The Nature Conservancy
Protecting nature. Preserving life.™

The Nature Conservancy in Delaware
Community Service Building
Suite 1107
100 West 10th Street
Wilmington, DE 19801

Tel (302) 654-4707
Fax (302) 654-4708

nature.org/delaware

June 22, 2010

Minerals Management Service
Office of Offshore Alternative Energy Programs
381 Elden Street
Mail Stop 4090
Herndon, Virginia 20170

RE: Commercial Leasing for Wind Power on the Outer Continental Shelf (OCS) Offshore Delaware – Request for Interest (RFI)

Dear Mineral Management Service:

On behalf of the Delaware Chapter of The Nature Conservancy I am writing to provide comments related to the Commercial Leasing for Wind Power on the Outer Continental Shelf (OCS) Offshore Delaware – Request for Interest (RFI). The Nature Conservancy appreciates this opportunity to provide our input on the first RFI to be issued by Minerals Management Service (MMS) under the 2009 rule governing Renewable Energy and Alternate Uses of Existing Facilities on the Outer Continental Shelf and applaud efforts to move forward with alternative energy.

The Delaware Chapter recognizes wind as a valuable, non-polluting renewable source of energy. It is capable of reducing our reliance fossil fuels and thereby reducing greenhouse gas emissions, pollution and associated environmental impacts. While we continue to closely follow the tragic developments in the Gulf of Mexico, it is imperative that pending activities and permitting for [Mid-Atlantic] off-shore wind energy continue in a reasonable, responsible and orderly way. The development of wind farm facilities in the OCS, particularly Offshore Delaware, will require close collaboration with both industry and other affected parties to ensure that their siting, construction and eventual operation are compatible with marine biodiversity conservation. At this early stage in the process it is important that the proposed lease blocks be examined to avoid detrimental impacts from wind farm development on significant and sensitive natural resource features and species. The Delaware Chapter appreciates the opportunity to submit the following comments.

The Nature Conservancy's Investments in Coastal and Marine Conservation in Delaware and the Mid- Atlantic

The mission of The Nature Conservancy is to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive. With the support of more than one million members, The Nature Conservancy has protected more than 120 million acres and 5,000 river miles around the world and currently has more than 150 marine conservation projects in 32 countries and in every coastal state in the U.S.

The Nature Conservancy has been working to conserve, protect and restore coastal and marine habitats and species in Delaware and across the Mid-Atlantic for nearly four decades. In Delaware, the Conservancy has helped protect more than 30,000 acres including the establishment of five nature preserves in key sites within the Delaware Bayshores project area. This region is recognized by multiple organizations for its importance to land birds, shorebirds, seabirds and waterfowl. Lying within the New England/Mid-Atlantic Bird Conservation Region (BCR 30) and it is a Western Hemisphere Shorebird Reserve Network Site of Hemispheric Importance (the highest ranking), a Ramsar Wetland of International Importance, and a globally Important Bird Area designated by the American Bird Conservancy and National Audubon. TNC's Delaware Bayshores also lies within the geographic priority areas identified by the North American Waterfowl Management Plan, Partners in Flight, U.S. Shorebird Conservation Plan, North American Waterbird Conservation Plan, and the Atlantic Coast Joint Venture (ACJV). (See attached Eastern Region Coastal Migratory Bird Stopover Sites.)

In conjunction with the priority bird habitats within the area, the shores of Delaware Bay are home to one of the world's great natural phenomena. Each spring, thousands of horseshoe crabs emerge from the ocean to spawn on its beaches. This annual event coincides precisely with the arrival of thousands of famished shorebirds migrating from South and Central America. At perhaps their only stop on a 10,000 mile odyssey to the Canadian Artic, they feast on horseshoe crab eggs and other invertebrates along the Delaware Bayshores.

We continue to work closely with private, state and federal partners to protect, enhance, and restore these unique and productive habitats that provide a refuge for a diversity of coastal and marine species. Our work in Delaware is just one example of the Conservancy's many Mid-Atlantic coastal and marine conservation investments; our chapters in Maryland, New Jersey, and Virginia are all leading efforts to conserve and restore coastal and marine resources.

