

ALASKA BELUGA WHALE COMMITTEE
REPORT 03-1

Beluga Whale Surveys in the eastern Chukchi Sea, July 2003

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SUMMARY

The Alaska Beluga Whale Committee conducted aerial surveys for beluga whales in the eastern Chukchi Sea on six days during 1-8 July 2003. Survey conditions were generally fair-good with fog sometimes interfering with surveys. In the Kasegaluk Lagoon area belugas were seen only in the Cape Sabine-Omalik Lagoon region with a peak single day count of 369 animals on 5 July. Belugas were seen on offshore transects west and northeast of Barrow on two survey days. Spring conditions occurred early in the northeastern Chukchi Sea in 2003, and the beluga survey data collected that year are not comparable to those from previous years.

INTRODUCTION

In 1996, 1997, and 1998 the Alaska Beluga Whale Committee (ABWC) conducted aerial surveys to determine the distribution and abundance of beluga whales in the eastern Chukchi Sea. Emphasis was on the Kasegaluk Lagoon region, an area that has been surveyed repeatedly in previous years (Seaman *et al.* 1986, Frost and Lowry 1990, Frost *et al.* 1993, Lowry *et al.* 1996, 1997, Demaster *et al.* 1998), with some survey effort in Kotzebue Sound and along the coast between Kotzebue and Kasegaluk Lagoon. A summary of the survey findings for all three years was presented to the IWC in 1999 (Lowry *et al.* 1999).

As part of its regular program of stock assessments, the ABWC repeated aerial surveys of beluga whales in the eastern Chukchi Sea in July 2001 and 2002. Objectives were to count beluga whales nearshore in the Kasegaluk Lagoon region, and to test the feasibility of counting belugas offshore in the region between Cape Sabine and Point Barrow. Weather conditions in 2001 were poor throughout the survey period and relatively few whales were counted on offshore transects. Weather was again a problem in 2002, but even on a day with very good survey conditions, very few belugas were seen on offshore transects. Because of the lack of success in 2001-2002, the ABWC decided to again conduct surveys in the eastern Chukchi Sea in 2003.

METHODS

Survey methods were similar to those used for previous ABWC aerial surveys in the Chukchi Sea (Lowry *et al.* 1999). The aircraft was a high-wing, twin-engine AeroCommander. Primary observers were Kathy Frost, Sue Moore, and Bob Small. All transects were flown at 120 knots. Survey altitude was intended to be 1,000 ft, but lower altitudes were often required due to fog and low ceilings. Coastal surveys were flown with the aircraft centerline approximately 0.6 nm seaward from the shoreline. When large aggregations of beluga whales were located along the coast, as many animals as possible were positioned to one side of the survey track line, and two to four passes were made while observers counted whales on both sides of the aircraft. The group sizes presented in this report are the maximum counts made of each group. Offshore lines were flown usually at a spacing of 5 or 10 nm between centerlines. On offshore lines observers counted whales in a strip 0.5 nm wide on each side, offset 0.125 nm from the centerline of the aircraft. Strip widths were measured by inclinometers and marked on the aircraft windows with grease pencils.

RESULTS

Surveys were flown on six days during the period 1-8 July 2003 (Appendix A). Conditions were not suitable for surveying when we flew the coast from Kotzebue to Barrow on 1 July, and it was too foggy to fly on 2 and 3 July. Survey conditions were generally good during surveys on 4-7 July, and were fair on 8 July.

The coastal region between Barrow and Cape Sabine was surveyed only on 4 and 5 July and the only belugas seen were near Omalik Lagoon (Figure 1; Table 1). The highest count was 369 on 5 July. There were no belugas seen at any of the Kasegaluk Lagoon passes. A coastal survey was flown on 8 July in fair conditions and no belugas were seen.

