Key Site 22: Cape Bathurst Polynya, Northwest Territories

Location: 70°40'51"N, 129°45'51"W

Size: 12,835 km^2

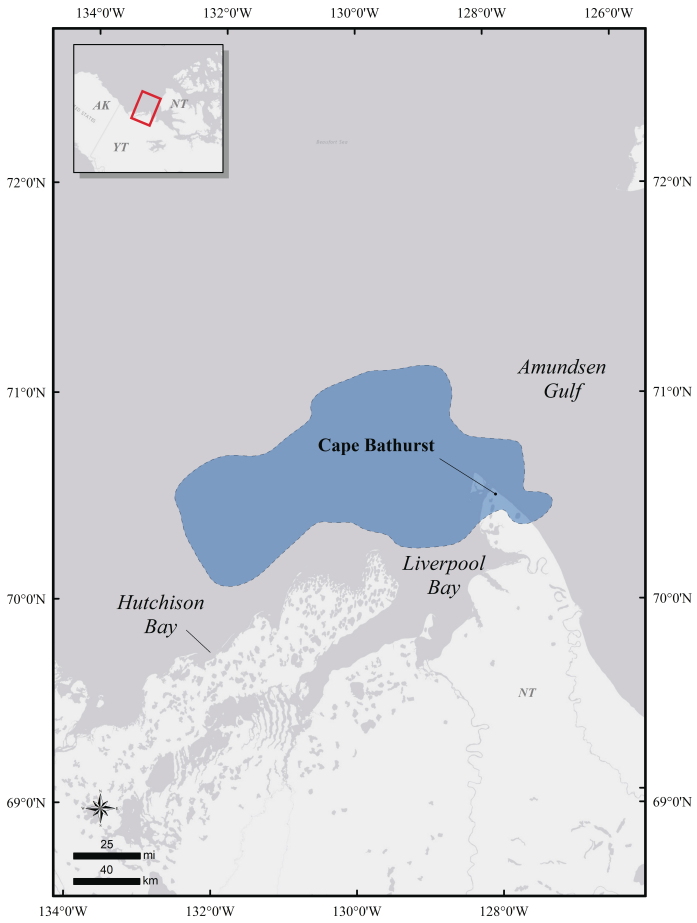
Description: This key site includes the portion of the recurring polynya that forms in the western Amundsen Gulf north of Tuktoyaktuk Peninsula. It is situated offshore of McKinley Bay and Cape Dalhousie and extends southeast to the Baillie Islands, covering the northern tip of the Bathurst Peninsula.

This site lies in the Low Arctic oceanographic zone (Nettleship and Evans 1985). A recurrent crack and lead system develops in the Beaufort Sea between the landfast ice and Arctic pack ice. This persistent lead coincides with the 30-m depth contour and changes its position very little from year to year (Marko 1975). Freeze-up occurs between mid-October and mid-November, but patches of open water and new ice occur frequently during the winter. An open lead develops on the eastern side of Cape Bathurst sometime in January. By mid-May, open water is continuous from Cape Bathurst to Mackenzie Bay. Open water remains in the general area until late May or early June, when the ice between Cape Bathurst and Cape Kellett begins to disintegrate. With the advance of breakup in mid-June, the open water between Cape Bathurst and Cape Kellett enlarges into Amundsen Gulf (Smith and Rigby 1981, Alexander et al. 1997).

Precision and Correction of Abundance Estimates Presented: Abundance estimates presented for this key habitat site have not been adjusted to account for incomplete detection or other biases. Abundance estimates should, therefore, be treated as minimum estimates.

Biological Value: While few seabirds use this marine site (Wong et al. 2014), it is a critical area for sea ducks (Alexander et al. 1988). Populations of many sea duck species have been in decline in the western Arctic since the 1970s (Dickson and Gilchrist 2002), making recognition and conservation of their habitat of even greater importance.

The recurrent leads in this area serve as a migration corridor and staging area for large numbers of King Eider (*Somateria spectabilis*), Common Eider



(*Somateria mollissima v-nigra*), and Long-tailed Duck (*Clangula hyemalis*) (Alexander et al. 1997, Dickson and Smith 2013). The most critical areas for eiders are patches of open water with depths between 10 and 40 meters (Dickson and Smith 2013). Common and King eider stage at this site in mid-May to early June before arriving on the breeding grounds (Dickson 2012a, 2012b). Post-breeding usage of this area occurs throughout mid-spring to early fall due to differences in timing of molt migration between male and female eiders (Dickson 2012a).

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In 1974, 50,000 Common Eiders were observed in a large lead near Cape Dalhousie (33% of the continental population of *v-nigra*; Barry 1976), and 75,000 were observed in leads north of Liverpool Bay at the same time (50% of the continental population;

Searing et al. 1975). Approximately 25,000 Common Eiders were observed near the Baillie Islands in 1993 (17% of continental *v-nigra* population; Alexander et al. 1997). Single-day surveys in 1992 and 1993 recorded 63,000 King Eiders in this area (16% of the continental population; Alexander et al. 1997). These eiders form a key component of the traditional diet of indigenous residents of nearby communities (Byers and Dickson 2001).

In 1974, over 24,000 Long-tailed Ducks were observed in the open-water lead north of Liverpool Bay (Searing et al. 1975) and approximately 17,000 Long-tailed Ducks were observed in the large lead near Cape Dalhousie (Barry 1976).

