

Frequently Asked Questions

January 2012

What initiated the project/research?

In February 2010, in response to the threat of Asian carp, the Great Lakes Commission and the Great Lakes and St. Lawrence Cities Initiative (GLC/CI) formally endorsed separation of the Great Lakes and Mississippi River watersheds as the best long-term solution to safeguard them from aquatic invasive species (AIS). At that time, however, how to achieve separation was unclear and difficult to visualize. Further, the GLC/CI recognized that any separation must accommodate existing uses of the waterways, including stormwater and wastewater control and commercial and recreational navigation. Thus, with funding support from six foundations, the GLC/CI initiated this project to develop alternatives for separation in the Chicago Area Waterway System (CAWS) to prevent the transfer of AIS while also maintaining, if not improving, other aspects of the system, including transportation of goods and people, water quality and flood management.

What did the project accomplish?

The project developed three alternatives for permanently separating the Great Lakes and Mississippi River watersheds via the CAWS. The project validates separation as a viable solution that will safeguard the Great Lakes and Mississippi River from harmful invasive species while accommodating other uses of the waterway system. The project also supports the work of the U.S. Army Corps of Engineers under the Great Lakes and Mississippi River Interbasin Study.

The project report characterizes the existing uses of the system, including the system's limitations and benefits to stakeholders in Northeast Illinois and Northwest Indiana and to the Great Lakes. The report provides specific engineering solutions to restore the natural hydrological divide in the Chicago area while maintaining and enhancing our ability to manage wastewater, control flooding, and accommodate recreational boating and commercial navigation. The report also evaluates the costs, benefits and impacts of the three alternatives. The fundamental conclusion is that separation is not only technically feasible but fully compatible with other current and projected beneficial uses of the waterway system.

How does the report define “separation?”

For purposes of this project “separation” means preventing the transfer of aquatic organisms between the Mississippi River and Great Lakes basins through the Chicago area waterways. The project examined alternatives for separating the basins by constructing physical barriers in the waterway that would stop the flow of water.

Is this project just about Asian carp, or are there other reasons for separation?

The immediate catalyst for the project is the imminent threat that Asian carp will get into the Great Lakes via waterways in the Chicago area. The Chicago waterway system is the only known continuous aquatic pathway between the Great Lakes and the Mississippi River and poses the greatest risk of transfer of Asian carp and other aquatic invasive species. Many experts in the Great Lakes region and beyond agree that separation is the best long-term solution to safeguarding the Great Lakes and the Mississippi River basin from invasive species.

While the threat from Asian carp is the immediate catalyst for the project, we recognize that separation is about more than just Asian carp; it's about how Chicago-area waterways will evolve over the coming century and how residents can benefit from them. Chicago and Northwest Indiana already face significant problems managing water, including flooding, poor water quality, restricted recreational opportunities, and declining commercial shipping. It's time to re-think how the region's waterways are used and how we can improve them. Asian carp didn't create these problems but further illustrate deficiencies with the status quo and the need to explore new solutions. Separation needs to be part of this conversation and part of the investments we make.

Does the report recommend a preferred alternative? Has anyone involved in the project endorsed a separation alternative?

No. The focus of this project was not to build consensus around separation or any of the alternatives that are proposed in the report. Instead, the project provides information and illustrates that separation is a viable solution that will safeguard the Great Lakes and Mississippi River from harmful invasive species while accommodating other uses of the waterway system. It will be up to the public, interested stakeholders and policy and decision makers to decide what actions to take.

How much will your proposed version of separation cost?

The least expensive alternative for separation as outlined in the report is estimated to cost \$3.26 billion - \$4.27 billion; this estimate includes \$140 million for four barriers, which represents 3% of the total investment. Other costs are associated with a suite of infrastructure improvements that are necessary to achieving separation successfully. This investment is anticipated to result in not only the prevention of AIS movement, but also increased capacity to manage flooding, improved water quality, and opportunity in the transportation sector to handle new cargos.

What does the report outline as the benefits of separation?

