



U.S. Fish & Wildlife Service

Detroit River

International Wildlife Refuge | Michigan



A UNIT OF THE
National Wildlife
Refuge System

Why Humbug Marsh?



Humbug Marsh meets five of the nine Ramsar criteria (http://www.ramsar.org/cda/en/ramsar-about-faqs-what-are-criteria/main/ramsar/1-36-37%5E7726_4000_0_) that make it a "Wetland of International Importance".

Criterion 2: Importance to threatened, endangered and vulnerable species and ecological communities



The wetlands within Humbug Marsh are classified as Great Lakes Marsh, a natural community that has been ranked as a globally imperiled community by the Michigan Natural Features Inventory (Kost et al., 2007). As the shorelines of the Great Lakes were developed for industrial, commercial, residential, and recreational use, the marsh habitat essential for many Great Lakes species rapidly declined. While vast seas of emergent vegetation once controlled flooding, aided in groundwater recharge, and provided habitat, today most of this once common ecological community has been dredged, filled, or otherwise altered by humans. Each remaining portion of Great Lakes coastal wetland is important to maintaining the integrity of the lakes as a whole, but the wetlands within Humbug Marsh are particularly important due to the extensive loss of native habitat that has occurred within the Huron and Erie Lakeplain Ecoregion. This ecoregion lies in one of the most industrialized areas of the Midwest, and thus, has lost the majority of its original coastal wetlands. In the Detroit River, 97% of pre-settlement wetlands have been lost (Manny 2007).

Bibliographical references:

Kost, M.A., D.A. Albert, J.G. Cohen, B.S. Slaughter, R.K. Schillo, C.R. Weber, and K.A. Chapman. 2007. Natural Communities of Michigan: Classification and Description. Michigan Natural Features Inventory, Report No. 2007-21, Lansing, MI.

Manny, B. 2007. Detroit River coastal wetlands. In, State of the Strait: Status and Trends of Key Indicators. J.H. Hartig, M.A. Zarull, J.J.H. Ciborowski, J.E. Gannon, E. Wilke, G. Norwood, and A. Vincent (Eds.), pp. 172-176, Great Lakes Institute for Environmental Research, Occasional Publication No. 5, University of Windsor, Ontario, Canada.

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Criterion 3: Importance for Maintaining Biological Diversity



Because Humbug Marsh represents a significant portion of the last unaltered wetlands in the Detroit River corridor and the last mile of natural shoreline on the river's U.S. mainland, it serves as a vital habitat for a large variety of endemic fish, birds, and plants that are regionally rare and may otherwise be extirpated from the area.



In a recent survey, approximately 51 species of native fish were found within or very close to Humbug Marsh (MDNRE unpublished Data 2006). Certain forage fish species such as *Lepisosteus osseus* (longnose gar), the Michigan Threatened Species *Luxilus chrysocephalus* (striped shiner) and bullhead catfish (*Ameiurus nebulosus*, *A. natalis*, and *A. melas*) are not likely to leave marsh areas to travel through the Detroit River (Goodyear et al. 1982). *Opsopoeodus emiliae* (pugnose minnow), a state listed endangered species, is also likely to use the protected areas of Humbug Marsh where the fast current of the Detroit River is slowed by the island and wetlands.

Over 90 native plant species are known to occur within the Humbug Marsh complex, at least 12 of which have a coefficient of conservatism value greater than 5. This means the area has maintained some of its pre-settlement character, despite the pressures of development, influx of invasive plants, and other ecosystem alterations (Reznicek et al. 2005).

Over the past several years, a number of bird surveys have taken place in Humbug Marsh. Data from Christmas Bird Counts (2004-2007), North American Migration Counts (2005-2006) and The Big Sit (2007-2008) show that at least 154 native bird species from 39 different families use the Marsh and associated upland (Bird Watcher's Digest 2007 and 2008, Craves and Fowler 2003, Craves 2006). The number of avian species increases during fall and spring migrations, when thousands of birds make their way through the lower Detroit River. In addition to supporting migratory waterfowl, Humbug Marsh is known to be part of an important flyway for at least 17 species of raptors during their annual migrations. The area is considered essential for the preservation of migrating raptor species such as *Buteo platypterus* (Broad-winged Hawk) and *Accipiter striatus* (Sharp-shinned Hawk) by the Audubon Society, and thus, was designated as an Important Bird Area in September of 2007 (National Audubon Society 2009).

