



**CESU Final Report Summary for
Upper Mississippi River System Ecosystem Restoration Objectives 2009 - W912HZ-10-2-0012**

Purpose: Report is the final product of a planning process initiated in 2008 for the purpose of identifying areas for new restoration projects and identifying knowledge gaps at a system scale. It will serve as a technical basis for investment decisions through 2013 and as a backdrop for the formulation of specific restoration projects and their adaptive management (AM) components. Follow-on cycles of reach planning will be completed in 2013 and every 4 years thereafter as part of the AM process. The Reach Planning process enhances prior planning efforts by: incorporating results from previous planning efforts; utilizing the most up to date knowledge about the UMRS; linking objectives at the project and reach scales with essential ecosystem characteristics; encompassing AM at multiple scales; and adopting a system orientation that will serve the interests of multiple programs and entities.

Location: 5 states along the Upper Mississippi River – Iowa, Illinois, Minnesota, Missouri, Wisconsin

Methods: This scale and complexity of planning would not be possible without highly developed interorganizational arrangements for collaboration and partnership. The Regional Support Team, a regional team of Corps river ecologists and engineers, served as the interface with the Science Panel and program managers. The Regional Support Team led interagency planning teams drawn from the Fish and Wildlife Work Group; the Fish and Wildlife Interagency Committee; the River Resources Action Team; and the Illinois River Work Group. The Interagency River Teams, which included the River Resources Forum; the River Resources Coordinating Committee; and the River Resources Action Team – Executive Component, endorsed recommendations appropriate to their reaches of the river. The Upper Mississippi River Basin Association was kept informed throughout the process. The Navigation Environmental Coordinating Committee and the Environmental Management Program Coordinating Committee endorsed recommendations, insuring a holistic perspective for integrated program management.

Results: The first five recommendations consider ecosystem processes or structure objectives, the others consider management actions applicable system-wide or regionally.

- Restoring stage variation keyed to natural discharge variability should benefit shallow littoral and wetland habitats in the Upper Impounded Reach. Advance dredging can be conducted to accommodate drawdowns simulating summer low flow, while also maintaining the navigation channel in much of the Upper Impounded Reach. Small-scale drawdowns can also be applied in individual backwater lakes.

- Partial restoration of more natural hydrologic connectivity is desirable throughout the system. In the Northern reaches of the UMRS this often involves reducing hydrologic connectivity between channels and backwaters. In the Southern reaches of the UMRS this will involve increasing connectivity between channels and floodplains.
- Reducing constituent transport (i.e., sediment and nutrients) will benefit aquatic habitat system-wide.
- Structural diversity (geomorphic pattern) is an important system-wide geomorphic objective that can be achieved through multiple projects. Planners may consider incorporating specific types of geomorphic features and habitat patch types into future restoration projects to restore a more complete pattern of river and floodplain habitats.
- Land conversion from crops to native communities has large ecosystem benefits. Long term land use improvement plans are helpful because they can be used to target resources effectively when opportunities like flood buyouts, year-end surpluses, or stimulus spending arise.
- A mixed use floodplain management plan can achieve multiple benefits within the existing levee and drainage district infrastructure. Integrated floodplain management can provide increased ecosystem benefits and may help manage risk for economic interests and landowners.
- Secondary channels are critically important off-channel habitat throughout the UMRS. In the Middle Mississippi Reach and Alton Pool secondary channels represent some of the limited remaining aquatic habitat outside the main channel. These secondary channels should be protected and restored.
- Opportunities for restoring tributary confluences are, by nature, site-specific projects, but there are different restoration opportunities among reaches. Managers have sought to increase the diverse habitat provided by natural tributary deltas, so active deltas need to be protected. Channelized tributaries are a more common problem in the South, but occur throughout the river.

Researchers: Charles P. Spitzack and Marvin E Hubbell, USACE. University of Iowa.

Prepared For: USACE, U.S. Army Engineer Research and Development Center.

CESU: Great Rivers