

10 June 2012

## **STATUS AND BIOLOGY OF THE ALASKA-CHUKOTKA POLAR BEAR POPULATION**

3<sup>rd</sup> Annual Meeting of the Scientific Working Group of the U.S.-Russia Polar Bear Commission

Anchorage, Alaska USA

14-16 March 2012

The Alaska-Chukotka (AC) polar bear population (also referred to as the “Chukchi Sea” subpopulation by Polar Bear Specialist Group [PBSG] of the International Union for the Conservation of Nature) ranges between the United States and the Russian Federation. It is one of 19 polar bear populations recognized by the PBSG. The U.S. has a second population in the southern Beaufort Sea; Russia has three other populations in the Kara, Laptev, and Barents seas.

The AC population inhabits the sea ice of the northern Bering, Chukchi, and eastern Siberian seas between the northwest coast of Alaska and the northeastern coast of Chukotka, including Wrangel and Herald islands in Russia (Figure 1). Movements and distribution of bears in this population are largely based on satellite tagging studies conducted from 1986-1994 and from 2008-2011. Long-term, ground-based observational studies and satellite tagging efforts show that polar bears in the AC population come on land on Wrangel and Herald islands and the Chukotkan coast every year during the ice-free season, and that Wrangel Island is a particularly important resting place for bears. From 2004-2011, an average of 220 polar bears per year were observed using Wrangel Island as a seasonal refuge during the ice-free season. In some years, up to several hundred bears occur on Wrangel Island and the Chukotkan coast combined. Only pregnant female polar bears enter dens; other polar bears usually remain active throughout the winter. For the AC population the majority of maternity denning occurs on Wrangel and Herald islands, but also on the northern Chukotkan coast and occasionally on the sea ice. Land use for resting or denning by polar bears from this population is uncommon in Alaska.

Accurate estimates of survival and population size are not available for the AC population, unlike some other polar bear populations that have well-studied population dynamics. In 1992, although there was not enough information to directly assess the size of the AC population, experts estimated that there were 2,000 to 5,000 bears based on the number of maternity dens recorded from aerial surveys in the 1970s on Wrangel Island. In 2005, the PBSG used historical studies and expert opinion to estimate the size of the AC population to be approximately 2,000 bears. In 2009, the PBSG revised this estimate to “unknown” due to the

10 June 2012

lack of recent information. The PBSG also acknowledged that although data were not available to directly assess population trend, the combined impacts of high levels of legal and illegal harvest, along with the potential effects of rapid sea ice loss, suggested that the population may be declining.

The wide distribution of polar bears on sea ice, the vast size of the region, and the lack of infrastructure to support research studies make estimating survival and population size difficult for the AC population. In lieu of survival estimates or multiple estimates of abundance over time, the status of the population is being inferred from data on reproductive rates, body size, and nutritional condition. These data come from capture-based studies in the U.S., which began in 2008 and are ongoing; and from long-term, ground-based observational studies on Wrangel Island. Preliminary results from springtime studies in the U.S. suggest that bears are currently exhibiting healthy recruitment, body size, and nutritional condition. Although the Chukchi Sea has experienced some of the largest ice declines in the Arctic, the continued occurrence of ice habitat over an extensive shallow and productive continental shelf in recent years may continue to support a healthy polar bear population. However, long-term observations of bears on Wrangel Island during the ice-free period suggest that cub survival is presently low in some years. Current estimates of the numbers of denning females on the island (60-70 per year) are lower than previous estimates, which could be a result of changing denning distribution or declines in reproduction. Bears in poor nutritional condition and instances of mortality have been observed in the autumn on Wrangel Island.

Continued population and harvest monitoring, including scientific studies and assessments of traditional and local ecological knowledge, are needed to understand the biological status of the AC population. Human-caused mortality—including both legal and illegal killing of polar bears—may be occurring at levels that are unsustainable and exceed quotas currently established by the U.S.-Russia Polar Bear Commission responsible for managing and conserving this population. Also, sea ice loss is expected to have negative effects on polar bears in the long term if climatic warming continues as projected by many scientists. Steps are currently being taken to manage the level of human-caused removals, and to evaluate the feasibility of estimating population size and survival rates using a variety of approaches. These conservation concerns are being addressed via cooperative research and management under an international treaty called the *Agreement between the Government of the United States*

*of America and the Government of the Russian Federation on the Conservation and Management of the Alaska-Chukotka Polar Bear Population (the “U.S.-Russia Agreement”).*

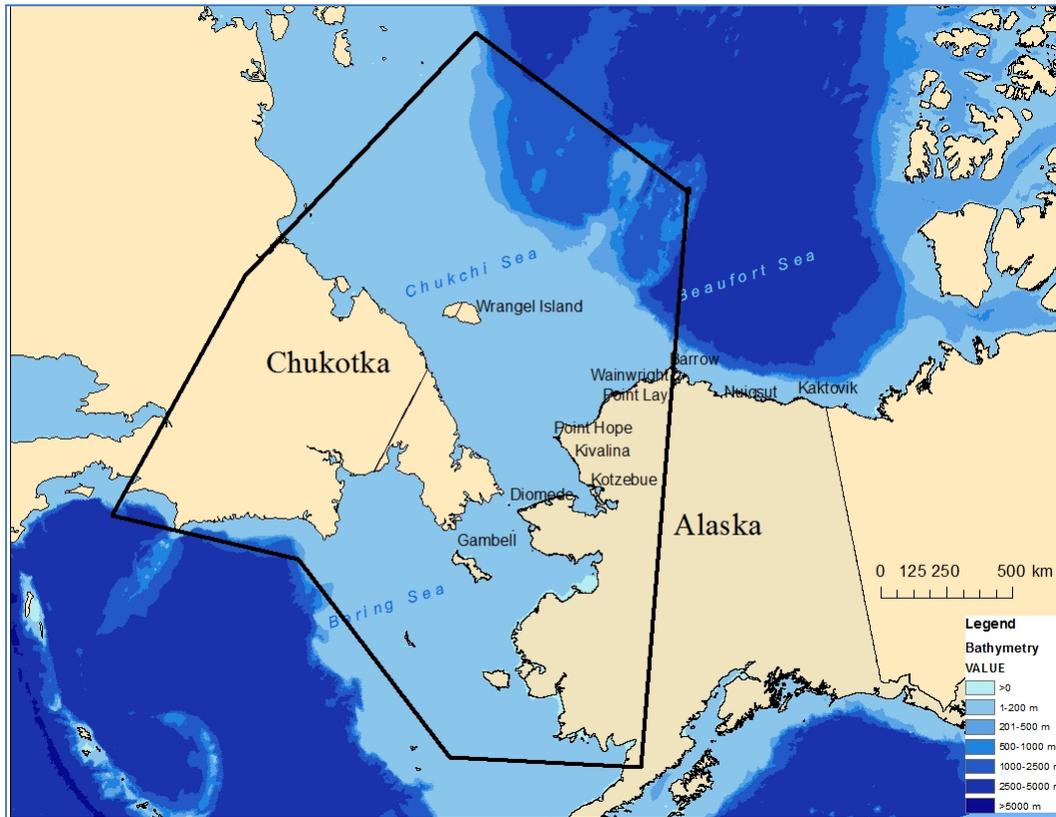


Fig. 1: Approximate boundaries of the Alaska-Chukotka polar bear population in black outline. The U.S.-Russia Agreement defines the southern boundary as the southernmost extent of drift ice, the western boundary as a line north through the Kolyma River, and the eastern boundary as a line north through Barrow, Alaska.