Our decades of coastal land conservation and habitat restoration work laid the foundation for our more recent efforts to develop robust marine programs in the Mid-Atlantic in order to achieve more effective conservation of marine biodiversity, including migratory marine mammals, sea turtles, sea birds and fish. The development of marine ecoregional assessments and corresponding conservation plans (extending from the bays, estuaries, and beaches of the coast to the edge of the continental shelf) has been at the center of our efforts. The Northwest Atlantic Marine Ecoregional Assessment (NAM-ERA) released publicly this spring, extends north from Cape Hatteras to the Bay of Fundy (Greene, et al. 2010). Three years in the making, this is the product of intensive work with numerous representatives from state and federal agencies, academic institutions, and industry groups who shared their data and expertise on marine species, habitats, and environmental factors. The Conservancy collected and analyzed hundreds of data files, including spatial data layers, from partners to characterize the marine resources and human uses of the Northwest Atlantic. External peer review from eleven technical science teams and two workshops with participation by over two hundred marine science and policy experts was used to help ensure the production of a credible, high-quality report and associated spatial data products. These are available online for review and use at nature.org/easternusmarine. The Delaware Chapter believes these reports and their spatial data products can support MMS in its efforts to evaluate the environmental issues and concerns called for in the Request for Interest (RFI). Similarly, it is these deep investments in coastal and marine conservation in the Mid-Atlantic that establishes our interest in, and provides the foundation for, our comments on the proposed activity.

Utility of Coastal and Marine Spatial Planning for Siting Offshore Renewable Energy

The Nature Conservancy is actively involved in advancing the policy and practice of integrated Coastal and Marine Spatial Planning within the United States which we submit holds great relevance for informing where MMS should consider leasing OCS blocks for offshore wind. Coastal and Marine Spatial Planning (CMSP) is defined in the White House Council on Environmental Quality's *Interim Framework for Effective Coastal and Marine Spatial Planning* as a comprehensive, adaptive, ecosystem-based and transparent spatial planning process. Based on sound science, CMSP identifies and analyzes areas most suitable for various types or classes of activities in order to reduce conflicts among uses, minimize environmental impacts, facilitate compatible uses, and preserve critical ecosystem services to meet economic, environmental, security, and social objectives. We anticipate the issuance of a Presidential Executive Order this summer to launch the CMSP processes as outlined in the Framework. While working to advance CMSP, TNC has been actively involved in supporting and working closely with the Mid-Atlantic Regional Council on the Ocean (MARCO) to advance its four overarching objectives related to habitat protection, climate change, water quality and energy development. The Conservancy is supporting MARCO's effort by delivering data products from the NAM-ERA. In addition, we are providing MARCO with decision support tools and offering technical and

strategic guidance in meeting their conservation objectives. An example of a recent tool that is under development is TNC's Virginia Chapter's effort to build a regional GIS data portal to support future CMSP efforts.

While the Delaware Chapter recognizes the desire to accelerate domestic renewable energy production like offshore wind, we recommend the regulatory process adhere to the principles laid out in the Interim Framework for Effective Coastal and Marine Spatial Planning. A proactive way to do this would be to engage MARCO and coordinate with their emerging marine spatial planning initiative. This will ensure that offshore wind farms in OCS Delaware and the Mid-Atlantic are sited and permitted compatibly with other uses and the conservation marine resources. **I want to be clear that the Delaware Chapter does not support a moratorium or delay of offshore wind permitting pending the development of a Mid-Atlantic CMSP**. The Chapter does, however, advocates for the careful, thoughtful and well-informed leasing and siting of commercial offshore wind facilities that seek to avoid and minimize conflicts with other uses and marine habitats and high migratory species while also accounting for cumulative impacts associated with the build-out of multiple wind farms in the Mid-Atlantic.

Environmental Issues, Concerns and Further Study Needs

Pursuant to the Request for Information (RFI) issued on April 26, 2010 all interested and affected parties are encouraged to comment on and provide information on environmental issues and concerns that will be useful in the consideration of the area of interest identified for commercial leasing on the outer continental shelf (OCS) Offshore Delaware. What follows are a series of recommendations for data consultation, collection and further environmental studies for three resources of primary concern to us: benthic habitats, migratory birds, and marine mammals. These recommendations are primarily based upon the previously referenced Northwest Atlantic Marine Ecoregional Assessment.

