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## **Asian carp control**

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The carp is a freshwater fish of the family Cyprinidae. It is native to Europe and Asia. Carp have been raised domestically, particularly in Asia, mostly for consumption, but also as ornamentals (e.g., goldfish and koi). Four species of carp – Bighead carp, Black carp, Grass carp, and Silver carp – are commonly referred to as Asian carp. Over the past 40 years, these Asian carp have been introduced into the United States for various purposes, including scientific study, pest control, biological control of aquatic weeds, and as a live food fish. Some of these Asian carp have been released into or escaped into the wild. These feral Asian carp have established self-sustaining and expanding breeding populations throughout the Mississippi River Basin. Due to the size (three feet or more in length), fecundity, appetite, and aggressive habits of the Asian carp, in many locations they have crowded out native fish species. Control efforts to date have been small-scale and of little impact. Asian carp are now possibly on the verge of breaking out of the Mississippi River Basin and into the single largest freshwater system in the world – the Great Lakes of North America.

### **Connecting the water basins**

There is no natural connection between the Mississippi River Basin and the Great Lakes. The divide between the two water systems lies only a few miles west of the southwest shore of Lake Michigan. This divide was first breached in 1848 with the construction of the Illinois and Michigan Canal. The 1848 canal connected the Chicago River (which naturally flows into Lake Michigan) with the Illinois River (which flows into the Mississippi River just upstream from St. Louis) at LaSalle-Peru. The 96-mile long canal resembled the more famous Erie Canal. It had 17 locks and paths on either side where the mules and their attendants walked as the canal boats were pulled from lock to lock. The 1848 canal has been out of service for years, but various short stretches have been converted into historic sites and parks.

The City of Chicago was formally incorporated in 1833. From the beginning, domestic waste was disposed of in Lake Michigan, first by the natural flow of the Chicago River and then by pumping through pipes laid several miles out into the lake. By the 1880's, it was apparent that the growing population was overwhelming the capacity of Lake Michigan to handle the city's wastes. In one of the most extensive construction projects undertaken up to that time, a

series of canals, dams, locks, and pumping stations was constructed to move Chicago's processed waste water from the city to the Illinois River.

The main drainage canal, eventually called the Chicago Sanitary and Ship Canal, was built largely parallel to the 1848 Illinois and Michigan Canal. It was much larger than the old canal and involved an actual reversal of the flow of the Chicago River. The new Canal commenced operation on January 17, 1900. In addition to serving as a conduit for sending Chicago's processed sewage down the Illinois and Mississippi Rivers, the new canal (24 miles long, about 200 feet wide, and about 24 feet deep) also serves as a navigation link between the Great Lakes and the Mississippi River Basin. The Canal is also used for flood control purposes in extreme weather conditions. This navigation link now supports a fairly substantial tug and barge industry. Numerous businesses have been established along the canal and on nearby waterways that rely on this transportation link.

### **Controversy and litigation**

The Chicago Sanitary & Ship Canal was controversial from the beginning. The State of Missouri brought suit against the State of Illinois and the Sanitary District of Chicago soon after the Canal commenced operation, complaining that Missouri in general and St. Louis in particular should not be the recipient of Chicago's sewage. In 1901, the US Supreme Court dismissed the complaint, taking a narrow view of the law of nuisance. The State of Missouri renewed its complaint following an outbreak of typhoid in St. Louis, which it blamed on the Chicago sewage. The US Supreme Court, in 1906, again dismissed the complaint without prejudice.

In 1922, the State of Wisconsin (later joined by other states bordering the Great Lakes) sought an injunction from the US Supreme Court against the State of Illinois, contending that such large amounts of water were being taken from Lake Michigan to support the flow of Chicago's sewage through the Chicago Sanitary & Ship Canal that the level of the Great Lakes was being lowered to a point that navigability was adversely affected. In 1925, the Court appointed a special master to examine the issue and recommend an amount of water diversion that would minimize the impact on the level of the Lakes while allowing Chicago's sewage to continue to be flushed through the Canal. An amount was agreed upon, but the Court has kept the case on its open docket to address issues that may arise as the situation changes.

