

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

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

**Title:** Assessing Impacts of OCS Activities on Public Infrastructure, Services, and Population in Coastal Communities Following Hurricanes Rita and Katrina (GM-07-x12)

**Planning Area:** Gulfwide

**Total Cost:** \$703,555

**Period of Performance:** FY 2007-2012

**Conducting Organization:** [Coastal Marine Institute](#), Louisiana State University

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### **Description:**

Background: The massive damage to the Gulf Coast that was inflicted during the 2005 hurricane season altered the area's environmental and socioeconomic economic conditions in ways that remain significant today, and that will remain significant for many years to come. Concerns about the program's effects and cumulative effects on public infrastructure and services were raised by Louisiana, the BOEM Science Committee, and others prior to the storms. While these issues have a regional component (e.g., the effects of OCS-truck traffic on the Louisiana road system), the concerns, like the effects, were generally focused on areas that were highly involved in OCS-related activities (e.g., the effects of OCS truck traffic on LA 1). Since the storms, the concerns have become much more pressing, both because local conditions have changed significantly and because local conditions are currently unclear and are still changing rapidly.

One need now facing BOEM is to identify, describe, and monitor current, rapidly changing conditions in the OCS-involved communities that have been affected by Rita and Katrina. The need here is for information that is relevant to BOEM assessments, sufficiently detailed, and that is timely. Rapidly changing conditions mean that EISs must incorporate information that is current.

A second need is to identify the kinds of public infrastructure and services that are affected by the OCS program at the local level, the types of stresses put on these infrastructures and services by the OCS program, and the effects that have occurred and are occurring. This second need is a component of the first—in order to monitor one must decide what to monitor. However, it also addresses the larger issues of current and cumulative effects that have been raised by Louisiana and others.

Past Agency research has addressed, to a degree, this second need, particularly in regard to Port Fourchon and the associated truck traffic on LA 1. For example, a recent study by

Hughes et al (2001) analyzed the impact that deepwater OCS petroleum exploration would have on the economy of Lafourche Parish, Louisiana. This research was the first study to evaluate how offshore energy exploration impacted both the collection of local government revenue as well as the demand on selected public services. While the model was effective in addressing the differential impact that OCS activity has on revenues and expenditures for one parish, the analysis does not provide a broad, generally applicable understanding of the fiscal implications of the OCS program nor a practical way for estimating them. For example, the approach failed to consider the specific governmental agencies to whom revenues would accrue, information that is needed if one is to consider the impacts the hurricanes have had on parish and municipal governments, schools, hospitals, and levees.

While understanding that impact is important given the differential impact that different types of economic development activities have on public services, the research on Port Fourchon has also highlighted the complexities of addressing such impacts for a large, long-lived industry. For example, given research elsewhere on booming industries, one of the unexpected results of the Hughes et al study (2001) was that OCS deepwater petroleum activity resulted in job growth being largely met by in-commuters rather than to existing residents or immigration of new residents to Lafourche Parish. An increasing number of in-commuters were shown to create less tax revenue – particularly in sales taxes – than a baseline scenario of permanent resident growth. Further, this in-commuter increase suggested a greater demand for public infrastructure such as roads than for public services such as local public schools and public recreation. An analysis of past, present, or future OCS effects on public infrastructure and services must consider such complexities.

Objectives: This study will analyze any potential public infrastructure strains placed on a set of communities that are highly involved in OCS-related activities. The types of public services and social infrastructure that will be addressed include: public schools and hospitals; roads and other transportation means; jails and prisons; family services; public buildings; parks and recreation; fire, ambulance, and police services; waste collection and disposal; power, water, and communications systems; and other community facilities and services.

The study will also track population, employment, and other socioeconomic changes that are occurring after the 2005 hurricane season.

The study will identify the types of public services and social infrastructure that have been affected by offshore oil, the types of effects that have occurred, the conditions under which they have occurred, as well as the kinds of conditions in which they would be likely to occur in the future.

As part of this assessment, the study will extend the research by Hughes et al (2001) evaluating the impacts of deepwater and ultra-deepwater OCS exploratory activity on the labor force and public service provision in coastal communities by (a) developing a model that is more generally applicable, (b) by developing a model that addresses

revenue streams, and (c) by applying the model to community-level effects of Hurricanes Rita and Katrina.

Methods: This study will combine both quantitative and qualitative research methodologies to monitor current, rapidly changing conditions following Hurricanes Katrina and Rita. Literature reviews, internet searches, and syntheses of secondary datasets and reports will be used to track the recovery of OCS-related communities that have been impacted by the hurricanes. In addition, primary data will be collected within selected parishes from, residents, local government officials, and business owners who support OCS activities. This information will be periodically synthesized to describe current conditions in the selected communities, including information about strains on public infrastructure and services.

The proposed project will also develop a model to estimate the impacts of OCS exploratory activities on public infrastructure and service expenditures. Both primary data collected during the project and secondary data will be used to construct the fiscal model. The model will evaluate the impacts of OCS-related revenues to specific local government agencies that fund public services (e.g., roads, schools, hospitals, etc.). This information when combined with the current baseline assessments will be used to evaluate the cumulative impacts of OCS activities on select community services and local infrastructure during the post-hurricane recovery period.

Products: Baseline and assessment, Coastal Community Impact Model, and results of applying Model to multiple OCS-related activity scenarios.

Importance to BOEM: The State of Louisiana has raised, as a major concern, BOEM's failure to address the OCS program's multi-sale level and cumulative effects on public infrastructure and services, such as transportation, water, and schools. This issue has become pressing following Hurricanes Katrina and Rita. The State now argues that these hurricanes have worsened local baseline conditions and, while in the past the existing infrastructure and services may have been sufficient to support ongoing and future OCS activities, this situation has changed and the new baseline conditions must be addressed.

This study will address the State's concerns about public infrastructure and services. The information will be used to support EIS baseline descriptions of communities (and parishes) that are highly involved in OCS activities and that have been affected by the recent hurricanes (and future ones that occur during the study effort). The information will also be used in Agency assessments of the program's cumulative effects.

**Current Status:** The project was granted a no-cost extension until September, 2013. A draft report will be submitted in early 2012 for BOEM review and comment.

**Final Report Due:** August 2012

**Publications:** Adhikari, Arun, and J. Matthew Fannin. "Impacts of Natural Disaster on Employment Change: An Application of Modern Shift Share Methodologies." Manuscript in

review with *Journal of Agricultural and Applied Economics*. Current Status: Revise and Resubmit.

**Affiliated WWW Sites:** None

**Revised date:** January 2012

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