MMS ENVIRONMENTAL STUDIES PROGRAM: ONGOING STUDIES

Region: Alaska

Planning Areas: Cook Inlet

Title: Movements and Habitat Use of Harbor Seals in Cook Inlet (AK-04-07)

MMS Information Needs to be Addressed: This study will provide valuable information about a harbor seal population (or populations) that is exhibiting a trend toward seriously declining abundance. The study will provide information that addresses public concerns raised during MMS outreach. Information on distribution, abundance and behavior will be used in pre- and assessments and could form the basis for post-development monitoring if oil or gas related development is undertaken in the MMS Cook Inlet Planning Area. Information will be useful for assessments and monitoring for Cook Inlet Lease Sale in 2006.

Total Cost: $1,328,000 **Period of Performance:** FY 2004-2007

Conducting Organization: National Marine Mammal Laboratory

MMS Contact: Chief, Alaska Environmental Studies Section

Description:

Background In recent decades, the abundance of harbor seals has declined at several Alaskan locations. For example: counts of harbor seals at Tugidak Island declined 85% between 1976 and 1988 in Bristol Bay; the north side of the Alaska Peninsula; seal counts declined 42% between 1975 and 2003; and trend site counts in Prince William Sound suggest declines in harbor seal populations of approximately 63% between 1984 and 1997. The significance and causes of these declines are unknown, but concern is rising about the present and future status of Alaska harbor seal populations, most notably in the Gulf of Alaska. Because of the proximity of the declining populations to Cook Inlet, and the inherent vulnerability of harbor seals to spilled oil, it is particularly important to assess the potential impacts of oil and gas activities on the harbor seal population in the Cook Inlet Region.

In Alaska, aerial surveys have generally been conducted during the molt period (August-September) when the number of seals hauled out is thought to be highest and the weather conditions are likely to be most favorable for flying. Haul-out patterns at other times of the year are not well known. Since any seal's activity budget includes a significant time away from haul outs, information is also needed about at-sea behaviors for oil spill risk assessment. This study would result in a coordinated benefit to ongoing MMS-funded aerial surveys of harbor seals by estimating a correction of survey counts for the numbers of animals missed when they are not hauled out. It augments the ongoing MMS study entitled, *Distribution and Abundance of Harbor Seals* by providing a correction factor and other information on the distribution and behavior of seals away from established haul-outs.

Objectives The general goal of this study is to employ satellite telemetry to document the movements, foraging behavior, and habitat use of harbor seals in Cook Inlet.

Specific objectives are to:

1. Enhance estimates of harbor seal abundance in Cook Inlet by determining and applying a correction factor to survey counts of harbor seals from concurrent aerial surveys at haul outs in Cook Inlet.
2. Obtain Cook Inlet-wide information on harbor seal relative abundance, distribution and behavior with emphasis on habitat other than major haul outs.
3. Identify and prioritize any specific habitat areas that are or particular importance to the Cook Inlet harbor seal population(s) for specific activities such as feeding, breeding, pup rearing, wintering, etc.
4. Conduct a comprehensive evaluation of whether individual populations (or stocks) exist in the MMS Cook Inlet planning area.

Methods

1. Capture and instrument 30 seals in each of 3 successive years (N = 90) with Argos satellite-linked time-depth recorders. Seals to be instrumented would include approximately equal proportions of juveniles, adult females and adult males each year. Seals would be captured from locations throughout Cook Inlet, in relative numbers that are proportionate to local abundance.
2. Develop necessary statistical analyses or statistical models to produce a correction factor for harbor seal abundance derived from aerial surveys at haul outs.
3. Use movement and behavioral data from this study with any existing published results or other data in a comprehensive analysis of harbor seal distribution and habitat use in, or adjacent to, the MMS Cook Inlet Planning Area.
4. Use text, maps, photographs or other data summaries to portray harbor seal distribution and habitat use in Cook Inlet for use in oil spill risk analysis.
5. Produce a synthesis of movement data, and other existing evidence (e.g., genetic analyses or tagging studies) to evaluate whether individual populations (or stocks) exist in the MMS Cook Inlet planning area. Use tissue samples obtained from instrumented seals for supplemental genetic analyses, if needed.

Current Status: Field work is completed and a final report is expected in 2008.

Final Report Due: June 5, 2008

Publications Completed:

Boveng, P. L., J. L. Bengtson, and M. A. Simpkins. 2005. Movements and marine habitat use of harbor seals in Cook Inlet. 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.

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

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