

## ENVIRONMENTAL BASELINE STUDIES

### PRELIMINARY SUMMARY STUDIES PERFORMED BY ABR, INC. MARINE WILDLIFE, COOK INLET

Studies of marine wildlife in the region of the proposed port in Iniskin Bay at Cook Inlet are being conducted to allow an assessment of the effects on wildlife from port construction and operations during development of the Pebble Mine. This study examines the distribution and abundance of marine wildlife (marine-oriented birds and marine-oriented mammals) using data from three different survey platforms:

- Research cruises for all birds and mammals.
- Aerial surveys for waterbirds and harbor seals.
- Aerial surveys for Steller's Eiders and northern sea otters.

These surveys were focused on threatened/endangered species (e.g., Steller's Eiders, northern sea otters), species that have been considered for listing under the Endangered Species Act (e.g., Kittlitz's Murrelet), depleted or rare species of marine mammals (e.g., Steller's sea lions, beluga whales), marine-oriented birds in general (including breeding species), and marine-oriented mammals. The goal of the study is to determine the seasonal distribution and abundance of marine-oriented birds and mammals in the port area that could be affected by the construction of port facilities and by the passage of ships through the area.

Three methods are being used to study marine-oriented wildlife: ship-based research (all species), fixed-wing aerial surveys (waterbirds, harbor seal haul-out sites), and helicopter-based aerial surveys (Steller's Eiders, sea otters). The research cruises (eight total) occurred over four seasons (spring, summer, early winter, late winter) and two years (June 2004 through May 2006). The fixed-wing aerial surveys for waterbirds occurred in spring and fall 2004 and 2005. The fixed-wing aerial surveys for harbor seals were conducted from April to December 2005. The helicopter-based surveys for endangered eiders and otters were conducted in mid to late winter (February through April) 2006. Another set of helicopter-based surveys for endangered eiders and otters is planned for early winter 2006 (October through December).

The ship-based surveys consisted of two primary sampling techniques: nearshore surveys and offshore surveys (Figure ABR-17). In nearshore surveys, researchers drove a small skiff near the shore and

counted all birds and mammals seen on the water, in the intertidal zone, in the trees within 100 meters of the shoreline (primarily Bald Eagles and ravens), as well as any birds flying over any of these areas. Researchers aged and sexed these birds and mammals whenever possible. In offshore surveys, the ship followed a predetermined trackline and researchers counted birds and mammals seen within 150 meters on either side of the boat. Again, all birds and mammals were aged and sexed whenever possible.

The fixed-wing surveys for migrant and molting waterbirds involved flying over sections of Iliamna and Iniskin bays and nearby areas and counting the numbers of each species or species group of waterbirds seen (these surveys were conducted as part of the waterbird studies described above).

The fixed-wing surveys for harbor seals involved flying over a series of islands and islets in Iliamna and Iniskin bays, nearby areas, and in Chinitna Bay (Figure ABR-17) to photograph any seals that were hauled out. Harbor seals were then systematically counted and, whenever possible, aged and sexed from the photographs taken at each haul-out site.

The helicopter-based surveys were used to determine the distribution and abundance of Steller's Eiders and sea otters in Iliamna and Iniskin bays and nearby areas during winter. These two species occur in this area largely in winter when inclement weather prohibits ship-based sampling.