A. Benthic Habitats

The habitats and associated marine ecology of offshore marine habitats have not been well studied in the Mid-Atlantic Bight at large and yet could be significantly impacted by the development of offshore wind. The conventional wisdom is that the Mid-Atlantic is a vast plain of sand, largely devoid of hard bottom structure and, indeed, flat sand habitat does dominate this region. However, several complex habitat types have been documented on the Continental Shelf, 10-20 miles offshore of Ocean City, Maryland, including sea-whip meadows (*Leptogorgia virgulata*, a soft coral), and boulders and sand stone slabs densely colonized by northern star coral (*Astrangia pocilata*, a hard coral), anemones, sponges, and other hard bottom species (Hawkins, personal communication. 2008). Dense populations of black sea bass, tautog, and other fishes are found in close association with these structures. Fine resolution surveys have

not yet been conducted, limiting our understanding of the locations of coral habitat in the mid-Atlantic. However, the occurrence of such habitats to the north and south of Ocean City seems probable. As these habitats are extremely sensitive to bottom disturbance, investigating, characterizing and documenting locations and distribution of live bottom patch habitats should be a major priority for MMS during the environmental review process. These areas must be avoided in the development of wind projects offshore.

Moreover, The Nature Conservancy has taken steps to address benthic habitat data gaps through its recently completed and publically available Northwest Atlantic Marine Ecoregional Assessment mentioned above. A team of scientists at the Conservancy developed an innovative method for defining and mapping the diversity and extent of marine benthic habitat types to characterize the seafloor of the OCS (Anderson, et al 2010). These habitats are defined using information on organism distributions in combination with interpolated data on bathymetry, sediment grain size, and seafloor topography. For example, silt flats in shallow water typified by a specific suite of amphipods, clams, whelks and snails is one habitat, while steep canyons in deep water inhabited by hard corals is another. Again, these data and full documentation of the methods and results are publically available through the Conservancy's website (nature.org/easternusmarine). Attached is Map 1 illustrating an overlay of the RFI OCS blocks with the diversity of benthic habitats mapped in the offshore waters of Delaware.

While these data are too coarse to provide the resolution necessary to site structures associated with wind farm developments within the proposed lease blocks, we recommend that MMS use these data and methods as the basis for more detailed [future] environmental review and analysis of the proposed lease area. Such an analysis is consistent with MMS's [per] NEPA requirements and will help to better describe the benthic habitats and communities that exist in the proposed lease area. Efforts also should be made to determine their relative sensitivities to impacts associated with offshore wind development. The goals of the study should be to collect data at proposed lease sites within the OCS Offshore Delaware lease area in order to identify both hard bottom and soft locations and associated organisms identified to the lowest possible taxon. This will enable the building of community profiles and identification of rare or unique species assemblages.

B. Migratory shorebirds, waterfowl, and sea birds

Significant potential conflict exists between the operations of commercial offshore wind turbines and migratory bird pathways in the Delaware RFI area and the Mid-Atlantic at large. The coastal route of the Atlantic Flyway, one of four principal flyways in North America, passes through the Mid-Atlantic and the RFI area. According to a recently completed paper by Dr. Brian Watts of the Center for Conservation Biology at the College of William and Mary (Watts 2010):

> "The Atlantic Flyway supports one of the largest near shore movement corridors of birds in the world including many declining species of conservation concern. Much of the bird activity along the flyway occurs within a thin veneer along the coastline. Birds funnel through the flyway from a broad geographic area and their relationships to the Atlantic Coast are diverse. In addition to using the coastline as a movement corridor, many species use portions of the Atlantic Coast as migratory staging areas, breeding grounds or wintering grounds. Of particular conservation significance are taxonomic forms or populations that depend exclusively on the Atlantic Coast for some portion of their life cycle."

Sea birds and sea ducks birds migrate to the Mid-Atlantic during the fall, winter and spring months to forage at shoals, but are at highest concentrations in the winter months. Species of concern include both piscivores (e.g. common and red-throated loons, northern gannets and red-breasted mergansers) commonly feeding on menhaden. Also of concern are benthivores (Scoters) which feed on small crustaceans, larval fish and polychaete worms. Loons, gannets, mergansers and scoters are mostly commonly seen within 20 km of the coast, within the 20 meter isobath. These birds are ten times more abundant on coastal shoals in the lower Chesapeake Bay and off Assateague Island than other offshore areas (D. Forsell, personal communication, 2006).

The most obvious impact of concern to migratory birds due to offshore wind turbines is that of collision and mortality. According to the Watts paper:

> "Build out of the wind industry along the Atlantic Coast will result in the largest network of overwater hazards ever constructed, adding another layer of mortality to many populations that are contending with a list of human-induced sources of mortality. From a population perspective, the central question is not how many individuals are killed annually but if the focal population is able to sustain the mortality incurred and still reach management objectives. Mortality is a cumulative factor in population regulation and defining limits on human-induced mortality is a critical component of management decisions."

