

## Environmental Studies Program: Ongoing Study

Title	Evaluating Novel Assessment Approaches for Coastal Ice Seal Haulout Areas and Behavior in the Alaskan Beaufort Sea (AK-19-02-05)
Administered by	Alaska Regional Office
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Conducting Organizations(s)	CMI, UAF
Total BOEM Cost	\$204,990 plus Joint Funding (\$204,990)
Performance Period	FY 2019–2021
Final Report Due	July 2021
Date Revised	October 1, 2020
PICOC Summary	
<i><u>Problem</u></i>	The spotted seal ( <i>Phoca largha</i> ) and bearded seal ( <i>Erignathus barbatus</i> ; listed as Threatened under the ESA) are two ice-associated pinnipeds that could be affected by environmental change and oil and gas development in the Beaufort Sea OCS. Understanding the environmental conditions and anthropogenic factors affecting the distribution, abundance, and behavior of ice-seals are important to understanding the health of the marine ecosystem, coastal communities, and management of coastal environments.
<i><u>Intervention</u></i>	This study will evaluate the potential of emerging technologies, specifically time-lapse cameras and small Unmanned Aircraft Systems (sUAS), to assess the seasonal presence, behavior, and numbers of spotted and bearded seals at known summer-fall coastal haulouts.
<i><u>Comparison</u></i>	Study sites represent a range of human disturbance levels relevant across the broader Beaufort Sea OCS, which provides context for an area of increased interest for oil and gas exploration and extraction, notably with recent major oil discoveries by the oil and gas industry near the study area.
<i><u>Outcome</u></i>	Project outcomes will include an understanding of utility of novel ice-seal monitoring techniques (including behavioral disturbance and influence of local environmental conditions), several scientific as well as locally-relevant outreach products, and explicit coordination and capacity-building opportunities for Alaskan Native hunters.
<i><u>Context</u></i>	Beaufort Sea

**BOEM Information Need(s):** BOEM needs information to understand the environmental conditions and anthropogenic factors affecting the distribution, abundance, and behavior of Arctic ice-seals (specifically the spotted and bearded seals). An understanding of ice-seal movements, location and timing of important feeding areas will support National Environmental Policy Act (NEPA) analyses, Endangered Species Act (ESA) Section 7 consultations, and development of mitigation measures related to future lease sales in the Beaufort Sea Planning Area, as well as potential exploration and development on existing leases.

**Background:** Both spotted and bearded seals are important species residing in the Arctic marine environment. Their extensive seasonal migrations make these seals valuable as cultural and spiritual resources for coastal Indigenous people across northern, western, and southwestern Alaska. Presently, information is needed for both species, including poorly known abundance, distribution, phenology, and habitat use as well as response information to human activities. To obtain ice-seal information, sUAS in tandem with time-lapse cameras have been identified as technologies that could transform the way both aerial and ground surveys for ice-seals are conducted in order to collect information on their distribution, density, and abundance. This emerging technology may have less disturbance potential than more traditional and costly approaches and could be more broadly applied to monitoring surveys for seal responses across their marine range, including areas affected by oil and gas exploration and development.

**Objectives:** The goals of this project are to clarify environmental and anthropogenic factors that affect late summer-fall haulout patterns of ice seals in two coastal regions of the Beaufort Sea OCS through a collaborative approach involving environmental observations by Indigenous Experts, time-lapse camera data, and potentially short-duration focused surveys by sUAS. The specific objectives include:

- Test and refine remote camera survey methods to assess counts, presence/absence, and behavior of ice seals at haulout sites.
- Quantify the effects of environmental conditions on ice seal summer-fall haulout behavior.
- Assess combined effects of environmental conditions and human disturbance on counts and behavioral responses of hauled out ice seals.
- Assess the feasibility of using sUAS to survey ice seal abundance and coastal haulouts and quantify related disturbance effects, if possible.
- Engage Indigenous communities and hunters in ice seal research.
- Build capacity for scientific operations by Indigenous communities and hunters.

**Methods:** Time-lapse cameras will be tested to survey ice seal numbers and behavioral responses at specific coastal sites to examine ice-seal haulout behavior and responses to anthropogenic disturbances at summer-fall coastal haulouts near Utqiagvik in Dease Inlet. Ultimately, this study will build an improved understanding of the combination of environmental factors and human disturbances that can influence seal distribution and behavior.

**Specific Research Question(s):**

1. How can technologies such as time-lapse cameras and sUAS be best used to survey ice seals and examine their haulout behavior and responses to disturbance and environmental factors?
2. How do environmental and anthropogenic factors influence ice seal haulout site selection and occupancy?

**Current Status:** Ongoing, fieldwork delayed due to COVID-19 response

**Publications Completed:** None

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

<https://marinecadastre.gov/epis/#/search/study/100249>

<https://www.uaf.edu/cfos/research/cmi/>