ENVIRONMENTAL STUDIES PROGRAM: Ongoing Studies

Region: Atlantic

Planning Area(s): North, Mid-, and South Atlantic

Title: Atlantic Marine Assessment Program for Protected Species II

BOEM Cost: $7,500,000 **Period of Performance:** FY 2014-2018

Conducting Organization(s): National Marine Fisheries Service

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Description:
Background: The Atlantic Marine Assessment Program for Protected Species (AMAPPS) is a collaborative program involving BOEM, U.S. Navy, NOAA Fisheries, and U.S. Fish and Wildlife Service. The program focuses on collecting seasonal data on the abundance, distribution, and behavior of marine mammals, sea turtles, and seabirds throughout the U.S. Atlantic EEZ and providing spatially explicit information in a format that can be used by Federal decision makers with living marine resource responsibilities. Since its inception in 2010, AMAPPS has successfully conducted surveys of the entire Atlantic EEZ in each season and has begun conducting replicate seasonal surveys. AMAPPS also has supported tagging of 60 sea turtles, and additional collaborations have resulted in a total of 87 sea turtles tagged to date, with at least 30 more planned for subsequent years. A sea turtle identification guide has been developed for aerial surveys, and analyses of 2010 summer aerial survey and turtle tagging data have provided the first estimate of at-sea abundance of loggerhead sea turtles in the U.S. Atlantic. Analyses of 2011 summer aerial and shipboard survey data have led to updated abundance estimates for 18 cetacean species or species groups. Analyses are currently underway to estimate the abundance of harbor seals and seabirds, and modeling efforts are underway to develop spatially explicit models of seasonal density of various species to produce a decision tool for a variety of purposes, including evaluation of the potential for various human activities (e.g., alternative energy development and military readiness activities) to interact with and impact marine mammals, sea turtles, and/or seabirds. AMAPPS is also actively coordinating with other BOEM, NOAA, U.S. Fish and Wildlife Service, U.S. Navy, and Department of Energy funded efforts that are surveying and modeling the density, abundance, and distribution of marine mammals, sea turtles, and seabirds.

AMAPPS was initially conceived as a long-term research and monitoring program, and the first 5-year phase is drawing to a close in FY2014. Although great strides have been made, and more are expected to be made by the end of FY2014, in improving the base

knowledge regarding the abundance and distribution of marine mammals, sea turtles, and seabirds, important information gaps remain. Given resource constraints, the first five years of AMAPPS have focused on conducting broad scale surveys and developing spatially explicit models, with an additional focus on tagging of loggerhead sea turtles, given their propensity for long-duration dives, associated impacts on availability bias and abundance estimates needed to be determined. For the next 5-year phase (FY2015-FY2019), core survey work will need to continue, particularly given the dramatic inter-annual differences in oceanographic conditions within just the first three years (2010-2012) of AMAPPS. Fine or finer scale surveys will also likely be required, along with continued efforts to integrate and cross-validate fine-scale and broad-scale survey results. Additional emphasis could be placed on tagging seabirds, cetaceans, and seals both to inform survey corrections and to gather information on behavior, seasonal movements, and habitat use. Also, future AMAPPS efforts may incorporate more passive acoustic survey and monitoring efforts to learn more about large whale behavior, movements and habitat use. Analytical and modeling results from the first phase of AMAPPS should help inform which of these various topics will be most fruitful to focus on during the next 5-year phase.

The primary tools for the assessment of population abundance and spatial distribution are aerial and shipboard line-transect surveys. These surveys typically employ visual detection of animals at the surface, though more recently passive acoustic monitoring has been incorporated into these surveys to improve detection of marine mammals. Within U.S. Atlantic waters, the NOAA Northeast and Southeast Fisheries Science Centers have jointly and independently conducted broad-scale aerial and vessel surveys to support stock assessments. Regional aerial surveys have primarily been used to assess marine mammals and turtles within waters over the continental shelf to just beyond the shelf break. The deeper waters of the continental shelf and the inner continental slope to the U.S. Exclusive Economic Zone (EEZ) are most typically surveyed using large vessels and provide data primarily on marine mammals and sea birds.

Objectives: The objective of this study is to improve the knowledge base of Federal agencies with living marine resource responsibilities through improved surveys of marine mammals, sea turtles, and avian species. This will be accomplished by the following:

- collect broad-scale data over multiple years on the seasonal distribution and abundance of marine mammals (cetaceans and pinnipeds), marine turtles, and sea birds using direct aerial and shipboard surveys of coastal U.S. Atlantic Ocean waters;
- collect similar data at finer scales at several sites of particular interest to NOAA partners using visual and acoustic survey techniques;

- conduct tag telemetry studies within surveyed regions of marine turtles, pinnipeds, seabirds to develop corrections for availability bias in the abundance survey data;
- collect additional data on habitat use and life-history, residence time, and frequency of use;
- assess the population size of surveyed species at regional scales; and develop models and associated tools to translate these survey data into seasonal, spatially explicit density estimates incorporating habitat characteristics.

Methods: The AMAPPS program will update the available data for marine mammals, turtles, and seabirds, and address critical information gaps in their assessments. The primary spatial scope of the program includes the U.S. western North Atlantic Ocean coast from the shoreline to the U.S. EEZ. Waters of major estuarine systems (e.g., Delaware Bay, Chesapeake Bay, and Pamlico Sound) may also be covered during aerial surveys. Within the larger area, there are a number of locations where fine-scale visual and/or passive acoustic surveys will be completed to provide enhanced resolution of densities by season. These data will also provide additional information for testing of the density estimation models to be developed under the 6th objective. Fine-scale surveys will be incorporated into the survey effort, as appropriate.

Seabird data will be collected in several ways. Ongoing coastal aerial sea duck and seabird surveys will be expanded spatially (northward and seaward to -30 nm), and seasonally to provide detailed estimates of seabird abundance and distribution. Seabird observers will also be deployed on NOAA survey vessels conducting marine mammal and turtle line transect surveys as well as on other NOAA fishery cruises as Platforms of Opportunity to obtain data on offshore distribution and abundance of seabirds. For seabird surveys conducted from vessels, surveys should go to the shelf break. Data collection for the first 5-year phase of AMAPPS began during summer 2010 with aerial surveys in the Northeast and Southeast Atlantic Regions.

Importance to BOEM: Geographic information describing marine mammal presence, distribution and seasonality is needed for siting and environmental permitting of offshore wind energy projects. In addition, information regarding baseline noise levels is needed in order to determine the potential impacts from underwater noise that may occur during construction and operation of offshore wind energy facilities upon marine mammals and other aquatic species.

Current Status: Awarded September 9, 2014. AMAPPS partner workshop held on 6th and 7th August 2014 to define research priorities, currently planning 2015 field schedule.

Final Report Due: May 30, 2020

Publications: None.

Affiliated Web Sites: http://www.wildlifetracking.org/index.shtml?project_id=537
http://www.nefsc.noaa.gov/psb/AMAPPS/
http://nefsc.wordpress.com/

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ESPIS: Environmental Studies Program Information System
All *completed* ESP studies can be found here:
http://www.data.boem.gov/homepg/data_center/other/espis/espisfront.asp