

## Northwest Atlantic Marine Ecoregional Assessment

### *Frequently Asked Questions*

#### **1. What is the geographic extent of the Northwest Atlantic region?**

The Northwest Atlantic region spans from Cape Hatteras in North Carolina to the northern limit of the Gulf of Maine in Canadian waters and extends seaward to the foot of 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, where maps and tools created through the Assessment can help guide conservation based on ecosystems rather than political boundaries.

#### **2. What is an ecoregion?**

Ecoregions (ecological regions) are large, relatively distinct, geographic areas that share similar climate, topography or ocean conditions, and assemblages of species and natural communities. These geographic units help to focus conservation planning. The Northwest Atlantic Marine Ecoregional Assessment encompasses two of the Marine Ecoregions identified by Spalding *et al.* (2007), the Gulf of Maine/Bay of Fundy and the Virginian, at the southern end of his Cold Temperate Northwest Atlantic Province.

#### **3. What are the steps of TNC's Marine Ecoregional Assessment process?**

Ecoregional assessments organize and update biodiversity information, stimulate development of effective conservation strategies and provide benchmarks for measuring success. Ecoregional planning, whether applied to terrestrial or marine ecosystems, includes four basic steps:

1. Identification of conservation targets, including species, habitats and ecological processes that best represent the biodiversity of the ecoregion (species targets may include rare and endangered, wide-ranging, migratory and keystone species);

2. Collection of data and information on the targets' ecology, distribution and where available, current condition and vulnerability to human uses and/or environmental changes;
3. Determination of conservation goals for the targets;
4. Identification of a set of priority sites and strategies for meeting conservation goals for the targets (Groves *et al.* 2002).

#### **4. What products will this Marine Ecoregional Assessment include?**

The Northwest Atlantic Marine Ecoregional Assessment will include two groups of products:

##### Phase One:

- Use of geospatial information (combining analytic methods with geographic information) to create a database and maps of integrated information on marine ecosystems, habitats, target species and human uses at the Northwest Atlantic regional scale. This integrated database is intended to support decision making at all levels by identifying relationships between the ecology of the Northwest Atlantic and the human footprint.
- A peer-reviewed narrative report of the approach and methods used to build the database, as well as a description of conditions and trends in all the marine habitats, target species and human uses included in the analysis.

##### Phase Two:

- Assessment of the integrated data and maps resulting in multiple scenarios for identification of regional marine conservation priority areas.
- A narrative report that describes the priority places and strategies that The Nature Conservancy (TNC) recommends for conservation action within the Northwest Atlantic Marine Ecoregion.

#### **5. What is a decision support system and what planning tools will be used?**

In this context, a decision support system is a centralized database and set of tools that allows practitioners and managers to organize and view information when planning and making decisions about natural resources. The tools can help answer questions, such as: Where are the most productive estuaries in relation to water treatment plants? Or, how do right whale migration routes correlate with shipping lanes? Decision support for conservation planning can allow the potential effects of various management actions to be simulated, visualized or compared. A variety of spatial planning tools will be evaluated as part of the Assessment.

#### **6. How will the Marine Ecoregional Assessment be used?**

The marine assessment is designed to be used by The Nature Conservancy and government, industry, academic and non-governmental organizations to inform conservation action. The Assessment synthesizes data from oceanography, chemistry,

geology, biology and social science to provide a snapshot of the Northwest Atlantic's coastal and marine ecosystems. This enhanced understanding of the region's inter-related biodiversity will help inform strategies to restore habitats, protect areas of high biodiversity, better manage ecosystems and guide appropriate marine spatial planning such as siting of other ocean uses like energy and transportation infrastructure. It will support the management of coastal and ocean areas for ecosystem functions and human uses through multi-objective planning or Ecosystem-Based Management (E-BM). Examples of strategies may include regional governance, removal of dams or shoreline barriers, or market-based solutions, such as leases of submerged lands or monetary incentives to switch to habitat-friendly fishing gear.

Within this framework, TNC will reinforce the many outstanding conservation activities already under way and help to shape a new vision for successful conservation and management of coastal and marine ecosystems throughout the Northwest Atlantic.

