

Executive Summary

The Upper Mississippi River System (UMRS), is defined as the reach of the Upper Mississippi River between Minneapolis, Minnesota, and Cairo, Illinois; the entire length of the Illinois River; and the navigable portions of the Minnesota, St. Croix, Black, and Kaskaskia Rivers. The UMRS encompasses one of the world's few large river-floodplain ecosystems. Its complex mosaic of flowing main and side channels, floodplain lakes and forests, backwaters, and wetlands provides all or part of the food and habitat requirements of over 485 species of fish, mussels, birds, mammals, amphibians, and reptiles. Over 10% of these species are classified as rare, threatened, or endangered in one or more of the five UMR basin States (Illinois, Iowa, Minnesota, Missouri, and Wisconsin), and nine species are federally listed as threatened or endangered. More than 40% of North America's migratory waterfowl and shorebirds depend upon the food resources and other life requisites (shelter, nesting habitat, etc.) that the UMRS provides. This diversity and abundance of species is supported in part by an extensive system of State and Federal land holdings that are managed for natural resource purposes. The U.S. Fish and Wildlife Service manages the Upper Mississippi and Illinois River National Wildlife and Fish Refuges and the Mark Twain, Trempealeau, and Minnesota Valley National Wildlife Refuges, which together encompass approximately 310,000 acres. The States of Illinois, Iowa, Minnesota, Missouri, and Wisconsin manage over 190,000 acres for fish and wildlife purposes at more than 80 sites along the UMRS.

The UMRS supports many economic activities of regional and national importance. In 1995, shippers transported approximately 126.3 million tons of cargo on the system's 1,300 commercially navigable miles. Grain, petroleum products, and coal are the leading commodities shipped, with farm products accounting for approximately half of the total tonnage. Millions of visitors annually come to the river to: pursue boating, swimming, camping, hunting, and fishing opportunities; visit its many historic towns and archeological sites; or just enjoy its natural beauty. Many of the region's more than 24 million residents rely on the Upper Mississippi and its tributaries for municipal and industrial water supplies, power generation and power plant cooling, and waste water assimilation. The river system also provides opportunities for extractive industries such as commercial harvesting of fish and mussels and sand and gravel mining operations.

In the 1986 Water Resources Development Act, Congress clearly recognized the uniqueness of the UMRS by declaring it to be "a nationally significant ecosystem and a nationally significant commercial navigation system." Consistent with that recognition and as part of the same legislation, Congress authorized both the construction of the second lock at Locks and Dam 26 and a multiple element program that has come to be known as the Upper Mississippi River System - Environmental Management Program (UMRS-EMP). The development and submittal of this Report to Congress was specifically mandated in the EMP's authorizing legislation.

Implementation of the EMP is providing many important outputs, including:

- Restoration, protection and enhancement of critical aquatic, wetland, and floodplain habitat types throughout the UMRS.
- Systemic resource monitoring, data analysis, and applied research resulting in an increased understanding of both the regulated and open reaches of the UMRS.
- Improved communications and expanded partnership among the many UMRS management agencies, interest groups, and the general public.
- A model program applicable to other river systems and water resources.

The EMP is truly a unique, multi-participant program consisting of three major elements (Habitat Rehabilitation and Enhancement Projects [HREPs], Long Term Resource Monitoring [LTRM], and Computerized Inventory and Analysis [CIA] [note: the LTRM and CIA have come to be jointly referred to as the LTRMP]) dedicated to the study and restoration of the natural resources of the UMRS. To date, HREP construction has resulted in over 28,000 acres of aquatic, wetland, and floodplain habitat being restored, protected, or enhanced. When the 14 HREPs currently under construction are completed, this area will more than double to nearly 68,000 acres. It will increase to over 97,000 acres upon implementation of the 12 projects currently being designed. The LTRMP monitoring and research activities are providing invaluable information about the UMRS. New levels of partnership among the many river constituencies are being realized. The EMP is fundamental to successful comprehensive management of the system.

