Key Site 26: Southwestern Hudson Bay, Manitoba and Ontario

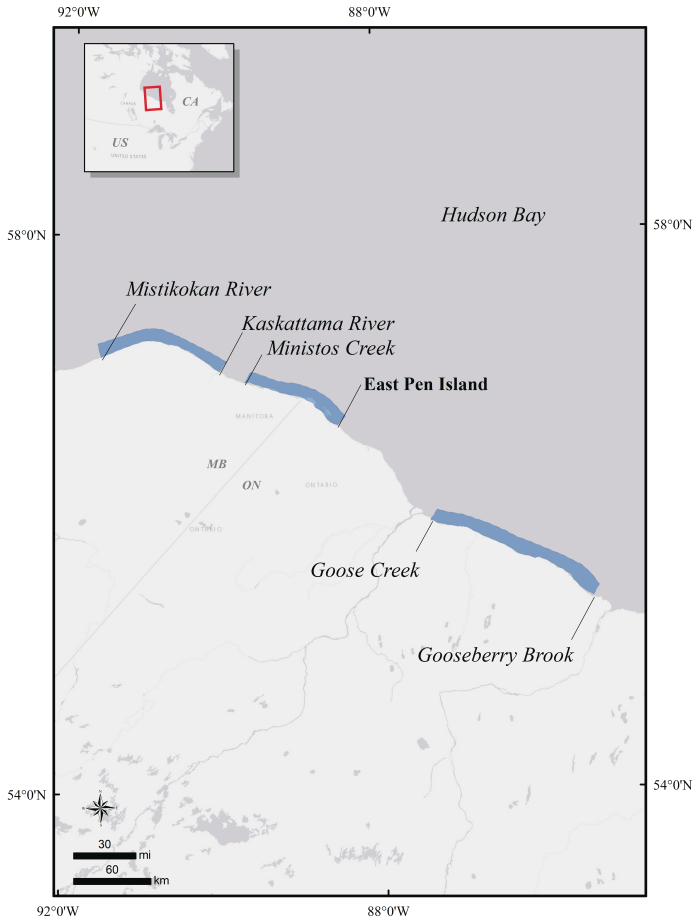
Location: 56°32'18"N, 87°55'28"W

Size: 3315 km^2

Description: There are several locales along the Hudson Bay coastlines of Manitoba and Ontario where sea ducks have congregated in relatively high numbers over the past several decades. These locales occur in the marine habitat adjacent to one of the most extensive wetland complexes in the world, the Hudson Bay Lowland. Hudson Bay is an inland brackish sea, with low range semidiurnal tides, which receives salt water from the Arctic and Atlantic oceans via the Fury and Hecla Strait and Hudson Strait and freshwater inputs via numerous rivers; some of the larger rivers in this area include the Seal, Churchill, Nelson, Hayes, Severn, and Winisk rivers (Stewart and Lockhart 2005).

Coastlines throughout this area are generally characterized by a seaward to landward progression of offshore and nearshore marine waters to subtidal flats grading to often extensive tidal mudflats, intertidal and supratidal salt marsh habitats, or coastal raised gravel/sand beach ridges (Martini et al. 1980). The relatively high rate of isostatic rebound occurring in this area continually causes the land along the Hudson Bay coast and further inland to rise and become vegetated (Sella et al. 2007); over time this has led to the formation of an expansive complex of freshwater wetlands, typically bogs and fens, among the remnant low coastal beach features now vegetated with tundra-associated vegetation near the coast and grading inland to boreal-associated vegetation (Martini et al. 1980).

Hudson Bay undergoes a complete cryogenic (ice) cycle each year, and this part of the bay has noticeable areas of open water or is ice-free from about early/mid-July to early/mid-November (Gagnon and Gough 2005). Ice typically begins to form along the coastlines of southern Hudson Bay in late October and early November, freeze-up occurs by mid-November or early December, and ice covers much of Hudson Bay by mid-to-late December (Gagnon and Gough 2005, Stewart and Lockhart 2005), with the exception of a few leads and polynyas that typically remain ice-free throughout winter (Jonkel 1969, Gilchrist and Robertson 2000). Ice break-up typically occurs in mid-to-late July and in most years this



part of Hudson Bay is relatively ice-free by early to mid-August (Gagnon and Gough 2005, Stewart and Lockhart 2005).