In addition to mortality due to collision, offshore wind developments can cause the displacement of staging and foraging populations due to strong avoidance behavior exhibited by the birds. This can lengthen birds' migration causing exhaustion and depletion of fat resources before birds reach their destination. Birds may also use these turbines as resting areas and new feeding grounds delaying their migration and becoming more vulnerable to predation by raptors (Michels et al 2007).

In order to fully evaluate the impacts of migratory birds in the Delaware RFI, surveys of sea ducks and sea birds must be conducted. Overall, we know relatively little about the behaviors and migratory patterns and densities of sea ducks and sea birds in the Mid-Atlantic. Since known concentration areas are located directly within areas of the Delaware RFI, it is imperative that comprehensive surveys are conducted to complete an adequate and credible environmental review before leasing OCS blocks in this area for offshore wind. Moreover, the Conservancy recommends MMS use the method developed in Dr. Watts paper to determine the probable impact on migratory bird populations known to use this lease area. This analysis will be fundamental to siting wind turbine structures to avoid and minimize migratory bird impacts. This analysis will also assist in defining best management practices that will need to be employed during the construction, operation and decommissioning phases of wind farm development.

C. Marine Mammals

Consideration of impacts to highly migratory marine mammals should be a high priority of MMS' environmental review of Delaware's RFI OCS blocks. During the construction of offshore wind farms, an increase in vessel traffic will increase the potential for collisions with marine mammals, the most prevalent cause of mortality for large whales in the mid-Atlantic. Sound disturbance is expected to occur during all phases of wind farm development with higher levels of noise during construction and decommission, which can disturb the echolocation of whales and porpoises, causing strong avoidance behavior. The migratory life histories of marine mammals enable them to avoid sonar disturbances; however, this may cause them to avoid critical feeding and overwinter grounds. Therefore, disturbance levels are related to species depending on migration, feeding, fasting, and breeding periods (Tyack 2008).

Overall, we collectively know very little about the migration patterns, feeding, fasting and stocks of marine mammals, especially large whales, in the Mid-Atlantic. The Mid-Atlantic in particular is the least studied region in the U.S. for large whale activity and population estimates. What we do know is that approximately 40 species of marine mammals are highly migratory and seasonal throughout the Mid-Atlantic. Three species of special concern include the Northern right whale, humpback whale—both of which are listed as federally endangered—and the bottlenose dolphin (coastal and offshore populations). The Mid-Atlantic provides critical juvenile and foraging habitat between April and November for the northern migratory stock of the bottlenose dolphin. Bottlenose dolphins are common in the waters of the RFI OCS blocks during the summer based on effort-correct observation data synthesized by The Nature Conservancy's ecoregional assessment (See Map 2 attached). Humpback whales have been observed to utilize the near-shore areas of Virginia and North Carolina north of Hatteras for winter foraging habitat (Swingle et al. 1993). North Atlantic right whale, considered to be the

most critically endangered large whale in the world with current population estimated at 438 individuals (North Atlantic Right Whale Consortium 2009), migrates in the nearshore coastal corridor in the late autumn en route to calving grounds in the South Atlantic coastal waters and return with calves on their way to summer foraging in New England and Nova Scotia during the spring (Winn et al., 1986).

We recommended that one of MMS's top priorities be to fill data gaps about marine mammals in Mid-Atlantic offshore waters for the Delaware and subsequent RFI's by working with other federal agencies to conduct surveys, biopsies, and tagging to determine the presence and absence of different large whale species, stock identification, timing of migrations and overwintering and characterization of key activities and behaviors (such as feeding). These studies are critical to providing the baseline information on migratory patterns and behaviors necessary to credibly evaluate impacts due to large scale offshore wind developments in this region.

Additional Concerns

It is clear to the Delaware Chapter that additional environmental studies need to be conducted, data collected and analyzed in the proposed lease area. I have noted above several such studies and informational needs. At this juncture, it is understood that without such studies it is difficult to provide additional comments on specific siting, construction, operation and decommissioning requirements that may be needed for any wind farm developer that successfully leases this area.

The Delaware Chapter encourages MMS to work with all affected parties to avoid, minimize and where possible mitigate damage such a facility may cause to wildlife and marine resources. Clearly, there is a need for a comprehensive NEPA analysis that will be available for public review. We look forward to such a review and having the opportunity to comment on any potential impacts.

