

# Envisioning a Chicago Waterway System for the 21st Century

## Project Factsheet

July 2010

### Project Overview

The Great Lakes Commission and the Great Lakes and St. Lawrence Cities Initiative are leading an initiative to develop and evaluate scenarios for separating the Mississippi River and Great Lakes watersheds to prevent the transfer of aquatic invasive species (AIS), with a focus on the Chicago Area Waterway System. The concept is referred to as "ecological separation." With support from a team of consultants, the project will provide a detailed evaluation of potential scenarios 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, invasive species 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 the presence 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.

### The Emerging Consensus: Find a Permanent Solution

A regional consensus is emerging 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, eventually, will fail, while at the same time accommodating the substantial benefits currently provided by the Chicago Area Waterways System.

### 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, ecological separation would 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 Chicago Area Waterways System are accommodated and enhanced.

### Project Description: Developing Scenarios 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 scenarios for ecologically separating the Mississippi River and Great Lakes watersheds in the Chicago Area Waterway System (CAWS). The project will evaluate potential scenarios for eco-separation, including their costs, benefits and impacts. It will advance two strategic objectives:

- Evaluate the economic, technical, and ecological feasibility of eco-separation by illustrating scenarios 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 scenarios for ecological separation.

The project 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 scenarios for eco-separation evaluated under the project. The technical reports will focus on issues such as hydrology (including wastewater and stormwater), transportation, economics and environmental benefits and impacts.
- A **detailed integration report** consolidating information from the technical reports and delineating scenarios 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:

- **Lead Consultant:** An internationally-recognized consulting firm with strong experience managing multi-disciplinary engineering and environmental planning studies will assemble a project team with specialists in the key issues to be addressed in the technical reports.

- **Sub-Consultants:** These will be experts in key disciplines who will be responsible for preparing technical reports on critical issues.
- **Stakeholder Advisory Committee:** This committee will provide guidance and input on the project, with an emphasis on developing and evaluating scenarios for eco-separation. It will include stakeholders from the Great Lakes region, with an emphasis on interest groups in the Chicago area.

### **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 stakeholder 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 stakeholder advisory committee will convene to provide advice on the study plan and the process for consultation throughout the project.
- **Phase II: Identify options and scenarios for eco-separation (January-October 2011):** During this phase a preliminary array of eco-separation scenarios will be developed and evaluated. Stakeholders will help define criteria for selecting and evaluating scenarios.
- **Phase III: Narrow options, evaluate scenarios, run models and prepare final reports (October-December 2011):** During this phase the range of scenarios 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 the stakeholder advisory committee with broad representation from key interest groups.

### **Project Funding**

Funding for the project is being sought from a group of funders in the Great Lakes and Mississippi River region. The amount of funding ultimately secured for the project will affect the scope of work and level of analysis.

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