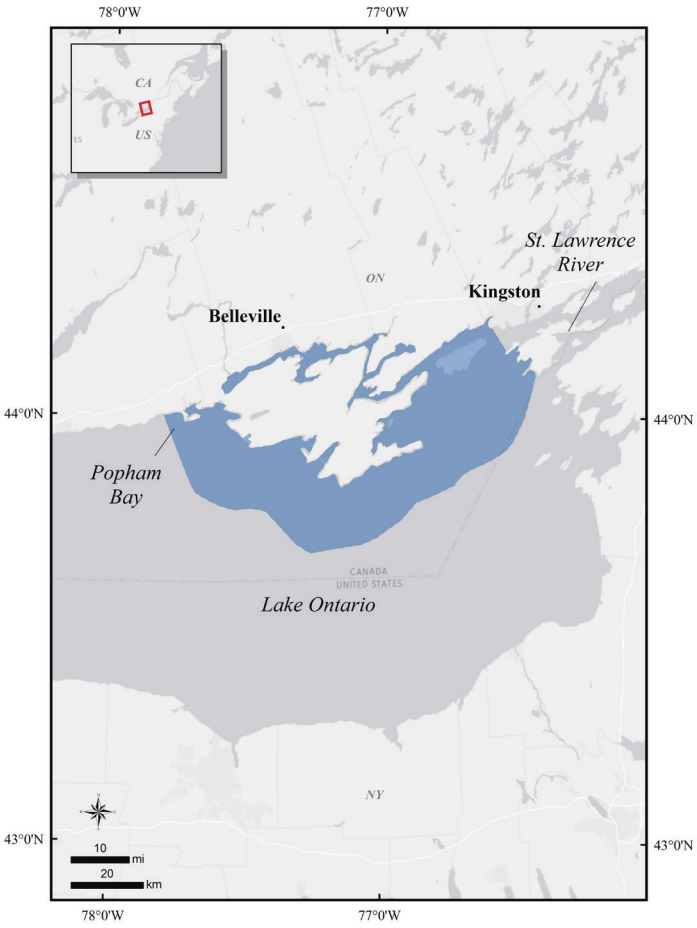
Key Site 76: Eastern Lake Ontario, Ontario

Location: 43°49'33"N, 77°04'56"W

Size: 2510 km^2

Description: Lake Ontario is one of the lower Laurentian Great Lakes, located between the province of Ontario, Canada, and the state of New York, USA. The eastern portion of the Canadian side of Lake Ontario that constitutes this site extends west from the St. Lawrence River outflow near Kingston, Ontario, includes the Bay of Quinte and the Prince Edward County south shoreline, to Popham Bay/ Spenser Point located approximately 5 km west of Presqu'ile Provincial Park. Several rivers flow into the area, including the Napanee River, Salmon River, Moira River, and the Trent River; the St. Lawrence River flows out from the extreme eastern part of the area. This site includes several islands, including Wolfe Island, Pigeon Island, Amherst Island, Waupoos Island, Timber Island, False Duck Island, and Nicholson Island, as well as numerous shoals, such as the Gull Bar Shoal. For more detailed information about waterfowl and wetland habitats in the Great Lakes region and the benthic community, limnology, and geomorphology of this part of Lake Ontario see Barton (1986), Prince et al. (1992), Mills et al. (2003), Schummer (2005), Wilson et al. (2006), and Remiz (2012).

Precision and Correction of Abundance Estimates Presented: Abundance values are based on several sources: (1) Shoreline surveys conducted as part of the Mid-Winter Waterfowl Survey [MWS] (Environment and Climate Change Canada/Canadian Wildlife Service, Ontario) and the Lower Great Lakes Migrant Waterfowl Survey [LGLMWS] (Environment and Climate Change Canada/Canadian Wildlife Service, Ontario. Observed counts were adjusted by species-specific or species group detection rates estimated for aerial fixed-wing surveys by Hodges et al. (2008) for coastal surveys in Alaska. (2) Ground-based estimates made during Christmas bird counts (CBC) (National Audubon Society 2015) from 1997 to 2015; observed counts (not adjusted for incomplete detection) were derived from summing annual data from CBC circles included within the key site boundaries.



