23
10D	Scrub and Shrub Wetlands	530.76	0.83
9A	Sheltered Tidal Flats	260.08	0.41
7	Exposed Tidal Flats	0.48	0.00
5	Mixed Sand and Gravel Beaches	15.21	0.02
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	0.03	0.00

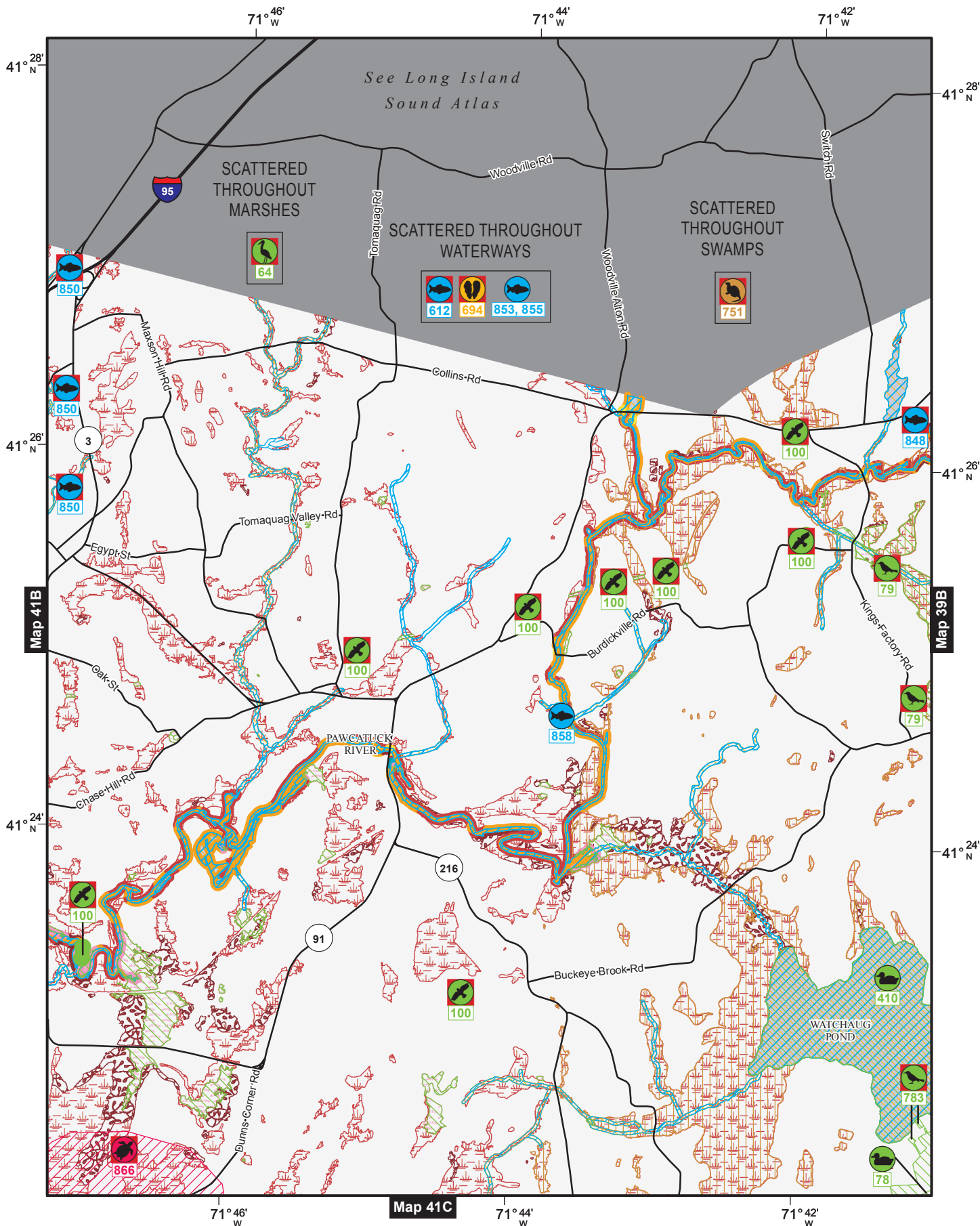
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10A	Salt and Brackish Water Marshes	36,018.43	22.38	13%
10B	Freshwater Marshes	3,665.58	2.28	1%
10C	Swamps	40,920.14	25.43	15%
10D	Scrub and Shrub Wetlands	4,013.96	2.49	1%
9A	Sheltered Tidal Flats	28,193.46	17.52	10%
9B	Vegetated Low Banks	102,700.36	63.82	37%
8A	Sheltered, Impermeable, Rocky Shores	1,138.81	0.71	< 1%
8B	Sheltered, Solid Man-Made Structures	13,185.08	8.19	5%
8C	Sheltered Riprap	8,815.73	5.48	3%
8D	Sheltered, Rocky, Rubble Shores	3,998.22	2.48	1%
7	Exposed Tidal Flats	5,684.01	3.53	2%
6A	Gravel Beaches	242.98	0.15	< 1%
6B	Gravel Beaches (Cobbles/Boulders)	712.96	0.44	< 1%
6B	Riprap	1,954.28	1.21	1%
5	Mixed Sand and Gravel Beaches	3,450.83	2.14	1%
4	Coarse Grained Sand Beaches	5,437.46	3.38	2%
3A	Fine to Medium Grained Sand Beaches	17,913.57	11.13	6%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	269.58	0.17	< 1%
1B	Exposed, Solid Man-Made Structures	783.93	0.49	< 1%
Total ESI Shoreline:		279,099.39	173.42	
Total Shoreline:		188,978.67	117.43	

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



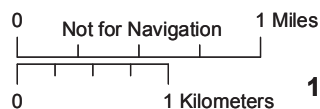


Map 41A

Mass. / Rhode Island



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



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Map 41A
Massachusetts and Rhode Island

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	MA/RI S F C/C	Concentration	Monthly Presence												Nest	Mig. (S)	Mig. (F)	Molt
						J	F	M	A	M	J	J	A	S	O	N	D				
64	Wading	Marsh birds	General Distribution		Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
78	Waterfowl	Dabbling ducks	Wintering		Rare													-	Feb-Apr	Sep-Dec	-
79	Passerine	Northern parula	Nesting	-JT	Common													Apr-Jul	-	-	-
100	Raptor	Osprey	Nesting	-JC	Nest Site													Apr-Aug	Apr-May	Sep-Nov	-
410	Waterfowl	American black duck	Wintering		Abundant													-	Apr	Oct	-
	Waterfowl	Diving ducks	Wintering		Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering		Common													Apr-May	Mar-May	Oct-Nov	-
783	Passerine	Yellow-breasted chat	Nesting	-IE	Potential													Apr-Jul	May-Jun	Jul-Sep	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F C/-	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
612	Freshwater	Bridle shiner	General Distribution		Rare													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
848	Diadromous	Alewife	Spawning Area		-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	American eel	Migration		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	American shad	Spawning Area		-													Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Diadromous	Atlantic salmon	Harvest Area		-													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Diadromous	Blueback herring	Spawning Area		-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Freshwater	Bridle shiner	General Distribution	C/-	Rare													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
850	Diadromous	American eel	Migration		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic salmon	Harvest Area		-													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Freshwater	Bridle shiner	General Distribution	C/-	Rare													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
853	Diadromous	American eel	Migration		-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic salmon	Harvest Area		-													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
855	Diadromous	Alewife	Spawning Area		-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	Blueback herring	Spawning Area		-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
858	Diadromous	American shad	Spawning Area		-													Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F C/C	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
866	Turtle	Wood turtle	Vulnerable Occurrence		-													May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F C/C	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
						J	F	M	A	M	J	J	A	S	O	N	D					
694	Bivalve	Eastern pearlshell	General Distribution	-IE	-													Aug-Sep	Aug-May	May-Jun	Jan-Dec	Jan-Dec
	Bivalve	Rare freshwater mussel	General Distribution	C/C	-													Aug-Sep	Aug-May	Jun-Jul	Jan-Dec	Jan-Dec



Massachusetts and Rhode Island: Map 41A

TERRESTRIAL MAMMALS



Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence
751	Small Mammal	American water shrew	General Distribution	C/C			Common	J F M A M J J A S O N D

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)



BIRDS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence	Nest	Mig. (S)	Mig. (F)	Juveniles	Adults
	Raptors	General Distribution	-/C			Common	J F M A M J J A S O N D	Mar-Aug	Mar-Apr	Jul-Nov	Jan-Dec	Jan-Dec
	Waterfowl	General Distribution	C/C			Common	J F M A M J J A S O N D	Mar-Sep	Feb-May	Sep-Nov	Aug-Sep	Aug-Sep


HABITATS & RARE PLANTS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence
	Endangered plant	Vulnerable Occurrence	-/E			-	J F M A M J J A S O N D
	Rare plant	Vulnerable Occurrence	T/C			-	J F M A M J J A S O N D
	Threatened plant	Vulnerable Occurrence	-/T			-	J F M A M J J A S O N D
	Rare wetland/aquatic plant	Vulnerable Occurrence	-/C			-	J F M A M J J A S O N D



REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence	Nest	Hatch	Internest	Juveniles	Adults
	Eastern spadefoot	Vulnerable Occurrence	T/E			-	J F M A M J J A S O N D	Apr-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Marbled salamander	General Distribution	T/-			Common	J F M A M J J A S O N D	Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Eastern hog-nosed snake	General Distribution	-/C			Rare	J F M A M J J A S O N D	Jun-Jul	Aug-Sep	-	Jan-Dec	Jan-Dec
	Eastern rat snake	General Distribution	E/C			Rare	J F M A M J J A S O N D	Jun-Jul	Aug-Sep	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence	Spawn	Eggs	Larvae	Juveniles	Adults
	Rare insect	Vulnerable Occurrence	E/C			-	J F M A M J J A S O N D	Mar-Oct	Jan-Dec	Jan-Dec	Jan-Dec	Jan-Dec
	Threatened insect	Vulnerable Occurrence	-/T			-	J F M A M J J A S O N D	Apr-Aug	Apr-Aug	Jan-Dec	Jan-Dec	Jan-Dec

TERRESTRIAL MAMMALS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence
	Northern myotis	General Distribution	E/-			Rare	J F M A M J J A S O N D
	New England cottontail	General Distribution	-/C			Rare	J F M A M J J A S O N D



ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BIRDS


Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence	Nest	Mig. (S)	Mig. (F)	Juveniles	Adults
	Nashville warbler	General Distribution					J F M A M J J A S O N D	May-Jul	Apr-May	Aug-Oct	Aug	-

Massachusetts and Rhode Island: Map 41A

FISH

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Diadromous												
	Alewife												
	American shad												
	Blueback herring												
	Brook trout (sea run)												
	Common shiner												
	Redbreast sunfish												

REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Four-toed salamander												
	Fowler's toad												
	Northern dusky salamander												
	Red-spotted newt												
	Spotted salamander												
	Wood frog												
	Eastern box turtle												
	Spotted turtle												

TERRESTRIAL MAMMALS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Small Mammal												
	Eastern mole												
	Woodland jumping mouse												

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)
10B	Freshwater Marshes	194.75	0.30
10C	Swamps	2,764.91	4.32
10D	Scrub and Shrub Wetlands	396.77	0.62
9A	Sheltered Tidal Flats	9.84	0.02



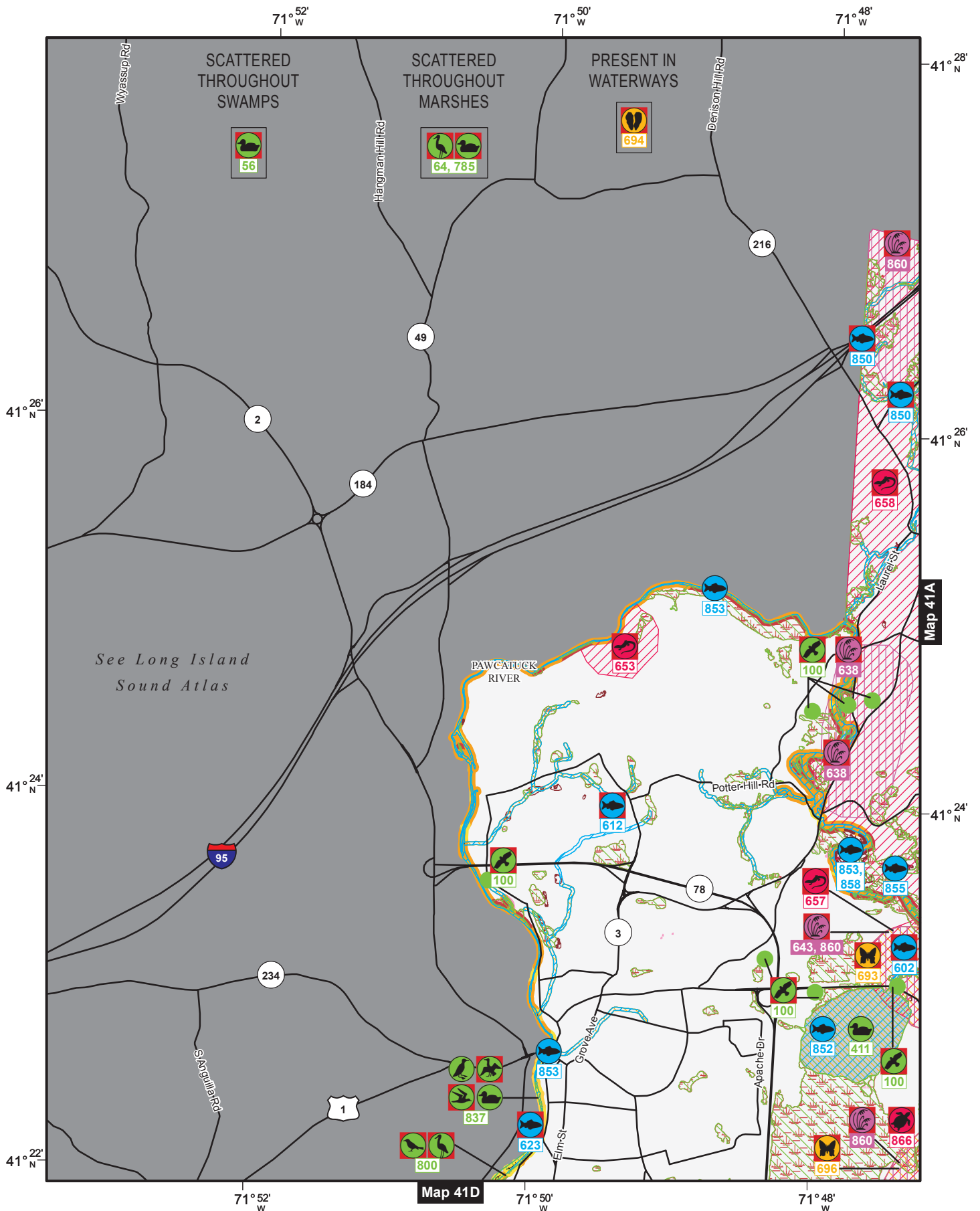
ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10B	Freshwater Marshes	2,902.76	1.80	3%
10C	Swamps	30,884.23	19.19	35%
10D	Scrub and Shrub Wetlands	2,503.63	1.56	3%
9A	Sheltered Tidal Flats	2,327.57	1.45	3%
9B	Vegetated Low Banks	49,815.68	30.95	56%
8B	Sheltered, Solid Man-Made Structures	641.02	0.40	1%
8C	Sheltered Riprap	131.30	0.08	< 1%
8D	Sheltered, Rocky, Rubble Shores	17.35	0.01	< 1%
5	Mixed Sand and Gravel Beaches	49.71	0.03	< 1%
Total ESI Shoreline:		89,273.26	55.47	
Total Shoreline:		53,448.68	33.21	

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 41B
Mass. / Rhode Island



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

0 Not for Navigation 1 Miles
0 1 Kilometers

1:50,000



Map 41B
Massachusetts and Rhode Island

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	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig. (S)	Mig. (F)	Molt
								J	F	M	A	M	J	J	A	S	O	N	D				
56	Waterfowl	Waterfowl	General Distribution	C/C			Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
64	Wading	Marsh birds	General Distribution	C/C			Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
100	Raptor	Osprey	Nesting	-C			Nest Site													Apr-Aug	Apr-May	Sep-Nov	-
411	Waterfowl	American black duck	Wintering				Abundant													-	Apr	Oct	-
	Waterfowl	Dabbling ducks	Wintering				Common													-	Feb-Apr	Sep-Dec	-
	Waterfowl	Diving ducks	Wintering				Common													Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering				Common													Apr-May	Mar-May	Oct-Nov	-
785	Wading	Marsh birds	General Distribution	C/C			Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Waterfowl	Waterfowl	General Distribution	C/C			Common													Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
800	Passerine	Marsh passerines	General Distribution	-C			Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct
	Wading	Egrets	Migration	-C			Common													-	Apr-May	Sep-Oct	-
	Wading	Marsh birds	General Distribution	C/C			Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Wading	Wading birds	General Distribution	-C			Common													Apr-Sep	Mar-May	Sep-Oct	-
837	Alcid	Razorbill	Wintering				Common													-	Mar-Apr	Nov	-
	Diving	Horned grebe	Wintering				Rare													-	Apr-May	Oct-Nov	-
	Diving	Loons	Migration	C/-			Common													-	Mar-Jun	Oct-Jan	Jan-Mar
	Gull/Tern	Common tern	General Distribution	C/-			Common													May-Sep	Apr-May	Aug-Oct	-
	Gull/Tern	Least tern	General Distribution	C/T			Rare													-	Apr-May	Aug-Sep	-
	Waterfowl	Sea ducks	Wintering				Abundant													-	Mar-May	Oct-Nov	-

