

Envisioning a Chicago Area Waterway System for the 21st Century

Project Factsheet

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Project Overview

The Great Lakes Commission and the Great Lakes and St. Lawrence Cities Initiative are leading a project to develop and evaluate options for separating the Mississippi River and Great Lakes watersheds to prevent the transfer of aquatic invasive species via the Chicago Area Waterway System (CAWS) while improving transportation, water quality and flood management. The concept is referred to as “ecological separation.” With support from a team of consultants, the project will provide a detailed evaluation of potential options for ecological separation, including their costs, benefits and impacts.

Preventing AIS Movement between the Great Lakes and Mississippi River

For more than a decade federal and state agencies have taken action to prevent Asian carp from reaching Lake Michigan. More than 180 non-native aquatic species have become established in the Great Lakes, causing economic losses estimated at \$5.7 billion annually. Asian carp are only the latest—and potentially the most damaging—invasive species poised to invade the Great Lakes. Because they are highly mobile, reproduce quickly and consume massive quantities of food, Asian carp could have devastating impacts on the Great Lakes and threaten the region’s sport fishing industry, valued at \$7 billion annually. Similarly, AIS from the Great Lakes—such as zebra mussels and round gobies—have damaged the Mississippi River ecosystem.

Asian carp have been migrating northward from the Mississippi and Illinois rivers and threaten to enter Lake Michigan via man-made waterways in the Chicago area. A key line of defense is a dispersal barrier system operated by the Army Corps of Engineers on the Chicago Sanitary and Ship Canal. In early 2010 new DNA monitoring techniques detected evidence of Asian carp beyond the dispersal barrier and in June a live Asian carp was captured in Lake Calumet. In response, a comprehensive control strategy is being implemented. Some have called for closure of navigation locks in the Chicago area as a temporary control measure. Those opposed to lock closure cite economic losses from disruption of commercial and recreational boat traffic, and the need to open the locks to prevent flooding.

Finding a Permanent Solution

Many observers in the Great Lakes region believe that a long-term and permanent solution is needed, and that

this must entail separating the Great Lakes and Mississippi River watersheds, beginning in the Chicago area. Such a solution would protect these two great watersheds from the transfer of all aquatic invasive species between the basins, not just Asian carp. Separation would avoid continued reliance on control measures that are likely to fail while at the same time accommodating the substantial benefits currently provided by the CAWS.

Ecological Separation—the Preferred Solution

Many observers agree that ecologically separating the Great Lakes and Mississippi River is the preferred solution to protect both watersheds from damaging aquatic invasive species. Eco-separation is a relatively simple concept: it means preventing the interbasin transfer of aquatic organisms through waterways. It likely will entail using physical barriers to prevent the movement of aquatic organisms—at all life stages—via canals and waterways between the watersheds. How to achieve this goal, however, is unclear and difficult to visualize—and thus is the purpose of the project.

Ecological separation will impact a complex system of rivers, canals and navigation structures used for commercial and recreational boating, wastewater management, flood control and emergency response. Achieving eco-separation likely will require modifying existing water infrastructure or building physical barriers to stop the flow of water while maintaining the system’s benefits. Currently eco-separation is a concept but not a readily conceivable reality.

If done right, eco-separation will be accomplished in a way that improves commercial transportation and water quality, and ensures that the flood control, tourism and recreational benefits currently provided by the CAWS are accommodated and enhanced.

Project Description:

Developing Options for Eco-Separation

To address this challenge, the Great Lakes Commission (GLC) and the Great Lakes and St. Lawrence Cities Initiative (Cities Initiative) are leading a project to develop and evaluate options for ecologically separating the Mississippi River and Great Lakes watersheds in the CAWS. The project will evaluate potential options for eco-separation, including their costs, benefits and impacts. These options should prevent the transfer of aquatic invasive species while also maintaining, if not improving, other aspects of the system, including transportation of goods and people, water quality

and flood management. This effort will advance two strategic objectives:

- Evaluate the economic, technical, and ecological feasibility of eco-separation by illustrating options to achieve it, along with associated costs, impacts and potential benefits of a re-engineered hydrologic system for greater Chicago; and
- Support and complement the work of the Army Corps of Engineers under their Great Lakes and Mississippi River Inter-Basin Study by defining, assessing and vetting options for ecological separation.

