



Principal Investigator:

Dr. Donna Hauser
Research Assistant Professor
International Arctic Research Center
University of Alaska Fairbanks
(907) 474-1553
dhauser2@alaska.edu

Co-Investigator:

Dr. Andrew Von Duyke
Wildlife Biologist
Department of Wildlife Management
North Slope Borough
(907) 852-0350
andrew.vonduyke@north-slope.org

Timeline: Two years; data collection anticipated in summer 2020 and 2021

Funding: [Coastal Marine Institute](#) and the [Bureau of Ocean Energy Management](#). The project also relies on substantial funding from existing projects: the [Alaska Arctic Observatory and Knowledge Hub](#) (AAOKH) at the University of Alaska Fairbanks and the [Ice Seal Research Program](#) at the North Slope Borough Department of Wildlife Management (NSB-DWM).

Permitting:

- National Marine Fisheries Service General Authorization No. 23546
- Bureau of Land Management Land Use Permit FF097621
- University of Alaska Fairbanks IACUC Protocol 1610672-2

Summary: Spotted seals (*Phoca largha*) and bearded seals (*Erignathus barbatus*) are seasonally abundant throughout coastal regions of the Beaufort Sea during the summer and fall, frequently hauling out on coastal sandbars, spits, and islands. Yet, the influence of environmental factors and potentially increasing human disturbance on distribution, numbers, and behavior is unclear. The frequency, duration, and timing of haulout use can vary with local conditions (e.g., wind, water level, fish movements, seasonality, and human presence).

The goal of this pilot study is to evaluate the potential for new and emerging technologies, specifically time-lapse cameras (e.g. commonly known as ‘game cameras’) and small quad-copter style Unmanned Aircraft Systems (sUAS, or commonly known as ‘drones’), to assess the seasonal presence, behavior, and numbers of ice seals at several summer-fall Alaskan coastal haulout sites near Utqiagvik, AK (Fig. 1). An additional component is to measure responses (if any) by ice seals to the presence of sUAS.

In August 2020, cameras and weather stations were deployed at haulout sites in Dease Inlet and Smith Bay (Fig. 2). Based on experience in the region and local consultation, we expect to encounter spotted seals during this research.

Local involvement and outreach are fundamental components of the project. Project updates and results will be shared with the Ice Seal Committee and updates in [‘AAOKH News’](#) and NSB-DWM newsletters.

Objectives:

1. Test and refine remote camera and sUAS survey methods to assess counts, presence/absence, and behavior of spotted seals at known haulout sites.
2. Quantify the effects of environmental conditions on spotted seal summer-fall haulout behavior
3. Assess combined effects of environmental conditions and disturbance on counts and behavioral responses of hauled out spotted seals.
4. Quantify disturbance effects of sUAS to hauled out spotted seals.
5. Assess feasibility of using sUAS to survey spotted seal abundance at coastal haulouts.

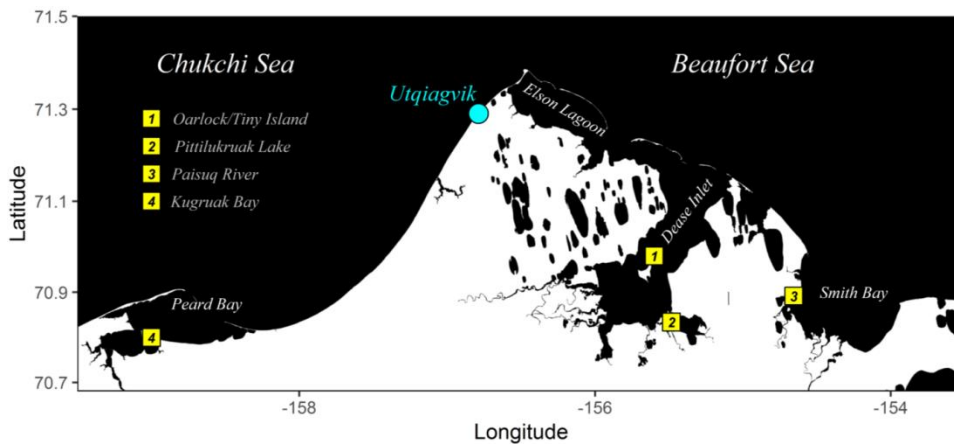


Figure 1. Spotted seal haulout locations proposed for sUAS and time-lapse camera surveys (yellow boxes) in the vicinity of Utqiagvik (blue circle). These areas are also used occasionally by subadult bearded seals.



Figure 2. Dr. Andrew Von Duyke stands next to the weather station deployed at Oarlock Island in Dease Inlet in August 2020. Cameras are deployed on the spit in the background where spotted seals often haulout.