Sensitivities: Migrating sea ducks are heavily dependent upon open leads for feeding and resting. In a warming and increasingly variable climate, unpredictability of access to leads and open water areas may be greater due to effects of shifting winds on unconsolidated ice, which could result in severe negative impacts on the birds (Lovvorn et al. 2015). Sea ducks using these offshore foraging areas are susceptible to pollution, disturbance, and collisions from increased ship traffic.

Potential Conflicts: Extensive offshore drilling and ship traffic occur throughout the area, although mostly west of Hutchison Bay (Alexander et al. 1997). Exploitation of hydrocarbon resources in the Beaufort Sea increases the possibilities of oil spills in these sensitive areas. Warming temperatures in the Arctic may change the size and location of the sites and alter the food resources within these sites for sea ducks (Dickson and Gilchrist 2002). In 2016 Canada designated the Arctic waters indefinitely off limits to new offshore oil and gas activities and in 2019 suspended the terms of all active oil and gas licenses in the western and eastern Arctic offshore areas. The moratorium will be in place until a review process for existing licenses is completed, which is expected in 2022.

Status: The Bathurst Polynya is a Canadian Important Bird Area due to its large waterfowl concentrations (NT039; CEC 1999). The Cape Bathurst/Baillie Island Polynya, Liverpool Bay, Mackenzie Estuary/Nearshore Beaufort Shelf, and the Kugmallit Canyon have all been identified as Ecologically and Biologically Significant Areas (EBSA) in the Beaufort Sea (DFO 2014).

Cape Bathurst is Inuvialuit land, while the surrounding marine waters fall under federal jurisdiction.

Literature Cited

Alexander, S. A., T. W. Barry, D. L. Dickson, H. D. Prus, and K. E. Smyth. 1988. Key areas for birds in coastal regions of the Canadian Beaufort Sea. Unpublished report, Canadian Wildlife Service, Edmonton. 146 pp.

Alexander, S. A., D. L. Dickson, and S. E. Westover. 1997. Spring migration of eiders and other waterbirds in offshore areas of the western Arctic. *In* D.L. Dickson (ed.), King and Common eiders of the western Canadian Arctic, pp 6–20. Canadian Wildlife Service Occasional Paper No. 94, Ottawa.

Barry, T. W. 1976. Seabirds of the southeastern Beaufort Sea: Summary report. Technical Report No. 3A, Beaufort Sea Project, Department of the Environment, Victoria. 41 pp.

Byers, T., and D. L. Dickson. 2001. Spring migration and subsistence hunting of King and Common eiders at Holman, Northwest Territories, 1996–1998. Arctic 54:122–134.

Commission for Environmental Cooperation (CEC). 1999. North American Important Bird Areas. Commission for Environmental Cooperation, Montreal. 359 pp. (see also www.ibacanada.ca).

Department of Fisheries and Oceans Canada (DFO). 2014. Re-evaluation of Ecologically and Biologically Significant Areas (EBSA) in the Beaufort Sea. Canadian Science Advisory Secretariat, Science Advisory Report 2014/052, Winnipeg.

Dickson, D.L., and H. G. Gilchrist. 2002. Status of marine birds of the southeastern Beaufort Sea. Arctic 55:46–58.

Dickson, D. L. 2012a. Seasonal movement of King Eiders breeding in western Arctic Canada and northern Alaska. Technical Report Series Number 520. Canadian Wildlife Service, Edmonton. 94 pp.

Dickson, D. L. 2012b. Seasonal movement of Pacific Common Eiders breeding in Arctic Canada. Technical Report Series Number 521. Canadian Wildlife Service, Edmonton. 58 pp.

Dickson, D. L., and P. A. Smith. 2013. Habitat used by Common and King eiders in spring in the southeast Beaufort Sea and overlap with resource exploration. Journal Wildlife Management 77:777–790.

Lovvorn J. R., A. R. Rocha, S. C. Jewett, D. Dasher, S. Oppel, and A. N. Powell. 2015. Limits to benthic feeding by eiders in a vital Arctic migration corridor due to localized prey and changing sea ice. Progress in Oceanography 136:162–174.

Marko, J. 1975. Satellite observation of the Beaufort Sea ice cover. Unpublished Report No. 34, Beaufort Sea Project, Department of the Environment, Victoria. 137 pp.

Nettleship, D. N., and P. J. Evans. 1985. Distribution and status of the Atlantic Alcidae. *In* D. N. Nettleship and T. R. Birkhead (eds.), The Atlantic Alcidae, pp 53–154. Academic Press, London, U.K.

Searing, G. E., E. Kuyt, W. T. Richardson, and T. W. Barry. 1975. Seabirds of the southeastern Beaufort Sea: Aircraft and ground observation in 1972 and 1974. Technical Report No. 36, Beaufort Sea Project, Department of the Environment, Victoria. 257 pp.

Smith, M., and B. Rigby. 1981. Distribution of polynyas in the Canadian Arctic. *In* I. Stirling and H. Cleator (eds.), Polynyas in the Canadian Arctic, pp 7–28. Canadian Wildlife Service Occasional Paper No. 45, Ottawa.

Wong, S., C. Gjerdrum, K. Morgan, and M. L. Mallory. 2014. Hotspots in cold seas: The composition, distribution and abundance of marine birds in Canada's three oceans. Journal of Geophysical Research: Oceans 119:1691–1705.