Evaluating novel assessment approaches for coastal ice seal haulout areas and behavior in the Alaskan Beaufort Sea

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PROJECT STATUS UPDATE 2019-20

This description is meant to provide a project overview to share information with the Ice Seal Committee. We intend to continue sharing project updates and results.

Funding Status - A proposal for this project was presented to the Ice Seal Committee in May 2019. A funding decision was delayed, but eventually granted by the Coastal Marine Institute in September 2019. The project also relies on substantial financial contributions from existing projects at the University of Alaska Fairbanks (specifically the Alaska Arctic Observatory and Knowledge Hub: https://arctic-aok.org/) and North Slope Borough Department of Wildlife Management (specifically the Ice Seal Research Program).

Anticipated Project Timeline - Two years, data collection in summer 2020 and 2021

Project Summary - Spotted seals and bearded seals are seasonally abundant throughout coastal regions of the Beaufort Sea during the summer and fall, yet the influence of environmental factors and increasing human disturbance on distribution, numbers, and behavior is unclear. The frequency, duration, and timing of haulout use can vary with local conditions, such as wind, water level, fish movements, seasonality, and human presence. We propose pilot studies 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 spotted and bearded seals at known summer-fall coastal haulouts near Utqiaġvik, Alaska in Dease Inlet, Peard Bay and at lesser-known sites in adjacent Smith Bay (Figure 1). An additional component of this project is to measure the responses (if any) by ice seals to the presence of sUAS. Although our plans were to begin field work in the fall of 2019, the delayed release of funds pushed back our anticipated start date to the summer of 2020.

Project Objectives

1. Test and refine remote camera and sUAS survey methods to assess counts, presence/absence, and behavior of ice seals at known haulout sites

2. Quantify the effects of environmental conditions on spotted seal summer-fall haulout behavior

3. Assess the combined effects of environmental conditions and disturbance on counts and behavioral responses of hauled out spotted seals

4. Quantify disturbance effects of sUAS on hauled out ice seals

5. Assess the feasibility of using sUAS to survey spotted seal abundance at coastal haulouts

Community involvement and coordination

Local involvement and outreach are fundamental components of our project. An example includes hiring, training, and certifying Alaska Native subsistence hunters as project assistants and training them as Part 107 Remote Pilots to operate "drones". Drone training will be conducted by Advanced Aerial Education in Anchorage, Alaska in March 2020. We also anticipate coordinating with partnering projects at UAF and the NSB-DWM, in addition to the community of Utqiaġvik and the Ice Seal Committee.

We expect that significant outcomes of the proposed project will include: (1) an understanding of utility of novel ice seal monitoring techniques (including behavioral disturbance and influence of local environmental conditions), (2) several scientific as well as locally-relevant outreach products, (3) develop existing research programs to build synergies between UAF, NSB-DWM, and seal hunters, and (4) explicit coordination and capacity-building opportunities for Alaskan Native seal hunters.

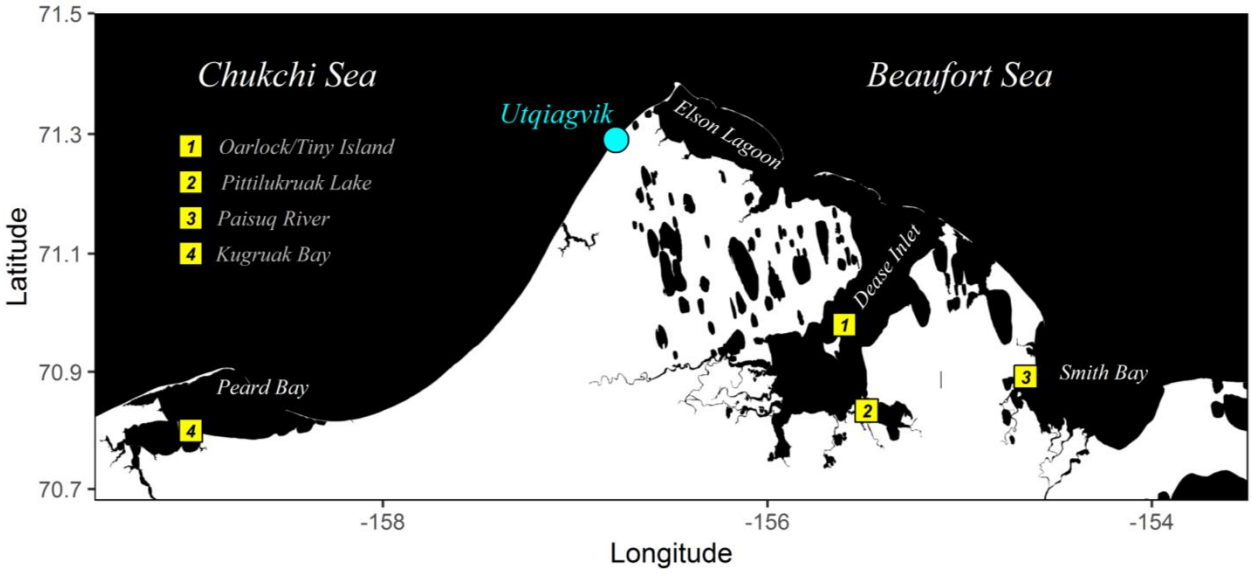

Figure 1. Spotted seal haulout locations proposed for sUAS and time-lapse camera surveys (yellow boxes) in the vicinity of Utqiaġvik (blue circle). These areas are also used occasionally by primarily subadult bearded seals.

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