

# Northwest Atlantic marine Ecoregional Assessment

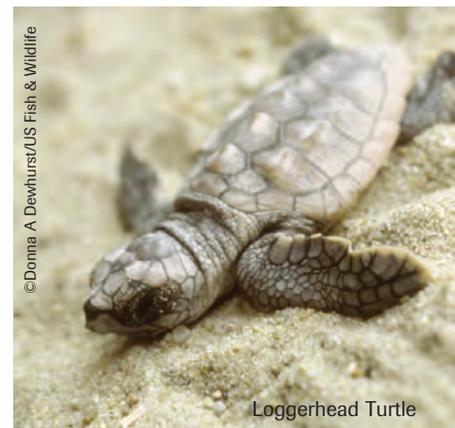
Virginia Coast Reserve,  
Hog Island, Virginia

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## The Need

We depend on our coasts and oceans for food, recreation, shipping, and ecosystem services. Similar to urban sprawl, we are facing marine and coastal sprawl as we enter an era of unprecedented growth in ocean activities. Wind farms, offshore drilling, aquaculture pens, commercial fishing, diverse recreational uses, and shipping lanes are all competing to stake their claims on our ocean. Whales, sea turtles, sea birds, fish and the habitats they need for survival also require places in this crowded marine environment.

As a society, we need to design a plan for our ocean resources that aligns diverse uses with ecologically compatible places in order to maintain and protect biodiversity, assure resilience in our marine systems and provide the ecosystem services on which people depend. In order to accommodate current and future uses of our oceans, we need to change the way we manage the oceans. Instead of addressing marine conservation and management piecemeal, or on a sector by sector basis, we need to focus on the entire seascape and be aware of the many stakeholders who use it and the complex ecosystem functions that depend on it. There is a need to identify area management solutions in a manner that benefits the ecosystem while at the same time assesses tradeoffs and minimizes conflicts. This can only be accomplished with an integrated, baseline of scientific information from which decisions can be made. That is why The Nature Conservancy is undertaking a science-based marine ecoregional assessment for the Northwest Atlantic Marine region.



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Loggerhead Turtle



## The Region

The Northwest Atlantic Marine region spans from Cape Hatteras in North Carolina to the northern limit of the Gulf of Maine, including Canadian waters, and extends seaward to the continental slope (depth of 2500 meters). The study area includes the shorelines of 11 states and two provinces (about 65 million population), including the major estuaries of Albemarle and Pamlico Sounds, Chesapeake Bay, Delaware Bay, Long Island Sound, Narragansett Bay, Penobscot Bay and the Bay of Fundy. The Northwest Atlantic study area is divided into three ecological sub-regions: the Gulf of Maine, Southern New England and the Mid-Atlantic Bight.

## Our Goal

Researchers, government agencies and conservation organizations have been studying the physical characteristics, habitats, species and human uses along the East Coast for decades. For over a year, Conservancy marine science staff has worked with a wide array of partners to compile and integrate these datasets.

Our goal is two-fold:

- (1) Establish a publicly available baseline of information that includes physical, biological and human use information about the marine environment, to inform and support effective large-scale conservation strategies, and
- (2) Assess the collected data and information to identify areas, species and ecological processes of biological significance that, if conserved, will protect biological diversity of the Northwest Atlantic. Additionally, we will begin to develop specific marine conservation strategies based on the assessment.

*Marine spatial planning (MSP) is a process for analyzing coastal and ocean ecosystem data to identify area management solutions that align human uses with compatible places to achieve specific ecological, economic and social objectives. MSP supports efforts to protect biodiversity, reduce user conflicts and sustain multiple ecosystem services and uses including conservation, fisheries, energy, aquaculture, sustainable coastal development and hazard mitigation.*



Maine's Penobscot Bay



Flock of red knots, Virginia coast



Lieutenant River, CT



Wolffish

## Data and Analysis

The assessment process included the collection and consideration of over 1,200 datasets of biological, physical, oceanographic, and human use data, drawing on federal and state government, academic, and non-profit sources. Habitats and species were grouped into the following categories for analysis by eleven technical teams:

Habitat/Species Category	Habitat/Species Examples
<b>Benthic Habitats</b>	seafloor areas where species like bivalves and cold-water corals live
<b>Coastlines and Estuaries</b>	coastal areas like tidal marshes and seagrass beds
<b>Oceanographic processes</b>	ocean processes like sea surface temperature and ocean mixing
<b>Demersal fish</b>	bottom dwelling fish like cod and flounders
<b>Diadromous fish</b>	fish like alewife and Atlantic sturgeon that use fresh and saltwater
<b>Marine mammals</b>	large mammals like whales and dolphins
<b>Nearshore shellfish</b>	bivalves like oysters and mussels
<b>Large pelagic fish</b>	highly migratory species like tunas and sharks
<b>Small pelagic fish</b>	forage or prey species like menhaden and squid
<b>Sea turtles</b>	marine turtles like loggerheads and leatherbacks
<b>Shorebirds and sea birds</b>	birds like piping plovers, terns and red knots

## Initial Products

- A geospatial database of integrated information on marine ecosystems, habitats, species and human uses at the Northwest Atlantic Marine regional scale. For example, this will show if a particular area is being used by different mammals, or fish species.
- A comprehensive, peer-reviewed narrative report that includes ecological information, data on how many species utilize different geographies and methods for data collection and geospatial analyses.
- A publicly accessible online web mapping and data download service to inform or help users meet diverse natural resource management goals.
- A synthesis report with priority places and strategies that The Nature Conservancy recommends for conservation action within the Northwest Atlantic Marine Region.

## Bringing it Together

- Working to improve our knowledge and better manage our natural resources in the marine environment, connecting important marine habitats and processes to the species that live there (e.g. marine mammals, corals, fish, birds and turtles).
- Characterizing natural resources and human uses in coastal/nearshore areas to better understand interactions and impacts to make more informed management decisions on uses of our coasts, in the face of climate change and sea level rise.
- Describing linkages between freshwater and marine habitats and the species that depend on these linkages (e.g. diadromous fish).
- Mapping human uses at a regional scale for marine spatial planning by stakeholders and federal and state partners to minimize conflicts and promote ecosystem-based management of our oceans.

## Developing strong partnerships

Working together with partners to create solutions for the complex coastal and ocean issues that occur today is a primary focus of our work. We have formed many strong relationships with partners throughout the region as a part of this process. This includes sharing information and devising strategies with federal agencies (NOAA, EPA, DOI, Army Corps, US Navy, FEMA, etc.), state governments, regional governance entities (Northeast Regional Ocean Council, Mid-Atlantic Regional Council on the Ocean), academia, industry and other environmental non-profits.



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