Environmental Studies Program: Ongoing Study

Study Area(s): Western GOM, Central GOM, Eastern GOM

Administered By: Gulf of Mexico OCS Region

Title: Offshore Oil and Gas Activity Impacts on Ecosystem Services in the Gulf of Mexico (GM-14-03-11)

BOEM Information Need(s) to be Addressed: This study will use existing methodologies to estimate impacts to key ecosystem services in marine and coastal Gulf of Mexico and future impacts based on alternative scenarios. The study will also provide a discussion of policy implications of the use of an ecosystem services approach to natural resource management. The policy implications are particularly important as the Bureau of Ocean Energy Management reviews how, and in what contexts, ecosystem services analyses should be used for decision-making.

Total BOEM Cost: $118,792 **Period of Performance:** FY 2018-2019

Conducting Organization(s): Louisiana State University, Coastal Marine Institute

Principal Investigator(s): David Dismukes (dismukes@lsu.edu)

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Description:

Background: While a significant literature on ecosystem service valuation has developed over the past two decades, the literature has not been synthesized and analyzed to make it useful to policy makers managing large, complex ecosystems with multiple users. Despite the complexity of the Gulf of Mexico ecosystem, it is critical to understand both the baseline value of the services provided by the ecosystem, and the ways in which oil and gas activities impact those services in order to make informed decisions about ocean policy. Offshore oil and gas activities have both positive and negative impacts on the ecosystem services captured by other Gulf of Mexico resource users. This study will provide value estimates of the major oil and gas-related ecosystem services in the Gulf of Mexico using meta-analytic and benefit-transfer approaches with a special emphasis on protection from storm surges, commercial fishing, and recreation and tourism.

Objectives:

1) Estimate the impacts of the offshore oil and gas industry on three especially critical ecosystem services: commercial fishing, recreation, and storm protection.

2) Use existing ecological systems models of the Gulf of Mexico to investigate the impact of alternative scenarios on the three focal ecosystem services.

3) Provide a discussion of the policy implications of the use of an ecosystem services approach to natural resource management in the Gulf of Mexico.

Methods: A series of literature reviews will be conducted of the ecosystem services valuation literature relevant to storm surge mitigation, commercial fishing, and recreation and tourism. A database of these studies will be produced. Then, using information gleaned from the literature reviews, as well as existing models and methods, baseline value estimates will be made. Next, existing modeling tools will be used to forecast the future impacts of the offshore energy industry given alternative policy scenarios. Finally, academic and grey literature will be reviewed for case studies of areas in which an ecosystem services approach to management has been implemented and potential challenges will be discussed.

Current Status: This study was awarded September 20, 2017. Since the kick-off meeting on October 19, 2017, the investigators have begun reviewing an existing database of over 1000 ecosystem service valuation studies for candidate values for benefit transfer analyses. They have also begun scoping of information needs for the use of ATLANTIS ecosystem model and collecting GIS information needed for further analysis.

Final Report Due: September, 2019

Publications Completed: N/A

Affiliated WWW Sites: N/A

Revised Date: February 23, 2018