The primary benefit of separation is preventing the introduction and spread of invasive species. Invasive species are estimated to cost over \$200 million a year in the Great Lakes alone, not including their costs for other parts of the country. For example, almost \$20 million a year is spent to control the invasive sea lamprey, with no end in sight. Separation will help prevent future invasive species that could add to these costs over time. Additional benefits such as improved water quality, reduced flooding and enhanced transportation and recreational opportunities, will be realized if separation is implemented in combination with other infrastructure improvements, as proposed in the report. Similar to other major infrastructure projects, implementation of separation will also generate jobs from the construction and operating activities of the new infrastructure. These benefits are explained in detail in the report.

How long will it take to achieve separation? Won't it be too late to stop Asian carp?

Each of the alternatives for separation outlined in the final report includes a timeline for implementation that extends through 2029 (concurrent with the completion of the Tunnel and Reservoir Plan (TARP)). These timelines include both the construction of the barriers as well as other infrastructure investments that will make sure separation is successful. Given the size and complexity of the Chicago Area Waterway System, it will take some time to implement an effective plan to achieve separation while making other investments to accommodate other uses of the system. In the meantime, it's vital that we take effective short-term action to keep Asian carp out of the Great Lakes.

How did the project address the many complex issues and stakeholder interests related to the Chicago Area Waterway System?

The project was structured to ensure a credible range of potential solutions was investigated and that benefits and costs of those solutions were fully understood. It was conducted under the leadership of an Executive Committee comprised of Gov. Pat Quinn, Illinois; Gov. John Kasich, Ohio; Mayor Rahm Emanuel, Chicago, Ill.; and Mayor George Heartwell, Grand Rapids, Mich. The Great Lakes Commission and the Great Lakes and St. Lawrence Cities Initiative assembled a multidisciplinary team of highly qualified experts to identify feasible alternatives for achieving separation and evaluating the costs and impacts. A peer review team of independent experts was convened twice during the project to review the work being carried out by the consultant team and provide feedback. The project also engaged an advisory committee of over 30 organizations with broad representation from key interest groups to provide guidance and perspectives on the project. A resource group of governmental and quasi-governmental agencies with a direct interest in the project was also established. Guidance and input provided through this structure has helped to ensure all appropriate issues are considered.

Will separation negatively impact businesses in and around Chicago, such as shipping?

The goal is to have a positive impact. Separation will have implications for many uses of the system, including commercial shipping, and the project has carefully assessed them. The report identifies opportunities to improve current uses of the waterways while also providing a permanent solution to the threat posed by Asian carp and other aquatic invasive species. If done right, separation will be accomplished in a way that accommodates and enhances the benefits currently provided by the Chicago Area Waterway System.

Why should we be worried about Asian carp? What would happen if they establish in the Great Lakes?

Aquatic invasive species are a significant threat to the ecological and economic health of the Great Lakes; today, the most imminent threat is Asian carp. Asian carp are highly mobile, reproduce and grow quickly, and consume massive quantities of food, all of which enables them to compete against—and ultimately displace—valuable native species. One species, the silver carp, pose a danger to people because they jump out of the water when startled. Several studies completed to date indicate that the environmental suitability of the Great Lakes for bighead carp and silver carp is very high;ⁱ some areas of the Great Lakes have sufficient food to support populations of these fish;ⁱⁱ and at least 22 tributaries in the Great Lakes basin are potentially suitable for spawning by Asian carp.ⁱⁱⁱ In addition, a study focused on Lake Erie conducted by the U.S. Geological Survey found that the lake's largest tributaries – including the Maumee, Sandusky and Grand rivers – provide hospitable environments for Asian carp to reproduce and establish populations.^{iv} Taken collectively, this research demonstrates that the risk of Asian carp establishing populations in the Great Lakes basin is significant, potentially severe, and certainly very real.

How can we be sure Asian carp aren't already in the Great Lakes?

Leading scientists, such as those who developed environmental DNA (eDNA) testing for Asian carp, have not found evidence that a significant population of Asian carp have made it into the Great Lakes basin. In addition, there are ongoing fishing and monitoring operations being conducted, with only one Asian carp found past the electric barrier system on the Chicago Sanitary and Ship Canal to date. However, there continues to be positive tests for Asian carp eDNA in the Chicago area waterways indicating the presence of Asian carp close to Lake Michigan and underscoring the need for a permanent, long-term solution.

