

MMS ENVIRONMENTAL STUDIES PROGRAM: ONGOING STUDIES

Region: Alaska

Planning Area(s): Beaufort Sea

Title: Assessing Reproduction and Body Condition of the Ringed Seal near Sachs Harbour, Northwest Territory, Canada, through a Harvest-based Sampling Program (AK-05-05)

MMS Information Need(s) to be Addressed: This study will assist MMS in its responsibility for identifying and mitigating potential effects of OCS development on ringed seals and polar bears and will be relevant to the interpretation of results from a Canadian polar bear population assessment underway in the Beaufort Sea. The information will be used for NEPA analysis and documentation for Beaufort Sea Lease Sales and DPPs.

Total Cost: \$115,000 plus Joint Funding **Period of Performance:** FY 2005-2010

Conducting Organization: Department of Fisheries and Oceans, Canada

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

Description:

Background: Ringed seals are the most abundant pinniped in the Arctic Ocean and along the Alaskan Beaufort Sea coastline. Population stocks of the ringed seals have not been delineated but ringed seals are capable of having large home ranges, with some seals making long movements between wintering and summering habitats. For example, ringed seals tagged at Cape Parry, Northwest Territory, Canada, in September of 2001 and 2002, were found to migrate westward along the Alaskan Beaufort Sea coastline and into the Chukchi Sea for over-wintering. Since ringed seals from the U. S. Beaufort and seals from Western Canada appear to intermix in the Beaufort and Chukchi Seas, and habitat is fairly similar along those respective coastlines, information from ringed seal studies in the Western Arctic of Canada is potentially useful for understanding the health status of ringed seals in Alaska, including those spending at least some of the year near the oil and gas developments along the shoreline of the Beaufort Sea and Beaufort OCS.

The health and condition of ringed seals in the Beaufort Sea are important to biologists, hunters and managers for several reasons. They have been proven to be useful indicators of the physical and biological environment. As ubiquitous and important prey, they are critical to the well being of polar bears. Also, they are valued as a subsistence resource by the Iñupiat and the Inuvialuit. Changes in the seal population that have been documented in the western Arctic in the past, have included a reduction in ovulation rates among mature females, reduced percent pups in the harvest, reduced number of birth lairs, a possible shift in the age of sexual maturity, and changes in relative abundance during both ice-covered and open water periods. Moreover, changes in the reproduction and condition of ringed seals in the eastern Beaufort Sea can have profound effects on the polar bear population, according to a review in 2002. In particular, during years when the ice conditions are particularly heavy, seal fatness, reproduction and pup survival have

been observed to decline, resulting in a subsequent decline in reproduction of polar bears and survival of their cubs.

The purpose of this study is to cosponsor a sampling program jointly funded with the Department of Fisheries and Oceans (DFO), Northwest Territories, Canada and in cooperation with Inuvialuit subsistence hunters in the Sachs Harbour area. Data on seal body condition and reproductive output will provide an assessment of the status of the ringed seal population in relation to its environment and as a prey resource for Beaufort Sea polar bears.

Objectives:

- In coordination with ongoing seal monitoring studies in Holman and along the Alaskan Beaufort Sea coastline, to sample and measure ringed seals taken by Inuvialuit hunters in the Sachs Harbour area (minimum of n = 80).
- Use reproductive status and body condition as indicators to evaluate ecosystem productivity and fluctuations in the seal population.
- To contribute biological data on Beaufort Sea seal populations for use in interpretation of condition and reproduction rate data on polar bears collected in the same general study area through the same time period.
- To examine these aspects in the context of annual variation in regional ice conditions.
- To coordinate with, and provide samples for, "stock health" related studies, such as disease and contaminants.

Methods: The study will be coordinated by the Canadian Department of Fisheries and Oceans, Stock Assessment Section, in collaboration with its Resources, Wildlife and Economic Development Section and the Canadian Wildlife Service. The project will utilize the same methods as an ongoing project in Holman, Northwest Territory and collect data that are comparable to existing data sets for seals in this area: in the 1970s by the Canadian Wildlife Service; in 1987-1989 by the Canadian Fisheries Joint Management Council; and in 1992 by the Department of Fisheries and Oceans. Further information on this is available from Canadian Beaufort Sea ringed seal studies at: www.beaufortseals.com and several other sources. Body condition of ringed seals harvested by Inuvialuit hunters near Sachs Harbour, and two parameters of seal reproduction (ovulation rate and percent pups in the harvest) will be analyzed. These parameters were selected because they varied with changes in the seal population during work in this same area in the 1970s and 1990s, so that new data can be compared with results from past years. Also, it is possible and practical to monitor these aspects over several years through a harvest-based study in the community of Sachs Harbour, Northwest Territory, Canada.

Current Status: Ongoing

Final Report Due: March 2010

Publications Completed: None

Affiliated WWW Sites: <http://www.beaufortseals.com/monitoring.htm>
<http://www.mms.gov/alaska/>

Revised Date: February 2010