



LAKE MICHIGAN HABITAT SUMMARY



Lake Michigan is Indiana's largest natural lake, although Indiana can only lay claim to about 1% (224 mi²) of its area and only 45 miles of its shoreline. The southern tip of Lake Michigan forms Indiana's extreme northwest border. Ecology of the lake is ruled by the massive amount of offshore, deep, cold water, wind seiches, and newly introduced exotic species.



Indiana's stationary and free-flowing aquatic habitats are spread throughout the state, covering 2.36% of Indiana or 899 miles² (575,151 acres). Aquatic systems include lakes and reservoirs, streams and rivers, and parts of Lake Michigan.



Indiana's State Wildlife Action Plan

Representative Species of Lake Michigan

Lake Michigan habitat guild is represented by several species.

These representative species “paint a reasonable mental picture” of Lake Michigan.

Blacknose Dace
Hornyhead Chub
Greater Redhorse
Northern Brook Lamprey

Ring-Billed Gull
Spottail Shiner
Yellow Perch
Lake Trout
Smallmouth Bass

Mottled Sculpin
Slippershell Mussel
Mucket
Rainbow



From left to right: *Yellow Perch* (USFWS), *Blacknose Dace* (Brian Gratwicke), and *Ring-billed Gull*.

Species of Greatest Conservation Need (SGCN) in Lake Michigan

SGCN are animal species whose populations are rare, declining, or vulnerable.

Peregrine Falcon
Lake Whitefish

Longnose Dace
Longnose Sucker

Slimy Sculpin
Trout-perch



From left to right: *Peregrine Falcon*, *Lake Whitefish* (Seb951), and *Longnose Sucker* (USFWS)

Threats to Lake Michigan

- Invasive/non-native species
- Habitat degradation
- Climate change
- Drainage practices (stormwater runoff)
- Nonpoint source pollution (sedimentation and nutrients)
- Habitat fragmentation
- Residual contamination (persistent toxins)
- Point source pollution (continuing)

High-Priority Conservation Actions for Lake Michigan

Artificial habitat creation (artificial reefs, nesting platforms)

- Erect and maintain nesting boxes for peregrine falcons at industrial areas along Lake Michigan.

Habitat protection through regulation

- Investigate threats to Lake Michigan aquatic habitat and provide technical assistance to regulatory agencies to encourage regulatory relief from those threats or to develop protective regulatory measures.

Technical assistance

- Provide technical assistance to industrial landowners, planning commissions, regulatory agencies and others responsible for land management, protection or remediation on the shore and near the shore area of Lake Michigan for the protection of SGCN.

Habitat restoration through regulation

- Promote the use of drainage maintenance BMPs and the use of native species in the restoration of the habitat of the near-shore and Indiana portions of Lake Michigan for the benefit of longnose dace, slimy sculpin and trout-perch populations.

Land use planning

- Provide technical assistance to city, county and regional planners and others regarding the ecological needs and requirements of SGCN in the Lake Michigan area to promote the conservation of SGCN.

Pollution reduction

- Reduce contaminant loads in birds fed upon by resident and migratory peregrine falcons along Lake Michigan. Encourage avian control operators to use methods that will minimize secondary poisoning threats to peregrine falcons and other raptors.

Adaptive Management

- Modify survey and monitoring, research, and other conservation actions and activities in response to new information to improve habitat conservation efficiency for SGCN.

Threats to SGCN in Lake Michigan

- Invasive/non-native species
- Viable reproductive population size or availability
- Specialized reproductive behavior or low reproductive rates
- Predators (native or domesticated)
- Dependence on irregular resources (cyclical annual variations) (e.g., food, water, habitat limited due to annual variations in availability)
- Bioaccumulation of contaminants
- Diseases/parasites (of the species itself)
- Unintentional take/ direct mortality (e.g., vehicle collisions, power-line collisions, by catch, harvesting equipment, land preparation machinery)
- Habitat loss (breeding range)
- Habitat loss (feeding/foraging areas)

High-Priority Conservation Actions for SGCN in Lake Michigan

Habitat protection

- Cooperate with all local land owners, land trust and government agencies to secure (acquisition, easements, and cooperate agreements) to protect habitat in and on the near shore of the Indiana portion of Lake Michigan.

Population management

- Investigate and employ as appropriate all animal and plant population management (i.e., deer hunting, exotic control, etc.) techniques that promote the maintenance of native biological diversity in and on the near shore of the Indiana portion of Lake Michigan.

Threats reduction

- Investigate threats and limiting factors affecting SGCN in and on the near shore of the Indiana portion of Lake Michigan.

Regulation of collecting

- Examine reports submitted by holders of the state's Scientific Purposes License to detect changes in the distribution of lake whitefish, longnose dace, longnose sucker, slimy sculpin and trout perch. Adjust limits and capture techniques as warranted to protect SGCN.

Public education to reduce human disturbance

- Make site managers aware of peregrine falcon nesting needs and breeding timelines and encourage adaptive measures to support falcon nest success.

Population enhancement (captive breeding and release)

- Cooperate with Lake Michigan and Great Lake's fishery initiatives that promote a healthy Lake Michigan ecosystem, including self-sustaining populations of all native species.

Disease/parasite management

- Support efforts to prevent the release of exotic pathogens and parasites from international shipping.
- Provide technical assistance to the public and community leaders regarding all aspects of disease/parasite introduction, spread and control to foster the support of an informed citizenry.

Limiting contact with pollutants/contaminants

- Promote and support programs that limit pollution/contaminants release and remediate contaminated areas impacting Lake Michigan to enhance lake whitefish and longnose sucker populations.
- Support programs to reduce contaminant loads in birds fed upon by resident and migratory peregrine falcons along Lake Michigan. Encourage avian control operators to use methods that will minimize secondary poisoning threats to peregrine falcons and other raptors.

Stocking

- Support evaluation of all intentional and unintentional plant and animal stockings in Lake Michigan to determine the impact on native biological diversity and the maintenance of self-sustaining populations of native species.

Adaptive Management

- Modify survey and monitoring, research, and other conservation actions and activities in response to new information to improve conservation efficiency for SGCN.

