

BOEMRE ENVIRONMENTAL STUDIES PROGRAM: Ongoing Studies

Region: Pacific OCS Region

Planning Area: Central and Western Gulf of Mexico

Title: Impacts of Recent Hurricane Activity on Historic Shipwrecks in the Gulf of Mexico

BOEMRE Information Need(s) to be Addressed: Information obtained from this study will be used to guide decision-makers in determining how to protect, and manage historic shipwreck sites with respect to BOEMRE's regulatory authority, as required by Section 106 of the National Historic Preservation Act of 1966. This study will also provide decision-makers with information on what types of impacts can be expected during hurricane activity and how these events affect site size, distribution, and integrity.

Total Cost: \$311,848 **Period of Performance:** FY 2007 – 2011

Conducting Organization: PBS&J, an Atkins Company

Principal Investigator: Bob Gearhart

BOEMRE Contact: [David Ball](#)

Description:

Background: In the second half of 2005 the Gulf of Mexico was significantly impacted by two major hurricanes, Katrina and Rita. Together the destructive forces of these storms destroyed over 100 offshore oil and gas platforms and jackup rigs. Wave heights associated with these storms were massive. For Katrina, NDBC buoy #42040 located approximately 65 miles south of Dauphin Island, Alabama, registered an estimated maximum wave height of 105 feet, with sustained seas over 12 feet for 47 hours. At the time of peak wave height the eye of the storm was approximately 73 miles west of the buoy. For Rita, NDBC buoy #42035 located approximately 22 miles east of Galveston, Texas, registered an estimated maximum wave height of 38 feet. At the time of peak wave height the eye of Rita was approximately 47 miles east of the buoy. Impacts to the seafloor from sustained waves associated with these hurricanes damaged a significant number of pipelines in the area. It is expected that damage would also occur to historic shipwrecks within the storm surge area.

Objectives: The objective of this study is to determine the impacts caused by recent hurricane activity on known historic shipwrecks. This study proposes to investigate up to six known shipwreck sites, in water depths less than 130 feet below sea level, which have been previously documented in order to make a comparison of these sites pre- and post-hurricane. No comparable studies have been conducted through BOEMRE

Methods: The study will consist of performing remote sensing surveys and diver investigations over known shipwreck sites. Data collected from the new surveys will be compared with existing data to determine the extent of storm impacts. Information from storm activity in the area (e.g., wave height and wave-current interaction) will also be examined.

Current Status: The contract was awarded on January 25, 2007 to PBS&J of Austin, Texas. Initial fieldwork for this study, which included remote sensing surveys of four primary and six secondary targets, was completed in May 2007. Dive operations on these sites were completed in October 2007. In July 2007 a contract modification was awarded to provide an additional \$12,500 for two weeks of archival research at the National Archives and Library of Congress in Washington, DC, and the Mariner's Museum in Newport News, VA. This research was completed in February 2008. In June 2008 a contract modification was awarded to provide an additional \$36,847.67 in order to inventory artifacts from one of the shipwrecks included in this study; the period of performance was also extended through 31 July 2009. The period of performance for this contract has been extended several times and is currently scheduled for completion by 30 June 2011. The draft final report was received in June 2010 and returned for minor revisions. The final report is expected to be submitted by the end of February 2011.

Publications: Gearhart, Robert, Hurricane Impacts on Shipwrecks. MMS Information Transfer Meeting 2009, New Orleans, LA, January 2009.

Jones, Douglas, Amy Borgens, Dave Ball, Wrecks in the Washing Machine: Documenting the New York and Evaluating the Effects of Recent Hurricane Activity on Gulf of Mexico Shipwrecks. ACUA Underwater Proceedings 2009.

Final Report Due: February, 2011

Affiliated WWW Sites: [Hurricane Katrina and Rita Research](#)

Revised Date: March 4, 2011