Precision and Correction of Estimates Presented: Molting scoter data were obtained between mid-July and mid-August of 2013 during aerial surveys flown within about 15 km of the Ontario and Manitoba coastlines (Appendix 1). Abundance data for scoters were obtained either from digital images of flocks within which individuals were subsequently counted; if photographs/images were not taken or useable, visual estimates (based on a single observer) and regression techniques were used to obtain an estimate of individuals within observed flocks. No correction for visibility or other biases were applied to molting scoter data. See Badzinski et al. (2013) for more detailed information about data collection and analytical methodologies applied to these datasets.

Biological Value: Relatively little information is available for sea duck abundance and distribution within the marine habitat of Hudson and James bays

or the adjacent Hudson Bay Lowland, particularly during the spring migration/staging, breeding, and fall migration/staging periods (Ross 1982, 1983, 1987, Bordage and Savard 1995, Reed et al. 1996, Cadman et al. 2007, Abraham et al. 2008, Brook et al. 2012). To date, all species abundance and geographic distribution data contributing to the identification of these key sites have been from offshore surveys (aerial photographic counts) flown during summer (mid-July to mid-August) to periodically monitor molting scoters throughout various portions of James Bay and southern Hudson Bay (Ross 1983, 1994, Ross et al. 2009, Badzinski et al. 2013). Satellite telemetry data from the Sea Duck Joint Venture (SDJV) Atlantic and Great Lakes Sea Duck Migration Study (2015) have confirmed continued use of many previously known molting sites (Ross 1994, Ross et al. 2009) and have provided insight into residence times of birds at specific areas, local movement patterns within and among molt sites, faithfulness of birds to specific sites from year to year, as well as for spring and fall migration to, from, or through these areas (SDJV 2014).

The vast majority of scoters (>90 to 95%) observed at these locales appear to be Black Scoter (*Melanitta americana*), predominantly adult males (Ross 1994, Badzinski et al. 2013). Molting flocks of Black Scoter at these locales are commonly observed within the range of hundreds to thousands (occasionally 10,000 to 15,000) of birds. Surf Scoter (*Melanitta perspicillata*) and White-winged Scoter (*Melanitta deglandi*) are less common but have been observed in relatively smaller numbers within flocks of Black Scoter or in species-specific flocks of tens to hundreds of birds. Presently, it is unknown why scoters traditionally congregate in substantial numbers at these key sites to molt their wing feathers and/or use until the fall migration, but is probably related to the availability and abundance of preferred forage or prey species in the area, likely bivalves *Macoma* spp. or *Mytilus* spp. (Ross 1994, Reed et al. 1996).

In addition to scoters, several other sea duck species use these sites at various times of the year, but specific estimates of abundance for these species are limited (see Ross 1982, Canadian Wildlife Service unpublished data). Common Eiders (*Somateria mollissima sedentaria*), which are year-round residents of Hudson and James bays (Abraham and Finney 1986), have been observed during January and February in open water leads in the ice off the Ontario coast near the juncture of Hudson and James bays at Cape Henrietta Maria (K. Abraham, pers. obs.); between 3 and 332 eiders also have been observed during spring, summer, and fall in this area (Canadian Wildlife Service unpublished data). Relatively small numbers (2 to 132) of eiders (20 identified as Common Eiders) also have been observed near the Pen Islands during summer and fall (Canadian Wildlife Service unpublished data). Bufflehead (*Bucephala albeola*), Common Goldeneye (*Bucephala clangula*), Long-tailed Duck (*Clangula hyemalis*), Common Merganser (*Mergus merganser*), Red-breasted Merganser (*Mergus serrator*), Hooded Merganser (*Lophodytes cucullatus*), Black Scoter, Surf Scoter, and White-winged Scoter have been observed in this part of the bay and at some of these sites during spring and fall migration and summer molt periods in varying abundances (SDJV 2014, Wilson and McRae 1993, Abraham and Wilson 1997, Canadian Wildlife Service unpublished data).

