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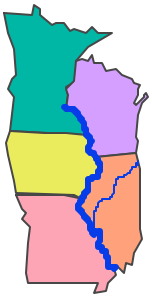


MONTHLY STATUS REPORT
SEPTEMBER 2003
UPPER MISSISSIPPI RIVER – ILLINOIS WATERWAY SYSTEM NAVIGATION STUDY

PUBLIC MEETINGS OCTOBER 20-30, 2003

PURPOSE OF MEETINGS:

1. Describe study background and where we are in the process.
2. Present results of preliminary economic and environmental evaluations for navigation improvements and ecosystem restoration alternatives.
3. Describe the next steps in the process leading to a final Draft Feasibility Report in April 2004.
4. Obtain feedback on the process and identified alternatives.

The materials contained in this packet provide a summary of the economic and environmental evaluations for both navigation improvements and ecosystem restoration alternatives. The Corps has not yet made any conclusions or decisions on what recommended plan will result from this study. The Corps will use input from these public meetings as one factor that determines the acceptability of the alternatives to meet the future needs of the river system. Acceptability along with other criteria will be used to develop a tentative integrated recommended plan that will be documented in the Draft Feasibility Report scheduled for completion in April 2004. This report will under go a 90-day public and agency review including another set of public meetings in May 2004.

BACKGROUND: The Upper Mississippi River-Illinois Waterway (UMR-IWW) System Navigation Feasibility Study has been restructured in 2001 to give equal consideration of fish and wildlife resources along with navigation improvement planning. The overall vision of the study team and stakeholders is to identify a recommended plan which will ensure that the UMR-IWW System continues to be an effective transportation route and a nationally treasured ecological resource. A key foundation of the restructured study is the emphasis on collaboration among Federal and State agencies, non-governmental organizations, and the general public. Collaboration is an important mechanism for increasing cooperation and communication, fostering trust and understanding among participants, and allowing a greater set of interests to be met.

STUDY PROCESS: The Restructured Upper Mississippi River and Illinois Waterway System Navigation Feasibility Study is being conducted to the greatest extent possible, following the Corps of Engineers' traditional six-step planning process (Figure 1). The combining of navigation efficiency and ecosystem restoration alternatives into a single dual-purpose (integrated) alternative plan will ensure balanced consideration to the goals and objectives established. The principal navigation problem addressed by this study is the potential for significant traffic delays on the UMR-IWW Navigation System within the 50-year planning horizon. The principal environmental problems addressed by this study are changes to ecosystem structure and function imposed by the operation and maintenance of the existing 9-foot Channel Navigation Project, and potential navigation system improvements. The primary opportunities are to reduce or eliminate commercial traffic delays and improve the national and regional economic conditions while restoring, protecting, and enhancing the environment. The goal of the

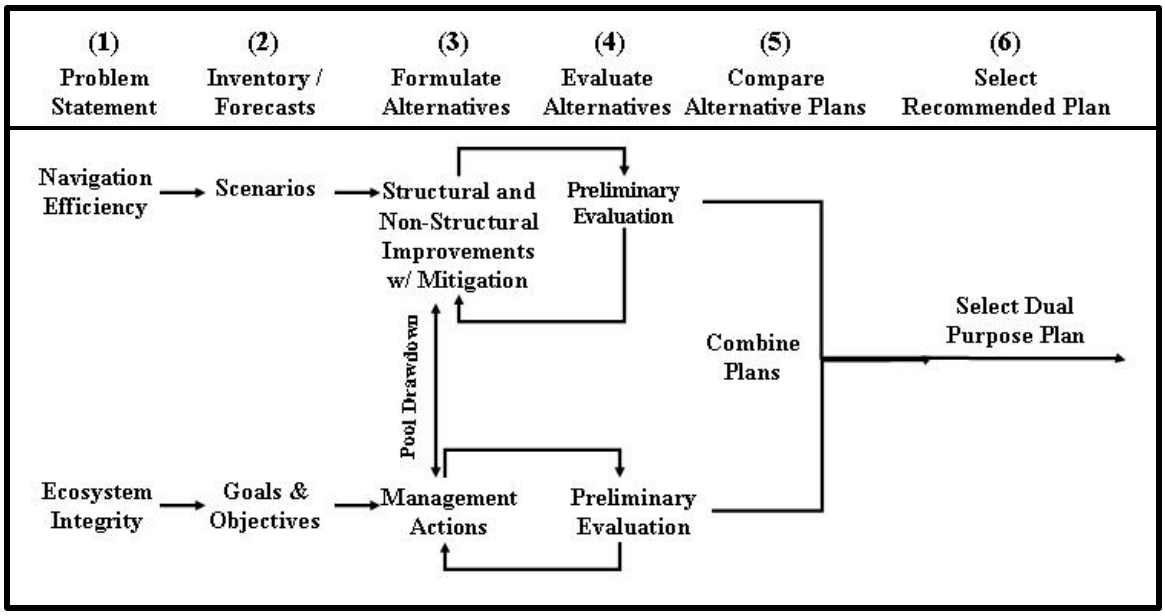
feasibility study is to outline an integrated plan to ensure the economic and environmental sustainability of the UMR-IWW Navigation System. To fully address these feasibility study issues, the study team has identified the following three planning objectives:

a.) Recommend measures to improve operational efficiencies of the Locks, thereby reducing delays at locks and providing for the future transportation needs on the UMR-IWW.

b.) Recommend measures to address the ongoing effects of the existing 9' channel project and cumulative effects, with a goal of attaining an environmentally sustainable navigation system.

c.) Assure that any recommended measures are consistent with protecting the Nation' s environment; avoiding, minimizing, or mitigating significant environmental, cultural, or social impacts.

