

Environmental Studies Program: Studies Development Plan | FY 2024–2025

Field	Study Information
Title	Northern Gulf of Mexico Monitoring for Protected Species
Administered by	New Orleans Office
BOEM Contact(s)	Timothy White (timothy.white@boem.gov), Hayley Karrigan (Hayley.Karrigan@boem.gov)
Procurement Type(s)	Contract, Interagency Agreement, Cooperative Agreement
Performance Period	FY 2024–2029
Final Report Due	TBD
Date Revised	September 19, 2023
Problem	Long-term data on protected species in the GOM are limited. Collection of these data are essential to understand the potential effects of BOEM-related activities on these species relative to long-term climatological changes and industrial activities.
Intervention	Aerial observations, shipboard observations, telemetry, and passive acoustic monitoring (PAM) will be used to collect ecological data, covering all major species of interest.
Comparison	Improve discovery of and access to data and study products to compare anthropogenic impacts to living marine resources.
Outcome	Provide important information to inform both BOEM and Bureau of Safety & Environmental Enforcement (BSEE) decisions, including siting of offshore renewable energy and to support the effective management and conservation of Gulf protected species, and to understand and differentiate between the potential effects of changing environmental conditions and BOEM-related activities on offshore species of interest in the GOM.
Context	GOM Western Planning Area (WPA), Central Planning Area (CPA), and associated continental shelf.

BOEM Information Need(s): Having a more comprehensive understanding of the distribution, abundance, habitat use, and behavior of seabirds, cetaceans, and sea turtles in the GOM is crucial in reducing the potential impacts of human activities, including those related to all BOEM programs. Collecting multiple layers of information will help BOEM better connect the relationships between localized systems with high potential for offshore wind energy and oil and gas development and the broader environment. The U.S. GOM continental shelf is considered critically important to North America’s migratory bird, marine mammal, and sea turtle resources during some point of their annual life cycle, and BOEM requires distribution and abundance information about marine protected species for consultations under the Endangered Species Act (ESA). Information on Rice’s whale use of the WPA and CPA habitats is especially important, given its ESA status, proposed critical habitat designation, and potential overlap with BOEM-regulated activities. Population and distribution assessments are also used regionally to analyze potential interactions with industry activities and quantify exposures for industry permits. The Outer Continental Shelf Lands Act (OCSLA) and other resource management statutes,

including National Environmental Policy Act (NEPA), ESA, Marine Mammal Protection Act (MMPA), Magnuson-Stevens Fishery Management Act (MSFMA), and Migratory Bird Treaty Act (MBTA), impose requirements for BOEM to analyze and mitigate potential environmental effects of BOEM-authorized activities. The results of this study would provide important information, facilitate effects analyses, and inform BOEM and BSEE regulatory actions concerning GOM continental shelf marine mammals and sea turtles, and Rice's whales in the WPA and CPA.

Background: The GOM is a heavily utilized and industrialized basin, supporting oil and gas exploration and development, renewable energy development, commercial and recreational fishing, shipping, military operations, and tourism. The Gulf of Mexico Marine Assessment Program for Protected Species (GoMMAPPS) was a research and monitoring program that forged a successful partnership between BOEM, the National Oceanographic and Atmospheric Administration (NOAA), the U.S. Fish and Wildlife Service (USFWS), and the U.S. Geological Survey (USGS) that conducted broad-scale surveys to assess the distribution and abundance of marine mammals, sea turtles, and seabirds in the northern GOM. Data collected by GoMMAPPS developed a better understanding of the distribution and density of the species of interest in the GOM, and the oceanic environment itself. The rapid assimilation of scientific products produced by GoMMAPPS resulted in an updated marine mammal stock assessment by NOAA and informed siting of wind lease areas in the GOM by BOEM (Randall et al., 2022). This study will address shared regulator and stakeholder information needs and propose collaboration among BOEM, NOAA, and a range of Federal and industry stakeholders. The partnership will conduct aerial seasonal surveys in continental shelf waters for seabirds, marine mammals, and sea turtles, targeted ship-based operations in the WPA and CPA, and deploy passive acoustic monitoring devices (PAM) to study the underwater acoustic ecology and space use of cetaceans (e.g., Rice's whales). BOEM, NOAA, FWS, USGS, the Marine Mammal Commission (MMC), and EnerGeo Alliance are exploring shared information needs and methods to address those needs.

