Environmental Studies Program: Ongoing Study

Title	Resource Areas to Support Marine Resource Management in the Cook Inlet Region (AK-21-03)
Administered by	Alaska OCS Regional Office
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Procurement Type(s)	Cooperative Agreement
Conducting Organization(s)	Alaska Department of Fish and Game
Total BOEM Cost	$500,000
Performance Period	FY 2021–2024
Final Report Due	August 19, 2024
Date Revised	August 12, 2021
PICOC Summary	
Problem	Tools and methods are needed to identify Environmental Resource Areas (ERAs) for marine mammals, terrestrial mammals, and other biological resources to support the assessment of potential impacts from Outer Continental Shelf (OCS) oil and gas related activities in the Cook Inlet region of Alaska.
Intervention	Synthesis of available information for biological resources to facilitate the development of methods to identify the spatial and temporal resource distributions or habitat areas of importance.
Comparison	This study will provide improved efficiency over existing approaches that are individualized for various resources in developing and refining ERAs. This approach will allow for increased continuity to update information following staff changes. This project will complement existing BOEM efforts (e.g., study AK-18-01).
Outcome	A consistent approach that can be applied to multiple resources and planning areas to produce a collection of ERAs in support of BOEM's OSRA and NEPA assessments.
Context	Cook Inlet region

BOEM Information Need(s): Collation and refinement of information on the density and spatial and temporal distribution of resources or resource habitat areas susceptible to effects from oil and gas activities in the Cook Inlet region will provide the tools needed to model and map resource areas to help refine ERAs used in Oil Spill Risk Assessment (OSRA models and NEPA analyses). Understanding where the critical habitat areas are for a biological resource and the timing of when those areas are occupied, can help BOEM minimize and/or avoid any adverse effects from permitted activities on that resource. BOEM can use this information to develop mitigation measures and informed decision making during future lease sale Environmental Impact Statements and other NEPA documents, Endangered Species Act (ESA) Section 7 consultations, and Oil Spill Risk Analysis.

Background: BOEM and others have amassed extensive datasets documenting spatial and temporal presence and other information for a wide range of species and habitats in the Cook Inlet region. The distributions of many species are temporally and spatially structured, showing seasonal or interannual

changes in response to various mechanisms. These mechanisms affect the vulnerability of a species to contact from a potential oil spill that BOEM considers through identification of ERAs and its OSRA process. ERAs are areas of concern relating to social, environmental, or economic resources, including critical habitat or use areas for different species of concern. Each ERA has a spatial and temporal attribute and its vulnerability may vary according to the time of year. This study will complement the current study "Environmental Resource Areas: Developing Products to Support Oil-Spill Risk Analysis (OSRA) and National Environmental Policy Act (NEPA)" (AK-18-01), which is focused on seabirds and forage fish.

Objectives: The overall goal of this study is to establish a consistent foundation for developing and refining ERAs used for OSRA. It will build on current efforts focused on seabirds and forage fish by synthesizing existing data for other biological resources and habitat areas in Alaska's Cook Inlet region. Specifically, this project will:

- Compile a detailed inventory of available biological data, (i.e. marine mammals, terrestrial mammals).

- Use spatial techniques to provide density information or other datasets that are appropriate for identifying ERAs for the species or populations evaluated to support OSRA in the Cook Inlet region.

- Provide a synthesis report, including references, as a description of the biological affected environment, that can inform NEPA assessments for the Cook Inlet region.

- Assess the biological inventories and resource areas to help determine future data collection priorities to best support OSRA and NEPA.

Methods: This study will collate and refine biological inventories for Alaska's Cook Inlet region by compiling data from state, federal, private sector, and academia sources. Researchers will engage with representatives from communities in the Cook Inlet region and other entities (Cook Inlet Regional Citizens Advisory Council, NOAA, USFWS, Gulf Watch Alaska, National Park Service, etc.) who may be conducting marine biological monitoring activities. Researchers will consider various advanced modeling techniques (e.g., Quakenbush and Citta 2013, Citta et al. 2015, Roberts et al. 2016, etc.) to identifying the most appropriate methods for providing BOEM with data products to evaluate the distribution, habitat use, density/abundance and temporal timing of biological resources. As appropriate, statisticians, data management specialists, oceanographers, or specialists in passive acoustics or aerial surveys will be consulted for additional input regarding advanced data analyses.

The synthesis report will provide a description of the biological affected environment and address additional information needs, approaches for incorporating Local and Traditional Knowledge, and areas where synergy is needed to provide better information for decision makers. Data products will include maps and data layers suitable for plotting in Geographic Information Systems (GIS) and facilitate additional analyses. BOEM analysts will coordinate with the researchers to tailor data products to best suit BOEM's needs.

Specific Research Question(s):

1. What biological inventories are available for the Cook Inlet region?

2. Are inventories available and adequate for each biological resource to define important resource areas?

3. What resources and data collection focuses should be prioritized for future studies planning?

4. What are the best approaches for cooperation and synergy to achieve future research goals in the most cost effective and efficient manner?

Current Status: Awarded

Publications Completed: None

Affiliated WWW Sites: http://www.boem.gov/akstudies/

References:

Citta, J. J., Quakenbush, L. T., Okkonen, S. R., Druckenmiller, M. L., Maslowski, W. Clement-Kinney, J., George, J. C., Brower, H., Small, R. J., Ashjian, C. J., Harwood, L. A., Heide-Jørgensen, M. P., 2015. Ecological characteristics of core-use areas used by Bering–Chukchi–Beaufort (BCB) bowhead whales, 2006–2012. Progress in Oceanography, 136:201-222. http://dx.doi.org/10.1016/j.pocean.2014.08.012.

Quakenbush, L.T., and Citta, J.J., 2013. Kernel densities from satellite-tracked bowhead whales, 2006-2012, for use in determining environmental resource areas for oil spill response analysis. Special Technical Report, submitted to BOEM, August 2013. 11pp + GIS shapefiles.

Roberts, J. J.; Best, B. Mannocci, D., Fujioka, L., E., E.; Halpin, P. N., Palka, D. L., Garrison, L. P., Mullin, K. D., Cole, T. V. N., Khan, C. B., McLellan, W. M., Pabst, D. A., Lockhart, G. G., 2016. Habitat-based cetacean density models for the U.S. Atlantic and Gulf of Mexico. Scientific Reports 6: 22615. doi: 10.1038/srep22615.