Western Lake Erie Coastal Conservation Vision Project
*Engaging stakeholders to create
a shared regional vision that integrates ecological and social values
to provide solutions for people and nature.*

The Nature Conservancy
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Walleye Lake Habitat

Lake Erie Fish Habitat
- Walleye Larval/Nursery Habitat
- Adult Walleye Habitat
- Adult Walleye/Perch Habitat
- Coastal Vision Project Area

This data layer was developed by the Ohio Department of Natural Resources Sandusky Fisheries Research Unit. The ODNR divides the western basin into fish habitat of three classes: 1) walleye larval/juvenile habitat (highest potential impact and therefore highest priority for protection); 2) adult walleye habitat (second priority); and 3) walleye/yellow perch habitat (third priority). The categories are defined by depth. We constructed the layer using Lake Erie bathymetry data publicly available from NOAA.

National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, iPC
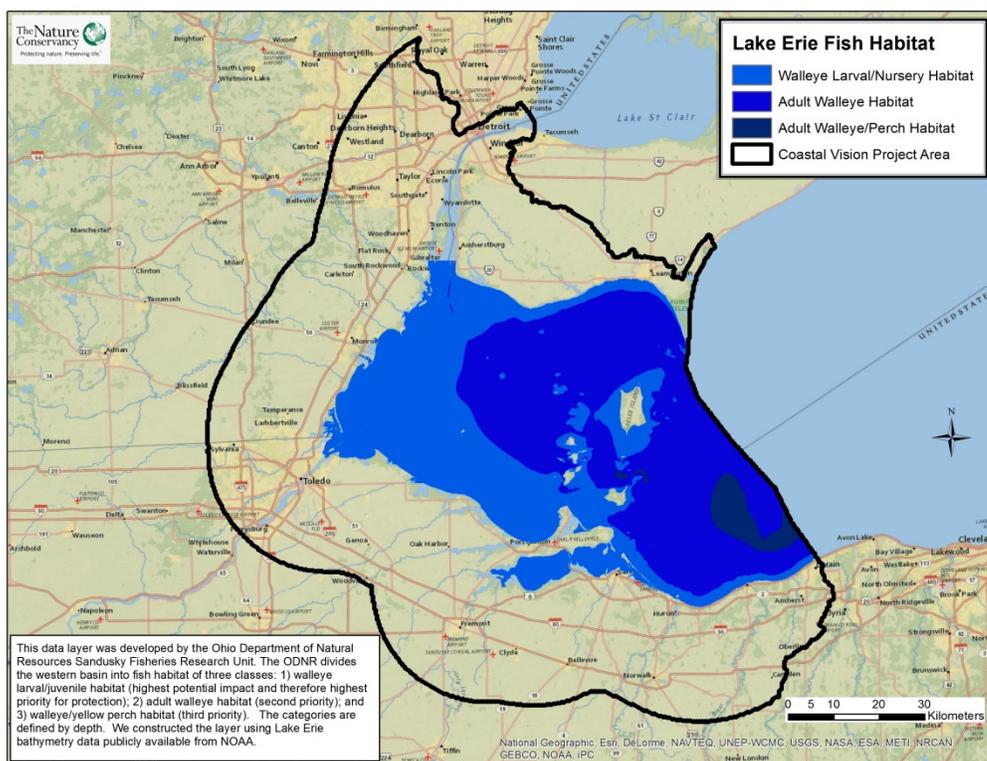
Take Home Points

- High quality lake habitats are crucial to maintaining the fish populations in the Western Lake Erie Basin.

- Walleye supports the Canadian commercial fishery and drew roughly 600,000 recreational anglers to the WLEB in 2011.

- The LEBCS established a goal of having at least two viable populations of each migratory fish species present in each basin of Lake Erie by 2030.

Walleye lake habitat: Walleye habitats within the WLEB are depicted in the map above, with green areas indicating adult walleye and perch habitat, orange area shows adult walleye habitat, and blue areas for nursery and walleye larval habitat. The study area is outlined in black.

