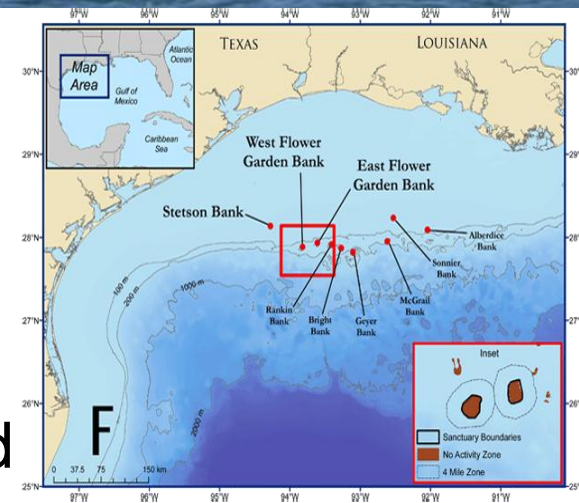


Oceanography



Background

- Ocean acidification can impact the ability of corals reefs to precipitate calcium carbonate, and thus net accretion rates.
- BOEM and its predecessors have studied Flower Garden Banks since the 1970's, making it a sensible choice for establishment of an sentinel site in GOM offshore waters.
- Initial coordination with NOAA scientists suggests that this study will well compliment NOAA's current OA plans for the region.



Relevance to BOEM

- BOEM scientists require an understanding of multiple stressors on an ecosystem (such as acidification) to conduct environmental assessments required by NEPA.

Objectives

- Establish an acidification sentinel site at FGB and explore integration with NOAA's proposed Coral Reef Ocean Acidification Network in GOM.
- Provide an initial time series of measurements for understanding diel and seasonal variability in acidification related parameters at the banks.
- Develop methods for reconstructing historical carbon chemistry conditions at the site.



Methods

- 5-year study: 4 yrs. field work + 1 yr. analysis.
- Deploy mooring with sensors for $p\text{CO}_2$, pH, O_2 , chlorophyll, turbidity, temperature, and salinity – both near- surface and bottom.
- Observations validated bimonthly using discrete sampling from the R/V Manta (or other vessel).
- Data time series analyzed for diel and monthly variability in acidification parameters, along with other data (e.g., Texas Automated Buoy System). Reconstruct historical carbon chemistry conditions.

Products

- Final synthesis report; peer-reviewed publication.
- Possible establishment of site as a long-term monitoring location.



Cost Breakdown

- Ship time ~ \$360k
- Buoy, Mooring, OA Sensors ~ \$120k
- Scientist for data analysis/report writing ~ \$58k
- Technician for data collection ~ \$36k
- TOTAL: \$500k - \$700k