A survey conducted during early to mid-August 2013 in southwestern Hudson Bay along the Manitoba and Ontario coastlines (<15 km offshore) between the Seal River delta (Manitoba) and the Sutton River/Cape Henrietta Maria area (Ontario) reported site-specific abundances of molting scoters ranging from 541 to 44,593, with a total of 121,942 scoters for the entire area (Badzinski et al. 2013; Appendix 1). The western coastline of Manitoba, specifically the area from Hayes River north to the Seal River delta, had relatively fewer molting scoters during 2013 (8,948) than did areas in the province farther south and east; the largest concentration in this region was located in the southern portion between the Nelson River/Hayes River and White Bear Creek (6,575). The largest molting concentrations occurred east of the Nelson River and Hayes River along the Manitoba coastline in southwestern Hudson Bay at three adjacent locales between the Mistokokan River and Naytow Creek (18,924), Naytow Creek and Anabusko River (44,593), and the Anabusko and Kaskattama rivers (17,880) where 81,397 molting scoters were observed in 2013. Notable numbers of molting scoters also were found along the extreme northeastern Manitoba and northwestern Ontario coastlines at adjacent locales between the Kettle and Black Duck rivers (12,500) in Manitoba and in the West Pen Island (1660) and East Pen Island (1,119) areas of Ontario where a total of 15,279 birds were recorded during 2013. During a 1991 survey, a total

of 23,720 scoters were recorded in the Kettle River/ Pen Islands area (Kettle River to Black Duck River = 17,620; West Pen Island area = 2210; East Pen Island area = 3950) in mid-July. Surveys reported 43,700 in 1977, 6180 in 1991, and 11,836 in 2013 molting sea ducks (predominantly Black Scoters) between Shell Brook and Wood Creek (mostly in the vicinity of Shell Brook) along the Ontario coastline of southern Hudson Bay in July and August (Ross 1994, Badzinski et al. 2013).

Sensitivities: Sea ducks are sensitive to degradation of their staging, molting and foraging areas. Human disturbance can have negative effects on birds, particularly while foraging or during the molting period.

Potential Conflicts: Oil exploration, transoceanic shipping, and mining are potential sources of disturbance, habitat degradation, or pollution. Hydroelectric development (dams, etc.) on the bays or rivers on the adjacent mainland could impact the water regime and salinity of the James and Hudson Bay marine ecosystems. Climate change could change seasonal distribution (e.g., northward shifts in range) of birds and the distribution and abundance of sea duck foods.

Status: Polar Bear Provincial Park (PBPP), largely established to protect terrestrial and some marine habitat critical for the southern Hudson Bay population of polar bears, lies in the northeast corner of Ontario inland from the James Bay and Hudson Bay shorelines (Obbard and Walton 2004). There is a federal migratory bird sanctuary along the eastern two-thirds of Akimiski Island coast; most of the island's coastline has been identified as a Key Migratory Bird Terrestrial Habitat site by the Canadian Wildlife Service (Latour et al. 2008). There is a federal migratory bird sanctuary, the Shipsands Migratory Bird Sanctuary, located in the Moose River Estuary. There are also several Important Bird Areas designated within this part of James Bay, including Cape Henrietta Maria (lies within Polar Bear Provincial Park), Ekwan to Lakitusaki Shores (north half lies within Polar Bear Provincial Park), Akimiski Strait, Akimiski Island, Albany River Estuary and Associated Coastline, Longridge Point and Associated Coastline, Big Piskwanish Point, North Point (also a proposed Western Hemisphere Shorebird Reserve Network Site of International Significance), Moose River Estuary (also a RAMSAR site wetland of international importance). For more information on individual important bird areas see site descriptions at http://ibacanada.ca/. A comprehensive list of protected areas in the Hudson Bay Lowland is found in Abraham et al. (2011).

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