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
602	Diadromous	American shad	Spawning Area				-													Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug
	Freshwater	Bridle shiner	General Distribution	C/-			Rare													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
612	Freshwater	Bridle shiner	General Distribution	C/-			Rare													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
623	Diadromous	Atlantic sturgeon	General Distribution	E/-			-													May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec
850	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic salmon	Harvest Area				-													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Freshwater	Bridle shiner	General Distribution	C/-			Rare													May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec
852	Diadromous	Alewife	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic salmon	Harvest Area				-													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Diadromous	Blueback herring	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
853	Diadromous	American eel	Migration				-													-	-	-	Jan-Dec	Jan-Dec
	Diadromous	Atlantic salmon	Harvest Area				-													Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
855	Diadromous	Alewife	Spawning Area				-													Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct

Massachusetts and Rhode Island: Map 41B

FISH (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
				S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D				
858	Diadromous	Blueback herring	Spawning Area			-												Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Diadromous	American shad	Spawning Area			-												Apr-Aug	Jun-Aug	Jun-Aug	Aug-Nov	Apr-Aug

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence											
				S	F		J	F	M	A	M	J	J	A	S	O	N	D
638	Plant	Rare plant	Vulnerable Occurrence	T/C		-												
643	Plant	Threatened plant	Vulnerable Occurrence	-/T		-												
860	Plant	Endangered plant	Vulnerable Occurrence	-/E	E	-												
	Plant	Rare plant	Vulnerable Occurrence	T/C		-												

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
				S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D				
653	Amphibian	Eastern spadefoot	Vulnerable Occurrence	T/E		-												Apr-Jun	May-Jul	-	Jan-Dec	Jan-Dec
657	Amphibian	Marbled salamander	General Distribution	T/-		Common												Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
658	Snake	Eastern rat snake	General Distribution	E/C		Rare												Jun-Jul	Aug-Sep	-	Jan-Dec	Jan-Dec
866	Turtle	Wood turtle	Vulnerable Occurrence	C/C		-												May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
				S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D				
693	Insect	Rare insect	Vulnerable Occurrence	E/C	T	-												Mar-Oct	Jan-Dec	Jan-Dec	Jan-Dec	Jan-Dec
694	Bivalve	Eastern pearlshell	General Distribution	-/E		-												Aug-Sep	Aug-May	May-Jun	Jan-Dec	Jan-Dec
696	Bivalve	Rare freshwater mussel	General Distribution	C/C		-												Aug-Sep	Aug-May	Jun-Jul	Jan-Dec	Jan-Dec
	Insect	Threatened insect	Vulnerable Occurrence	-/T		-												Apr-Aug	Apr-Aug	Jan-Dec	Jan-Dec	Jan-Dec

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
				S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D			
698	Raptor	Raptors	General Distribution	-/C		Common												Mar-Aug	Mar-Apr	Jul-Nov	Jun

TERRESTRIAL MAMMALS

	Subelement	Species	Mapping Qualifier	MA/RI		Monthly Presence												
				S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D
	Bat	Northern myotis	General Distribution	E/-	T	Rare												



Monthly Presence

FISH


Monthly Presence

1014


REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Amphibian													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Four-toed salamander													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Northern dusky salamander													Jun-Jul	Jun-Aug	-	Jan-Dec	Jan-Dec
	Red-spotted newt													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Turtle													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Spotted salamander													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Wood frog													May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Eastern box turtle													May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Spotted turtle													May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Bivalve													Jun-Aug	Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Atlantic surfclam													Mar-Jul	Mar-Jul	Mar-Jul	Jan-Dec	Jan-Dec
	Blue mussel													Jul-Nov	Jul-Nov	Jul-Dec	Jan-Dec	Jan-Dec
 	Cephalopod													May-Aug	May-Aug	May-Aug	May-Nov	May-Nov
	Longfin squid													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Atlantic rock crab													May-Oct	Jun-Oct	Jun-Oct	Apr-Oct	Apr-Oct
	Blue crab													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec
	Horseshoe crab													May-Jul	May-Jul	-	Jan-Dec	Jan-Dec

TERRESTRIAL MAMMALS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Small Mammal												
	Eastern mole												
	Woodland jumping mouse												

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	0.09	0.00
10B	Freshwater Marshes	25.73	0.04
10C	Swamps	745.31	1.16
10D	Scrub and Shrub Wetlands	40.63	0.06
9A	Sheltered Tidal Flats	1.53	0.00



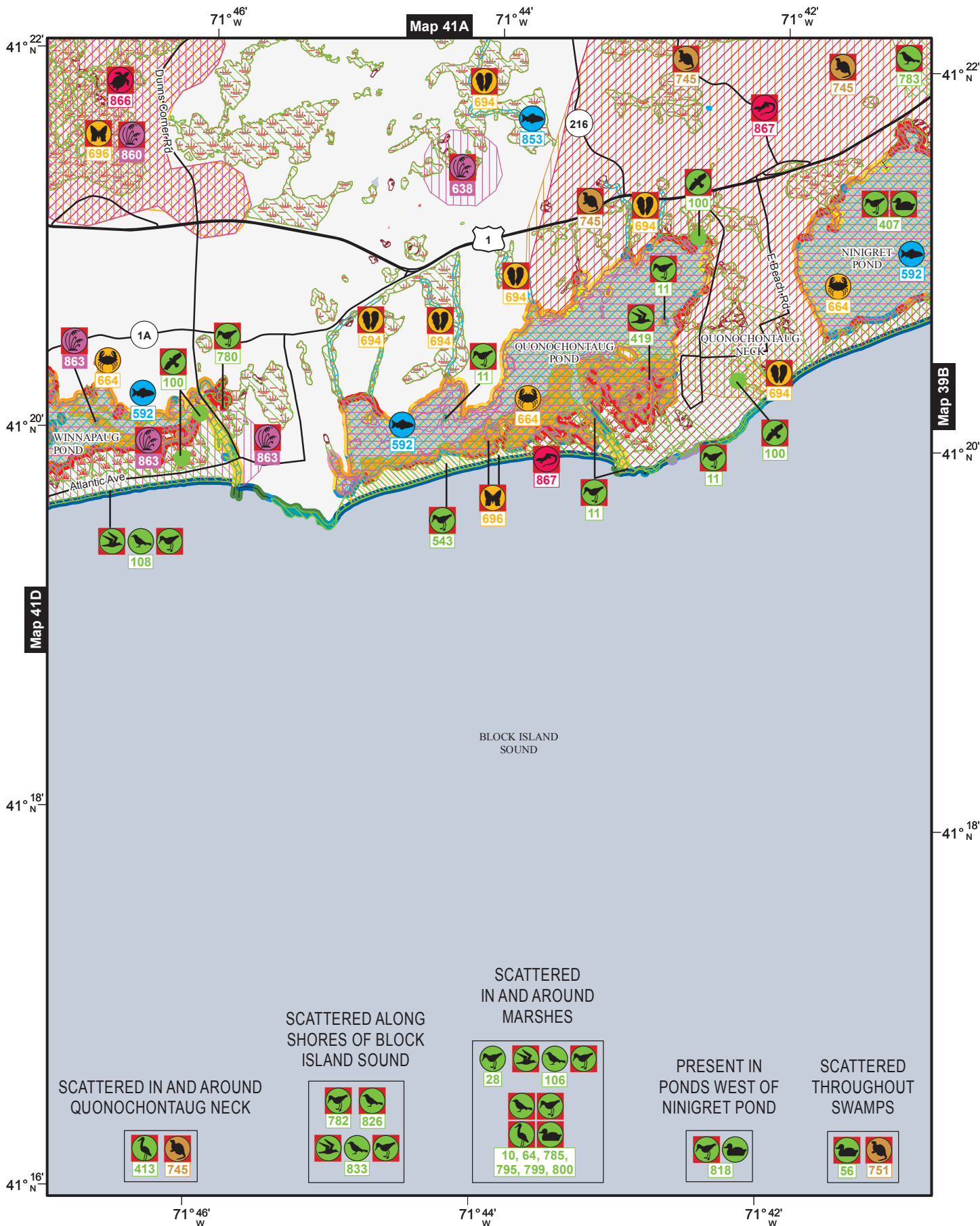
ESI SHORELINE HABITAT TYPES

<i>ESI Rank</i>	<i>Shoreline Habitat Classification</i>	<i>Length (Meters)</i>	<i>Length (Miles)</i>	<i>% of ESI Shoreline</i>
10B	Freshwater Marshes	545.18	0.34	1%
10C	Swamps	9,604.96	5.97	24%
10D	Scrub and Shrub Wetlands	1,250.03	0.78	3%
9A	Sheltered Tidal Flats	686.85	0.43	2%
9B	Vegetated Low Banks	24,733.22	15.37	61%
8A	Sheltered, Impermeable, Rocky Shores	27.86	0.02	< 1%
8B	Sheltered, Solid Man-Made Structures	3,108.19	1.93	8%
8C	Sheltered Riprap	741.02	0.46	2%
Total ESI Shoreline:		40,697.31	25.29	
Total Shoreline:		27,837.15	17.30	