This report was developed in consultation with the many Federal and State agencies and non-governmental organizations that participate in the implementation of the UMRS-EMP. It presents the cumulative results of an extensive program review and evaluation process. Program outputs, specifically benefits accrued to the nation as a result of the planning, design, construction, and evaluation of multiple habitat rehabilitation and enhancement projects and the accomplishment of system-wide resource monitoring and applied research activities, are identified and assessed.

The following five overarching conclusions about the UMRS and the EMP were reached during the development of this report:

- The EMP has come to be the single most important and successful program authorized by the Federal government for the purposes of understanding the ecology of the UMRS and sustaining its significant fish and wildlife resources.
- The degradation and loss of UMRS aquatic, wetland, and floodplain habitat can be substantially offset by the application of habitat restoration, protection, and enhancement measures. Such measures must be based upon quantitative and qualitative goals that are compatible with the multiple purpose use of the resource.
- A habitat needs assessment (HNA) should be completed to establish a technically sound, consensus-based management framework or “blue print” for the restoration, protection, and enhancement of the UMR ecosystem. This assessment would begin to identify, at system, pool, and reach levels, long term habitat requirements. It would also serve to refine the focus of future system monitoring and research activities.
- Increasingly effective management of regulated river systems, such as the UMRS, is dependent upon long term monitoring to detect system changes and applied research to understand system dynamics and relationships.

- Implementing the EMP has resulted in an unprecedented level of communication and cooperation among the Federal and State partner agencies responsible for UMRS management; however, greater public involvement, outreach, and education also are needed.

Conclusions reached specific to the LTRMP and HREP program elements include:

The Long Term Resource Monitoring Program (LTRMP) ...

- Is providing meaningful characterization of system conditions and identification of long term resource trends.
- Has established and is maintaining the institutional framework and infrastructure necessary to conduct systemic monitoring and applied research at levels not previously possible.
- Is increasing accessibility of UMRS data and information.
- Has and is continuing to adapt to evolving management data and information needs and advancements in ecological science and technology.
- Is playing an increasing role in the planning, design, and evaluation of UMRS habitat restoration, protection, and enhancement projects.

The Habitat Rehabilitation and Enhancement Projects (HREPs) ...

- Have directly restored, protected, or enhanced over 28,000 acres of critical UMRS fish and wildlife habitat. By completing implementation of the 26 projects currently being designed or constructed, the number of acres of habitat improved will increase to over 97,000.
- Are providing unique opportunities to demonstrate experimental and innovative approaches to habitat restoration.
- Have met, if not exceeded in most cases, their physical, chemical, and biological design objectives.
- Have become increasingly cost-effective as evolving approaches to their planning, design, and construction are applied.
- Are site-specific improvements that provide important system-level ecological benefits.
- Have been, to date, essentially confined to lands already under public ownership.
- In many cases, are adversely affected by sediment delivery from immediately adjacent uplands.

Additional programmatic conclusions included:

- Charters for the EMPCC and LTRMP Analysis Team, reflecting greater involvement and stronger empowerment of the EMP partner agencies, need to be established.
- The EMP would benefit from increased participation by all river constituencies.

The EMP authorization also contained three minor program elements—recreation projects, economic impacts of recreation, and traffic monitoring. These elements have either been successfully completed or are now being carried out under other authorities.

Three program alternatives are considered in this report. They were formulated and assessed utilizing a multi-participant approach. The Program's partner agencies, other Federal and State governmental agencies, and several interested non-governmental organizations all contributed to the process of defining and evaluating these alternatives:

