

BOEM ENVIRONMENTAL STUDIES PROGRAM: ONGOING STUDIES

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

Title: Developing Indicators to Measure Socioeconomic Impacts of OCS Activities: A Temporal Analysis of Counties within the Gulf of Mexico Region (GM-09-01-03)

Planning Area: Gulfwide

Total Cost: \$373,296

Period of Performance: FY 2009-2011

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

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Description:

Background: Some coastal counties of Texas, Louisiana, Mississippi, Alabama, and Florida (the 5 states within the Gulf Region) have experienced various socio-economic impacts associated with periods of industry growth and contraction over the past few decades. During the 1960's, the offshore oil and gas industry began a decade-long phase of growth, followed by a period of extreme contraction in the 1980's. The industry experienced a period of recovery and modest growth from roughly 1987 through the mid-1990's.

These periods of expansion and contraction have been examined in depth by previous BOEM (formerly MMS) studies. The challenge remains for researchers to develop more formal indicators of the wide range of socio-economic impacts, including fiscal, infrastructure, demographic, and others that can be measured for all counties in the region, over time.

The growing body of scholarly research dealing with the resilience of natural and human systems offers a useful analytical framework to examine the socio-economic impacts of industry changes to coastal counties. The literature draws from research in sociology, geography, economics, and ecology and helps shed light on how more resilient communities maintain essential functions when experiencing external disturbances.

Objectives: The study will explore the extent to which the "resilience index" developed by the researchers in a prior study -- to examine recovery after natural disturbances among counties in Louisiana that are more heavily involved in OCS activities -- may help explain the ability of counties to maintain functions following economic disturbances associated with changes in the OCS and larger petroleum industry. To do this, the study

will:

- develop indicators to measure three dimensions of socio-economic impacts of large-scale, external disturbances. These are indicators of: 1) exposure to potential risk to be measured by intensity of OCS involvement; 2) vulnerability to disturbance to be measured by socio-economic and quality-of life measures of residents and communities; and 3) maintenance of system functions to be measured by voting levels and public-sector expenditures and other variables describing the ability of the county to maintain essential services and functions.
- measure the three sets of indicators – exposure, vulnerability, and resilience -- over time, from 1970 – 2000.
- explore the associations between the three indices to gain insight into how they may affect each other, at each time period and over time.

Methods: The analytical framework to be applied to this study includes three dimensions of impacts that help explain variation in the observed resilience of natural or human systems facing external disturbances. These include:

1. exposure to the risk or shock;
2. vulnerability or sensitivity of people, places, and institutions to an external disturbance; and
3. ability to maintain the functions of the system after the disturbance or disruption.

The study will develop indicators to measure these three dimensions. First, the exposure to potential external disturbances will be determined by the intensity of economic links to the offshore oil and gas industry. Indicators of the second dimension, “vulnerability”, will include the demographic attributes of counties’ residents, including poverty and unemployment rates and per capita education levels. The third dimension relates to extent to which the counties appear to be able to absorb shocks associated with the economic disturbances associated with the oil and gas industry over time and still maintain essential functions. These indicators will include voting rates and public-sector spending on physical infrastructure, education, and public health.

In addition, the research will explore the associations between these groups of indicators for each of the coastal counties in the five-state Gulf of Mexico region. Determining the nature of associations between intensity of involvement with OCS activities, economic vulnerability of counties, and the maintaining of county functions has not been examined in the resilience literature. These associations will be assessed to yield additional insight into the impacts and the conditions under which counties may be more likely to recover from economic disturbances. Also, the large geographic scope of the study area and the use of standardized, county-level data will support an examination of the socio-economic conditions in counties less involved in OCS activities, and comparisons of those counties to more involved ones -- which would probably have experienced larger, more direct impacts from downturns in the industry.

