

MMS ENVIRONMENTAL STUDIES PROGRAM: ONGOING STUDIES

Region: Alaska

Planning Areas: Cook Inlet

Title: Distribution and Abundance of Harbor Seals in Cook Inlet (AK-03-10)

MMS Information Needs to be Addressed: This study will provide a sound, scientific protocol for aerial surveys to evaluate harbor seals in the Cook Inlet/Shelikof Strait area. This study will provide information for NEPA analysis and documentation for proposed Cook Inlet Lease Sales and other NEPA reviews.

Total Cost: \$813,000

Period of Performance: FY 2003-2007

Conducting Organization: National Marine Mammal Laboratory

MMS Contact: [Chief, Alaska Environmental Studies Section](#)

Description:

Background Harbor seals have been identified as a “keystone” species in the Cook Inlet and Gulf of Alaska marine environment. They represent a top-level predator in the food chain and an abundant species that occurs on the OCS year-around. The western Gulf of Alaska/Cook Inlet population of harbor seals has declined drastically since 1976 (Pitcher 1990). Any perturbations that might be associated with Cook Inlet oil and gas activities could threaten this population. Information on the current trend in the population is needed to adequately assess potential effects of oil and gas activities. Harbor seal distribution could be affected by operations, and their abundance probably could be affected by a substantial oil spill.

Objectives To develop and use a sound, scientific protocol to conduct a multi-year/season series of aerial surveys to estimate the distribution and abundance of harbor seals in the Cook Inlet Area, and to identify factors contributing to variation in those estimates.

Methods

1. Review and refine the previously established protocol for harbor seals by aerial surveys including information gleaned from EVOS Prince William Sound harbor seal surveys.
2. Estimate relative abundance and density of hauled out harbor seals along the coast of Cook Inlet, and associated islands.
3. Correlate harbor seal densities along the coast with environmental parameters.
4. Develop and deploy remote camera systems for year-around use to identify factors that impact the haul-out behavior of harbor seals at various sites in Cook Inlet and quantify the relationship between haul-out patterns and these factors.
5. Integrate findings of this study with those of the concurrent MMS satellite-tagging study “Movements and habitat use Harbor Seals in Cook Inlet”, in order to broaden the geographic extent of the data available to estimate the proportion of seals missed because they are in the water during aircraft surveys.

Current Status:

Fieldwork is completed and analysis for the final report is expected in 2008.

Final Report Due: September 30, 2006

Publications Completed:

- Boveng, P. L., J. M. London, R. A. Montgomery. 2007. Strong seasonal dynamics of harbor seals, an upper-trophic predator in Cook Inlet. Abstract. Marine Science in Alaska: 2007 Symposium. January 21-24, 2007, Anchorage, Alaska.
- Montgomery, R. A., J. M. Ver Hoef, and P. L. Boveng. In press. Spatial modeling of harbor seal use of haul-out sites in Cook Inlet, Alaska. Marine Ecology Progress Series.
- London, J. M., P. L. Boveng, R. A. Montgomery, and O. Badajos. 2006. Abundance and movements of harbor seals in Cook Inlet and Kachemak Bay. Abstract. Kachemak Bay Science Conference. March 24-26, 2006, Homer, Alaska. [oral presentation]
- Montgomery, R. A. 2005. Modeling the terrestrial habitat use of harbor seals. Master of Science Thesis. University of Washington, Seattle, Washington.
- Montgomery, R. A. 2005. Modeling haul-out site selection in harbor seals. Abstract. 16th Biennial Conference on the Biology of Marine Mammals. December 2005, San Diego, California. Society for Marine Mammalogy.
- Boveng, P. L., J. L. Bengtson, and M. A. Simpkins. 2005. Distribution and abundance of harbor seals in Cook Inlet: Seasonal variability in relation to key life history events. Abstract. Tenth Information Transfer Meeting and Barrow Information Update Meeting. U.S. Department of the Interior, Minerals Management Service, Alaska OCS Region, 3801 Centerpoint Drive, Suite 500, Anchorage, Alaska 99503-5823.
- Boveng, P. L., M. A. Simpkins, and J. L. Bengtson. 2005. Seasonal dynamics of harbor seals in Cook Inlet. Abstract. P. 101 in Marine Science in Alaska: 2005 Symposium. January 24-26, 2005, Anchorage, Alaska.

Affiliated WWW Sites: <http://www.mms.gov/alaska/>
<http://nmml.afsc.noaa.gov/>

Revised Date: March 2008