### **Electrical barrier**

As it became apparent that the Asian carp were working their way up the Illinois River from the Mississippi, Congress authorized the US Army Corps of Engineers to construct an experimental electrical barrier in the Canal near Romeoville, Illinois. The hope was that the barrier would prevent the carp from proceeding further. Once the experimental barrier showed that such a system could be operated, a larger barrier was built in the same location. Problems soon arose. The electrical current in the water raised safety issues for vessels transiting the location, particularly tank barges carrying oil and other flammable cargoes. The electrical barrier has not normally been operated at full power.

Recently, it was discovered that several Asian carp have gotten past the electrical barrier. In addition, evidence of DNA from Asian carp has been found beyond the barrier. Poison was placed in the water in an attempt to kill any Asian carp near or beyond the barrier. The effectiveness of this poisoning is unknown. The discoveries of carp and carp DNA have generated various responses.

The State of Michigan, joined by several Great Lakes states and the Province of Ontario, filed a motion with the US Supreme Court asking that a preliminary injunction be issued requiring the State of Illinois and the US Army Corps of Engineers to permanently close the locks connecting Lake Michigan with the Chicago Sanitary & Ship Canal. The Court declined to issue the preliminary injunction, but did not close the door to future relief.

### **Congress weighs in**

Eight bills have been introduced in 111th Congress regarding the Asian carp problem. The Asian Carp Prevention and Control Acts (H.R. 48, S. 1421, and H.R. 3173) seek to prohibit the importation or shipment of Asian carp. The Eradicating Asian Carp in the Great Lakes Study Act of 2009 (H.R. 51) would require a study of feasible approaches to eradicating the carp from the Great Lakes and connecting waters. The Great Lakes Collaboration Implementation Act of 2009 (S. 237) would, among other things, seek enhancement of the dispersal barrier on the Chicago Sanitary and Ship Canal. The Close All Routes and Prevent Asian Carp Today Acts of 2010 (H.R. 4472 and S. 2946) would require the US Army Corps of Engineers to take action with respect to the Chicago waterway system to prevent migration of Asian carp into Lake Michigan by immediately closing the locks at the O'Brien Lock and Dam and the Chicago Controlling Works. Finally, the Asian Carp Action Plan Act of 2010 (H.R. 4604) would require a comprehensive approach to preventing the spread of Asian carp including the installation of additional barriers, application of piscicides (fish-killing chemicals), improvement of locks, and other projects. No action has been taken on these pieces of legislation. On February 9, 2010, though, the Subcommittee on Water Resources and Environment of the House Committee on Transportation and Infrastructure conducted a hearing on the threat posed to the Great Lakes ecosystem by the potential invasion of Asian carp. While no conclusions were reached in this hearing, it did provide a basis for action on the pending legislation.

### **The federal government shifts into action**

The Administration has also been active. The US Army Corps of Engineers has stepped up its efforts, increasing the power on the electrical dispersal barrier, experimenting with piscicides in the Chicago Sanitary & Ship Canal, and increasing its monitoring of the waterway to check for the presence of Asian carp above the barrier site. The Council on Environmental Quality (CEQ) convened a high level meeting on February 8, 2010 at the White House with regional Governors and federal stakeholders to refine a control approach. The CEQ also released its "draft Asian Carp Control Strategy Framework" to serve as a starting point for development and implementation of control measures.

The issue has gone international. First, as noted above, the Province of Ontario joined in the motion filed with the US Supreme Court seeking a preliminary injunction for closure of the Chicago waterway. Recently, the International Joint Commission, a Canada-United States governmental body that monitors issues related to rivers and lakes on the borders between the two nations, announced that it will hold a public meeting in Ypsilanti, Michigan on February 17 to discuss plans and get recommendations on Asian carp control efforts. The attention devoted by the Canadian public and the Canadian Government to this issue can only be expected to increase.

### **Dilemma unresolved**

If there were easy answers to this problem, they would have been found and implemented already. The threat is real. The most effective response – permanently closing the Chicago Sanitary & Ship Canal – would be neither 100% effective nor without high costs. Asian carp can be and have been introduced into the Great Lakes by other vectors, including intentional human action. The economic cost to the shipping industry in the Chicago area and to the numerous industries that rely on the waterborne transport of cargoes in the Illinois and Indiana vicinity would be extremely high if the waterway was closed. This is a classic dilemma, with the two primary alternatives both being highly unpalatable.