

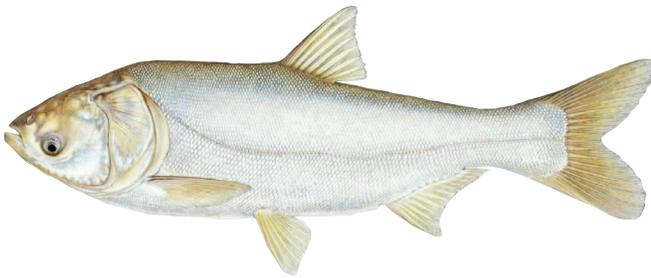
Asian Carp

Hypophthalmichthys molitrix (Silver) and *Hypophthalmichthys nobilis* (Bighead)

WHAT ARE ASIAN CARP?

Seven species of carp native to Asia have been introduced into the U.S. Two of these species, silver and bighead carp, are considered invasive and a threat to the Great Lakes. Two other species, common carp and goldfish, are already established in the region.

Adult silver and bighead carp weigh up to 60-110 pounds. They are planktivores, feeding on both microscopic plants (phytoplankton) and animals (zooplankton). Bighead carp can consume up to 140% of their body weight a day when very young but eat far less as adults.



Silver carp

(Hypophthalmichthys molitrix)



Bighead carp

(Hypophthalmichthys nobilis)

ILLUSTRATIONS: TOMELLERI

Silver and bighead carp have low-set eyes that are situated far forward, and large, upturned mouths. They do not have barbels, as common carp do. Silver carp are lighter in color than bighead carp, which are darker grey with many dark to black blotches over the entire body.

How Silver and Bighead Carp Arrived in the U.S.

Silver and bighead carp were brought into the U.S. in the 1970s to improve water quality in aquaculture ponds and water treatment systems, and to boost harvests from catfish ponds. They are believed to have entered the Mississippi River system by means of the ponds flooding in the 1990s.

Threats of Invasion

There are several ways the carp could infiltrate the Great Lakes ecosystem. One of the primary pathways is through the Chicago Sanitary and Ship Canal, a man-made connection between the Mississippi River system and Lake Michigan. Improper bait-bucket release is a potential risk because young bighead or silver carp are easily mistaken for shad or minnows and could be accidentally released by anglers. Flooding and intentional release of fish bought from live fish markets are other possible paths of introduction.

Evidence of Asian Carp

Despite the operation of electric barriers on the canal, a live bighead carp was caught on the Lake Michigan side of the barriers in June 2010. Environmental DNA (eDNA) testing found evidence of silver carp in Calumet Harbor on Lake Michigan, and suggests that silver carp and bighead carp are present between Lake Michigan and the electric barriers. Intentional release of fish (from live fish markets) was likely responsible for bighead carp introduced into Lake Erie. At least three bighead carp have been caught in Lake Erie since 1995, but no evidence of natural reproduction has been found.

Problems Carp May Pose

If silver and bighead carp become established in the Great Lakes, they are believed to pose a serious threat to native species at multiple levels of the food web. The carp could disrupt the base of the web by competing with forage and sport fish for plankton. Not only would that likely reduce populations of forage fish such as native minnows, but it could also mean less forage fish for sport fish (e.g., walleye) to feed on.