## **7. How will this Assessment differ from and add value to other regional planning efforts?**

TNC envisions that the Northwest Atlantic Marine Assessment will provide a foundation for partner coalitions or individual agencies to develop an Ecosystem-Based Management (E-BM) framework. This approach is gaining support around the world for integrated planning and conservation of near and offshore marine environments. An essential requirement of effective E-BM is consideration of multiple species and their habitats as well as socioeconomic factors in the region. Therefore, synthesized information is an important product of the Assessment.

By using existing data and putting it into an E-BM context, TNC will produce an Assessment that is additive, not redundant. TNC's goal is to enhance the ecological and human characterization of the region and illustrate linkages between multiple management objectives through spatial analyses (for example, consideration of biodiversity conservation and fisheries productivity). The Assessment will also combine information from federal and numerous state agencies and data on individual species previously stored by many different organizations. Creation of this centralized decision support database, along with more explicit integration of coastal and marine habitats, is intended to produce innovative methods of analyzing biodiversity in a transparent and flexible fashion that will be useful to others.

## **8. Where else has TNC completed a Marine Ecoregional Assessment?**

TNC has completed Marine Ecoregional Assessments for most of the contiguous United States, with current efforts in Alaska and Hawaii and internationally where we work. For more information on these Assessments (including the Pacific Northwest Coast, Carolinian ecoregion, Puget Sound, Southern Alaska and the Bering Sea and Aleutian Islands), see: <http://www.nature.org/initiatives/marine/strategies/assessments.html>

## **9. Will the Assessment include designation of Marine Protected Areas (MPAs)?**

No, the ecoregional assessment will not delineate Marine Protected Areas. The Assessment will identify areas of high biological significance and areas that are priorities for conservation. With this information TNC will work with our partners to develop a variety of appropriate conservation strategies in consideration of biological, socioeconomic and political circumstances at each site.

## **10. What types of data will be included? What are the data sources?**

The Assessment will include data on marine ecosystems, habitats, species and human uses. Marine ecosystems include major biological communities such as seagrass beds and salt marshes – highly productive and ecologically important habitats that are sensitive to human impacts. Marine habitats are identified to serve as surrogates in the Assessment for biological communities such as benthic or sea bottom types. These habitat types take into account physical characteristics and distribution of species such as shellfish and other benthic invertebrates, as well as movements of fishes, sea turtles, marine mammals and seabirds. Species of concern not adequately captured within ecosystem or habitat types are also identified. Human use data may include locations of shoreline hardening, shipping lanes, port facilities, wind, hydrokinetic energy, oil and gas resources, fishing effort, power plants, dredge sites and toxic hotspots, among others.

The fluid nature of the marine environment requires planners to recognize that habitat boundaries can change over time (Spalding *et al.* 2007). The Northwest Atlantic Marine Assessment will use recent advances in geospatial analysis for marine planning and may develop additional innovations to identify and map important ecological communities and functions. Analysis of critical processes such as sea level rise and polluted runoff will be included, as well as the effects of human activity on marine mammals, fish spawning and migration patterns.

## **11. How can organizations or individuals access information from the Assessment?**

A mix of raw and summarized data will be made available to the public via the Web and CD in accordance with data-sharing agreements. All of the tools, data and results used in the Assessment will be openly available for review by partners and other interested parties, including scientific experts, government agencies, industry representatives and universities. It is envisioned that these partners will adapt the Assessment tools and products to meet their specific needs.

*Spalding M, Fox H, Davidson N, Ferdana Z, Finlayson M, Halpern, B, Jorge M, Lombana A, Lourie S, Martin K, McManus E, Molnar J, Newman K, Recchia C, Robertson J (2007) Marine Ecoregions of the World: A Bioregionalization of Coastal and Shelf Areas. Bioscience 57 (7): 573-583.*

*Groves, C.R., D.B. Jensen et al. 2002. Planning for biodiversity conservation: putting conservation science into practice. Bioscience 52: 499-512.*