

Key Site 30: Belcher Islands, Nunavut

Location: 56°15'18"N, 79°19'43"W

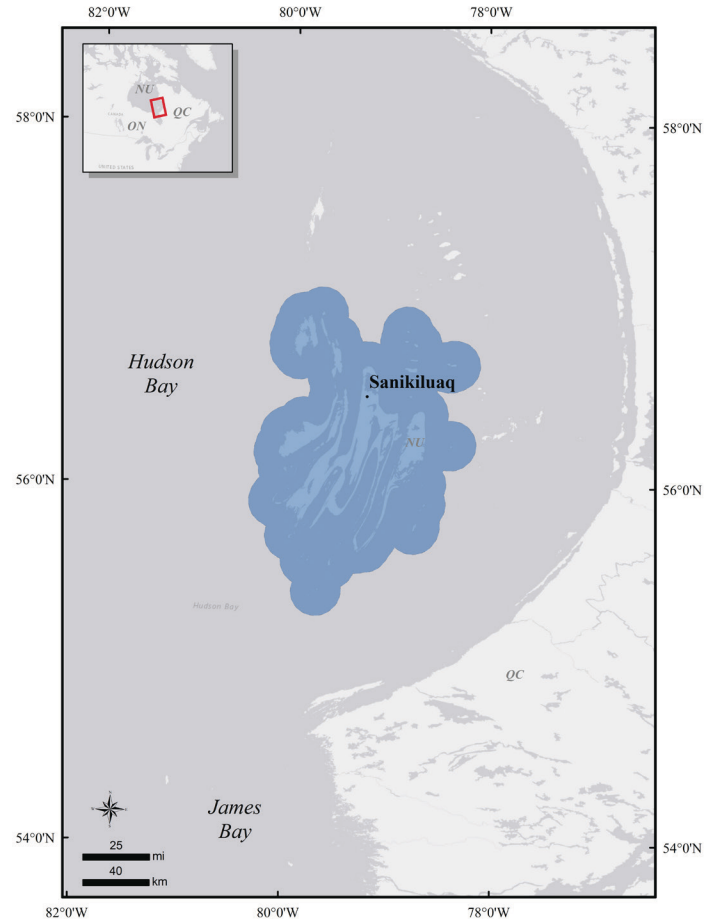
Size: 18,900 km²

Description: The Belcher Islands are an archipelago consisting of low, bedrock islands rising from south-eastern Hudson Bay. Thousands of small islands are in the archipelago and are slowly increasing in size due to isostatic rebound. The community of Sanikiluaq (population of approximately 900) is on Flaherty Island. A more detailed description of the terrestrial habitat is found in Alexander et al. (1991). Waters around the Belcher Islands are relatively shallow and are situated on the boundary between the Low Arctic and Boreal oceanographic zones (Nettleship and Evans 1985). Currents typically flow north past the Belcher Islands, although flood tides move water south and ebb tides draw them back north (McDonald et al. 1997). Traditional Inuit knowledge suggests that currents are weaker now than in the past in this area (McDonald et al. 1997).

Ice forms along shorelines in October and by November may extend outwards for several kilometers. Because the east coast of Hudson Bay is exposed to westerly winds, ice accumulation may be much less than in other areas. The ice forms quickly and continues to expand during November and December. By early January, open water is found only from the Belcher Islands south towards the mouth of James Bay and along the south coast of Hudson Bay from about the Severn River to the Great Whale River (Larnder 1968). Shallow coastal areas break up in May, and in most years Hudson Bay is relatively ice-free by mid-July (Larnder 1968). Tides are only about 0.5 m around the islands but create very strong currents in the shallow water (McDonald et al. 1997). Areas of persistent open water occur around the Belcher Islands (Gilchrist and Robertson 2000), although the number can vary greatly by year. In the 1950s, there were 35 polynyas around the Belcher Islands, but in the early 1990s, there were only three (McDonald et al. 1997).

