Key Site 74: Eastern Lake Erie, Ontario

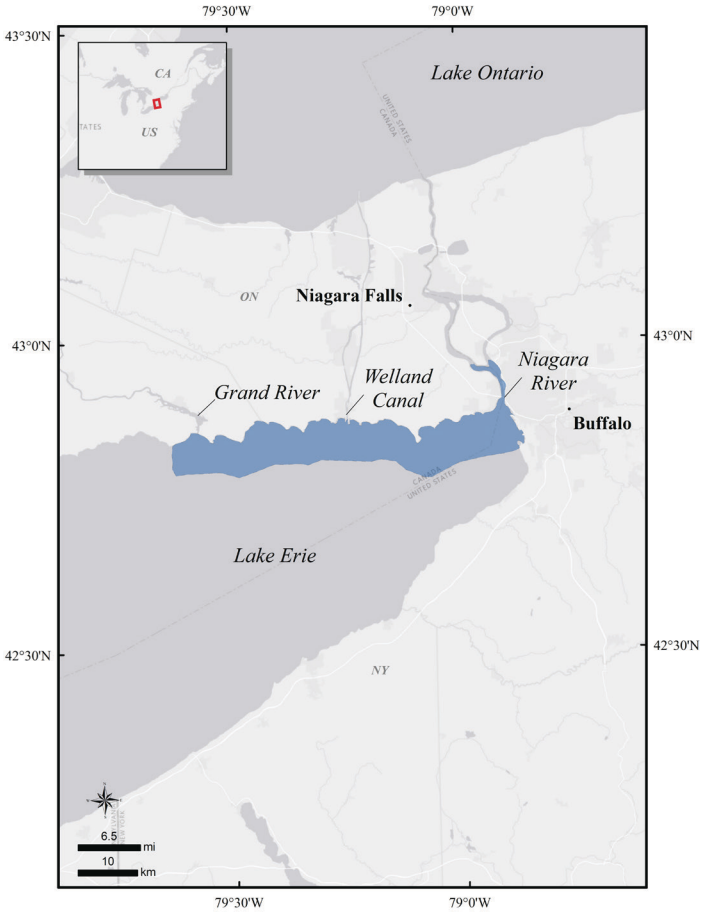
Location: 42°50'15"N, 79°10'47"W

Size: 464 km^2

Description: Lake Erie is one of the lower Laurentian Great Lakes, located between the province of Ontario, Canada, and the states of New York, Pennsylvania, Ohio, and Michigan, USA. The eastern portion of the Canadian side of Lake Erie that constitutes this site extends west from the inflow of the Niagara River at Fort Erie, Ontario, to the outflow of the Grand River near Dunnville, Ontario. The Welland Canal is located in the middle of this area and connects Lake Erie to Lake Ontario, allowing ships to travel between 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 Erie, see Prince et al. (1992), Bolsenga and Herdendorf (1993), Makarewicz et al. (2000), and Holcombe et al. (2005).

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 by summing annual data from Christmas bird count 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*), 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 Erie in the mid-1980s 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 that 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 in 2001 and 2010, the maximum peak abundance of sea ducks at

this site was estimated at approximately 34,800 birds (Environment and Climate Change Canada/ Canadian Wildlife Service unpublished data [LGLMWS]). Mergansers, primarily Common Mergansers, were the most abundant species at this site, with a maximum average estimated peak abundance of approximately 17,400 birds. Other sea duck species commonly observed at lower maximum peak abundances included Bufflehead (10,200), Common Goldeneye (8,400), and Red-breasted Merganser (2,500).

Fall: During aerial surveys of the Ontario shorelines of the lower Great Lakes in 2000 and 2010, the maximum peak abundance of sea ducks at this site was estimated to be 109,700 (Environment and Climate Change Canada/Canadian Wildlife Service unpublished data [LGLMWS]). Estimated maximum peak abundances varied considerably among species between surveys, with Bufflehead (39,800), Long-tailed Duck (33,700), Red-breasted Merganser (18,400), Common Goldeneye (17,100), and Common Merganser (4,700) being among the most abundant species. No Black Scoter or Surf Scoter and only relatively few White-winged Scoters (80) were observed during fall aerial surveys.

Winter: During annual aerial waterfowl surveys along the Ontario shorelines of the lower Great Lakes during January 2002 to 2018, the maximum peak sea duck abundance at this site was estimated at 22,900 birds (Environment and Climate Change Canada/Canadian Wildlife Service unpublished data [MWS]). CBC circles within this site reported a maximum count of 16,500 sea ducks between 1997 and 2015 (National Audubon Society and Bird Studies Canada unpublished data [CBC]). Bufflehead (11,100 [MWS]), Common Goldeneye (9,700 [MWS]), Common Merganser (7,900 [CBC]), Red-breasted Merganser (6,700 [MWS]), and Long-tailed Duck (2,200 [MWS]) were among the most common species at this site during winter. Scoter species were observed at this site but at relatively low maximum estimated peak numbers (White-winged Scoter = 221 [MWS], Black Scoter = 122 [MWS], and Surf Scoter = 1 [CBC]).

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 activities, 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 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 could also impact waterfowl. There is potential for offshore wind development within areas of high sea-duck use throughout the lower Great Lakes region.

Status: Several Important Bird Areas (IBA) have been designated within this area (http://www.ibacanada.ca/mapviewer.jsp), including the Niagara River Corridor (south section), Point Abino, and Port Colbourne (breakwater and mainland).

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