Biological Value: This site is important to several species of sea ducks during spring, fall, and winter. Long-tailed Duck (*Clangula hyemalis*), White-winged Scoter (*Melanitta deglandi*), Black Scoter (*Melanitta americana*), Surf Scoter (*Melanitta perspicillata*), Hooded Merganser (*Lophodytes cucullatus*), Common Merganser (*Mergus merganser*), Red-breasted Merganser (*Mergus serrator*), Common Goldeneye (*Bucephala clangula*), and Bufflehead (*Bucephala albeola*) have been observed in varying abundances since the 1990s at this site (Appendix 1). Sea duck numbers at this site and others across the lower Great Lakes have increased substantially since the mid-1980s and the 1990s (Petrie and Schummer 2002). The establishment of dreissenid (zebra) mussels in Lake Ontario in the early 1990s provided an abundant food source for sea ducks and other diving duck species (Custer and Custer 1996, Schummer et al. 2008a, b). Dreissenid mussels also may provide favorable microhabitats for other important aquatic invertebrate prey items, such as amphipods and

chironomids, and may have improved water quality and clarity that benefits merganser forage fish species, such as gizzard shad (*Dorosoma cepedianum*), emerald shiner (*Notropis antherinoides*), round goby (*Neogobius melanostomus*), and that improves the foraging efficiency of many sea ducks ability to locate and capture prey (Wisden and Bailey 1995, Ross et al. 2005, Bur et al. 2008, Schummer et al. 2008b). This site has an abundance of sea duck prey species, which ducks use to acquire nutrients and fat for surviving winters at Lake Ontario or fueling migration during spring and fall (Ross et al. 2005, Schummer et al. 2008a, b, Schummer et al. 2012).

Spring: During aerial surveys of the lower Great Lakes shorelines of Ontario conducted during 1999 and 2009, the maximum peak abundance of sea ducks at this site was estimated at 117,300 birds (Environment and Climate Change Canada/Canadian Wildlife Service unpublished data [LGLMWS]). Long-tailed Duck was among the most common species at this site, with an estimated maximum peak number of 95,500, which represents about 10% of the estimated continental population for this species (NAWMP 2012). Other sea duck species commonly observed at lower estimated maximum peak abundances at this site during spring included Common Goldeneye (10,400), Common Merganser (5,400), Red-breasted Merganser (3,800), Bufflehead (6,900), and White-winged Scoter (460).

Fall: During aerial surveys of the Ontario shorelines of the lower Great Lakes conducted during 1999 and 2009, maximum peak abundance of sea ducks at this site was estimated to be 192,800 birds (Environment and Climate Change Canada/Canadian Wildlife Service unpublished data [LGLMWS]). Long-tailed Duck was the most common and abundant species at this site during fall, with an estimated maximum peak abundance of 122,000 birds, which represents about 13% of the estimated continental population (NAWMP 2012). Other species commonly observed at lower maximum estimated peak abundances at this site during fall included White-winged Scoter (23,600), Bufflehead (15,200), Common Goldeneye (12,200), Common Merganser (7,800), and Red-breasted Merganser (3,600).

Winter: During annual aerial waterfowl surveys of the Ontario shorelines of the lower Great Lakes conducted during January 2002–2018, the maximum peak sea duck abundance at this site was estimated to be 156,000 birds (Environment and Climate Change Canada/Canadian Wildlife Service unpublished data [MWS]). CBC circles within this site reported a maximum count of 155,200 sea ducks between 1997 and 2015 (National Audubon Society and Bird Studies Canada unpublished data [CBC]). Long-tailed Duck was the most common and abundant species at this site during winter, with a maximum peak abundance of about 148,900 birds counted during the 2002 CBC, representing 15% of the estimated continental population (NAWMP 2012). Other species commonly observed at lower maximum peak abundances at this site during winter included Bufflehead (10,300 [MWS]), Common Goldeneye (7,300 [MWS]), Common Merganser (8,400 [MWS]), Red-breasted Merganser (3,200 [MWS]), and White-winged Scoter (2,600 [MWS and CBC]).

Sensitivities: Waterfowl are sensitive to human disturbance, mostly related to small vessel and/or shipping traffic, during migration and winter periods. Food resource availability and quality could be influenced by industrial, urban, and agricultural pollution and invasive and/or other problematic species. Type E botulism (*Clostridium botulinum*) outbreaks that can kill large numbers of sea ducks and/or waterbirds occur periodically in the lower Great Lakes (Canadian Cooperative Wildlife Health Centre 2003, 2005), particularly during fall migration. Other epizootic disease outbreaks can also occur where large numbers of waterfowl congregate.

Potential Conflicts: Disturbance associated with small vessel and shipping traffic remains a potential conflict at this site. Chemical and oil spills, water contamination, and eutrophication from several sources, including shipping, urban or cottage development, industry, and agriculture can also impact waterfowl. This site has been identified as a candidate area for offshore wind development.

Status: Several Important Bird Areas (IBA) have been designated within this area (http://www.ibacanada.ca/mapviewer.jsp), including Wolfe Island, Pigeon Island, Amherst Island, the Prince Edward County South Shore, and Presqu'ile Provincial Park. The area also includes the Prince Edward Point National Wildlife Area and the Scotch Bonnet and Weller's Bay National Wildlife Areas.

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