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

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

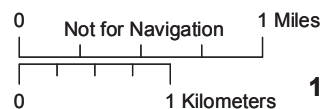




Map 41C
Mass. / Rhode Island



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



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Map 41C
Massachusetts and Rhode Island

BIOLOGICAL RESOURCES

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

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
						J	F	M	A	M	J	J	A	S	O	N	D
SAV	Eelgrass	High Ecological Value			Potential												
SAV	Eelgrass	High Ecological Value			Present												
Algae	Green macroalgae	High Ecological Value			41-70%												

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
				S	F		J	F	M	A	M	J	J	A	S	O	N	D				
10	Shorebird	Red knot	Migration		T	Common												-	May-Jun	Jul-Sep	-	
11	Shorebird	Red knot	Migration		T	Common												-	May-Jun	Jul-Sep	-	
	Shorebird	Shorebirds	Migration			Abundant												-	Mar-Dec	-	-	
28	Shorebird	Shorebirds	Migration			Abundant												-	Mar-Dec	-	-	
56	Waterfowl	Waterfowl	General Distribution	C/C		Common												Mar-Sep	Feb-May	Sep-Nov	Aug-Sep	
64	Wading	Marsh birds	General Distribution	C/C		Common												Mar-Sep	Mar-May	Sep-Nov	Jul-Aug	
100	Raptor	Osprey	Nesting	-/C		Nest Site												Apr-Aug	Apr-May	Sep-Nov	-	
106	Gull/Tern	Least tern	Nesting	C/T		Nest Site												May-Aug	-	-	-	
	Passerine	Tree swallow	Migration			Abundant												-	-	Jul-Oct	-	
	Shorebird	Piping plover	Nesting	T/E	T	Nest Site												Mar-Aug	-	-	-	
	Gull/Tern	Least tern	Nesting	C/T		Nest Site												May-Aug	-	-	-	
108	Passerine	Tree swallow	Migration			Abundant												-	-	Jul-Oct	-	
	Shorebird	Piping plover	Nesting	T/E	T	Nest Site												Mar-Aug	-	-	-	
	Shorebird	Willet	Migration	-/C		Common												Apr-May	Apr-May	Aug-Oct	-	
	Shorebird	Willet	Nesting	-/C		Abundant												May-Jun	May	Aug	-	
407	Waterfowl	American black duck	Wintering			Abundant												-	Apr	Oct	-	
	Waterfowl	Diving ducks	Wintering			Common												Mar-Apr	Sep-Apr	-	-	
	Waterfowl	Geese	Wintering			Common												Apr-May	Mar-May	Oct-Nov	-	
	Waterfowl	Hooded merganser	Wintering	-/C		Common												-	Mar	Oct	-	
	Waterfowl	Sea ducks	Wintering			Common												-	Mar-May	Oct-Nov	-	
413	Wading	Clapper rail	Vulnerable Occurrence	-/C		-												Apr-Sep	Apr-May	Sep	-	
419	Gull/Tern	Common tern	Nesting	C/-		Nest Site												May-Sep	-	-	-	
543	Shorebird	American oystercatcher	Nesting	-/C		Nest Site												Apr-Aug	-	-	-	
780	Shorebird	Shorebirds	Migration			Abundant												-	Mar-Dec	-	-	
	Shorebird	Willet	Migration	-/C		Common												Apr-May	Apr-May	Aug-Oct	-	
782	Shorebird	Willet	Migration	-/C		Common												Apr-May	Apr-May	Aug-Oct	-	
782	Shorebird	Willet	Migration	-/C		Common												Apr-Jul	May-Jun	Jul-Sep	-	
783	Passerine	Yellow-breasted chat	Nesting	-/E		Potential												Mar-Sep	Mar-May	Sep-Nov	Jul-Aug	
785	Wading	Marsh birds	General Distribution	C/C		Common												Mar-Sep	Feb-May	Sep-Nov	Jul-Aug	
	Waterfowl	Waterfowl	General Distribution	C/C		Common												Mar-Sep	Feb-May	Sep-Nov	Aug-Sep	
795	Passerine	Marsh passerines	General Distribution	-/C		Common												Apr-Aug	Apr-May	Aug-Nov	Sep-Oct	

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence												Molt
						J	F	M	A	M	J	J	A	S	O	N	D	
	Shorebird	Shorebirds	Migration		Abundant													
	Shorebird	Willet	Migration	-C	Common													-
	Wading	Egrets	Migration	-C	Common													-
	Wading	Marsh birds	General Distribution	C/C	Common													-
	Wading	Wading birds	General Distribution	-C	Common													-
799	Passerine	Marsh passerines	General Distribution	-C	Common													-
	Shorebird	Willet	Migration	-C	Common													-
	Wading	Egrets	Migration	-C	Common													-
	Wading	Marsh birds	General Distribution	C/C	Common													-
800	Wading	Wading birds	General Distribution	-C	Common													-
	Passerine	Marsh passerines	General Distribution	-C	Common													-
	Wading	Egrets	Migration	-C	Common													-
	Wading	Marsh birds	General Distribution	C/C	Common													-
818	Wading	Wading birds	General Distribution	-C	Common													-
	Shorebird	Willet	Nesting	-C	Abundant													-
	Waterfowl	American black duck	Wintering		Abundant													-
	Waterfowl	Diving ducks	Wintering		Common													-
	Waterfowl	Geese	Wintering		Common													-
	Waterfowl	Sea ducks	Wintering		Common													-
826	Passerine	Passerine birds	General Distribution	-C	Common													-
	Passerine	Yellow-billed cuckoo	General Distribution	T	Rare													-
833	Gull/Tern	Least tern	Nesting	C/T	Common													-
	Passerine	Tree swallow	Migration		Abundant													-
	Shorebird	Piping plover	Nesting	T/E	Nest Site													-

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence												Adults
						J	F	M	A	M	J	J	A	S	O	N	D	
592	Diadromous	American eel	Migration		-													Jan-Dec
853	Diadromous	American eel	Migration		-													Jan-Dec
	Diadromous	Atlantic salmon	Harvest Area		-													Jan-Dec

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI S F	Concentration	Monthly Presence											
						J	F	M	A	M	J	J	A	S	O	N	D
638	Plant	Rare plant	Vulnerable Occurrence	T/C	-												
860	Plant	Endangered plant	Vulnerable Occurrence	-E	-												
	Plant	Rare plant	Vulnerable Occurrence	T/C	-												
863	Plant	Rare plant	Vulnerable Occurrence	T/C	-												
	Plant	Threatened plant	Vulnerable Occurrence	-T	-												

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
866	Turtle	Wood turtle	Vulnerable Occurrence	C/C			-													May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
867	Snake	Eastern hog-nosed snake	General Distribution	-/C			Rare													Jun-Jul	Aug-Sep	-	Jan-Dec	Jan-Dec

INVERTEBRATES







Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
664	Crab	Horseshoe crab	Spawning				Abundant													Apr-Jun	Apr-Jun	-	Apr-Jun	Apr-Jun
694	Bivalve	Eastern pearlshell	General Distribution	-/E			-													Aug-Sep	Aug-May	May-Jun	Jan-Dec	Jan-Dec
	Bivalve	Rare freshwater mussel	General Distribution	C/C			-													Aug-Sep	Aug-May	Jun-Jul	Jan-Dec	Jan-Dec
696	Insect	Threatened insect	Vulnerable Occurrence	-/T			-													Apr-Aug	Apr-Aug	Jan-Dec	Jan-Dec	Jan-Dec

TERRESTRIAL MAMMALS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
								J	F	M	A	M	J	J	A	S	O	N	D					
745	Small Mammal	New England cottontail	General Distribution	-/C			Rare																	
751	Small Mammal	American water shrew	General Distribution	C/C			Common																	

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)


BIRDS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence												Nest	Mig. (S)	Mig. (F)	Molt
							J	F	M	A	M	J	J	A	S	O	N	D				
	Alcid	Razorbill	Wintering				Common												-	Mar-Apr	Nov	-
	Diving	Horned grebe	Wintering				Rare												-	Apr-May	Oct-Nov	-
		Loons	General Distribution	C/-			Rare												-	Mar-Jun	Oct-Jan	Jan-Mar
		Loons	Migration	C/-			Common												-	Mar-Jun	Oct-Jan	Jan-Mar
	Gull/Tern	Common tern	General Distribution	C/-			Common												May-Sep	Apr-May	Aug-Oct	-
		Least tern	General Distribution	C/T			Rare												-	Apr-May	Aug-Sep	-
		Roseate tern	General Distribution	E/-	E		Rare												May-Aug	Apr-May	Jul-Sep	-
	Raptor	Raptors	General Distribution	-/C			Common												Mar-Aug	Mar-Apr	Jul-Nov	Jun
	Shorebird	Purple sandpiper	Wintering				Rare												-	May	Nov	-
	Waterfowl	Dabbling ducks	Wintering				Rare												-	Feb-Apr	Sep-Dec	-
		Sea ducks	Wintering				Abundant												-	Mar-May	Oct-Nov	-


