



Workshop to develop monitoring plans for Arctic marine mammals 4-6 March 2007 – L'Oceanogràfic, Valencia, Spain

Attendance by uninvited participants will be limited due to meeting space constraints. Please contact Dr. Michael Simpkins (msimpkins@mmc.gov) for further information about the workshop.

Purpose

Environmental conditions in the Arctic are changing rapidly, affecting both terrestrial and marine ecosystems. Air temperatures are increasing over much of the Arctic, and the geographical extent of summer sea ice has decreased on average to about 70 percent of what it was three decades ago. Projections indicate that by the end of the century summer sea ice could decrease to the point where the Arctic is ice free in the summer months. In addition, human industrial activity (e.g., oil and gas production, mining, marine transport, commercial fishing, and tourism) in the Arctic is expected to increase as a consequence of warmer temperatures and longer open water seasons. With increased human activity comes increased risk of deleterious anthropogenic effects on ecosystems, although such effects often can be avoided or mitigated if they are identified prior to or early in the development of new industrial ventures.

The risk of extinction for terrestrial and marine species increases with both rapid environmental change and increased human pressure. In most cases, it is difficult or even impossible to distinguish between environmental and anthropogenic impacts on wildlife populations without adequate monitoring of the populations and their ecosystems. Effective wildlife management and sustainable development both require that such distinctions be made. A monitoring program should be able to (1) detect important changes in the status of the target wildlife population or species, (2) identify the natural or anthropogenic cause(s) of those changes, and, most importantly, (3) do so in time to allow the development and implementation of effective strategies to mitigate anthropogenic threats so that the population or species can persist and maintain its role in the ecosystem.

This workshop aims to develop such monitoring plans for two arctic marine mammal species: the ringed seal (*Phoca hispida*) and beluga whale (*Delphinapterus leucas*). These two species were selected for a variety of reasons including their circumpolar distribution, the availability of historic and recent data on their status in at least some regions, and their importance to indigenous communities. The resulting plans will be provided to the Arctic Council's Conservation of Arctic Flora and Fauna working group and thus contribute to the development of the Circumpolar Biodiversity Monitoring Project, which is meant to coordinate existing and new arctic biodiversity monitoring programs. The plans also will be provided to relevant resource management agencies in Arctic nations to inform their monitoring efforts and promote international collaboration in monitoring shared species; ringed seals and beluga whales both have circumpolar distributions and, thus, occur in the waters of many arctic nations. Finally, the plans hopefully will serve as mechanisms for attracting, prioritizing, and coordinating long-term funding for monitoring needs.

Workshop scope and organization

As mentioned above, ringed seals and beluga whales have circumpolar distributions, thus the monitoring plans for these species should be circumpolar and international in scope. The workshop, therefore, will include experts from most arctic nations as well as from arctic indigenous communities. Participants with various kinds of expertise will be required, including experts on: ringed seal and beluga whale biology and ecology, arctic ecosystem dynamics (including trophic interactions between ringed seals and beluga whales and their predators and prey), arctic oceanography and climate, monitoring techniques (e.g., aerial surveys, remote sensing, mark-recapture studies, local monitoring networks, and tissue sampling from harvested and live-captured animals), statistical sampling design (e.g., survey design and power analyses of proposed sampling regimes), and anthropogenic threats assessment.

Prior to the workshop, background papers will be developed, describing the biology and ecology of ringed seals and beluga whales and the tools and methods currently or proposed to be used to assess the status of the species (e.g., abundance, population trend, reproductive rate, and health and condition of individuals) and the primary ecosystem processes that affect it (e.g., prey availability and seasonal sea ice conditions). Each paper will be crafted to provide both background necessary for the workshop and suggestions on the elements of a monitoring plan. To the degree possible, each background paper will provide a strawman of the proposed monitoring plan to stimulate rapid progress during the workshop.

Marine Mammal Commission website: <http://www.mmc.gov/>

DRAFT workshop agenda

Day 1

- I. Opening Plenary Session
 - A. Introduction
 - B. Overview of arctic climate change and likely effects on marine mammals
- II. Working groups (one each for ringed seals and beluga whales)
 - A. Review of biology, ecology, threats, and assessment/monitoring methods
 - B. Discussion, identification, and prioritization of critical biological and ecological parameters that must be monitored
- III. Plenary discussion of prioritized critical parameter lists
 - A. Working group reports
 - B. Discussion of prioritized lists

Day 2

- IV. Working groups—Morning session
 - Discuss and determine requirements for effective monitoring, i.e., specific methods for measuring each critical parameter
- V. Working groups—Afternoon session
 - Synthesis and development of overall monitoring plan
- Evening work session (volunteers) to develop presentation of plan for next day's plenary session

Day 3

- VI. Plenary session—Morning
 - A. Presentation of draft monitoring plans
 - B. Discussion of implementation strategies for monitoring plans
- VII. Plenary session—Afternoon
 - A. Discuss monitoring plans in context of monitoring other arctic marine mammals
 - B. Discuss process to draft and finalize monitoring plans
 - C. Discuss means to implement monitoring plans