

## Key Site 67: Sturgeon Bay to Manitowoc, Wisconsin

**Location:** 44°35'2"N, 87°19'11"W

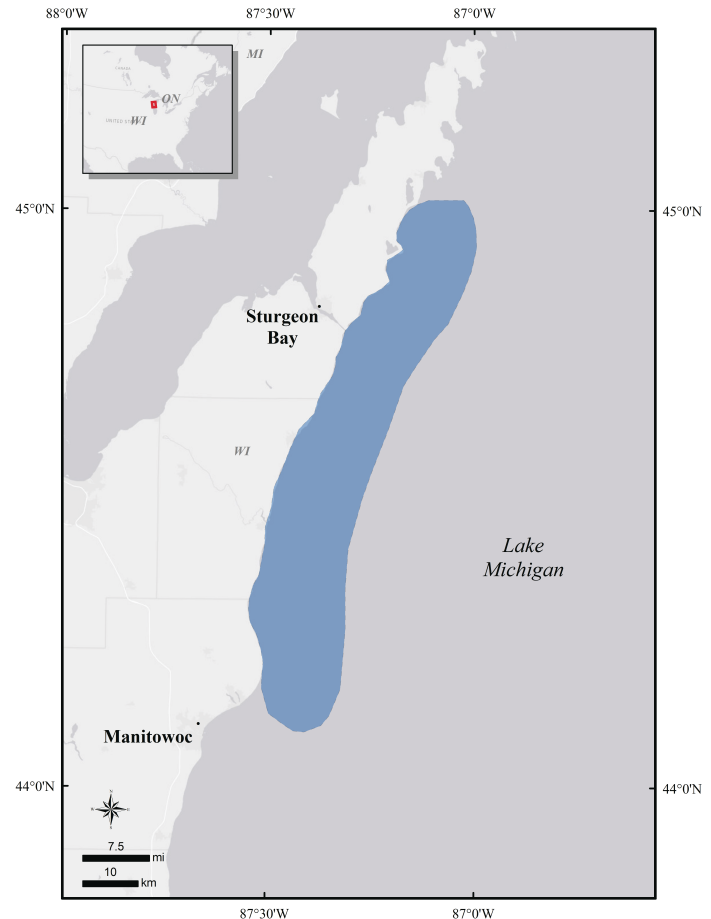
**Size:** 1639 km<sup>2</sup>

**Description:** This site extends 0 to 15 km offshore from Sturgeon Bay, Wisconsin, south to Manitowoc County, Wisconsin. Minor ports can be found at Algoma, Kewaunee, and Two Rivers, Wisconsin. Underwater reefs and drop-offs create a variety of feeding concentration areas for sea ducks and other diving waterfowl, and piscivorous diver species feed in the water column. Depths range from 0 to 120 m; prey species include a range of native freshwater fishes, plus introduced trout and salmon, and the exotic (introduced) round goby, crayfishes, and both zebra and quagga (*Dreissenid*) mussels. Ice masses form in discontinuous aggregations between late December and March during the coldest winters.

### Precision and Correction of Abundance

**Estimates Presented:** Abundance estimates are based on high numbers of any species of sea ducks observed during aerial surveys conducted from 2010 to 2015. Ongoing analyses are incomplete as of 2022, but abundance estimates are intended to illustrate the importance of the area to sea ducks during the fall-to-spring nonbreeding period. All birds were tallied and distance sampling was utilized, but because analyses have not been completed, for the purpose of this document we include no adjustment for counting error or detection probability, so estimates should be considered minimum indices. Bird distribution and abundance data were obtained by flying parallel transects, spaced 3.2 km apart, north and south along the west shore of Lake Michigan, 3.2 to 16 km offshore, from the Wisconsin–Illinois border to northern Door County, Wisconsin. A double-observer protocol (Conant and Groves 2005), with distance sampling—in bands of distance away from the centerline of the aircraft—was used to eliminate potential detectability concerns potentially affecting survey results.

**Biological Value:** During migration as well as during parts of most winters (i.e., from October through early May), the area hosts flocks of sea ducks, chiefly Long-tailed Duck (*Clangula hyemalis*), Common Goldeneye (*Bucephala clangula*), all three scoter species (*Melanitta* spp.), Red-breasted and Common Merganser (*Mergus serrator* and *M. mer-*



*ganser*), and Bufflehead (*Bucephala albeola*). Peak numbers of sea ducks in November can be >10,000 birds on individual days, with Long-tailed Duck peaking from early November to early December (Appendix 1) and Red-breasted Merganser peaking in October. In August through October 2013, a total of 52,704 sea ducks were tallied in this area.

More than 100,000 Red-breasted Mergansers pass through this offshore zone during both autumn and spring migration seasons. Use of distribution data from these surveys caused boundaries of a group of Wisconsin Important Bird Areas (Wisconsin Bird Conservation Initiative 2018) to be extended further from shore, as depicted in Appendix 2.

**Sensitivities:** Flocks of sea ducks are sensitive to disturbance by commercial shipping and offshore hunting. Extensive ice cover in some years has a strong effect on presence, survival, distribution, and movements of sea ducks and other divers in this offshore zone (Engel 2014, Washington Post 2014; see also Appendix 3). Ongoing invasive mussel

concentrations (Dressenids) and invasive small fishes such as round goby form part of the diet of waterfowl both nearshore and offshore. Invasive mussels provide a feeding opportunity, but this opportunity comes along with the potential for sublethal effects from contaminants taken up by mussel species (Kimbrough et al. 2014). Some measured declines in formerly abundant native amphipods (*Diporeia* spp.) preferred by Long-tailed Ducks may have impacted the nonbreeding population present here (Nalepa et al. 2009), but data on nonbreeding numbers of Long-tailed Duck in the Great Lakes are not sufficient to establish trends. There has been concern in recent years regarding the sustainability of sport harvest for some sea duck species, chiefly Long-tailed Duck.

**Potential Conflicts:** Offshore wind power installations are being considered in some offshore areas, which could potentially displace waterfowl (Smith and Dwyer 2016) and pose a collision threat. Commercial vessels, including ore barges and other tankers, pass through this offshore zone. There was a proposal to increase mesh size of gill nets for commercial fishing in Wisconsin waters south of Bailey's Harbor (Eggold and Kalish 2017), with potential for by-catch of nontarget fish species (Wisconsin DNR 2017) and possibly diving birds. Long-tailed Ducks have been accidentally caught in gill nets (Robertson and Savard 2002).

**Status:** This key site encompasses or is partially within three Wisconsin state priority important bird areas (IBAs). Those IBAs are the Whitefish Dunes–Shivering Sands IBA (Audubon 2017a), Door-Kewaunee Lakeshore Migration Corridor IBA (Audubon 2017b), and Point Beach State Forest IBA (Audubon 2017c). The open waters of Lake Michigan and connecting waterbodies are managed by the State of Wisconsin for this key site, but oversight is provided by the United States government to regulate navigation, interstate commerce, access, pollution, and water quality and use. Due to their sovereignty from federal and state governments, tribal nations also provide input on the management and utilization of Lake Michigan resources, including governance through the Chippewa Ottawa Resource Authority and the Great Lakes Indian Fish and Wildlife Commission (Hall and Houston 2014). Uplands surrounding this key site are managed by a variety of parties including federal, state, county, city, and private land owners.

## Literature Cited

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