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

Quarterly Report (Y4Q1 – Oct 1-Dec 31, 2019)
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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

NCAR processed and shipped several portable drives with the atmospheric products needed for forcing the Gulf of Mexico ocean models. These products are:

- ERA5: 1980 to present day at hourly frequency
- LE: present-day (minimum 10-year overlap with control simulation) to at least 2050
- ME: present-day (minimum 10-year overlap with control simulation) to at least 2050

Along with NRL's NAVGEM, these four products will be used for the production simulations of the project. ERA5 was processed into model-ready forcing and a model simulation starting in 1990 has been submitted and will be calibrated/fine-tuned as the model runs through 2020.

2. PROBLEMS

3. PLANNED ACTIONS FOR NEXT QUARTER

Continue execution and analysis of ERA5 and NAVGEM simulations.

4. BUDGET

$280K has been received (Y1:$80K, Y2:$80K, Y3:$120K).
Expenditures to date: ~$148K.
Y4 funds expected.