Sincerely,

Roger L. Jones
Vice President and State Director

References Cited

Anderson, M., J. Greene, D. Morse, C. Shumway, and M. Clark. 2010. Benthic habitats. *In:* J.K. Greene, M.G. Anderson, J. Odell, and N. Steinberg, eds. 2010. The Northwest Atlantic Marine Ecoregional Assessment: Species, Habitats and Ecosystems. Phase One. The Nature Conservancy, Eastern U.S. Division, Boston, MA.

Forsell, D. 2006. Personal Communication. Chesapeake Bay Field Office of the U.S. Fish & Wildlife Service, Annapolis, MD.

Greene, J., S. Yozell, and M. Clark. 2010b. Cetaceans. *In:* J.K. Greene, M.G. Anderson, J. Odell, and N. Steinberg, eds. 2010. The Northwest Atlantic Marine Ecoregional Assessment: Species, Habitats and Ecosystems. Phase One. The Nature Conservancy, Eastern U.S. Division, Boston, MA.

Michel. J., Dunagan, H., Boring, C., Healey, E., Evans, W., Dean, J.M., McGillis, A. and Hain, J. 2007. Worldwide Synthesis and Analysis of Existing Information Regarding Effects of Alternative Energy Uses on the Outer Continental Shelf. Pp254. U.S. Department of the Interior, Minerals Management Service, Herdon, VA. MMS OCS Report 2007 – 038.

North Atlantic Right Whale Consortium. 2009. 01 November 2007 – 30 April 2009. North Atlantic Right Whale Consortium, New England Aquarium, Boston, MA.

OPTF (Ocean Policy Task Force). 2009. Interim Framework for Effective Coastal and Marine Spatial Planning. The White House Council on Environmental Quality. December 9, 2009. Washington, D.C.

Swingle, W.M., Barco, S.G., Pitchford, T.D., McLellan, W.A. and Pabst, D.A. 1993. Appearance of juvenile humpback whales feeding in the near-shore waters of Virginia. *Marine Mammal Science* 9: 309-315.

Tyack,P. 2008. Implications for marine mammals of large-scale changes in the marine acoustic environment. *Journal of Mammalogy 89: 549-558.*

Watts, B. D. 2010 for the Virginia Coastal Management Program. Wind and waterbirds: Establishing sustainable mortality limits within the Atlantic Flyway. Center for Conservation Biology Technical Report Series,CCBTR-05-10. College of William and Mary/Virginia Commonwealth University, Williamsburg, VA. 43 pp

Winn, H. E., C. A. Price and P. W. Sorensen. 1986. The distributional biology of the right whale (*Eubalaena glacialis*) in the western North Atlantic. Report to the International Whaling Commission, Special Issue 10:129-138.