Surveys conducted in 2005 showed that the number of present and potentially occurring species of reptiles and amphibians within the Humbug Marsh complex is greater than 25. Many of these species are recognized by the Michigan Wildlife Action Plan, prepared by the Michigan Department of Natural Resources and Environment, as Species of Greatest Conservation Need. Most importantly, this site supports the *Elaphe vulpina gloydi* (eastern fox snake), a species protected throughout its range and listed as "threatened" by the State of Michigan (Mifsud 2005).

Finally, Humbug Marsh provides habitats for a large diversity of odonates, some of which are regionally rare. A 2007 survey found twelve species of damselflies from two families and 25 species of dragonflies from five families (Craves 2007).

As loss of habitat continues to threaten endemic species of southeast Michigan, strongholds such as the Humbug Marsh will become increasingly important in preserving the ecological integrity of the Great Lakes ecosystem as a whole.

Bibliographical references:

Bird Watcher's Digest. 2007 and 2008. Data from L.M. Appel.

http://www.birdwatchersdigest.com/site/funbirds/bigisit/results07/stats.php?find_type=circle&find=The+Sentinels and

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Craves, J. A. 2007. Baseline inventory of Odonata at the Detroit River International Wildlife Refuge, Humbug Marsh Unit. Final Report. CCS MOA #2007CCS-98. USFWS Region 3, Fort Snelling, MN.

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Goodyear, C. S., T. A. Edsall, D. M. Ormsby Dempsey, G. D. Moss, and P. E. Polanski. 1982. Atlas of the spawning and nursery areas of Great Lakes fishes. 14 vols. U. S. Fish and Wildlife Service, Washington, DC. FWS/OBS-82/52.

Mifsud, D.A. 2005. Michigan Herpetological Atlas Survey Report, 2005. A Report to The Michigan Department of Natural Resources Natural Heritage Program, Lansing, MI. 55pp.

National Audubon Society 2009. Important Bird Areas in the U.S. Available at http://www.audubon.org/bird/iba_02/2009

Reznicek, A., M. Penskar, B. Walters and S. Campbell. 2005. Floristic Quality Assessment for the Humbug Marsh Unit of the Detroit River International Wildlife Refuge. Michigan Natural Features

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Criterion 4: Importance as Habitat for Plants or Animals in Critical Stages of their Lifecycles



Humbug Marsh and the lower Detroit River are located at the intersection of two highly important migratory bird flyways (Atlantic and Mississippi Flyways), making it a prime location for waterbird stopover during fall and spring migration periods. In winter months, Humbug Marsh and the adjacent open water of the Detroit River provide critical waterfowl breeding, staging and feeding habitat. Resident and migrant birds frequently overnigh and nest several kilometers downstream from Humbug Marsh at Pointe Mouillee State Game Area, but these birds regularly make trips upstream to the Humbug area for feeding and breeding. Single day Christmas Bird Counts have shown that hundreds of *Bucecephala clangula* (Common Goldeneye), ***Cynnus columbianus* (Tundra Swan)**, [\(uploadedImages/Region_3/NWRS/Zone_2/Detroit_River/Sections/Refuge_Gateway/tundra swan_humbug_marsh.jpg\)](#) *Aythya americana* (Redhead), *Aythya affinis* (Lesser Scaup), and *Aythya valisineria* (Canvasback) routinely use the marsh. Less common sightings have included *Lophodytes cucullatus* (Hooded Merganser) and *Anas acuta* (Northern Pintail). Many of these waterbirds, including the Canvasbacks that are prized by hunters, rely on the growth of *Valisneria americana* (wild celery) as a primary food source. As extensive dredging and shoreline hardening occurred throughout the lower Detroit River and western Lake Erie, habitat suitable for supporting wild celery became scarce. Since 1998, however, Great Lakes water levels have been falling, allowing wild celery to re-establish in Humbug Marsh, and providing essential food to a variety of waterbirds (U.S. Fish and Wildlife Service 2005). In addition to waterbirds, a significant number of passerines and raptors pass through Humbug Marsh during migration. *Accipiter cooperii* (Cooper's Hawk), *Pandion haliaetus* (Osprey), *Haliaeetus leucocephalus* (Bald Eagle), several owl species, and a number of other special concern raptors are among those that regularly travel through and stopover at the site.