1. **End EMP.** No action to extend or otherwise change the existing program authorization would be taken, nor would any significant modifications of existing program implementation procedures be pursued. The current program authorization would be allowed to end as of fiscal year 2002. Ramping down of the program would be initiated immediately to allow completion of habitat rehabilitation and enhancement projects already in advanced stages of design or awaiting construction. Activities of the Long Term Resource Monitoring Program would be increasingly directed towards data analysis in preparation for program termination.
2. **Continue EMP.** The program, as currently authorized, would be reauthorized for an additional 15 years (2003-2018). Program funding levels and implementation roles and responsibilities would remain unchanged. Program capabilities and annual outputs would continue to decline over time as the erosive effects of inflation on the Program's fixed funding level are realized.
3. **Continue and Modify EMP.** The EMP would be reauthorized as a continuing authority with a requirement for formal Congressional reviews of the program (Reports to Congress) on a 6-year cycle. Currently authorized Program funding levels for the LTRMP and HREP program elements would be increased by a factor of 1.75 to offset the effects of inflation since program inception. The Program would be periodically re-examined based upon future program evaluations and habitat needs assessments. Under this alternative, additional habitat projects would be implemented and an expanded program of monitoring and research carried out.

Alternative 3, **Continue and Modify EMP**, is the preferred alternative. It includes the following proposed program implementation modifications and recommendations to Congress:

Proposed Program Implementation Modifications

- Complete a habitat needs assessment for the UMRS.
- Delegate to the District level of the U.S. Army Corps of Engineers approval authority for habitat projects costing \$1 million or less.
- Delegate to the Division level of the U.S. Army Corps of Engineers approval authority for habitat projects costing \$5 million or less.
- Review and possibly revise policies and guidance addressing acquisition of real estate interests (fee title or easement) from willing sellers.
- Review and possibly revise policies and guidance addressing upland sediment controls.

- Continue the important pre- and post-habitat project monitoring and evaluation efforts.
- Continue to implement a mix of small- and large-scale habitat projects with increasing emphasis on the use of natural river processes and innovative measures.
- Identify factors that may be limiting program innovation and review and revise any potentially constraining policies and guidance.
- Facilitate development of charters for the EMPCC and Analysis Team.
- Increase the level of public involvement in program planning and implementation.

Recommendations to the United States Congress

1. Establish a continuing authority for the UMRS-EMP with a requirement for Reports to Congress every 6 years (to coincide with Water Resources Development Act legislation).
2. Review the current authorization so as to formally merge the Long Term Resource Monitoring and Computerized Inventory and Analysis elements of the program into a single element called the Long Term Resource Monitoring Program.
3. Reauthorize the program at a total annual Federal funding level of \$33.17 million.
 - \$22.75 million/year for the protection, restoration, and improvement of Upper Mississippi River System aquatic, wetland, and floodplain habitats (habitat rehabilitation and enhancement projects).
 - \$10.42 million/year for monitoring, data analysis, and applied research (long term resource monitoring program).
4. Continue program cost-sharing requirements as described in the Water Resources Development Act of 1986
 - 100% Federal funding of HREPs “on lands managed as a national wildlife refuge”; 75% Federal/25% non-Federal cost sharing of all other HREPs

and recommended in this report

- Allow up to 80% of the 25% non-Federal share of cost-shared HREPs to be in the form of in-kind services.
- Allow non-Federal interests to be reimbursed, subject to the availability of funds, for the Federal share, without interest, of studies, design documents, and implementation costs of approved HREPs.

This report and its appendices provide, both quantitatively and qualitatively, the data, information, professional judgments, and determinations necessary to reach prudent, defensible decisions as to the strengths and weaknesses of the current UMRS-EMP and its future.

The conclusions, proposed program implementation modifications, and recommendations to Congress presented in this report were developed in consultation with the program's partners, other appropriate government agencies, various non-governmental organizations, and the general public. The preferred alternative, as identified, for the future of the UMRS-EMP is broadly supported by the UMRS' many stakeholders. Its full implementation will assure that the future EMP is of the magnitude, standing, and duration necessary to: meet the long term data and information needs of river managers and users; offset the continuing degradation and loss of UMRS aquatic, wetland, and floodplain habitats; support emerging efforts to more comprehensively manage the UMRS and its basin; and ultimately, fulfill public expectations of a healthy, sustainable UMR ecosystem capable of accommodating equally important recreational and economic uses.