Attachments

Eastern Region Coastal Migratory Bird Stopover Sites

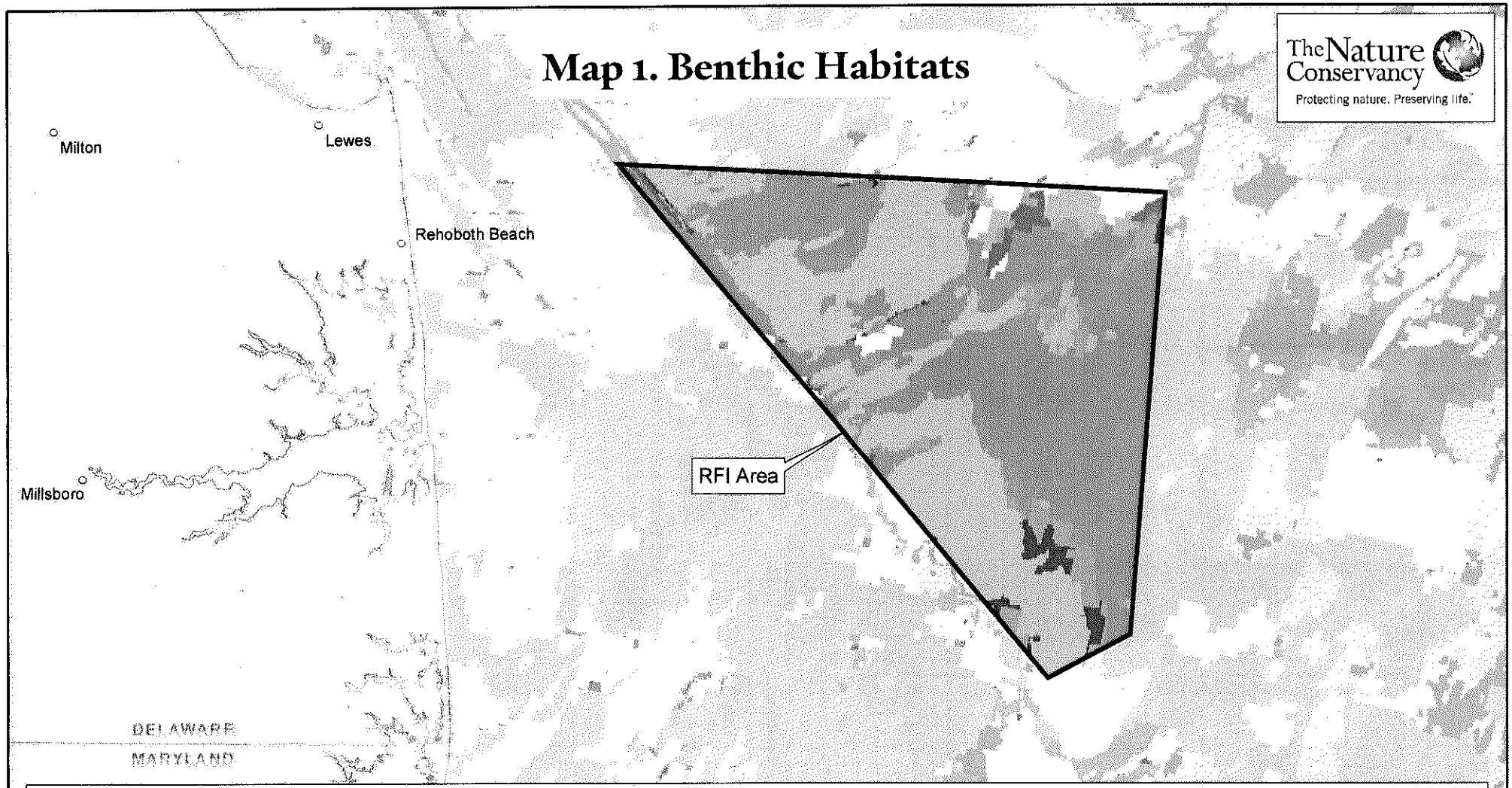
Map 1. Benthic Habitats

Map 2. Bottlenose Dolphin Sightings

Map 3. Coastal Migratory Bird Stopover Sites

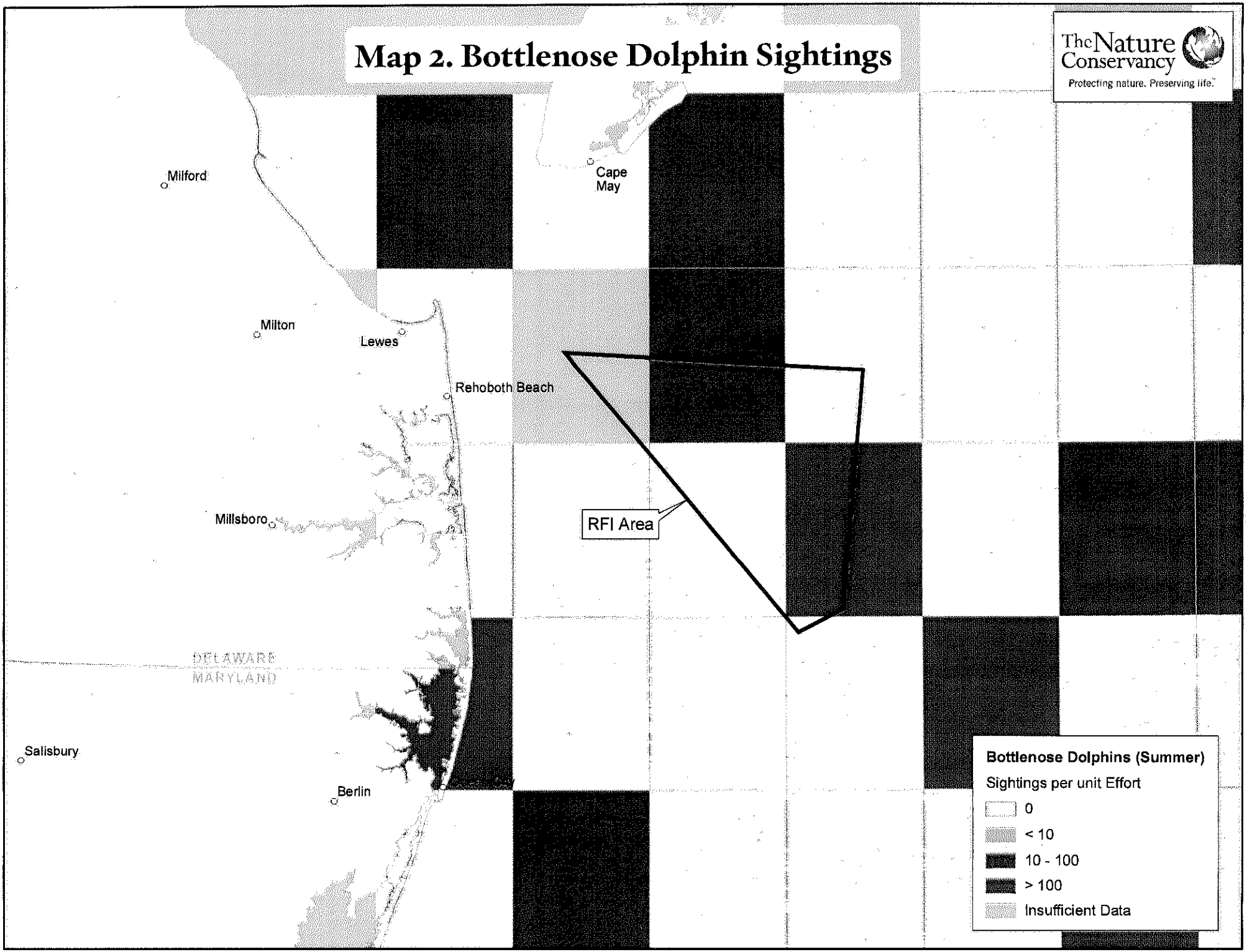
Map 1. Benthic Habitats

The Nature Conservancy
Protecting nature. Preserving life.



Code	Description	Selected Species
1	Depressions and mid-position flats, shallow to moderate depth (0 - 45 m) on coarse to fine sand	Shimmy worm , Astarte, Lancelet
2	Flat depressions at shallow to moderate depth (0 - 45 m) in medium sand	Chevron worm , Burrowing anemone , Dog welk
4	Mid-position flats in shallow water (25 - 45 m) on coarse to medium sand	Bamboo worm , Thread worm , Chestnut astarte
7	Mid-position flats and depressions in shallow water (25 - 45 m) on medium to coarse substrate	Fringe worm , Frilled anemone , Common sea star
25	Depressions at moderate depths (15 - 82 m) on fine to coarse sand	Bristle worm , Moon snail, Lined anemone
32	Mid-position flats at shallow to moderate depths (22 - 45 m) on medium sand	Atlantic rock crab , Longnose spider crab, Common northern moon snail
38	Depressions in water shallow (15 - 22 m) on medium to coarse sand	Bamboo worm , Olivepit porcelain crab , Arctic paper-bubble
44	Depressions and mid-position flats mostly very shallow (0 - 22m) on fine to coarse sand	Jonah crab , Amethyst gemclam , Northern sea star
64	Depressions and mid-position flats in shallow water (15 and 22 m) on medium sand	Blood worm , Sharp-tailed cumacean , Blue mussel
84	All types of flats at moderate depth (22 - 82 m) on fine to medium sand	Beardworm, Sea urchin , Nutclam
87	Depressions and high flats in shallow water (15 - 22 m) on medium sand	Burrowing scale worm , Glass shrimp , Sand dollar
216	High slopes in deep water (95 - 592 m) on medium to fine sand	American lobster , Sea feather , Bobtail squid
229	High flats and depressions at shallow to deep depths (22- 592 m) on a fine to medium sand	Jonah crab , Green sea urchin , Anemone