Precision and Correction of Abundance

Estimates Presented: Abundance estimates for this key habitat site have not been adjusted to account for incomplete detection or other biases and can be treated as minimum estimates.



Biological Value: Hudson Bay Common Eiders (*Somateria mollissima sedentaria*) are year-round residents of James and Hudson bays. The population was estimated at 45,000 birds in 1986 (Abraham and Finney 1986), but recent winter surveys suggest 125,000 pairs make up the *sedentaria* subspecies (Bowman et al. 2015). In summer, they inhabit the entire coast of Hudson Bay from Chesterfield Inlet in the northwest to James Bay and north along the east coast of Hudson Bay to Cape Smith. Nakashima and Murray (1988) estimated that about 7000 pairs of eiders nested in the North Belcher and South Flaherty islands in the mid-1980s (7% of the Canadian population), but this number had decreased by 75% by the late 1990s (Robertson and Gilchrist 1998).

In winter, Common Eiders are restricted to areas of open water, and the majority of *sedentaria* apparently concentrate in the vicinity of open cracks and leads near the Belcher and Sleeper islands and the south shore of Hudson Bay (Freeman 1970). Around the Belcher Islands, polynyas and the floe edge

support substantial numbers of birds; Gilchrist and Robertson (2000) found up to 300 Common Eiders and 300 Long-tailed Ducks (*Clangula hyemalis*) (Jamieson et al. 2001) in polynyas and over 10,000 eiders wintering off the floe edge. Depending on the ice pattern and winds, thousands of birds may roost in certain polynyas (Gilchrist et al. 2006); wind also dictates distributions of other species (McDonald et al. 1997). Hence, open water around the Belcher Islands may support more than 10% of the Canadian population of the *sedentaria* subspecies in winter. Because these birds do not migrate, they are susceptible to mass starvation and population declines in heavy ice years (Robertson and Gilchrist 1998). In a typical year, wind, ice, and currents all combine to limit foraging time for eiders (Heath et al. 2010).

During summer (late July and early August) molting scoters (*Melanitta* spp.) in varying abundances have been observed using near and offshore areas in the vicinity of the Belcher Islands. During an aerial survey of a portion of the site on July 22, 2009, 1483 scoters (Surf Scoter *M. perspicillata* = 405, White-winged Scoter *M. deglandi* = 16, unidentified scoter = 1062) undergoing remigial molt were observed near the eastern two-thirds of the archipelago (Cotter 2009). During a more comprehensive aerial survey of the area conducted August 5–7, 2013, 25,595 molting scoter (Surf Scoter = 7448, White-winged Scoter = 270, unidentified scoter = 17,877) were observed around the archipelago (Badzinski et al. 2013).

Sensitivities: Eiders are sensitive to the degradation of their staging and foraging areas and to excessive harvest of down from breeding colonies. Local eider populations are a critical source of food and down for the community and have also served as clothing (Flaherty 1918).

Potential Conflicts: Oil exploration in central Hudson Bay is a potential source of pollution. Prevailing west and northwest winds render the east coast of the bay most susceptible to oil damage (Nakashima and Murray 1988).

Status: The North Belcher and South Flaherty islands are Canadian Important Bird Areas (NU031, NU100; CEC 1999). The Belcher Islands and its surrounding waters are part of the Nunavut Settlement Area (Nunavut Agreement 2022). However, jurisdiction over the marine waters around the Belcher

Islands is complex and may involve various federal, provincial, territorial, and aboriginal organizations and agencies.

