

## Environmental Studies Program: Ongoing Study

Title	Alaska Assessment for Cetaceans and Other Marine Mammals (ACOMM) (AK-22-07)
Administered by	Alaska Regional Office
BOEM Contact(s)	TBD
Procurement Type(s)	Interagency agreement, Cooperative Agreement
Conducting Organization(s)	NOAA, University of Washington
Total BOEM Cost	TBD
Performance Period	FY 2022–2025
Final Report Due	TBD
Date Revised	September 14, 2022
PICOC Summary	
<i><u>Problem</u></i>	NOAA has 15 mooring-years of marine mammal and ambient acoustic recordings and no available workforce to analyze the acoustic data efficiently and reliably. Analyzed data could provide valuable information on marine mammal distributions and movement trends.
<i><u>Intervention</u></i>	The University of Washington, Cooperative Institute for Climate, Ocean, and Ecosystem Studies (CICOES) has the capacity to analyze large audio datasets to reliably identify marine mammal occurrence and seasonal movements.
<i><u>Comparison</u></i>	This study will provide information on the presence of cetaceans and pinnipeds as well as ambient-noise levels using a combination of automated and manual methods.
<i><u>Outcome</u></i>	Improved baseline information would provide information on marine mammal distribution and movements and how ambient noise influences their spatial patterns.
<i><u>Context</u></i>	Bering Sea, Chukchi Sea, and Beaufort Sea

**BOEM Information Need(s):** Information on the distribution of marine mammals is needed to assess the potential of their overlap with all potential BOEM regulated energy development activities in the Arctic and sub-Arctic offshore regions of Alaska. An improved understanding of the spatial patterns and behavior of marine mammals will help BOEM to mitigate for potential adverse effects during offshore development activities. Further, the ACOMM study would provide BOEM and collaborating federal agencies with cetacean and pinniped information to meet their regulatory requirements under the ESA, Marine Mammal Protection Act (MMPA), and National Environmental Policy Act (NEPA).

**Background:** BOEM is required to consider the impacts of all energy resource development activities on all species and ecosystems on the U.S. Outer Continental Shelf (OCS). Research into the movements of cetaceans and pinnipeds in the U.S. Arctic OCS can be facilitated using passive acoustic monitoring

(PAM) to obtain marine mammal vocalization data throughout portions of the Bering, Chukchi, and Beaufort seas. PAM sensors can collect voice recordings generated by the mammals, as well as anthropogenic noise that may influence the behavior of the mammals. Ultimately, these data can provide novel insights into species presence and movements in places and at times that are otherwise hard to monitor visually, thereby improving baseline information on marine mammal distribution and movement trends. Concurrently, measurements of ambient noise levels can provide information on the surrounding acoustic environment. This will enable the evaluation of marine mammals' exposure to human stressors in areas of energy development. Understanding the physical and biological characteristics associated with their occurrence in energy development areas is important for the management of these species, especially as they face increasing environmental and anthropogenic threats.

**Objectives:** By conducting comprehensive rotational marine mammal research on the Alaska OCS, the ACOMM program will improve the knowledge base of federal agencies with protected species responsibilities. Specifically, the objectives are to:

- Use PAM survey techniques to collect occurrence, trends, and distribution for marine mammals in Alaska northern waters.
- Collect data on residence time, and stock structure when possible.
- Analyze acoustic datasets collected by NOAA to develop habitat-based density models for generating finer-scale predictions of cetacean/pinniped seasonal movement trends.

**Methods:** The NOAA will conduct three years of field operations to maintain the long-term subsurface passive acoustic recorder moorings needed for continued data collection. The collected raw acoustic data from these moorings will be provided to CICOES for processing and analysis to produce a seasonal time record of daily occurrence of biological (Arctic marine mammals and encroachment of subarctic species), anthropogenic (vessels and airguns), and environmental (ice) acoustic sources, as well as to produce a set of noise level measurements to characterize the soundscape. This processing will include both manual and AI/ML methods. The interpretation of the processed data products by CICOES will enable investigation of the changes in marine mammal spatio-temporal occurrence and their acoustic environment, over much of their migratory pathways, as climatic conditions change across the Alaskan Arctic. Ultimately, the analytic results will be disseminated to the scientific community, local community members, and other stakeholders through peer-reviewed publication, scientific conference presentations, and outreach activities.

**Specific Research Question(s):**

1. What is the overlap between the predicted distribution of marine mammal species and areas associated with resource exploration, development, and future lease sales?
2. What is the seasonal distribution and habitat use of cetaceans in the Bering, Chukchi, and Beaufort seas?
3. How can PAM expand capabilities, facilitate research on the distribution of marine mammals, and improve understanding of the effects from oil and gas activities?

**Current Status:** Current Status: Planned new start

**Publications Completed:** None

**Affiliated WWW Sites:** <http://www.boem.gov/akstudies/>