

**Forecast Ecosystem Conditions in Gulf of Mexico OCS Habitats
Using Coupled Modeling and Climate Scenarios**

**Quarterly Report (Y5Q3 – Apr 1-Jun 31, 2021)
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Sergio deRada
Naval Research Laboratory, Stennis Space Center, MS 39529

This quarterly report is filed per requirements of BOEM-NRL IAA # M16PG00027 with respect to our research project focused on climate-scale ocean model simulations for the Gulf of Mexico. The focus of this study is to forecast, through year 2050, marine ecosystem conditions in the Gulf of Mexico (GoM) using RCP climate scenarios prescribed by the NCAR CESM Large Ensemble (LE) atmospheric forcing.

1. WORK ACCOMPLISHED

The work tasks during this quarter were centered around time-series analysis of the baseline simulations. Preliminary results are being compiled and a manuscript is being written highlighting the compelling heat retention consistently observed in the Gulf of Mexico relative to other areas of the world. Several discussions with BOEM COR and online editing of the manuscript ensued.

Paperwork for a one-year no-cost-extension was submitted.

2. PROBLEMS

None to report, besides ongoing reduced productivity due to the pandemic and teleworking environment.

3. PLANNED ACTIONS FOR NEXT QUARTER

Continue processing and analysis of the simulations and data sources used for validation and valuation. Work with summer student (paid for by a separate HPC grant) to populate the project's web pages with some of the figures of this analysis.

4. BUDGET

The project amount of \$390K has been received in full.
Expenditures to date: ~\$289K.