Can't Asian carp enter the Great Lakes through other pathways?

We are concerned about all pathways through which Asian carp could enter the Great Lakes, but this project is focused on the most urgent threat: the unrestricted access that Asian carp have to swim from the Mississippi River system into the Great Lakes system. Other hydrologic connections between the Great Lakes and Mississippi River watersheds, such as the Maumee River leading to Lake Erie, are being studied by the U.S. Army Corps of Engineers through the Great Lakes and Mississippi River Interbasin Study. In addition, there are important ongoing efforts to prevent the introduction of Asian carp through other pathways such as bait, live food fish and recreational activities. Those efforts are outlined in the federal Asian Carp Control Strategy Framework, which can be found online at asiancarp.us.

Isn't the U.S. Army Corps of Engineers already doing a similar study? How is this project different?

One strategic objective of the project was to support and complement the work of the Corps on the Great Lakes and Mississippi River Interbasin Study (GLMRIS). There are two primary differences between this project and GLMRIS, 1) this project is focused on the Chicago area waterways while the Corps is investigating a number of hydrologic connections (including the Chicago area waterways); and 2) this project is focused on physical, hydrologic separation as the best permanent solution while the Corps is looking at a range of alternatives and technologies. Throughout the conduct of the project, there has been close coordination and information sharing between the project team and the Corps.

Why do we need separation when we have the electric barrier on the Chicago Sanitary and Ship Canal? Isn't the federal government already implementing a strategy to keep carp out of Lake Michigan?

The electric dispersal barrier system provides an important, interim mechanism for keeping Asian carp from migrating toward Lake Michigan. Similarly, the Asian Carp Control Strategy Framework currently being implemented by federal and state agencies includes a variety of important short-term measures to monitor for and control Asian carp. While necessary, these measures have limitations. Many experts in the Great Lakes region and beyond agree that separation is the best long-term solution to safeguarding the Great Lakes and Mississippi River basins from invasive species. Other technologies, such as electric barriers, are less reliable, may not work on all sizes of fish, will require ongoing maintenance and will be prone to failure, and likely will be more expensive in the long term.

If Asian carp are so close to Lake Michigan, we need action, not more studies. What are the next steps?

There is no doubt that we face an urgent need to keep Asian carp out of the Great Lakes. This must include both short-term and long-term actions. In the short-term, federal and state agencies are implementing a comprehensive control strategy to monitor for and control the forward movement of Asian carp toward Lake Michigan. In the long-term, we need a permanent solution that is effective, sustainable, and that accommodates benefits currently provided by the Chicago Area Waterway System. This project has outlined potential solutions that we can focus our energies on moving forward. Many entities bear responsibility for the problems we face and each must step up and be part of the solution to them. Local solutions in the Chicago area will have regional implications and will require political support from neighboring states and Congress.

ⁱ Herborg, L-M., Mandrak, N.E., Cudmore, B., and Maclisacc, H.J. 2007. Comparative distribution and invasion risk of snakehead and Asian carp species in North America. *Canadian Journal of Fisheries and Aquatic Sciences* 64:1723-1735.

ⁱⁱ Cooke, S.L. and W.R. Hill. 2010. Can filter-feeding Asian carp invade the Laurentian Great Lakes? A bioenergetic modeling exercise. *Freshwater Biology* 55:2138-2152.

ⁱⁱⁱ Kolar, C.S., Chapman, D.C., Courtenay, W.R., Housel Jr., C.R., Williams, J.D., and Jennings, D.P. 2007. Bigheaded carps: a biological synopsis and environmental risk assessment. *American Fisheries Society Special Publication* 33. Bethesda, MD.

^{iv} Kocovsky, P.M., D.C. Chapman, and J.E. McKenna. 2012. Thermal and hydrological suitability of Lake Erie and its major tributaries for spawning of Asian Carps. *Journal of Great Lakes Research* doi: 10.1016/j.jglr.2011.11.015.