The initiative will fully characterize baseline conditions for current uses, quantifying the existing system's costs and benefits to stakeholders in Northeast Illinois and Northwest Indiana and the Great Lakes in general. A key outcome will be cost estimates for implementing the various options along with the costs (or risks) of not implementing them, including the cost of ongoing control and management activities. Another key outcome will be detailed analyses of the benefits to Chicago and the region of a redesigned waterway system.

Final products from the initiative will include:

- **Technical reports** on key aspects of the CAWS and impacts associated with the options for eco-separation evaluated under the project. The technical reports will focus on issues such as hydrology, transportation, economics and environmental benefits and impacts.
- A **detailed integration report** consolidating information from the technical reports and delineating options for eco-separation and evaluating their costs, benefits and impacts.
- A **concise summary report** conveying the project results to policymakers and the general public.

The GLC and the Cities Initiative will manage the overall project and will hire technical consultants with expertise in the key areas to be addressed in the technical reports.

Project Management and Organization

The GLC and the Cities Initiative will manage the project with assistance from an Executive Committee of state and city representatives and the following entities:

- **Consultant Team:** HDR Engineering, Inc. will serve as lead consultant for the project, with support from an array of premier specialty firms that bring additional skill sets needed to identify and fully evaluate potential options for separation. HDR has more than 35 years of experience in the Chicago area working on complex projects involving, structural engineering, multi-modal transportation, economics, fisheries, hydraulics/hydrology, flood control, and public outreach. The consultant team will be responsible for developing the technical reports.
- **Advisory Committee:** This committee will provide guidance and input on the project, with an emphasis on developing and evaluating options for separation. It

includes stakeholders from the Great Lakes region, with an emphasis on interest groups in the Chicago area.

- **Resource Group:** This group, made up of governmental and quasi governmental entities with a direct interest in the project, will observe and be aware of project proceedings; provide information about related proceedings for which they have responsibility; and provide other input that will inform the project and help achieve a successful outcome.

Project Schedule and Timeline

The project is expected to take 18 months to complete, beginning in July 2010. It will include three phases:

- **Phase I: Hire consulting team and establish Executive Committee and Advisory Committee (July-December 2010):** During this phase the lead consultant and sub-consultants will be selected and a detailed study plan will be developed. The Advisory Committee will convene to provide advice on the study plan and the process for consultation throughout the project.
- **Phase II: Identify and evaluate options for eco-separation (January-October 2011):** During this phase a preliminary array of eco-separation options will be developed and evaluated. Stakeholders will help define criteria for selecting and evaluating options.
- **Phase III: Narrow and evaluate options, run models and prepare final reports (October-December 2011):** During this phase the range of options will be narrowed to a minimum of three and additional evaluation and modeling will be conducted. The final integration and summary reports will be prepared.

Stakeholder Engagement

The project will engage a broad stakeholder group to ensure a credible range of potential solutions is investigated and that benefits and costs of solutions are fully understood. The Chicago area (including Northwest Indiana) and the broader Great Lakes region will have a substantial interest in the project. Quantifying the costs and benefits of the CAWS and fully characterizing the potential benefits and impacts of ecological separation will require extensive communication with stakeholders. The project will be conducted in close consultation with an Advisory Committee with representation from key interest groups.

Project Funding

Project funding has been secured from six regional entities: the Joyce Foundation, the C.S. Mott Foundation, the Great Lakes Fishery Trust, the Great Lakes Protection Fund, the Wege Foundation and the Frey Foundation.

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