FISH

Subelement	Species	Mapping Qualifier	MA/RI	S	F	T	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/-			-													May-Jun	May-Jun	May-Jul	Jan-Dec	Jan-Dec

REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	MA/R/I	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
				S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D		
	Green sea turtle	General Distribution	T/E	T	Regular													-	-	May-Nov
	K. ridley sea turtle	General Distribution	E/E	E	Regular													-	-	May-Nov
	Leatherback sea turtle	General Distribution	E/E	E	Regular													-	-	May-Nov
	Loggerhead sea turtle	General Distribution	T/E	T	Regular													-	-	May-Nov

MARINE MAMMALS





Subelement	Species	Mapping Qualifier	MA/R/I		Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
			S	F		J	F	M	A	M	J	J	A	S	O	N	D				
	Fin whale	General Distribution	E/E	E	Rare													-	-		
	Humpback whale	General Distribution	E/E	E	Rare													-	-		
	N.A. right whale	General Distribution	E/E	E	Rare													-	-		
	Sei whale	General Distribution	E/-	E	Common													-	-		
	Sperm whale	General Distribution	E/-	E	Rare													-	-		

TERRESTRIAL MAMMALS


Subelement	Species	Mapping Qualifier	MA/R/I	Monthly Presence											
				S	F	Concentration	J	F	M	A	M	J	J	A	S
	Northern myotis	General Distribution	E/-	T	Rare										

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BIRDS





Subelement	Species	Mapping Qualifier	MA/R/I	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
				J	F	M	A	M	J	J	A	S	O	N	D				
	Razorbill															-	Mar-Apr	Nov	-
	Gulls															-	Apr-May	Aug-Sep	-
	Nashville warbler															May-Jul	Apr-May	Aug-Oct	Aug
	Pelagic															-	Mar-May	Sep-Dec	-
	Shearwaters															-	Jun-Aug	-	-
	Shorebirds															Mar-Sep	Mar-Dec	-	Aug-Oct
	American black duck															Apr-Aug	Apr	Oct	-
	Diving ducks															Mar-Apr	Sep-Apr	-	-
	Geese															Apr-May	Mar-May	Oct-Nov	-
	Sea ducks															-	Mar-May	Oct-Nov	-

FISH



Subelement	Species	Mapping Qualifier	MA/R/I	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
				J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife															Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	American eel															-	-	-	Jan-Dec	Jan-Dec
	American shad															Apr-Aug	Jun-Aug	Jun-Nov	Aug-Nov	Apr-Aug
	Atlantic salmon															Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Blueback herring															Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Striped bass															-	-	-	Apr-Nov	Apr-Nov

Massachusetts and Rhode Island: Map 41C






FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Estuarine Nursery													Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy													Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass													May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov
	Bluefish													-	-	-	May-Oct	May-Oct
	Hogchoker													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Scup													May-Aug	May-Aug	Jun-Aug	Apr-Nov	Apr-Nov
	Summer flounder													Aug-Nov	Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish													Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	White perch													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Winter flounder													Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
	Atlantic silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Inland silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Stickleback													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Brook trout (sea run)													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Rainbow smelt													-	-	-	Jan-Dec	Jan-Dec
	American sand lance													Nov-Apr	Nov-May	Jan-May	Jan-Dec	Jan-Dec
	Atlantic cod													-	-	Jan-May	Jan-May	Jan-Dec
	Atlantic cod													-	-	Jan-May	Jan-May	-
	Atlantic tomcod													Dec-Mar	Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec
	Little tunny													-	-	-	-	May-Nov
	Pollock													Nov-Apr	Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Searobins													Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Skates													-	-	-	Jan-Dec	Jan-Dec
	Tautog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Atlantic mackerel													-	May-Aug	May-Aug	May-Sep	May-Sep
	Sand tiger													-	-	-	Apr-Nov	Apr-Nov
	Spiny dogfish													-	-	-	Jan-Dec	Jan-Dec




REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Amphibian													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Four-toed salamander													Apr-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Fowler's toad													Jun-Jul	Jun-Aug	-	Jan-Dec	Jan-Dec
	Red-spotted newt													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Wood frog													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Eastern box turtle													May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Spotted turtle													May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Atl. jackknife clam												
	Atlantic razor												
	Atlantic surfclam												
	Bay scallop												
	Blue mussel												
	Eastern oyster												
	Northern quahog												
	Ocean quahog												
	Softshell clam												
	Longfin squid												
	Atlantic rock crab												
	Blue crab												
	Horseshoe crab												
	Jonah crab												
	Channeled whelk												
	Knobbed whelk												
	Northern moonshell												
	Sea snails												
	American lobster												
													

MARINE MAMMALS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Atl. spotted dolphin												
	Atl. wht.-side dolphin												
	Bottlenose dolphin												
	Harbor porpoise												
	Risso's dolphin												
	Short-beaked common dolphin												
	Striped dolphin												
	White-beaked dolphin												
	Gray seal												
	Harbor seal												
	Harp seal												
	Hooded seal												
	Minke whale												
	Pilot whales												

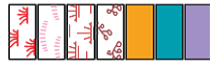
TERRESTRIAL MAMMALS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Woodland jumping mouse												

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	260.77	0.41
10B	Freshwater Marshes	80.93	0.13
10C	Swamps	1,084.86	1.70
10D	Scrub and Shrub Wetlands	73.98	0.12
9A	Sheltered Tidal Flats	246.10	0.38
5	Mixed Sand and Gravel Beaches	15.15	0.02
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	0.03	0.00

ESI SHORELINE HABITAT TYPES

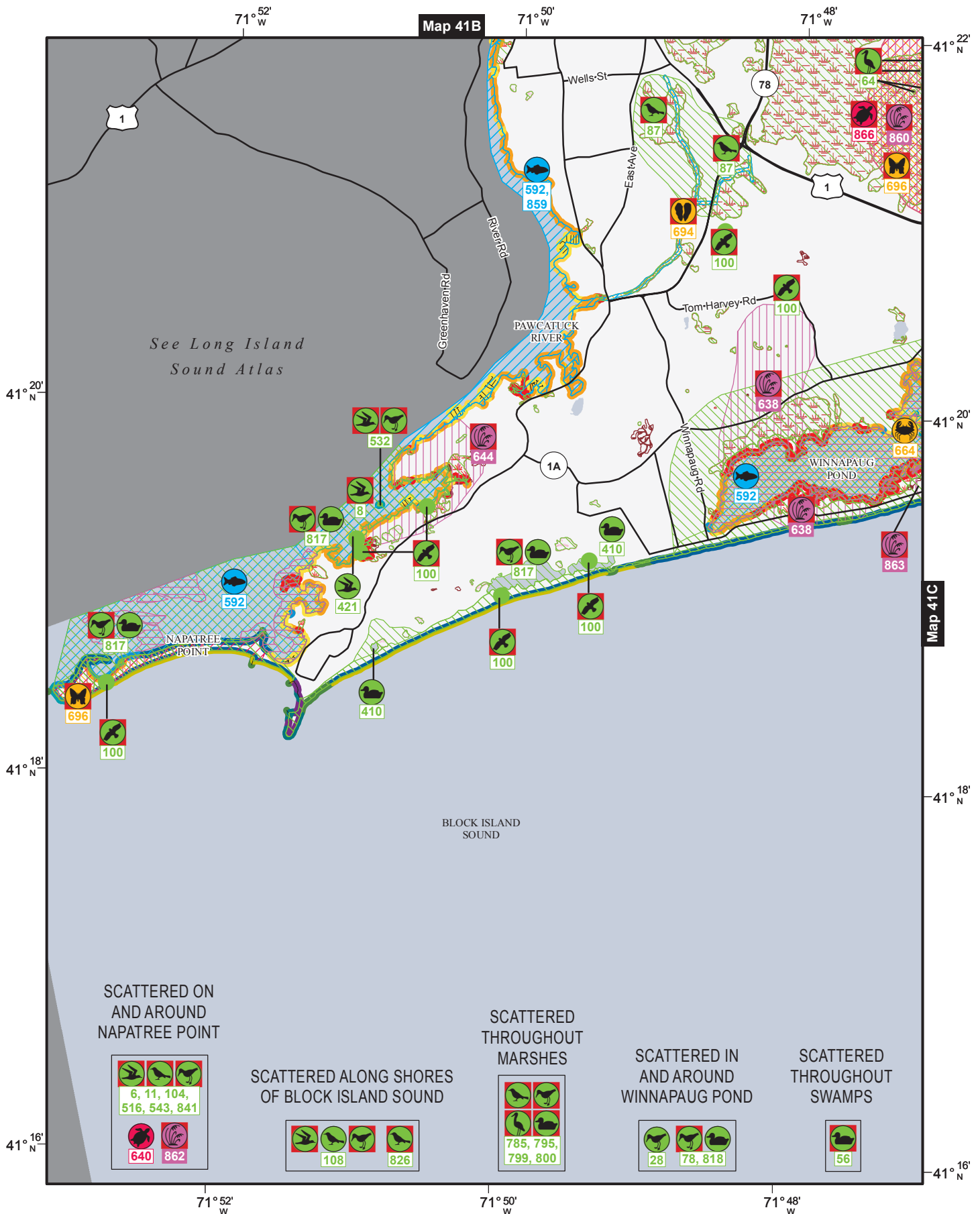
ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	27,060.06	16.81	29%
10B	Freshwater Marshes	217.64	0.14	< 1%
10C	Swamps	373.21	0.23	< 1%
10D	Scrub and Shrub Wetlands	1.09	0.00	< 1%
9A	Sheltered Tidal Flats	24,018.37	14.92	26%
9B	Vegetated Low Banks	14,060.13	8.74	15%
8A	Sheltered, Impermeable, Rocky Shores	1,100.44	0.68	1%
8B	Sheltered, Solid Man-Made Structures	2,315.71	1.44	2%
8C	Sheltered Riprap	4,958.13	3.08	5%
8D	Sheltered, Rocky, Rubble Shores	3,267.02	2.03	4%
6A	Gravel Beaches	90.25	0.06	< 1%
6B	Gravel Beaches (Cobbles/Boulders)	712.96	0.44	1%
6B	Riprap	487.01	0.30	1%
5	Mixed Sand and Gravel Beaches	2,797.63	1.74	3%
4	Coarse Grained Sand Beaches	4,100.58	2.55	4%
3A	Fine to Medium Grained Sand Beaches	7,508.29	4.67	8%
2A	Exposed, Wave-Cut Platforms (Bedrock/Mud/Clay)	269.58	0.17	< 1%

