

Key Site 75: Western Lake Ontario, Ontario

Location: 43°20'21"N, 79°37'8"W

Size: 1346 km²

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 western portion of the Canadian side of Lake Ontario that constitutes this site extends west from downtown Toronto, Ontario, at Ashbridges Bay Park/Toronto Harbour to the outflow of the Niagara River near Niagara-on-the-Lake, Ontario, and includes Hamilton Harbour at Hamilton, Ontario. Several rivers and creeks flow into the area, including the Don River, Humber River, Credit River, Etobicoke Creek, Sixteen Mile Creek, Bronte Creek, Fifteen Mile Creek, Twelve Mile Creek, and the Niagara River at the extreme eastern part of the area. The Welland Canal also is located in the middle of this area and connects Lake Erie to Lake Ontario, allowing ships to travel among the Great Lakes. 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



seasons. 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 early 1990s (Petrie and Schummer 2002). The establishment of dreissenid (zebra) mussels at 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), and round goby (*Neogobius melanostomus*) and improves the foraging efficiency of many sea ducks (Wisden and Bailey 1995, Ross et al. 2005, Bur et al. 2008, Schummer et al. 2008b).

Spring: During aerial surveys of the lower Great Lakes shorelines of Ontario conducted during 2001 and 2010, the estimated maximum peak abundance of sea ducks at this site was 68,800 (Environment and Climate Change Canada/Canadian Wildlife Service unpublished data [LGLMWS]). Long-tailed Duck was among the most common and abundant species at this site, with an estimated maximum peak abundance of 35,500, which represents about 4% of the estimated continental population (1,000,000 birds) for this species (NAWMP 2012). Other sea duck species commonly observed in lower maximum estimated peak abundances at this site during spring included Bufflehead (18,600), Common Goldeneye (5,200), Common Merganser (4,100), Red-breasted Merganser (1,500), Surf Scoter (6,000), and White-winged Scoter (2,800).

Fall: During aerial surveys of the Ontario shorelines of the lower Great Lakes conducted during 2000 and 2010, the maximum sea duck peak abundance at this site was estimated to be as high as 262,500 birds (Environment and Climate Change Canada/Canadian Wildlife Service unpublished data [LGLMWS]). Long-tailed Duck was the most abundant species, with a maximum estimated peak number of 216,300, which represents about 22% of the estimated continental population (NAWMP 2012). White-winged Scoter were also a relatively abundant species at this site, with a maximum estimated peak number of 31,600 birds, representing about 8% of the estimated continental population (NAWMP 2012). Other species commonly observed at lower maximum estimated peak abundance included Bufflehead (17,100), Common Merganser (18,900), Common Goldeneye (6,400), and Red-breasted Merganser (850).

Winter: During annual aerial waterfowl surveys of the Ontario shorelines of the lower Great Lakes conducted during January 2002 to 2018, the maximum peak sea duck abundance at this site was estimated at 244,800 birds (Environment and Climate Change Canada/Canadian Wildlife Service unpublished data [MWS]). CBC circles surveyed annually within this site reported a maximum count of 55,300 sea ducks between 1997 and 2015 (National Audubon Society and Bird Studies Canada unpublished data

[CBC]). Long-tailed Duck was the most abundant species at this site during winter, with a maximum estimated peak abundance of 228,000, which represents about 23% of the estimated continental population (NAWMP 2012). White-winged Scoter, Black Scoter, and Surf Scoter all have occurred at this site in varying estimated peak abundances from 2001 to 2015, but White-winged Scoter consistently was the most abundant of the three species. The maximum estimated peak abundance of White-winged Scoter was about 21,900 birds, representing about 6% of the estimated continental population (NAWMP 2012). Other species commonly observed at lower maximum estimated peak abundances included Bufflehead (14,800), Common Goldeneye (12,400), Common Merganser (20,100), Red-breasted Merganser (3,500), Black Scoter (1,000), and Surf Scoter (200).

Sensitivities: Waterfowl are sensitive to human disturbance, mostly small vessel and/or shipping traffic, during migration and winter periods. Food resource availability and quality could be influenced by industrial, urban or cottage development, 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 at the lower Great Lakes (Canadian Cooperative Wildlife Health Centre 2003, 2005), particularly during fall migration. Other epizootic disease outbreaks can occur where large numbers of waterfowl congregate.

Potential Conflicts: Disturbance associated with small vessel and shipping traffic remains a potential conflict at this site. The possible expansion of transportation services, such as airports and high speed boat ferries, is also a potential conflict in the future. Chemical and oil spills and water contamination from several sources, including shipping, urban, industry, and agriculture, are also potential conflicts. Offshore wind development is a concern within this site, which has been identified as a wind turbine candidate area.

Status: Several important bird areas have been designated within this area (<http://www.ibacanada.ca/mapviewer.jsp>) including the Leslie Street Spit, the west end of Lake Ontario, and the Niagara River corridor (north section).

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