

STUDY TITLE: Data Search and Literature Synthesis for North and Central Atlantic Ocean

REPORT TITLE: Literature Synthesis for North and Central Atlantic Ocean

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BACKGROUND: The northern United States (U.S.) Atlantic seaboard between Cape Hatteras, North Carolina, and Canada has not been developed for potential renewable and alternative energy reserves. This temperate region is distinctive for the Atlantic coastline , with unique physical oceanography, physiography, and zoogeography; several valuable fisheries; and characteristic weather patterns. It harbors a suite of protected coastal and offshore marine organisms including sea turtles, birds, fishes, and marine mammals, many of which are considered endangered or threatened.

The most recent previous synthesis of physical oceanographic information in the U.S. Atlantic Coast conducted for BOEMRE was in 1992 and indicated information gaps. Given the date of the review and the certain advance of knowledge since then, a synthesis of current knowledge was commissioned. This literature synthesis is intended to help in understanding the unique and varied oceanographic resources in the study area and in analyzing how they will be able to respond to potential alternative energy development.

OBJECTIVES: Overall objectives are to: (1) to develop comprehensive information on the human and environmental aspects of the region; (2) to update the understanding of the ecological communities, the dominant oceanographic and other processes that drive the shelf and deep-sea ecosystems, and the potential sensitivities of the area; and (3) to identify relevant data gaps in the current state of knowledge of the study area.

Specific project goals are to develop: (1) a computer-searchable reference database (annotated bibliography) incorporating existing literature, relevant data, and ongoing research pertaining to the geological, physical, chemical, and biological processes of the study area, as well as to social and economic data and literature, and to research and development technology in alternative energy development; (2) a synthesis report that characterizes the study area and the scope and depth of information available in the different disciplines.

DESCRIPTION: The study area was defined geographically as extending south from the Canadian border to Cape Hatteras, North Carolina, and seaward from state waters (exclusive of estuarine waters) to the 100-m isobath.

A comprehensive literature search was completed, organized by oceanographic discipline, to identify relevant existing information on resources in the study area and the potential impacts of offshore alternative energy development. The first step of the search involved online commercial and government databases. Subsequently, a broad Internet search was conducted, using search terms similar to the online database searches. The literature search was refined to focus on literature for the resources and impacts most relevant to the development of alternative energy in the study area. In addition, academic and research institutions were contacted as appropriate to gain access to information not available through our electronic searches, or to pursue specific lines of inquiry.

All references were compiled in an electronic Annotated Bibliography using EndNote reference software (subsequently converted for use in Reference Manager). The records were organized into separate volumes within the master database for each of the six oceanographic disciplines. In addition, complete PDF files were attached to the record for non-copyrighted studies, if available.

Geospatial data was also collected during the literature search. These sources of geospatial data were included as references in the Annotated Bibliography, and the datasets themselves were also delivered in geospatial data formats for upload to the BOEMRE Coastal and Offshore Resource Information System (CORIS), part of the BOEMRE corporate Technical Information Management System (TIMS) database.

In addition, there was a subset of references whose subject geographic scope was sufficiently narrow to enable creation of a “footprint” file, which delineated the boundaries of the area under specific study through the creation of geospatial shapefiles. These footprint files are also compatible with the CORIS database.

SIGNIFICANT CONCLUSIONS: Important data gaps remain across the full range of oceanographic resources in the study area.

STUDY RESULTS: Over 1400 annotated references are included in the database.

STUDY PRODUCTS: Kaplan, B. ed. Literature Synthesis for North and Central Atlantic Ocean, Final Report for U.S. Department of the Interior, Bureau of Ocean Energy Management, Regulation and Enforcement, Alternative Energy Program, Herndon VA. OCS Study BOEMRE 2011-012, 447 pp.

Mangi Environmental Group 2010, Annotated Bibliography for North and Central Atlantic, Reference Manager software database, U.S. Department of the Interior, Bureau of Ocean Energy Management, Regulation and Enforcement, Alternative Energy Program, Herndon VA. Contract M07PD13383.

Mangi Environmental Group 2010, Geospatial datasets, U.S. Department of the Interior, Bureau of Ocean Energy Management, Regulation and Enforcement, Alternative Energy Program, Herndon VA. Contract M07PD13383.

Mangi Environmental Group 2010, Final PowerPoint Summary Presentation. Contract M07PD13383.