Total ESI Shoreline: 93,338.12 Total ESI Shoreline: 58.00
 Total Shoreline: 61,963.50 Total Shoreline: 38.50

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

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





Map 41D
Massachusetts and Rhode Island

BIOLOGICAL RESOURCES

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

DISPLAYED ON MAP

BENTHIC

Subelement	Species	Mapping Qualifier	S	F	Concentration	Monthly Presence											
						J	F	M	A	M	J	J	A	S	O	N	D
Algae	Red macroalgae	High Ecological Value			41-70%												
SAV	Eelgrass	High Ecological Value			Present												
Algae	Green macroalgae	High Ecological Value			41-70%												

BIRDS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	Monthly Presence										Nest	Mig.(S)	Mig.(F)	Molt
								J	F	M	A	M	J	J	A	S	O				
6	Shorebird	American oystercatcher	Migration		-/C		Common											-	Mar	Sep	-
8	Gull/Tern	Roseate tern	Vulnerable Occurrence		E/-		-											May-Aug	Apr-May	Jul-Sep	-
11	Shorebird	Red knot	Migration			T	Common											-	May-Jun	Jul-Sep	-
	Shorebird	Shorebirds	Migration				Abundant											-	Mar-Dec	-	-
28	Shorebird	Shorebirds	Migration				Abundant											-	Mar-Dec	-	-
56	Waterfowl	Waterfowl	General Distribution		C/C		Common											Mar-Sep	Feb-May	Sep-Nov	Aug-Sep
64	Wading	Marsh birds	General Distribution		C/C		Common											Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
78	Waterfowl	Dabbling ducks	Wintering				Rare											-	Feb-Apr	Sep-Dec	-
87	Passerine	Grasshopper sparrow	Vulnerable Occurrence		T/T	E	-											Apr-Aug	Mar-Apr	Sep-Oct	-
100	Raptor	Osprey	Nesting		-/C		Nest Site											Apr-Aug	Apr-May	Sep-Nov	-
104	Gull/Tern	Least tern	Nesting		C/T		Nest Site											May-Aug	-	-	-
	Passerine	Passerine birds	General Distribution		-/C		Common											Mar-Aug	Feb-Nov	-	Jul-Sep
	Passerine	Tree swallow	Migration				Abundant											-	-	Jul-Oct	-
	Passerine	Yellow-billed cuckoo	General Distribution			T	Rare											Apr-Jul	Apr-May	Sep	-
	Shorebird	Piping plover	Nesting		T/E	T	Nest Site											Mar-Aug	-	-	-
	Shorebird	Willet	Migration		-/C		Common											Apr-May	Apr-May	Aug-Oct	-
108	Gull/Tern	Least tern	Nesting		C/T		Nest Site											May-Aug	-	-	-
	Passerine	Tree swallow	Migration				Abundant											-	-	Jul-Oct	-
	Shorebird	Piping plover	Nesting		T/E	T	Nest Site											Mar-Aug	-	-	-
	Shorebird	Willet	Migration		-/C		Common											Apr-May	Apr-May	Aug-Oct	-
410	Waterfowl	American black duck	Wintering				Abundant											-	Apr	Oct	-
	Waterfowl	Diving ducks	Wintering				Common											Mar-Apr	Sep-Apr	-	-
	Waterfowl	Geese	Wintering				Common											Apr-May	Mar-May	Oct-Nov	-
421	Gull/Tern	G. black-backed gull	Nesting				Nest Site											Apr-Jul	-	-	-
516	Gull/Tern	Roseate tern	Migration		E/-	E	Common											May-Aug	Apr-May	Jul-Sep	-
532	Gull/Tern	Common tern	Nesting		C/-		Nest Site											May-Sep	-	-	-
	Shorebird	American oystercatcher	Nesting		-/C		Nest Site											Apr-Aug	-	-	-
543	Shorebird	American oystercatcher	Nesting		-/C		Nest Site											Apr-Aug	-	-	-
785	Wading	Marsh birds	General Distribution		C/C		Common											Mar-Sep	Mar-May	Sep-Nov	Jul-Aug
	Waterfowl	Waterfowl	General Distribution		C/C		Common											Mar-Sep	Feb-May	Sep-Nov	Aug-Sep

BIRDS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt	
				S	F		J	F	M	A	M	J	J	A	S	O	N	D					
795	Passerine	Marsh passerines	General Distribution	-/C		Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct	-
	Shorebird	Shorebirds	Migration			Abundant													-	Mar-Dec			-
	Shorebird	Willet	Migration	-/C		Common													Apr-May	Apr-May	Aug-Oct		-
	Wading	Egrets	Migration	-/C		Common													-	Apr-May	Sep-Oct		-
799	Wading	Marsh birds	General Distribution	C/C		Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug	-
	Wading	Wading birds	General Distribution	-/C		Common													Apr-Sep	Mar-May	Sep-Oct		-
	Passerine	Marsh passerines	General Distribution	-/C		Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct	-
	Shorebird	Willet	Migration	-/C		Common													Apr-May	Apr-May	Aug-Oct		-
800	Wading	Egrets	Migration	-/C		Common													-	Apr-May	Sep-Oct		-
	Wading	Marsh birds	General Distribution	C/C		Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug	-
	Wading	Wading birds	General Distribution	-/C		Common													Apr-Sep	Mar-May	Sep-Oct		-
	Passerine	Marsh passerines	General Distribution	-/C		Common													Apr-Aug	Apr-May	Aug-Nov	Sep-Oct	-
817	Wading	Egrets	Migration	-/C		Common													-	Apr-May	Sep-Oct		-
	Wading	Marsh birds	General Distribution	C/C		Common													Mar-Sep	Mar-May	Sep-Nov	Jul-Aug	-
	Wading	Wading birds	General Distribution	-/C		Common													Apr-Sep	Mar-May	Sep-Oct		-
	Shorebird	Willet	Nesting	-/C		Abundant													May-Jun	May	Aug		-
818	Waterfowl	American black duck	Wintering			Abundant													-	Apr	Oct		-
	Waterfowl	Diving ducks	Wintering			Common													Mar-Apr	Sep-Apr			-
	Waterfowl	Geese	Wintering			Common													Apr-May	Mar-May	Oct-Nov		-
	Shorebird	Willet	Nesting	-/C		Abundant													May-Jun	May	Aug		-
826	Waterfowl	American black duck	Wintering			Abundant													-	Apr	Oct		-
	Waterfowl	Diving ducks	Wintering			Common													Mar-Apr	Sep-Apr			-
	Waterfowl	Geese	Wintering			Common													Apr-May	Mar-May	Oct-Nov		-
	Waterfowl	Sea ducks	Wintering			Common													-	Mar-May	Oct-Nov		-
841	Passerine	Passerine birds	General Distribution	-/C		Common													Mar-Aug	Feb-Nov		Jul-Sep	-
	Passerine	Yellow-billed cuckoo	General Distribution	T		Rare													Apr-Jul	Apr-May	Sep		-
841	Gull/Tern	Common tern	Migration	C/-		Common													-	-	Jul-Sep		-
	Shorebird	Piping plover	Migration	T/E		Common													Mar-Aug	Mar-Apr	Jul-Sep		-