Figure 1. Formulation Process for the UMR-IWW System Navigation Feasibility Study.



REMAINING MILESTONES AND STUDY SCHEDULE:

?	**NRC Review on Restructuring**	**Sep-Oct 03**
?	**Public Meetings**	**Oct 03**
?	**Alternative Formulation Briefing**	**Jan 04**
	– **Tentative Recommended Plan Identified**	
?	**Draft Feasibility Report**	**Apr 04**
?	**NRC Review of Draft Feasibility Report**	**Apr-Jun 04**
?	**90 day Public Review**	**Apr-Jun 04**
?	**Public Meetings**	**May 04**
?	**Final Feasibility Report w/EIS**	**Aug 04**
?	**NRC Review Final Feasibility Report**	**Aug-Oct 04**
?	**Chief' s Report**	**Oct 04**

STUDY ALTERNATIVES: The following represent the tentative alternative plans for navigation efficiency improvements and ecosystem restoration:

Navigation Efficiency Alternatives

1. No action/Without project (operation and maintenance and periodic rehabilitation on the existing system continues).

2. Congestion fees on commercial traffic. Note: current U.S. law prohibits charging a fee for waterway use, but alternative plans may propose changes in existing law or regulations if deemed necessary.

3. Scheduling of commercial vessels moving through locks and dams.

4. Moorings (tie-off facilities that allow a waiting tow to wait closer to the lock chamber) at Locks 12, 14, 18, 20, 22, 24 and LaGrange; switchboats (hired vessels permanently stationed on both the upstream and downstream sides of a lock to assist and speed up the lockage process) at Locks 20-25.

5. Moorings at Locks 12, 14, 18, 24 and LaGrange; lock extensions (to make a 600-foot lock large enough to accommodate a 1,200-foot tow) at Locks 20-25; switchboats at Locks 14-18, La Grange and Peoria.

6. Moorings at Locks 12, 14, 18 and 24; new locks at 20-25, La Grange and Peoria; lock extensions at 14-18; switchboats at Locks 11-13.

Ecosystem Restoration Alternatives*

1. No action/Without project (current environmental management activities and rehabilitation efforts continue at historic levels).

2. Protect and maintain existing environmental diversity (current mosaic of habitat types and ecological diversity maintained into the future: no net loss).

3. Restore the first increment of habitats most directly affected by the navigation project.

4. Restoration to a level which includes management practices and cost-effective actions affecting a broad array of habitat types.

5. Restoration to include most environmental objectives that could be accomplished in the context of the navigation project.

* Individual actions for each of the alternative restoration levels are currently under development and will be presented at the October meetings.

EVALUATION INFORMATION
NAVIGATION EFFICIENCY ALTERNATIVES

The navigation improvement alternatives listed in this packet were formulated by combining navigation efficiency measures that survived a rigorous screening process. Each alternative was evaluated for contributions to National Economic Development, Environmental Quality Impacts, Regional Economic Development, and Other Impacts. A description of each evaluation is as follows:

National Economic Development (NED). This evaluation is a measurement of the monetary impacts to the economy measured in terms of net benefits, which are simply average annual benefits minus average annual cost. Positive numbers represent benefits to the nation and negative numbers represent a loss to the nation. This evaluation recognizes the uncertainty associated with the future demand for waterway transportation and the lack of definitive data on demand elasticity for commodities shipped on the river, particularly grain. Five different scenarios represent the uncertainty in future demand. The uncertainty in demand elasticity is being represented by the use of 3 different economic modeling conditions. The condition reflecting an inelastic state is represented by the Tow Cost Model (TCM), while the ESSENCE Model represents the upper (EUB) and lower bounds (ELB) of an elastic condition. Net benefits are presented for each scenario and assumption of elasticity, which results in 15 different economic conditions (Given 5 traffic scenarios and 3 economic model specifications).

Environmental Quality Effects. Environmental consequences resulting from any navigation improvement alternatives are monitized and included in the net benefit computations. The impacts from incremental traffic increases shown in this packet assume a reasonable worse case of scenario 5 traffic levels and TCM elasticity assumptions. Additional evaluations on incremental traffic impacts will be performed on the recommended plan. Site-specific impacts from construction activities were also computed for each alternative and are contained in the net benefits reported.

Regional Economic Development (RED). The income and employment benefits for each alternative will be reported for the states of Minnesota, Wisconsin, Iowa, Illinois, and Missouri along with the lower Mississippi Region and the rest of the U.S. This information is being presented at request of the states. This packet displays information for Alternative 4 only. RED information for all other alternatives will be available in the coming weeks.