Offshore transects were flown on three days (Figure 1; Table 1). On 4 July effort was mostly within 25 nm of shore in the area north of Icy Cape and between there and Barrow. The area was entirely ice free, and no belugas were seen. On 5 July surveys were flown in the area north of Icy Cape and west of Barrow, 10-30 nm offshore. The area included mostly open water and some pack ice. One beluga was seen at the edge of pack ice 40 nm west of Barrow. A line was flown just inside the ice edge eastward into the Beaufort Sea. A group of belugas was seen about 50 km northeast of Barrow, and 20 whales were counted. On 6 July transects were flown north of Icy Cape and west of Barrow 30-60 nm offshore. The area included open water and pack ice, and no belugas were seen. On 7 July transects were flown in the Beaufort Sea, mostly over pack ice but including an open water area north and east of Barrow. Thirty-eight belugas were counted at the edge of pack ice about 45 nm northeast of Barrow.

DISCUSSION AND CONCLUSIONS

Early summer conditions in the northeastern Chukchi Sea were unusual. In most years that we have surveyed this area in early July, sea ice usually occurs within a few miles of shore, especially at and east of Icy Cape (Lowry *et al.* 1999). In 2003, ice had receded much further north than usual, and the region within 50 nm of shore was almost all ice free. Beluga hunters from Point Lay had their annual hunt on 23 June, about two weeks earlier than usual.

Results from our aerial surveys showed that while some whales remained near their traditional early July concentration area at Omalik Lagoon, some of the population had moved past Kasegaluk Lagoon, at least as far as the western Beaufort Sea, by 5 July. Of 23 belugas satellite-tagged at Point Lay in 1999-2002, the earliest date on which a whale moved to east of Barrow was 12 July (ABWC, unpublished). Although we extended our survey area much farther to the east than in any previous year and saw some whales, we did not locate any large concentration.

We conclude that 2003 was an "early spring" in the northeastern Chukchi Sea and the beluga counts for that year are not comparable to those from previous years.

Data collected in 2001, 2002, and 2003 have confirmed that coastal surveys of the Kasegaluk Lagoon region count only a part of the eastern Chukchi Sea beluga stock. Overall, the

distribution of offshore sightings and locations of satellite-tagged whales suggests that during early July whales occur in a large area of the northeastern Chukchi Sea. In some years their distribution may extend into the western Beaufort Sea during the period when surveys are usually conducted. Attempts to use aerial surveys to develop an abundance estimate for this population are frustrated by at least four factors: 1) frequent foggy and windy weather resulting in poor conditions for counting; 2) the large area over which whales are distributed; 3) a very low encounter rate of whales during surveys in offshore areas; and 4) year-to-year variation in whale distribution caused by seasonal factors. It appears that with currently available methods it may be impractical to enumerate this population using aerial surveys flown in the eastern Chukchi Sea in July.

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Table 1. Counts of beluga whales in the eastern Chukchi Sea, 4-8 July 2003. Dashes indicate no survey effort in that area.

Location	4 July	5 July	6 July	7 July	8 July
Cape Sabine- Omalik Lagoon	238	369	--	--	0
Offshore transects	0	21	0	38	--
TOTAL	238	390	0	38	0