FISH

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults		
				S	F		J	F	M	A	M	J	J	A	S	O	N	D							
592	Diadromous	American eel	Migration			-														-	-			Jan-Dec	Jan-Dec
859	Diadromous	Atlantic salmon	Harvest Area			-														Sep-Dec	Sep-Mar	Feb-Jul		Jan-Dec	Jan-Dec

HABITATS & RARE PLANTS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI		Concentration	Monthly Presence																						
				S	F		J	F	M	A	M	J	J	A	S	O	N	D											
638	Plant	Rare plant	Vulnerable Occurrence	T/C		-																							
644	Wetland	Rare wetland/aquatic plant	Vulnerable Occurrence	-/C		-																							
860	Plant	Endangered plant	Vulnerable Occurrence	-/E	E	-																							
862	Plant	Rare plant	Vulnerable Occurrence	T/C		-																							
	Plant	Endangered plant	Vulnerable Occurrence	-/E	E	-																							
	Plant	Rare plant	Vulnerable Occurrence	T/C		-																							

HABITATS & RARE PLANTS (continued)

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	Monthly Presence											
					S	F	Concentration	J	F	M	A	M	J	J	A	S
	Plant	Seaside sandplant	Vulnerable Occurrence	-/C			-									
	Plant	Threatened plant	Vulnerable Occurrence	-/T			-									
863	Plant	Rare plant	Vulnerable Occurrence	T/C			-									
	Plant	Threatened plant	Vulnerable Occurrence	-/T			-									

REPTILES & AMPHIBIANS

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S
640	Turtle	N. diamondback terrapin	Vulnerable Occurrence				-									
866	Turtle	Wood turtle	Vulnerable Occurrence	C/C			-									

INVERTEBRATES

Map ID	Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S
664	Crab	Horseshoe crab	Spawning				Abundant									
694	Bivalve	Eastern pearlshell	General Distribution	-/E			-									
	Bivalve	Rare freshwater mussel	General Distribution	C/C			-									
696	Insect	Threatened insect	Vulnerable Occurrence	-/T			-									

WIDESPREAD IN MAPPED AREA (> 10 SQUARE KILOMETERS)


BIRDS

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	N
 Alcids	Razorbill	Wintering				Common										
 Diving	Horned grebe	Wintering				Rare										
	Loons	General Distribution	C/-			Rare										
	Loons	Migration	C/-			Common										
 Gull/Tern	Common tern	General Distribution	C/-			Common										
	Least tern	General Distribution	C/T			Rare										
 Raptor	Roseate tern	General Distribution	E/-			Rare										
 Waterfowl	Raptors	General Distribution	-/C			Common										
	Sea ducks	Wintering				Abundant										


FISH

Subelement	Species	Mapping Qualifier	MA/RI	S	F	Concentration	J	F	M	A	M	J	J	A	S	N
 Diadromous	Atlantic sturgeon	General Distribution	E/-			-										

REPTILES & AMPHIBIANS

Subelement	Species	Mapping Qualifier	MA/R/I	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
				S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N	D		
	Green sea turtle	General Distribution	T/E	T	Regular													-	-	May-Nov
	K. ridley sea turtle	General Distribution	E/E	E	Regular													-	-	May-Nov
	Leatherback sea turtle	General Distribution	E/E	E	Regular													-	-	May-Nov
	Loggerhead sea turtle	General Distribution	T/E	T	Regular													-	-	May-Nov

MARINE MAMMALS






Subelement	Species	Mapping Qualifier	MA/R/I		Concentration	Monthly Presence												Mating	Calving	Pupping	Molt
			S	F		J	F	M	A	M	J	J	A	S	O	N	D				
	Fin whale	General Distribution	E/E	E	Rare													-	-		
	Humpback whale	General Distribution	E/E	E	Rare													-	-		
	N.A. right whale	General Distribution	E/E	E	Rare													-	-		
	Sei whale	General Distribution	E/-	E	Common													-	-		
	Sperm whale	General Distribution	E/-	E	Rare													-	-		

TERRESTRIAL MAMMALS




Subelement	Species	Mapping Qualifier	MA/R/I	Monthly Presence													
				S	F	Concentration	J	F	M	A	M	J	J	A	S	O	N
	Northern myotis	General Distribution	E/-	T	Rare												

ALSO PRESENT IN MAPPED AREA (GENERAL DISTRIBUTION)

BIRDS





Subelement	Species	Mapping Qualifier	MA/R/I	Monthly Presence												Nest	Mig.(S)	Mig.(F)	Molt
				J	F	M	A	M	J	J	A	S	O	N	D				
	Razorbill															-	Mar-Apr	Nov	-
	Gulls															-	Apr-May	Aug-Sep	-
	Nashville warbler															May-Jul	Apr-May	Aug-Oct	Aug
	Pelagic															-	Mar-May	Sep-Dec	-
	Shearwaters															-	Jun-Aug	-	-
	Shorebirds															Mar-Sep	Mar-Dec	-	Aug-Oct
	American black duck															Apr-Aug	Apr	Oct	-
	Diving ducks															Mar-Apr	Sep-Apr	-	-
	Geese															Apr-May	Mar-May	Oct-Nov	-
	Sea ducks															-	Mar-May	Oct-Nov	-

FISH



Subelement	Species	Mapping Qualifier	MA/R/I	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
				J	F	M	A	M	J	J	A	S	O	N	D					
	Alewife															Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	American eel															-	-	-	Jan-Dec	Jan-Dec
	American shad															Apr-Aug	Jun-Aug	Jun-Nov	Aug-Nov	Apr-Aug
	Atlantic salmon															Sep-Dec	Sep-Mar	Feb-Jul	Jan-Dec	Jan-Dec
	Blueback herring															Mar-Jun	Apr-Jun	Jun-Aug	Mar-Oct	Mar-Oct
	Striped bass															-	-	-	Apr-Nov	Apr-Nov

Massachusetts and Rhode Island: Map 41D






FISH (continued)

Subelement	Species	Monthly Presence												Spawn	Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Estuarine Nursery													Aug-Nov	Aug-Nov	Oct-Dec	Jan-Dec	Jan-Dec
	Bay anchovy													Jun-Aug	Jun-Aug	Jun-Sep	Jan-Dec	Jan-Dec
	Black sea bass													May-Jul	May-Jul	Jun-Jul	May-Nov	May-Nov
	Bluefish													-	-	-	May-Oct	May-Oct
	Hogchoker													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Scup													May-Aug	May-Aug	Jun-Aug	Apr-Nov	Apr-Nov
	Summer flounder													Aug-Nov	Aug-Nov	Sep-Nov	Apr-Jan	Apr-Jan
	Weakfish													Jun-Jul	Jun-Jul	Jun-Aug	Apr-Oct	Apr-Oct
	White perch													Apr-Aug	Apr-Aug	May-Sep	Jan-Dec	Jan-Dec
	Windowpane													May-Oct	May-Oct	Jun-Nov	Jan-Dec	Jan-Dec
	Winter flounder													Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec
	Atlantic silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Inland silverside													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Killifish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Mummichog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Oyster toadfish													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Sheepshead minnow													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Stickleback													May-Aug	May-Aug	May-Sep	Jan-Dec	Jan-Dec
	Brook trout (sea run)													Sep-Nov	Sep-Nov	Nov-Dec	Jan-Dec	Jan-Dec
	Rainbow smelt													-	-	-	Jan-Dec	Jan-Dec
	American sand lance													Nov-Apr	Nov-May	Jan-May	Jan-Dec	Jan-Dec
	Atlantic cod													-	-	Jan-May	Jan-May	Jan-Dec
	Atlantic cod													-	-	Jan-May	Jan-May	-
	Atlantic tomcod													Dec-Mar	Dec-Mar	Dec-Aug	Jan-Dec	Jan-Dec
	Little tunny													-	-	-	-	May-Nov
	Pollock													Nov-Apr	Nov-Apr	Dec-May	Jan-Dec	Jan-Dec
	Searobins													Jun-Sep	Jun-Sep	Jun-Oct	Jan-Dec	Jan-Dec
	Skates													-	-	-	Jan-Dec	Jan-Dec
	Tautog													May-Aug	May-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Atlantic mackerel													-	May-Aug	May-Aug	May-Sep	May-Sep
	Sand tiger													-	-	-	Apr-Nov	Apr-Nov
	Spiny dogfish													-	-	-	Jan-Dec	Jan-Dec




REPTILES & AMPHIBIANS

Subelement	Species	Monthly Presence												Nest	Hatch	Internest	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D					
	Amphibian													Mar-Apr	Apr-May	-	Jan-Dec	Jan-Dec
	Four-toed salamander													Jun-Jul	Jun-Aug	-	Jan-Dec	Jan-Dec
	Red-spotted newt													May-Jun	May-Jul	-	Jan-Dec	Jan-Dec
	Turtle													Jun-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Eastern box turtle													May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec
	Spotted turtle													May-Jul	Aug-Oct	-	Jan-Dec	Jan-Dec