How is walleye habitat in Lake Erie connected to regional ecological and social values?

This data layer uses walleye (*Sander vitreus*), a native migratory fish, to provide a sense of priority for fish habitat in the Western Lake Erie Basin (WLEB). Walleye play a key role in the ecosystem as predators and facilitate the migration of other species like mussels, which ride in their gills during their larval stage[1]. This species, like other migratory fish, utilizes different parts of the lake at different life stages; as young fry walleye live in coastal wetlands or shallow, rocky reefs, but as adults they move to deeper parts of the lake[2]. Walleye and other sport fish species fuel an economy worth tens of millions in the WLEB; walleye and sauger are especially popular, luring 0.6 million of the 1.7 million anglers who contributed $1.9 billion to the WLEB economy in 2011[3]. Canadian commercial operators earned $7.8 million for the 4.8 million pounds of walleye caught in 2008 (out of a total catch of 30.1 million pounds)[4]. The Western Lake Erie Coastal Conservation Vision (WLECCV) Project recognizes that the range of habitat typees available in the lake should be conserved in order to sustain adult fish populations, which contribute to the regional ecosystem and economy by adding biodiversity to the lake and supporting the recreational and commercial fishing industries.

Related Human Well-being layers: Recreational fishing, Commercial fishing, Boating

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Walleye lake habitat data layer

The [Lake Erie Biodiversity Conservation Strategy (LEBCS)](#) established a goal of having at least two viable populations of each migratory fish species present in each basin of Lake Erie by 2030[5]. This data layer was developed following the methods set forth in a wind energy suitability analysis report by the Ohio Department of Natural Resources (ODNR) [Sandusky Fisheries Research Unit](#), which recognizes that wind energy development in Lake Erie could negatively impact fish habitat. The ODNR divides the western basin into three fish classes: 1) walleye larval/juvenile habitat (highest potential impact and therefore highest priority for protection); 2) adult walleye habitat (second priority); and 3) walleye/yellow perch habitat (third priority). A fourth category (hypoxic zone) does not occur in the western basin. The categories are defined by depth: Category 1 includes all waters less than 8m depth; category 2 includes waters 8–13m in depth; and category 3 includes watersheds 13–18 m in depth. Based on these definitions, this data layer was constructed using Lake Erie bathymetry data and depicts the three different types of fish habitat.

Data sources and potential limitations

Bathymetry data for this layer were downloaded from the [NOAA website](#). It would be ideal to include other migratory species in this analysis to ensure that the LEBCS goal for all migratory fish species is considered during the analysis; such data is not yet available for the WLEB, although a current mapping project underway at The Nature Conservancy may make it available in the future.

References and links

1. Pearsall, D., P. Carton de Grammont, C. Cavalieri , C. Chu, P. Doran, L. Elbing, D. Ewert, K. Hall, M. Herbert, M. Khoury, D. Kraus, S. Mysorekar, J. Paskus and A. Sasson. (2012). *Returning to a Healthy Lake: Lake Erie Biodiversity Conservation Strategy*. Technical Report. A joint publication of The Nature Conservancy, Nature Conservancy of Canada, and Michigan Natural Features Inventory. 340 pp. with Appendices.
   http://www.conservationgateway.org/ConservationByGeography/NorthAmerica/wholesystems/greatlakes/Pages/lakeerie.aspx ;
   http://www.fws.gov/midwest/endangered/clams/mussels.html
2. Pearsall, D., *et al.* 2012. *Returning to a Healthy Lake.*
3. 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. August 2012. USFWS.
   www.doi.gov/news/pressreleases/upload/FWS-National-Preliminary-Report-2011.pdf
4. www.miseagrant.umich.edu/explore/about-the-great-lakes/lake-erie/
5. Pearsall, D., *et al.* 2012. *Returning to a Healthy Lake.*

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