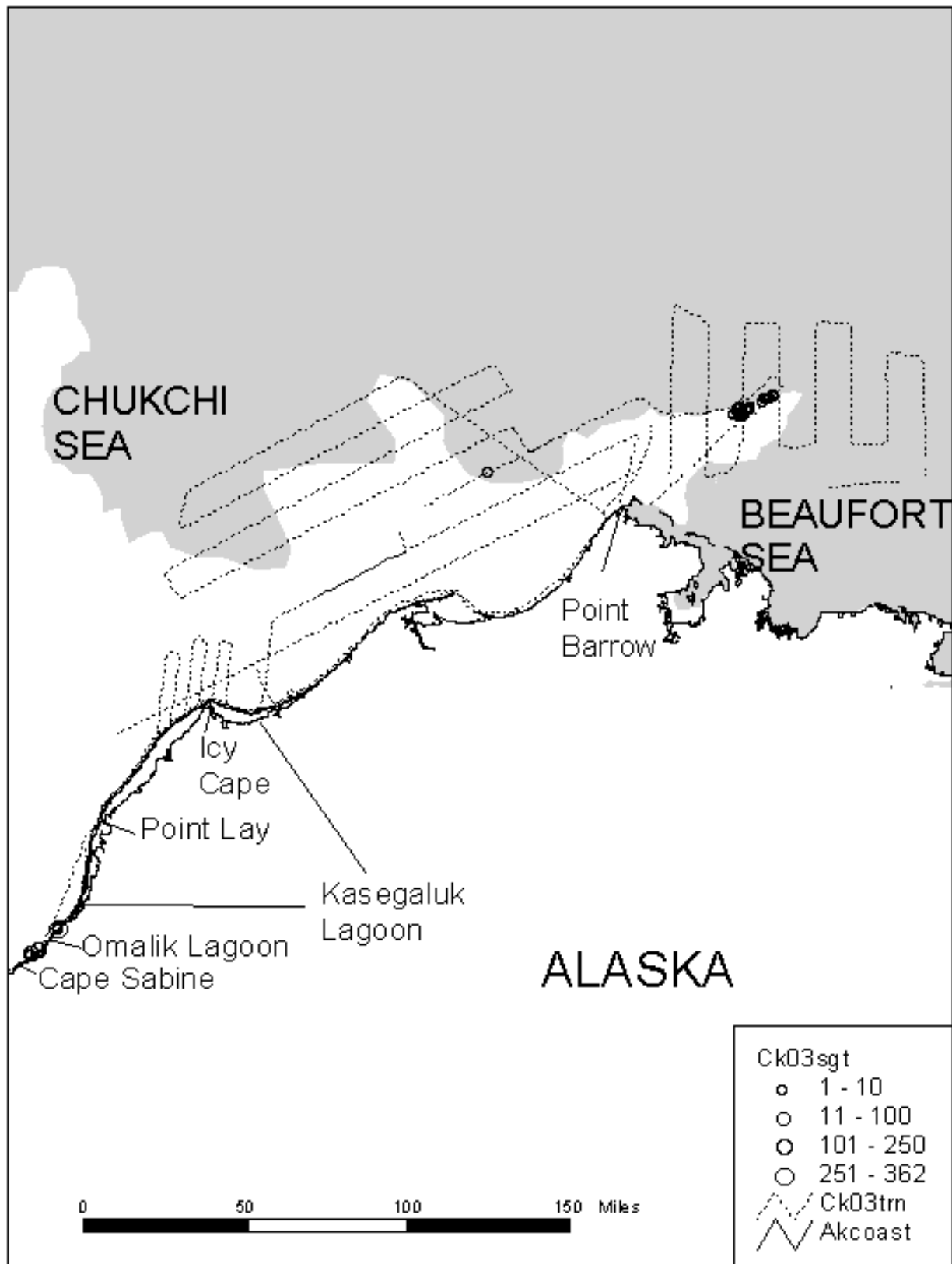


Figure 1. Map of the Kasegaluk Lagoon area showing flight lines and beluga sightings made during ABWC aerial surveys conducted 4-8 July 2003. Shaded area is sea ice coverage of $\geq 30\%$.

APPENDIX A. DAILY SURVEY SUMMARIES

1 July 2003: Flew a coastal survey from Kotzebue Sound to Barrow. Windy, foggy conditions were unsuitable for surveying. No belugas were counted.

4 July 2003: Flew a coastal survey from Barrow to Cape Sabine, and offshore lines between Point Lay and Barrow. Sighting conditions generally good to excellent. The only belugas seen were between Omalik and Cape Sabine where 238 were counted.

5 July 2003: Flew a coastal survey from the north end of Kasegaluk Lagoon to Cape Sabine, and a partial survey of the offshore area between Icy Cape and Barrow. Sighting conditions were generally fair to good. Near Cape Sabine 369 belugas were counted. Twenty-one belugas were counted at the edge of pack ice west and northeast of Barrow.

6 July 2003: Flew offshore transects in the area north of Icy Cape and west of Barrow. Sighting conditions were good throughout. No belugas were counted.

7 July 2003: Flew offshore transects in the area north and east of Barrow. Sighting conditions were mostly good. Thirty-eight belugas were counted at the edge of pack ice northeast of Barrow.

8 July 2003. Flew a coastal survey from Barrow to Cape Sabine. Conditions were mostly fair with fog and wind. No belugas were counted.