INVERTEBRATES

Subelement	Species	Monthly Presence												Eggs	Larvae	Juveniles	Adults
		J	F	M	A	M	J	J	A	S	O	N	D				
	Bivalve													Apr-May	Apr-May	Jan-Dec	Jan-Dec
														Apr-Jun	Apr-Jun	Jan-Dec	Jan-Dec
	Cephalopod													Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
														Jun-Sep	Jun-Sep	Jan-Dec	Jan-Dec
														Mar-Jul	Mar-Jul	Jan-Dec	Jan-Dec
														Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
	Crab													Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
														Jul-Nov	Jul-Dec	Jan-Dec	Jan-Dec
														Jun-Aug	Jun-Aug	Jan-Dec	Jan-Dec
														May-Aug	May-Aug	May-Nov	May-Nov
	Gastropod													May-Oct	Jun-Oct	Apr-Oct	Apr-Oct
														May-Oct	Jun-Oct	Apr-Oct	Apr-Oct
														May-Jul	-	Jan-Dec	Jan-Dec
														May-Oct	May-Oct	Apr-Oct	Apr-Oct
	Lobster													Jun-Jul	-	Jan-Dec	Jan-Dec
														Jun-Jul	-	Jan-Dec	Jan-Dec
														Apr-Sep	Apr-Sep	Jan-Dec	Jan-Dec
														May-Jul	Aug-Nov	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													-	-	-	-
														-	-	-	-
														-	-	-	-
														-	-	-	-
														-	-	-	-
														-	-	-	-
	Pinniped													-	-	-	-
														-	-	-	-
														-	-	-	-
														-	-	-	-
														-	-	-	-
														-	-	-	-
	Whale													Dec-Feb	Dec-Feb	Mar-May	-
														-	-	-	-
														-	-	-	-
														-	-	-	-
														-	-	-	-
														-	-	-	-

TERRESTRIAL MAMMALS

Subelement	Species	Monthly Presence											
		J	F	M	A	M	J	J	A	S	O	N	D
	Small Mammal												

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	108.54	0.17
10B	Freshwater Marshes	22.17	0.03
10C	Swamps	672.75	1.05
10D	Scrub and Shrub Wetlands	19.40	0.03
9A	Sheltered Tidal Flats	2.61	0.00
7	Exposed Tidal Flats	0.48	0.00
5	Mixed Sand and Gravel Beaches	0.06	0.00

ESI SHORELINE HABITAT TYPES

ESI Rank	Shoreline Habitat Classification	Length (Meters)	Length (Miles)	% of ESI Shoreline
10A	Salt and Brackish Water Marshes	8,958.68	5.57	16%
10C	Swamps	60.01	0.04	< 1%
10D	Scrub and Shrub Wetlands	259.21	0.16	< 1%
9A	Sheltered Tidal Flats	1,160.67	0.72	2%
9B	Vegetated Low Banks	14,094.13	8.76	25%
8A	Sheltered, Impermeable, Rocky Shores	10.52	0.01	< 1%
8B	Sheltered, Solid Man-Made Structures	7,120.16	4.42	13%
8C	Sheltered Riprap	2,985.28	1.85	5%
8D	Sheltered, Rocky, Rubble Shores	713.85	0.44	1%
7	Exposed Tidal Flats	5,684.01	3.53	10%
6A	Gravel Beaches	152.73	0.09	< 1%
6B	Riprap	1,466.85	0.91	3%
5	Mixed Sand and Gravel Beaches	603.48	0.37	1%
4	Coarse Grained Sand Beaches	1,336.88	0.83	2%
3A	Fine to Medium Grained Sand Beaches	10,405.44	6.47	19%
1B	Exposed, Solid Man-Made Structures	783.93	0.49	1%

Total ESI Shoreline: 55,795.82 Total ESI Shoreline: 34.67
 Total Shoreline: 45,732.18 Total Shoreline: 28.42

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

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



Human-Use Features

	Access		Park
	Airport		Port
	Anchorage		Recreational Fishing
	Aquaculture		Repeated Measurement Site
	Artificial Reef		State Protected Area
	Archaeological Site		Tribal Land
	Beach		Wildlife Refuge
	Boat Ramp		US Highway
	Campground		State Highway or Route
	Commercial Fishing		Interstate
	Critical Habitat		Road
	Diving Site		Shipping Lane
	EPA Facility		Rail Route
	Ferry		Pipeline
	Historic Wreck		Ferry Route
	Historical Site		Management Area
	Lock and Dam		Map ID
	Management Area		
	Marina		
	Marine Sanctuary		
	Military		
	National Park		
	Nature Conservancy		

ESI Shoreline and Habitat Ranking

	1A) Exposed, Rocky Shores
	1B) Exposed, Solid Man-Made Structures
	2A) Exposed, Wave-Cut Platform (Bedrock/Mud/Clay)
	2B) Exposed Scarps and Steep Slopes (Clay)
	3A) Fine to Medium Grained Sand Beaches
	3B) Scarps and Steep Slopes (Sand)
	4) Coarse-Grained Sand Beaches
	5) Mixed Sand and Gravel Beaches
	6A) Gravel Beaches
	6B) Gravel Beaches (Cobbles/Boulders)
	6B) Riprap
	7) Exposed Tidal Flats
	8A) Sheltered, Impermeable, Rocky Shores
	8A) Sheltered Scarps (Bedrock/Mud/Clay)
	8B) Sheltered, Solid Man-Made Structures
	8B) Sheltered, Permeable, Rocky Structures
	8C) Sheltered Riprap
	8D) Sheltered, Rocky, Rubble Shores
	9A) Sheltered Tidal Flats
	9B) Vegetated Low Banks
	10A) Salt and Brackish Water Marshes
	10B) Freshwater Marshes
	10C) Swamps
	10D) Scrub and Shrub Wetlands







































Examples of Double and Triple Shoreline Rankings:

10D & 2A

10C & 10A & 4

Shorelines often contain varied geomorphology, and therefore may require two or three ESI types to describe. These symbols will look similar to the examples above. The first shoreline type listed is the most landward shore type.

Sensitive Biological Resources

	Birds		Invertebrates		Terrestrial Mammals
	Birds		Invertebrates		Bat
	Alcid/Pelagic		Bivalve/Barnacle/Chordate		Small Mammal
	Diving		Cephalopod		Habitats
	Gull/Tern/Bird		Crab/Invertebrate/Shellfish		Habitats
	Passerine		Gastropod		Upland/Wetland/Plant
	Raptor		Insect		Reptiles
	Shorebird		Lobster		Amphibian/Snake
	Wading		Shrimp		Turtle
	Waterfowl		Marine Mammals		Threatened or Endangered Species
	Fish		Marine Mammals		Map ID
	Fish		Dolphin		
	Nursery		Pinniped		
			Whale		

Guidelines for Interpreting Environmental Sensitivity Index (ESI) Maps

The following guidelines may help map users interpret the ESI maps. Additional information about resources mapped for this atlas can be found in the ESI Intro pages and associated metadata.

Sensitive Biological Resources (1:50,000 scale maps): Species are arranged into eight major categories or "elements" and further subdivided into "subelement" groupings representing species that share similar lifestyle characteristics and risks to oiling.

Biological resources may be mapped as points, lines, and/or polygons. Each element is represented by a unique color and/or hatch pattern, and icons illustrate the subelement(s) found within each feature. If a species is state or federally listed as threatened or endangered, a solid red square is placed behind the icon. When multiple elements occur in the same location, overlapping hatch patterns will be shown.

The associated Map ID "links" to the map report where the species and attributes are listed. To maximize readability, biological polygons covering more than 10 square km are not displayed on the map. Instead, these species are listed in the "Widespread in Mapped Area" section of the report. Occurrences of non-listed species assigned a "General Distribution" mapping qualifier are listed under "Also Present in Mapped Area" regardless of polygon size.

Shoreline Habitat Resources (all maps): The shoreline was mapped at mean-high water, then classified based on vulnerability to spilled oil and ease of clean-up. Shorelines are ranked on a scale from 1 (least vulnerable) to 10 (most vulnerable). Cooler colors represent less vulnerable shoreline types; warm and hot colors indicate increased vulnerability. A shoreline may have more than one habitat type present. When this happens, the most landward shoreline type is mapped on the shoreline, and the more seaward type(s) are mapped adjacent to the water. The areal extent of intertidal and marsh habitats may also be mapped as polygons. Most often these polygons represent tidal flats and marshes, though in particularly rocky shored areas, these may include exposed, wave-cut platforms and sand and gravel beaches.

Human-Use Features (1:100,000 scale maps): Locations of human-use features and jurisdictional boundaries are mapped as points, lines, or polygons. As with biological features, the human-use features appearing on the map include Map ID which "links" to a description of the feature in the map report. Additional features, particularly jurisdictional and management boundaries that cover the majority or entirety of the mapped area, are listed in the report, but not shown on the map.