Humbug Marsh is also a critical corridor along the Detroit River for herpetofauna, and serves as an important breeding, nesting, and developmental site for a number of amphibian and reptile species (Mifsud 2005).

Bibliographical references:

Mifsud, D.A. 2005. Michigan Herpetological Atlas Survey Report, 2005. A Report to The Michigan Department of Natural Resources Natural Heritage Program, Lansing, MI. 55pp.

U.S. Fish and Wildlife Service, 2005. Detroit River International Wildlife Refuge Comprehensive Conservation Plan.

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Criterion 7: Importance to Indigenous Fish Biodiversity



The variety of habitats existing within Humbug Marsh allows fish with diverse life histories to thrive. In a fish survey that included Humbug and other surrounding islands in the Detroit River, 51 indigenous fish species representing fifteen different families were counted (MDNRE unpublished data 2006). Since Humbug Marsh provides one of the last wetland areas in the Detroit River, the majority of fish species counted in the survey must use this location at some point in their lifecycle. A variety of life histories are represented among the many fish that utilize resources within Humbug. Primitive species include the jawless *Ichthyomyzon unicuspis* (silver lamprey), giant cartilaginous ***Acipenser fulvescens* (lake sturgeon)** [\(uploadedFiles/Lake Sturgeon_michiganDNR factsheet.pdf\)](#), bony scaled *Lepisosteus osseus* (longnose gar), and the living Mesozoic relic *Amia calva* (bowfin). More advanced species include bony fishes such as bottom feeding *Catostomus commersoni* (white suckers), predatory ***Esox lucius* (northern pike)** [\(uploadedImages/Region_3/NWRS/Zone_2/Detroit_River/Sections/Refuge_Gateway/northernpike.jpg\)](#) and many schooling chubs, minnows and shiners. Humbug Marsh is especially important for forage fish species, which rely on marsh habitat for most or all of their lifecycle. Introduction of invasive species has been a serious problem in the Great Lakes; however, the majority of fishes within Humbug- approximately 90% of fish species represented and 97% of the total fish population- are endemic species (MDNR unpublished data 2006).

Criterion 8: Importance as a Food Source, Spawning, Nursery or Migration Area on which Fish Depend



Humbug Marsh and the surrounding Detroit River are known to be an extremely important habitat for migrating fish. Each year, over 3 million walleye, approximately 10% of the walleye population of Lake Erie, run the Detroit River (Francis 2005). Once the walleye spawn on rocky substrate within the river, larval fish travel to the marsh and use it as an essential nursery habitat. The vegetated areas of these wetlands provide spawning and nursery areas for **[Perca flavescens \(yellow perch\)](#)** ([/uploadedImages/Region_3/NWRS/Zone_2/Detroit_River/Sections/Refuge_Gateway/yellowperch.jpg](#)), **[Esox masquinongy \(muskellunge\)](#)** ([/uploadedImages/Region_3/NWRS/Zone_2/Detroit_River/Sections/Refuge_Gateway/muskellunge.jpg](#)), **[Ameiurus nebulosus \(brown bullhead\)](#)** ([/uploadedImages/Region_3/NWRS/Zone_2/Detroit_River/Sections/Refuge_Gateway/brownbullhead.jpg](#)) and many others (Goodyear et al. 1984). In addition, Humbug Marsh serves as one of the only remaining spawning and nursery areas for forage fishes, which rely on the significant cover of emergent and submergent vegetation for their survival.

Bibliographical references:

Francis, J.T., Michigan Department of Natural Resources. 2005. Fisheries Technical Report 2005-1. The Walleye Fishery of the Detroit River, 2000.

Goodyear, C. S., T. A. Edsall, D. M. Ormsby Dempsey, G. D. Moss, and P. E. Polanski. 1982. Atlas of the spawning and nursery areas of Great Lakes fishes. 14 vols. U. S. Fish and Wildlife Service, Washington, DC. FWS/OBS-82/52.

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