

ENVIRONMENTAL STUDIES PROGRAM: Studies Development Plan FY 2013-2016

Region: [Gulf of Mexico](#)

Planning Area(s): Gulfwide

Title: **The Economic Benefits of an Improved Gulf of Mexico Coastal Ocean Observing System (GM-09-01-15)**

Total BOEM Cost: \$375,823

Period of Performance: FY2013-2016

Conducting Organization: Coastal Marine Institute, Louisiana State University

BOEM Contact: [Megan M. Biven](#)

The Bureau of Ocean Energy Management, Environmental Studies Program is a multidisciplinary enterprise requiring large amounts of data to produce much needed information. The Gulf of Mexico Coastal Ocean Observing System (GCOOS) Regional Association's mission is to deliver reliable and timely data and information. These data will aid forecasting and now casting efforts that ensure informed decision-making and a more accurate understanding of the Gulf of Mexico environmental conditions. The long-term data produced by the GCOOS has inherent value to the BOEM studies program, but a benefit analysis of the system will determine the economic benefits produced by the system both to BOEM and to stakeholders.

Background: The GCOOS provides timely information about the environment of the United States portion of the Gulf of Mexico and its estuaries for use by decision-makers, including researchers, government managers, industry, the military, educators, emergency responders, and the general public. The technologies comprising ocean-observing systems include a wide array of instruments and platforms that include moored and unmoored buoys, radar, satellite imagery, fixed platforms such as light stations, and platforms of opportunity. [1]

GCOOS is one of a series of Regional Coastal Ocean Observing Systems, which are part of the U.S. Integrated Ocean Observing System (IOOS), which is, in turn, part of the intergovernmental Global Ocean Observing System and a significant national contribution to the Global Earth Observing System of Systems. The Gulf of Mexico Region from BOEM has engaged both IOOS and GCOOS through various roles within the board of directors and committees. The BOEM Environmental Studies Program has also contributed to GCOOS through studies, information, observing stations, and joint studies. BOEM regulations have also directed private industry to sponsor and maintain an array of Acoustic Doppler Current Meters, which has contributed valuable ocean current measurements to the GCOOS.

Several studies have attempted to assess the economic benefits of ocean observing systems, but none to date have captured the full breadth of potential economic benefits specific to the Gulf

of Mexico Region. The Woods Hole Oceanographic Institution conducted a study intended to supply “order of magnitude” preliminary benefit estimates for user groups ranging from recreational activities (such as recreational fishing) to health and safety (such as oil spill response). [2] The scope of the study included various geographic regions, but as noted by the authors, provided only benefit estimates for only a handful of sectors. Mark Kaiser and Allan Pulsipher looked to the Gulf of Mexico region, estimating the economic benefits realized from weather and ocean forecasting for hydrocarbon production and pollution management in the Gulf of Mexico. This study hints to the immense value that the GCOOS has and can have for industry decision-making. With 25,000 offshore workers stationed in the American Gulf of Mexico at any given time, the cost-savings from more accurate tropical storm predictions and related evacuations could be substantial. In fact, “unscheduled, weather-related evacuations add approximately \$10,000 per production facility and \$50,000 per drilling rig over and above normal transportation cost.” [3] GCOOS’s various applications are ever-evolving and the corresponding economic benefits have not been adequately assessed. For instance, during the response efforts to the Deepwater Horizon incident, NOAA’s Office of Response and Restoration looked to the GCOOS Data Portal for data and forecasts of winds and currents to predict where oil would travel. [4] To date, there has been no accounting of the dollars saved from the in-place Data Portal, and if determined, could help guide future improvements or expansions to the system.

Objectives: A shared interest of both the Gulf of Mexico Coastal Ocean Observing System and the Bureau of Ocean Energy Management is the updating of a study to place value on the observing system to society at large using appropriate estimation methods, such as, Contingent Valuation or Willingness to Pay. The study will also generate recommendations for GCOOS to incorporate into their operational plans, strategies and activities, ways to regularly measure the economic benefits of their products and services.

Methods:

Some data permit direct estimation of benefits using willingness to pay measures, which are the appropriate measures of economic benefits. Not all data will lend themselves so easily to direct methods and each sector will require tailored methodologies to assess economic value.

Task 1: Collaborate with GCOOS personnel to identify the private and public users of GCOOS.

Task 2: Develop an online Contingent Valuation (CV) survey instrument to determine the social economic value of data provided by GCOOS.

Task 3: Identify private sector value-added information processors and the consumers of these value-added products.

Task 4: Develop outreach materials.

Importance to BOEM: This research will advance the agency's cumulative analysis of the OCS leasing program and help the agency address several critical concerning the last 5-year and multi- sale EISs. Additionally, a better understanding of the societal value of the GCOOS may provide future justification for improvements and expansions of the GCOOS program. Ultimately, data generated by GCOOS can support and augment BOEM's Environmental Studies Program.

Products: Final integrated report and project, final technical summary, any published journal articles, and outreach materials. Outreach materials will consist of disciplinary publications focused on the quantitative estimation of the social value of GCOOS information. Extension outreach materials will be designed with two types of educational purposes in mind: 1. Educate direct GCOOS stakeholders about the value and diversity of the information generated by the observation system 2. Educate indirect users that rely on GCOOS in their public and private decision making processes.

[1] Kite-Powell, Hauke, Colgan, Charles and Weiher, Rodney (2008) Estimating the Economic Benefits of Regional Ocean Observing Systems, Coastal Management, 36:2,125 — 145

[2] The full list of activities included in the study include: Recreational Fishing, Recreational Boating, Beaches, Freight, Cruise Ships, Search & Rescue, Oil Spills, Tropical Storm Prediction, Residential Property, Beach Restoration, Electric Load Planning, Oil and Gas Development, and Commercial Fishing.

[3] Kaiser, Mark J., Pulsipher, Allan G. (2006). The Impact of Weather and Ocean Forecasting on Hydrocarbon Production and Pollution Management in the Gulf of Mexico. Energy Policy 35 (2007) 966-983.

[4] IOOS in Action: Gulf of Mexico Region. Improving Lives and Livelihoods in the Gulf of Mexico. <http://www.ioos.gov/regions/onepaggers2011/gcoos.pdf>

Current Status: PI's completed literature review and have begun field research and drafting a Contingent Valuation (CV) survey.

Final Report Due: January 2017

Revised date: December 2014

ESPIS

ESPIS - All *completed* ESP Studies:

Full Text, Online, Right Now!

Environmental Studies Program Information System