

Environmental Studies Program: Ongoing Study

Title	Florida Manatee Movement and Habitat Use in the Northern Gulf of Mexico (GM-13-07)
Administered by	GOM OCS Region
BOEM Contact(s)	Donald (Tre) Glenn (tre.glenn@boem.gov)
Procurement Type(s)	Interagency Agreement
Conducting Organizations(s)	U.S. Geological Survey, Southeast Ecological Science Center
Total BOEM Cost	\$1,000,000
Performance Period	FY 2013–2020
Final Report Due	December 2021
Date Revised	August 6, 2021
PICOC Summary	
<i><u>Problem</u></i>	The West Indian manatee is included as an endangered species under the purview of the ESA, as well as receives protections afforded by the MMPA.
<i><u>Intervention</u></i>	At minimum, BOEM must determine the status of manatee abundance and distribution in critical segments of the northern GOM study area relating to energy development.
<i><u>Comparison</u></i>	BOEM must determine if the distribution has changed over time.
<i><u>Outcome</u></i>	The predicted outcome or not is that manatees are moving further west in the GOM.
<i><u>Context</u></i>	The geographic domain(s) is mainly the coastal GOM or Atlantic but could be deepwater.

BOEM Information Need(s): The exploration and development of oil and gas resources in the Gulf of Mexico (GOM), as well as potential renewable energy and alternate use projects, will require BOEM to produce information for a variety of NEPA-related decision documents, as well as maintaining compliance with Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA). The West Indian manatee is included as an endangered species under the purview of the ESA, as well as receives protections afforded by the MMPA. All data acquisition outlined here is covered under federal research permits that comply with federal protection mandates.

Background: In 1953, the Outer Continental Shelf Lands Act (OCSLA) [67 Stat. 462] established Federal jurisdiction over the submerged lands of the continental shelf seaward of State boundaries. The Act charged the Secretary of the Interior with the responsibility for administering minerals exploration and development of the outer continental shelf (OCS). It also empowered the Secretary to formulate regulations so that the provisions of the Act might be met. The OCSLA Amendments of 1978 (92 Stat. 629) established a policy for the management of oil and natural gas in the OCS and for protection of the marine and coastal environments. The amendments authorize the Secretary of the Interior to conduct studies in areas or regions of sales to ascertain the “environmental impacts on the marine and coastal

environments of the OCS and the coastal areas which may be affected by oil and gas development” (43 U.S.C. 1346).

Subsequent to the passage of the OCSLA of 1953, the Secretary of the Interior designated the Bureau of Land Management (BLM) as the administrative agency responsible for leasing submerged federal lands and the U.S. Geological Survey for supervising production. In 1982, the (former) Minerals Management Service (now BOEM) assumed these responsibilities. To meet its responsibilities, BOEM has four priority goals for OCS leasing: (1) orderly resource development to meet the Nation's energy needs; (2) protection of the marine and coastal environments; (3) receipt of fair market value; and (4) preservation of free enterprise competition.

The National Environmental Policy Act (NEPA) of 1969 (42 USC 4321-4347) requires that all federal agencies use a systematic, interdisciplinary approach that will ensure the integrated use of the natural and social sciences in any planning and decision-making that may have an effect on the human environment. BOEM efforts in this direction include environmental impact statements, environmental assessment teams, studies that acquire and analyze marine environmental data, literature surveys, socioeconomic analysis studies, public conferences, and special studies (toxicity studies, spill trajectory analyses, etc.).

The U.S. Geological Survey (USGS) Southeast Ecological Science Center (SESC) is a research center that provides accurate science on the biology and ecology of aquatic environments throughout the United States and around the world.

Objectives: This research initiative is northern GOM manatee distribution and use patterns, and characterization of local resources. Specific goals include:

- Compile available coastal data and conduct field sampling to characterize areas used by manatees during the warm season. Identify specific resources used by manatees at these sites including locations of available freshwater and extent of aquatic vegetation used as forage.
- Identify and assess natural and artificial warm water sites available for over-wintering manatees. Particular attention will focus on the importance of passive, artificial and natural springs accessible to manatees in the northern GOM from Crystal River to Texas.
- Determine the extent of movements and seasonal site fidelity among identifiable manatees that use focal use areas in the northern GOM.
- Assess the population structure of manatees by employing established sampling protocols used by USGS for manatee genetic and photo-identification studies.
- If biological samples are available (biopsy, blood, urine, feces, genetics), provide information on manatee health parameters and nutritional body condition.
- Determine the status of manatee abundance and distribution in critical segments of the northern GOM study area. Map available and potential manatee habitat in the northern GOM with manatee habitat modeling incorporating data from habitat surveys and movement patterns derived from radio tracking manatees within the region. Employ statistically sound methods suitable for identifying and forecasting changes/trends in manatee abundance and distribution.

Methods: The area of interest for this study extends from the Suwannee River, Florida, west along the Gulf coast through Texas. Manatee distribution and habitat will be assessed through a comprehensive set of complementary research activities that together will provide information on spatial and temporal manatee use of the northern Gulf of Mexico, the health and disposition of individual manatees traversing the study area, and the extent and quality of the habitat that they may use. Several potential research actions involving multiple agencies and partners will be considered.

Individual manatees will be captured for health assessments and radio tagging. Manatee captures typically involve nylon nets deployed by either land-based or open-water techniques on targeted manatees. Individual manatee health will be monitored, including temperature, respiration and pulse rate, and handling time will be kept to a minimum (less than one hour if possible). Assessed individuals will be released at or close to their original capture location. Additional data recorded upon capture will include morphometrics (total length and girths), sex and complete photographs consisting of scars or natural markings. During capture, complete out-of-water monitoring and biological sampling will be performed by trained personnel under veterinary supervision following guidelines established by Stamper and Bonde (2012).

GIS integration of habitat data and matching location data have proven effective for analyzing manatee habitat use patterns. Once a part of the underlying habitat has been described, the manatees' use of similar habitat can be used to predict locations of other similar habitat, which can then be verified through field sampling. This form of GIS interpretation, integrated with field sampling, will be used throughout the period of performance to create maps of functional habitat types, along with detailed assessments of the underlying habitat components (salinity, temperature, seagrass, wave activity, *etc.*) that contributes to manatee use (or lack of) the study area. Activities will be conducted in accordance with permit requirements identified in the FWS research permit (MA791721-5) issued to the USGS/Sirenia Project and comply with USGS/SESC IACUC standards.

Specific Research Question(s): This research initiative is a study on northern GOM manatee distribution and use patterns, and characterization of local resources to assess possible impact(s).

Current Status: This effort was awarded July 2013 and currently editing final report.

Publications Completed: N/A

Affiliated WWW Sites: <http://fl.biology.usgs.gov/Manatees/manatees.html>,
<https://marinecadastre.gov/espis/#/search/study/100047>

References:

Stamper, M.A. and R.K. Bonde. 2012. Health assessment of captive and wild-caught West Indian manatees. Chapter 16. Pages 139-147 in Hines, Reynolds, Aragones, Mignucci-Giannoni, Marmontel, eds., Sirenian Conservation: Issues and Strategies in Developing Countries. University Press of Florida, Gainesville, Florida. 326 pp.