

## BOEM ENVIRONMENTAL STUDIES PROGRAM: ONGOING STUDIES

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

**Title:** Integrated Bio-Physical Modeling of the Louisiana-Texas (LATEX) Shelf (GM-07-x14)

**Total Cost:** \$225,000

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

**Conducting Organization:** Texas A&M University

**BOEM Contact:** [Dr. Alexis Lugo-Fernández](#)

### **Description:**

Background: The National Oceanic and Atmospheric Administration (NOAA) is conducting the Northern Gulf of Mexico Ecosystem Research Program. This program is funding Texas A&M University to conduct the study entitled *Mechanisms Controlling Hypoxia: Real-time Observations*. This is a three year study to examine the oceanographic conditions during the onset and development of hypoxia in the Louisiana-Texas (LATEX) Shelf. A component of this study is the development of a physical-biological integrated model that will be used to study this phenomenon. NOAA funding constraints limit the model development but create a collaborative opportunity for BOEM.

The Bureau of Ocean Energy Management (BOEM) has been interested in gaining access to a physical-biological integrated model that could be used to examine scenarios of interest to aid the preparation of NEPA documents or exploring regulatory issues. This intersection of BOEM needs and the unmet plan has created an opportunity for BOEM to leverage NOAA's ongoing project so as to fulfill all parties' needs. Furthermore, BOEM funded the LATEX physical oceanography study over the study area and jointly with NOAA's ongoing data collection efforts, this will provide an extensive database which will be needed to calibrate and skill access the model.

Objectives: The objective of this study is to produce a realistic coupled physical-biological-geochemical numerical model using existing codes of the LATEX shelf and runs scenarios of interest to BOEM through leveraging with the ongoing NOAA funded study *Mechanisms Controlling Hypoxia: Real-time Observations*.

Methods: Assemble the respective existing numerical models, couple them, skill access them and run the scenarios provided by BOEM.

Products: Desired products from this Cooperative Agreement are:

1. 3-D Maps of hindcast hypoxia region depicting aerial and vertical extent at a frequency of 4 maps per months or weekly to capture temporal evolution during the hypoxia season;
2. Tracking dispersion/transport of material from the Flower Garden Banks 7

- days after the August full moon or closest to this date; and 3 selected oil and gas platforms for a period of 30 days for the four seasons of the year;
3. Monthly maps of the 30-33 psu water mass in 3-D; and
  4. Monthly maps of suspended particulate matter (SPM) associated with the 30-33 psu water mass.

Importance to BOEM: The model output will be used by the BOEM to prepare NEPA documents such as EA's and EIS', and to make decisions regarding regulatory issues pertaining to oil and gas activities in the LATEX shelf.

**Current Status:** The draft final report is undergoing the final review and it's anticipated this contract will be close soon.

**Final Report Due:** May 2011

**Publications:** None

**Affiliated WWW Sites:** None

**Revised date:** December 2011

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