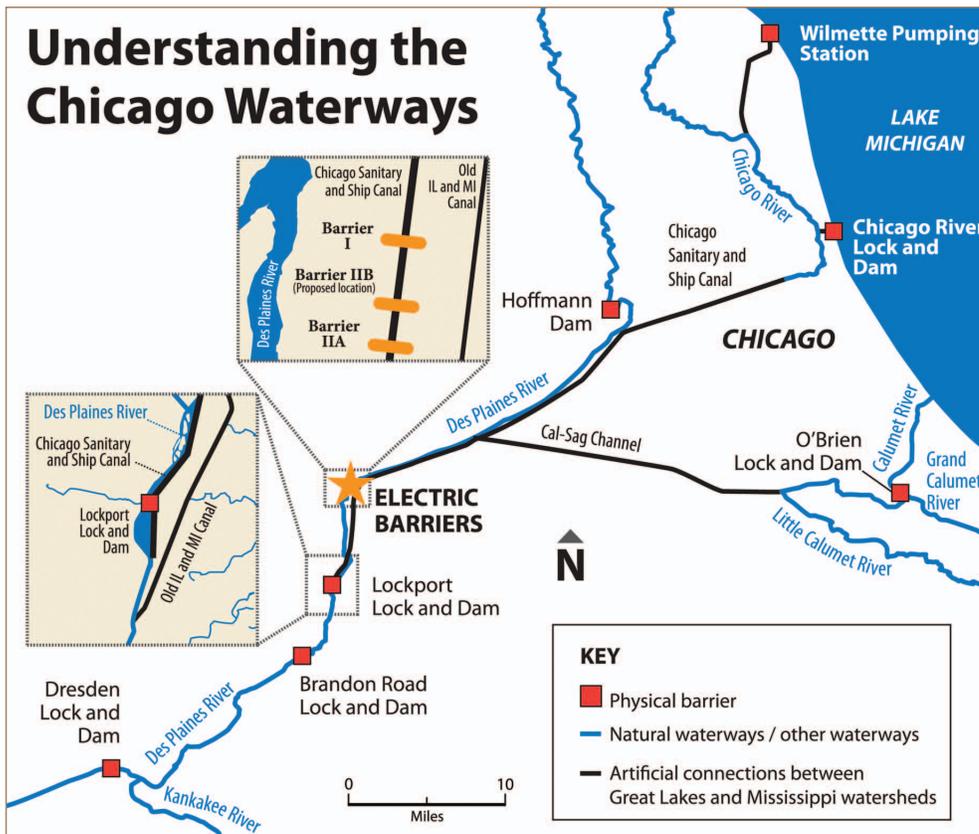
Additionally, less plankton could lead to increased nitrogen and phosphorus levels, and possibly more harmful algal blooms. Silver carp also pose a physical threat to boaters in the connecting waterways of infested lakes and rivers as they jump out of the water when disturbed by boat motors.

Will Carp Become Established?

In order to thrive, the carp require a productive environment with abundant plankton; a relatively warm water temperature; and fast-moving, turbulent water to suspend eggs in the water column.

Some studies suggest silver and bighead carp will not become well established throughout the Great Lakes basin because it is considered a more hostile environment than that of the Mississippi River system. The conditions the carp need to grow and reproduce may not occur in the open waters of the Great Lakes. For example, Lake Michigan contains concentrations of plankton approximately 20 times less than that of the Mississippi River system and the average temperature of the lake is less than ideal for carp reproduction.

Understanding the Chicago Waterways



HOW YOU CAN HELP

Carp Watch

If you catch what you suspect is a bighead or silver carp in the Great Lakes or adjacent waters:

- Note the date and exact location (GPS coordinates if possible) of capture.
- Photograph or freeze a dead specimen. **Do NOT put it back in the water.**
- Contact the Great Lakes Aquatic Nonindigenous Species Information System (GLANSIS) at (734) 741-2287 or email: rochelle.sturtevant@noaa.gov.

More Information

- Michigan Department of Natural Resources and Environment Carp page and Proposed Plan for the Prevention, Detection, Assessment, and Management of Asian Carp in Michigan Waters: www.michigan.gov/asiancarp
- GLANSIS reporting system: <http://nas.er.usgs.gov/SightingReport.aspx>
- Asian Carp Regional Coordinating Committee website: www.asiancarp.org

However, there are some vulnerable areas around the basin. Bays, river mouths, wetlands and portions of Lake Erie are productive and warm enough to potentially support populations of silver and bighead carp. These habitat areas are important for recreational fishing and boating.

Controlling the Spread of Asian Carp

The U.S. Army Corps of Engineers (USACE), along with several other agencies, installed electric barriers along the Chicago Sanitary and Ship Canal to prevent invasive fish from moving between the Great Lakes and Mississippi River watersheds. Other recent efforts include:

- Investigating all hydrologic connections between Mississippi and Great Lakes basins.
- Installing a chain-link fence in an Indiana floodplain to prevent large carp from moving from infested waters of the Wabash River into the Maumee River and Lake Erie.

- Constructing berms and fences between the Des Plaines River and Chicago Sanitary and Ship Canal to prevent large carp from moving around the electrical barriers during floods.
- Filling in sections of the Illinois and Michigan Canal to prevent carp from bypassing barriers during floods.
- Listing bighead carp as an injurious species, banning interstate transport of live fish and eggs.
- Expanding commercial fisheries in the Mississippi River basin with the goal of reducing the number of carp headed upriver.

The EPA, USACE and the Great Lakes Commission are exploring complete ecological separation, as well as other strategies to reduce the spread of Asian carp and other invasive species.

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