Other Social Effects. This work will evaluate and quantify positive or negative impacts of rail and waterway traffic emission, energy conservation, accidents, noise and other community impacts. These impacts will not be included in the development of NED benefits, but will be available to aid in the decision process. This packet displays information for scenario 3, TCM results. Other effects information for all other economic conditions will be available.

EVALUATION INFORMATION
ECOSYSTEM RESTORATION ALTERNATIVES

The ecosystem restoration alternatives listed in this packet were formulated by combining measures that strive to address the ecological needs of the UMR-IWW system. A tremendous amount work and collaboration has taken place in developing a standardized database of UMR-IWW ecological objectives, identifying appropriate ecosystem measures, and formulating alternatives (made up of multiple measures) to best address the ecological needs of the system. Most recently, this process has involved assessing the benefits and costs associated with the ecosystem restoration alternatives. The components of the ecosystem alternative formulation and evaluation process are further explained below.

UMR-IWW Ecosystem - The complex of plants, animals, and physical processes functioning in an integrated fashion to sustain viable habitats and populations.

Environmental Needs or Objectives - A desired future ecological state or condition. Component specific, quantitative, local to regional scale (e.g. restore the river flow and natural habitat in two identified side channel areas in lower Pool 25 or restore 55,500 acres of backwater areas system-wide). A standardized database with over 2,500 environmental objectives was generated for the UMR-IWW system by compiling, reviewing, and refining information from previous and ongoing river studies, and through stakeholder input at workshops and meetings.

Ecosystem Restoration Measures - Operational and structural tools or activities that can be implemented to positively address environmental objectives. A separate handout available upon request provides a detailed description for each of the measures presented in this packet.

Ecosystem Projects -The average extent of an ecosystem measure (e.g., 30 acres of island building) is referred to as a project.

Ecosystem Alternatives - Combinations of restoration and management measures that seek to address the local, river reach, and system-wide needs of the UMR-IWW ecosystem.

Virtual Reference - All ecologically relevant UMR-IWW environmental objectives, including those beyond the scope of the navigation project.

UMR-IWW Reach - A defined length of the river system. Ecosystem measures and their associated costs were broken out into four reaches of the UMR-IWW system including Reach 1-Upper Impounded Reach (Pools 1-13), Reach 2-Lower Impounded Reach (Pools 14-26), Reach 3-Middle Mississippi Reach (Open River), and Reach 4-Illinois Waterway.

Cost Estimates - Estimates of alternative costs were arrived at by first identifying the average per project cost of ecosystem measures (e.g., island building – 30 acre project – $3.5 million). These costs were then multiplied by the number of projects within a given alternative to determine the total ecosystem measure construction and operation and maintenance (O&M) costs. A 35% contingency cost was then applied to the total construction cost and additional costs were added for forestry management, a systemic fleeting plan, cultural resource management/mitigation, adaptive management, and real estate. Finally, a 30% planning, engineering, and design and 9% supervision and administration cost

was applied to the total above and final alternative costs were developed. The costs of the alternative components are currently based on the best information available, but are subject to change.

Benefit Assessment - Alternative benefits are being assessed in a number of ways including identifying the proportion of the virtual reference addressed by each alternative, the number of acres each alternative influences, and the habitat types potentially restored by the various measures that make up the alternatives. Additional assessment has also been conducted by workgroups for water level management and fish passage.

Proportion of Virtual Reference - The proportion of Virtual Reference measures (i.e., projects) addressed by a given alternative. For example, Alternative C addresses 56% of the identified Virtual Reference measures.

Area of Influence - Each alternative will influence varying amounts of the system depending on the type and quantity of measures included in the alternative. In this assessment, the acres of potential influence was identified for each measure, and then totaled to identify the total area of influence for each alternative. Fish passage was assessed separately due to the complexity associating areas of influence with tributary length benefits.

Habitat Types - The areas influenced by alternatives also affect varying types of physical and plant habitats (e.g., isolated backwaters, channel borders, aquatic vegetation, grasslands, etc.). The number of habitat types potentially influenced or restored by each measure were identified and tallied.

Water Level Management - The water level management (i.e., pool drawdown) workgroup evaluated several parameters when assessing drawdown benefits and costs associated with UMR-IWW navigation pools. Benefit assessment included identifying the potential for varying drawdown depths to succeed, the area exposed (i.e., area of influence), and the impacts to infrastructure (e.g., water intakes). Costs were primarily related to supplemental dredging required to maintain navigation and connectivity to river facilities.

Fish Passage - Fish passage structures and locations (i.e., projects) were assessed by comparing habitat connectivity, need, and cost. Habitat connectivity was calculated for each pool by determining the length tributaries to the first obstruction and the total water surface acres of the pool. The need for fish passage was quantified by comparing the frequency that the dam is in "open river" condition. Habitat connectivity and need were then compared to the cost of constructing and maintaining fish passage structure at each dam location.

Adaptive Management - An approach to natural resource management that incorporates monitoring of project outcomes and uses the monitoring results to make revisions and refinements to ongoing management actions.