

## **BOEM ENVIRONMENTAL STUDIES PROGRAM: ONGOING STUDIES**

**BOEM OCS Region:** [Gulf of Mexico](#)

**Title:** EcoSpatial Information Database – U.S. Atlantic Region  
(GM-08-x13)

**Planning Area:** North Atlantic, Mid-Atlantic, South Atlantic

**Total Cost:** \$2,118,964

**Period of Performance:** FY 2009-2013

**Conducting Organization:** AMEC Earth & Environmental, Inc.

**BOEM Contact:** [Dr. Rebecca Green](#)

### **Description:**

**Background:** Most of the past Bureau of Ocean Energy Management (BOEM) environmental work in the Atlantic region has been site specific and targeted rather than focused on broad geographic scales. With new offshore alternative energy activity and the possibility of new oil and gas activity, BOEM needs comprehensive information about the ecology of the U.S. Atlantic Region. Background material and geographic information system (GIS) based maps that overlay many types of information are needed for BOEM to make critical decisions about Bureau-regulated activities, such as permitting and siting of development.

This project will collate existing sources of information to produce a database containing ecological and spatial information for portions of the BOEM Atlantic Region. This database will be the EcoSpatial Information Database (ESID, pronounced “ee-sid”) and will be designed to accept additional ecological information for all marine and coastal areas of the U.S. The ESID will be accessible and searchable through a map interface.

The ESID will contain (and/or link to) ecological information resources and will include an annotated bibliographic entry for each resource, GIS files for each resource showing study areas or sampling sites, metadata for each resource, and any available associated GIS or data files. In addition, data will be extracted from resources addressing specific renewable energy areas of interest. Resources will be accessed via a map interface with search capability. The ESID will contain background GIS layers of bathymetry and other relevant information such as the shoreline, the EEZ, states, cities, marine protected areas, MMS protractions, latitude and longitude, etc. The potential types of information the ESID could provide includes access to PDF files of documents, annotated bibliographic

entries, metadata, GIS files of resource footprints or sampling sites, data files accompanying (or extracted from) a resource, and hyperlinks to resource information. Ecological information to be incorporated into the ESID includes subjects such as benthic habitats, spatial and temporal distributions of species, commercially important species, and migratory pathways. Environmental data such as topography, sediment, salinity, temperatures, currents, and others will also be included.

The ESID database will provide the foundation for an ecosystem-based approach to management of the Atlantic Region. Ecology (by definition) deals with the interaction of living organisms with their environment. This encompasses both plants and animals as organisms and their relations to all aspects of the environment such as sediment, water quality, currents, irradiance, etc. It also includes the interaction of organisms with each other. All these components of ecology must be considered in ecosystem-based management of the Atlantic Region and will be incorporated into ESID.

Objectives: This project will create a searchable database with a map interface, the **EcoSpatial Information Database**, of georeferenced ecological information resources and associated data to support ecosystem-based management of activities permitted by BOEM in the Atlantic Region.

Methods:

Ecological information for a portion of the Atlantic Region will be compiled and assimilated using the following general methods.

1. Conduct thorough literature searches to collate ecological information resources for the areas of interest. Scan documents to PDF format as needed.
2. Document resource acquisition and copyright.
3. Create an annotated bibliography referencing every resource.
4. Create metadata for every resource.
5. Create GIS files defining the study area, sampling sites, or “footprint” for every resource.
6. Extract data from resources pertinent to renewable energy areas of interest
7. Design and create the ESID containing the following.
  - a. Annotated bibliography.
  - b. Metadata.
  - c. GIS files of resource footprints.
  - d. Background GIS layers: bathymetry and other relevant information such as the shoreline, the EEZ, states, cities, marine protected areas, BOEM protractations, latitude and longitude, etc.
  - e. Information resources: documents, reports, articles, GIS files, data files, images, links to online resources, etc.
  - f. Hyperlinks to resources (some resources will only be linked and will not reside in the ESID).
  - g. Data extracted from resources pertinent to renewable energy areas of interest.

8. Create a web-based map interface with search, reporting, and editing capability.
9. Write documentation and instructions.
10. Work closely with BOEM to produce a suitable system that works efficiently.

Products: EcoSpatial Information Database with annotated bibliography, database of ecological resources, ecological data files, GIS files, and ArcMap interface; list of data files for the Multi-Purpose Marine Cadastre; peer-reviewed journal article; conference presentation; final report.

Importance to BOEM: With new offshore alternative energy activity and the possibility of new oil and gas activity, BOEM needs comprehensive information about the ecology of the U.S. Atlantic Region. This project will collect, organize, and provide access to needed information.

**Status:** Awarded September 24, 2009. Prototype ESID and ArcMap interface delivered March 24, 2010. Populated EISD database delivered March 2011. Contract modified to create a web-based map interface hosted in "the cloud", rather than the previously planned desktop application. Web-based "cloud" interface is now available online (<http://esid.boem.gov>).

**Final Report Due:** March 2012

**Publications:** None

**Affiliated WWW Sites:** None

**Revised date:** February 2013

**ESPIS**

[ESPIS](#) - All *completed* ESP Studies

**Full Text, Online, Right Now!**

**E**nvironmental **S**tudies **P**rogram **I**nformation **S**ystem