

ENVIRONMENTAL STUDIES PROGRAM: Ongoing Studies

Region: Headquarters

Planning Area(s): Mid-Atlantic

Title: Modeling and Testing of Commercial Fish Hang Data as a Proxy for Historic Shipwreck Sites

BOEM Cost: \$260,000

Period of Performance: FY 2012-2013

Conducting Organization(s): East Carolina University (M11AC00014)

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Description:

Background: The low spatial accuracy of reported shipwreck sites within existing historical sources and/or existing databases (e.g., NOAA's Automated Wrecks and Obstructions Information System – AWOIS) makes reliance on this data for environmental decision-making problematic. Because of the way data was reported (e.g., lost between points A and B, or off the coast of C) or collected (e.g., Loran, low-accuracy GPS, line-of-site), these data sets only provide a general indication of the numbers of shipwreck losses in a particular area. Additionally, information within these data sets is often heavily weighted toward wrecks occurring within the 19th and 20th centuries, when wrecking events were more likely to be recorded. Unlike the Gulf of Mexico Region, which has extensive oil and gas development and a Fishermen's Contingency Fund, the mid-Atlantic region does not have a formal mechanism for collecting fish hang data. Moreover, because of the lack of current development activity in the Atlantic, it is postulated that fish hangs would more likely be associated with historic shipwrecks having a degree of relief above the seafloor. Current research shows that 70% of a small sample of known shipwrecks have between 1 to 5 nets and/or dredges on-site.

Objectives: Specific objectives of this study are to:

1. Develop a methodology for collecting fishing hand data from commercial fishermen;
2. Identify a procedure to convert the data into a reliable spatial format within GIS;
3. Field-test the data through a sample of sites; and
4. Gain a better understanding of fishing hang data as a means to locate shipwrecks.

Importance to BOEM: BOEM is required under multiple statutes (OCSLA, NEPA, and NHPA) to take into consideration the impacts of OCS activities on cultural and archaeological resources. To achieve compliance with these laws, BOEM has developed regulations and guidance documents directing lease and permit holders to avoid impacting any archaeological resources found during the survey or development of their leases. With passage of the Energy Policy Act of 2005, BOEM has assumed jurisdiction for some types of renewable energy development on the OCS. States within the mid-

Atlantic region are increasingly becoming focused on the development of off-shore wind energy to supplement or fulfill its alternative energy objectives. Fish hang data from ethnographic surveys of the commercial fisheries sector can provide a method for developing a more reliable data set of known historic shipwreck sites in the Mid-Atlantic region. The development of a proven methodology for collecting and modeling this data would assist BOEM in evaluating proposed off-shore wind energy projects and developing the appropriate survey and mitigation measures to avoid harming significant cultural resources during OCS development.

Current Status: Date of Award: September 22, 2011. In April, the co-PI concluded the commercial fishermen interviews at 4 ports, conducted 8 interviews, and obtained 5 hang data sets. For the study area of 30 miles offshore of Ocean City, Maryland, the hang data sets were transcribed, proofed with sources, combined, duplicates deleted, Loran converted to GPS, and entered into the GIS database. The processed hang data sets resulted in over 800 unique hang records. For the remote sensing fieldwork, a survey vessel and a rental house were contracted.

In May, the GIS database was spatially analyzed into defined clusters and 20 clusters were selected for survey. Clusters containing diver-known or charted shipwrecks were excluded from selection. The Logistics, Cruise, and Sampling Plan was submitted May 4 as requested. A Toughbook field computer and external hard drives were purchased and software and data loaded.

In June, ECU and BOEM staff commenced 17 days of remote sensing survey (Phase 2 fieldwork): 1 day of mobilization, 1 day of demobilization, 6.5 days lost to weather, and 8.5 days of survey. With 50% of the allotted time available for survey, 80% of the work was accomplished; 16 out of 20 clusters were surveyed. Three obstructions were recorded, capable of hanging fishing gear. Post-processing of sonar images may reveal more detail and targets.

Next quarter's activities include the field report, sonar image post-processing, and the start of field data entry and analysis in GIS. ECU submitted the quarterly financial report on 6 July 2012.

Final Report Due: July 31, 2013

Publications: None to date.

Affiliated Web Sites: None to date.

Revised Date: August 07, 2012

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