Objectives: The objective of this study is to improve abundance, distribution, habitat use, and behavioral information concerning protected species through multi-year surveys of seabirds, cetaceans, and sea turtles in areas of shared interest. Further, this study is expected to provide information on Rice's whale density, habitat use, and possible seasonality in the WPA and CPA. The study is expected to provide updated information on population trends and improve the seasonal coverage of available data for marine mammals, sea turtles, and sea birds along the GOM continental shelf. By improving the accuracy and precision of habitat utilization models, this study will generate improved seasonal density maps of seabirds, cetaceans, and sea turtles to inform environmental impact assessments of offshore energy development.

Methods:

- **Spatial-temporal distribution patterns and abundance estimates** of protected species (i.e., marine mammals, sea turtles, and sea birds) collected over multiple seasons to develop models and associated tools that translate these survey data into seasonal, spatially-explicit density estimates incorporating habitat characteristics. Achieved for marine mammals and sea turtles via broad-scale aerial line transect surveys in continental shelf waters from Key West, FL to Brownsville, TX during winter, summer, and fall. Achieved for birds using smaller ship-based surveys in area of potential wind development.
- **Dedicated large ship-based vessel survey of Rice's whales** in the WPA and CPA (shelf break, 100 m – 400 m depth) to improve density estimation (visual and PAM line transect survey, and photographic and biopsy data from any encountered Rice's whales). Comparison of photo-ID

and genetic data between the whales sighted in the WPA and CPA with the core habitat catalog to better understand connectivity. Sightings of additional species of marine mammals, sea turtles, and sea birds during surveys will be recorded.

- **PAM deployment for Rice's whale** detection, seasonality, localization, and tracking in the WPA and CPA (100 m – 400 m depth)
- **Collaboration** via data sharing with other related observational efforts in the Gulf.

Specific Research Question(s):

1. Can we improve spatially-explicit abundance and distribution models with additional data, in particular, with respect to potential seasonal data gaps (e.g., fall and winter)?
2. Can we improve species-specific bird flight height estimates from vessel data and tracking tags for collision risk modeling?
3. Have there been changes in abundance and distribution in marine mammal and sea turtle species in the GOM continental shelf in recent years? If so, do these changes reflect long-term trends in population size and distribution of these species and others occurring in similar habitats?
4. What are the seasonal and annual occurrence; habitat use; abundance; and spatial distribution of Rice's whales in the WPA and CPA habitats?
5. What spatial scales are required to develop reliable spatially-explicit products of distribution and abundance for the WEAs without sacrificing resolution?

Affiliated WWW Sites: [GoMMAPPS](#) | [Bureau of Ocean Energy Management \(boem.gov\)](#)

References:

- Garrison LP, Ortega-Ortiz J, Rappucci G. 2021. Abundance of coastal and continental shelf stocks of common bottlenose and Atlantic spotted dolphins in the Northern Gulf of Mexico: 2017-2018.
- Hart KM, Lamont MM. 2021. Discerning behavioral patterns of sea turtles in the Gulf of Mexico to inform management decisions (corrected version). New Orleans (LA): U.S. Department of the Interior, Bureau of Ocean Energy Management. 78 p. Report No.: BOEM 2021-088.
- Jodice PG, Michael PE, Gleason JS, Haney JC, Satgé YG. 2021. Revising the marine range of the endangered black-capped petrel *Pterodroma hasitata*: occurrence in the northern Gulf of Mexico and exposure to conservation threats. *Endangered Species Research*. 46:49–65.
- Michael PE, Hixson KM, Haney JC, Satgé YG, Gleason JS, Jodice PG. 2022. Seabird vulnerability to oil: exposure potential, sensitivity, and uncertainty in the northern Gulf of Mexico. *Frontiers in Marine Science*. 9:880750.
- Randall AL, Jossart JA, Matthews T, Steen M, Boube I, Stradley S, Del Rio R, Inzinna D, Oos C, Coats L, et al. 2022. A wind energy area siting analysis for the Gulf of Mexico call area. New Orleans (LA): U.S. Department of Interior, Bureau of Ocean Energy Management. National Oceanic and Atmospheric Administration, National Centers for Coastal Ocean Science. p. 204. Available at: <https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/GOM-WEA-Modeling-Report-Combined.pdf>