Literature Cited

- Abraham, K. F., and G. H. Finney. 1986. Eiders of the eastern Canadian Arctic. In A. Reed (ed.), *Eider ducks in Canada*, pp 55–73. Canadian Wildlife Service Occasional Paper No. 47, Ottawa, Ontario.
- Alexander, S. A., R.S. Ferguson, and J. J. McCormick. 1991. Key migratory bird terrestrial habitat sites in the Northwest Territories. Canadian Wildlife Service Occasional Paper No. 71, Ottawa.
- Badzinski, S., K. Ross, S. Meyer, K. Abraham, R. Brook, R. Cotter, F. Bolduc, C. Lepage, and S. Earsom. 2013. Project 82: James Bay molting Black Scoter survey. Sea Duck Joint Venture (SDJV) Annual Project Summary for Endorsed Projects FY 2013 – (October 1, 2012, to Sept 30, 2013). <http://seaduckjv.org/wp-content/uploads/2014/11/SDJV-PR82-Badzinski-annrpt-FY13.pdf>.
- Bowman, T. D., E. D. Silverman, S. G. Gilliland, and J. B. Leirness. 2015. Status and trends of North American sea ducks: Reinforcing the need for better monitoring. In J.-P.L. Savard, D. V. Derksen, D. Esler, and J. M. Eadie (eds.), *Ecology and conservation of North American sea ducks*. Studies in Avian Biology 46:1–28. CRC Press, Boca Raton, FL.
- Commission for Environmental Cooperation (CEC). 1999. North American Important Bird Areas. Commission for Environmental Cooperation, Montreal. 359 pp. (see also www.ibacanada.com).
- Cotter, R. 2009. Sea Duck Joint Venture annual project summary for endorsed projects FY 2009 – (October 1, 2008, to Sept. 30, 2009). Project Title: 2009 Black Scoter survey of southern Hudson Bay and James Bay, Quebec.
- Flaherty, R. J. 1918. The Belcher Islands of Hudson Bay: Their discovery and exploration. *Geograph. Rev.* 5:433–458.
- Freeman, M. M. R. 1970. Observations on the seasonal behavior of the Hudson Bay Eider (*Somateria mollissima sedentaria*). *Canadian Field-Naturalist* 84:145–153.

- Gilchrist, H. G., and G. J. Robertson. 2000. Observations of marine birds and mammals wintering at polynyas and ice edges in the Belcher Islands, Nunavut, Canada. *Arctic* 53:61–68.
- Gilchrist, H.G., J. Heath, L. Arragutainaq, G. Robertson, K. Allard, S. Gilliland, and M. L. Mallory. 2006. Combining science and local knowledge to study common eider ducks wintering in Hudson Bay. *In* R. Riewe and J. Oakes (eds.), *Climate change: Linking traditional and scientific knowledge*, pp 284–303. Aboriginal Issues Press, Winnipeg.
- Heath, J.P., H. G. Gilchrist, and R. C. Ydenberg. 2010. Interactions between rate processes with different timescales explain counterintuitive foraging patterns of Arctic wintering eiders. *Proceedings Royal Society of London B*:rspb20100812.
- Jamieson, S. E., G. J. Robertson, and H. G. Gilchrist. 2001. Autumn and winter diet of long-tailed duck in the Belcher Islands, Nunavut, Canada. *Waterbirds* 24:129–132.
- Larnder, M. M. 1968. The ice. *In* C. S. Beals (ed.), *Science, history, and Hudson Bay*, vol. II, pp 318–341. Department of Energy, Mines, and Resources, Ottawa.
- McDonald, M., L. Arragutainaq, and Z. Novalinga. 1997. *Voices from the bay*. Canadian Arctic Resources Committee, Ottawa. 98 pp.
- Nakashima, D. J., and D. J. Murray. 1988. The Common Eider (*Somateria mollissima sedentaria*) of eastern Hudson Bay: A survey of nest colonies and Inuit ecological knowledge. *Environmental Studies Revolving Funds Report No. 102*, Ottawa. 174 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.
- Robertson, G. J., and H. G. Gilchrist. 1998. Evidence for population declines among common eiders breeding in the Belcher Islands, Northwest Territories. *Arctic* 51:478–485.