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OCS Scientific Committee Meeting
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Alaska OCS Region Proposed Studies

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231	PO	1	Development of a Very High-resolution Regional Circulation Model of Beaufort Sea Nearshore Areas
233	IM	2	Coastal Habitat Maps: Closing Spatial Gaps in ShoreZone Imagery and Data for the Cook Inlet Area
235	PO / SE	3	Synthesis of Sub-Seabed Physical Environmental Data for the Beaufort and Chukchi Seas
237	IM	4	Support for the Canada-United States Northern Oil and Gas Research Forum, 2014
239	SE	5	Traditional Knowledge Implementation: Accessing Arctic Community Panels of Subject Matter Experts
241	HE	6	Monitoring Fish in Chukchi and Beaufort Sea Lagoons and Nearshore Zones
243	MM	7	Estimation of Abundance and Demographic Rates of Pacific Walruses Using a Genetics-based Mark-Recapture Approach
245	MM	8	Field Evaluation of an Unmanned Aircraft System (UAS) for Studying Cetacean Distribution, Density, and Habitat Use in the Arctic
247	HE	9	Subtidal and Intertidal Habitats and Invertebrate Biota in Lower Cook Inlet, Alaska
249	MM	10	Cetacean Distribution, Abundance, and Ecology in Cook Inlet
253	IM	11	Alternative Energy Capacity Inventory in Coastal Alaska
255	MM	12	Habitat Use, Ecology, and Population Status of Polar Bears in the Chukchi Sea

Discipline Codes

AQ = Air Quality
FE = Fates & Effects
HE = Habitat & Ecology
IM = Information Management
MM = Marine Mammals & Protected Species
PO = Physical Oceanography
SE = Social & Economic Sciences

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Field Evaluation of an Unmanned Aircraft System for Studying Cetacean Distribution, Density and Habitat Use in the Arctic

BOEM Information Need:

Compare Reliability of Survey Platforms to Detect Cetaceans

- Human safety especially in remote Arctic
  - Challenges working offshore in adverse conditions, sensitive areas
  - Long transit times, hazardous weather conditions, fuel-capacity limitations
- Advancement in commercial UAS technology
  - FAA's 2012 Reauthorization Act designated Arctic UAS airspace
  - Less disturbance of animals, hover capability, use near cliffs
  - Industry proposing UAS for marine mammal monitoring
- High cost of conducting manned aerial surveys

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Tentative Ranking: 8

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Field Evaluation of an Unmanned Aircraft System for Studying Cetacean Distribution, Density and Habitat Use in the Arctic

Background:

Relationship with Previous/Current Work

- LGL/Shell evaluating UAS-type imagery
- Australian dugong monitoring using *Shadow*
- NOAA UAS Program
  - 2008-09 *ScanEagle* used for ice seal monitoring
  - 2012 *Scout* & *Puma AE* to study AK Steller sea lions

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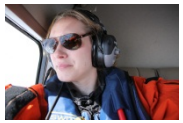
Field Evaluation of an Unmanned Aircraft System for Studying Cetacean Distribution, Density and Habitat Use in the Arctic

Study Objectives:

- Evaluate UAS versus manned cetacean aerial surveys in Arctic
  - Compare sensor “eye”  with Trained PSO “eyes” 
  - Efficiency of  vs. 
- Describe improvements needed in UAS technology
- Recommend monitoring/mitigation requirements
  - Detect cetaceans & id to species
  - Estimate group size & density
  - Identify calves

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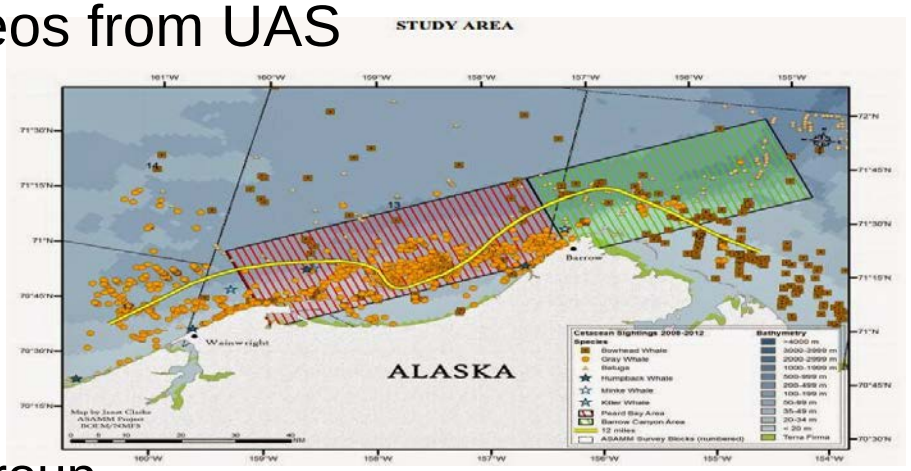
Study Methods:

- Conduct line-transect survey in aircraft w/mounted cameras
- Operate concurrent ship/land-based UAS w/same payload
- Review & archive photos/videos from UAS
- Compare metrics:
  - # sightings, species id
  - Density estimate precision
  - Detection of sensitive age group
  - Relative efficiency to achieve target precision



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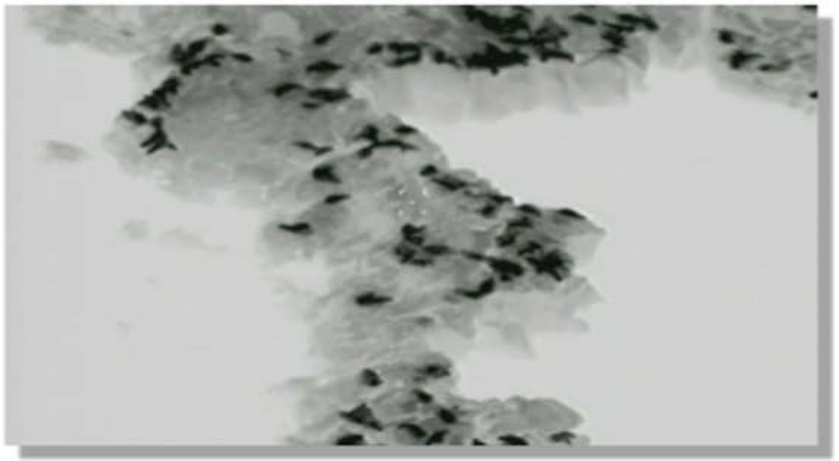

Questions?

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