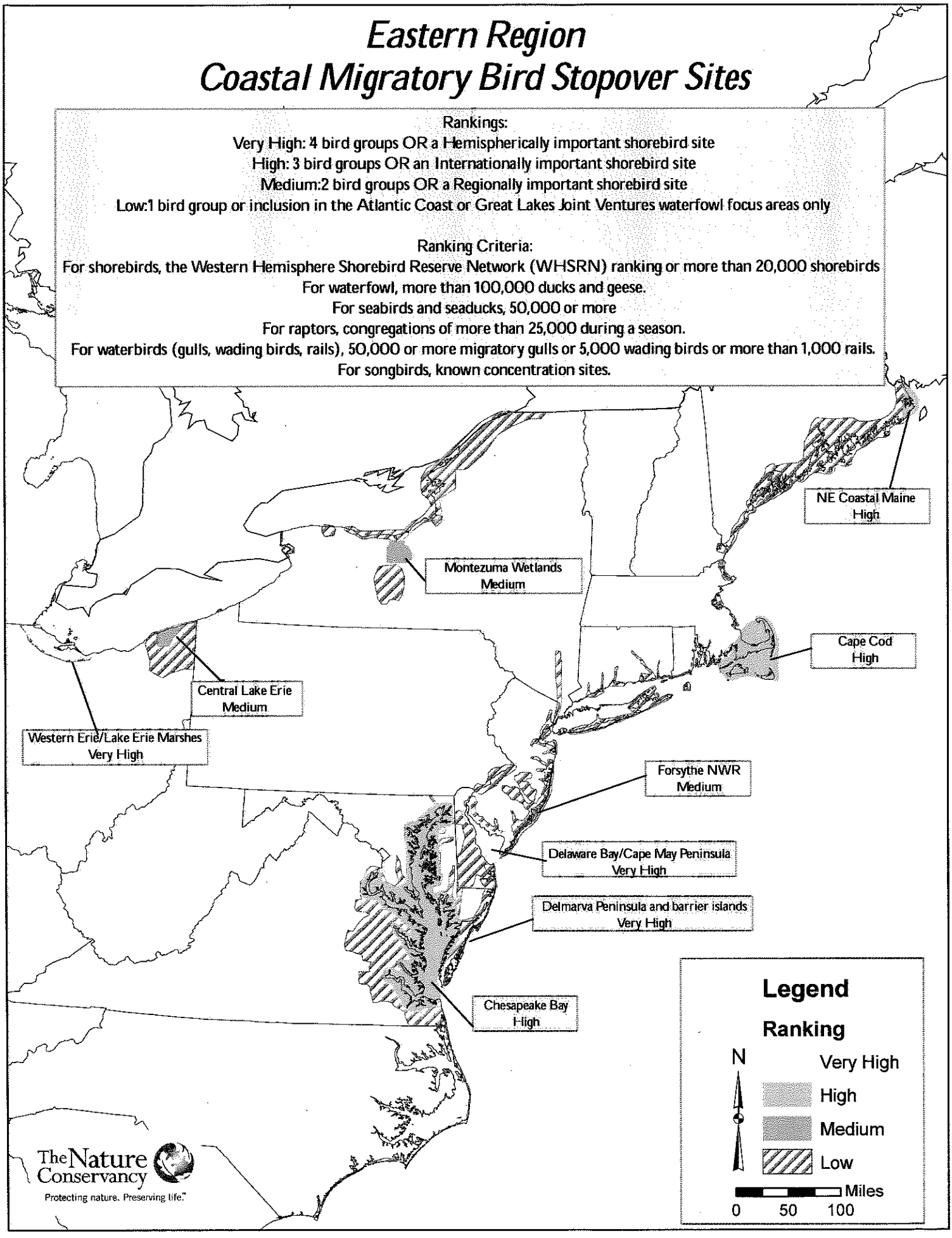
Map 2. Bottlenose Dolphin Sightings



Eastern Region
Coastal Migratory Bird Stopover Sites

Rankings:
Very High: 4 bird groups OR a Hemispherically important shorebird site
High: 3 bird groups OR an Internationally important shorebird site
Medium:2 bird groups OR a Regionally important shorebird site
Low:1 bird group or inclusion in the Atlantic Coast or Great Lakes Joint Ventures waterfowl focus areas only

Ranking Criteria:
For shorebirds, the Western Hemisphere Shorebird Reserve Network (WHSRN) ranking or more than 20,000 shorebirds
For waterfowl, more than 100,000 ducks and geese.
For seabirds and seaducks, 50,000 or more
For raptors, congregations of more than 25,000 during a season.
For waterbirds (gulls, wading birds, rails), 50,000 or more migratory gulls or 5,000 wading birds or more than 1,000 rails.
For songbirds, known concentration sites.



The Nature Conservancy
Protecting nature. Preserving life.™