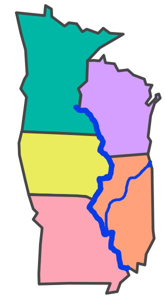

MONTHLY STATUS REPORT
JULY 2003
UPPER MISSISSIPPI RIVER – ILLINOIS WATERWAY SYSTEM NAVIGATION STUDY

PURPOSE: These monthly status reports are intended to provide team members, partners, stakeholders, and other interested parties with a regular update on important events and activities associated with the UMR-IWW System Navigation Feasibility Study. We welcome your comments and input on the topics covered in these status reports in order to ensure they continue to provide timely and useful information. Previous months status reports are archived in the *Newsletter & Status Report* section of the Navigation Study Web Site: http://www2.mvr.usace.army.mil/umr-iwwsns/. For additional information or questions on material contained in these reports please contact Denny Lundberg ph.: (309) 794-5632. or email address Denny.A.Lundberg@usace.army.mil or Scott Whitney ph.: (309) 794-5386. or email address Scott.D.Whitney@usace.army.mil.

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I. DECISION MODEL

The Restructured UMR-IWW System Navigation Feasibility Study is being conducted following the Corps of Engineers' traditional six-step planning process (Figure 1). The key assumptions, criteria, and data being applied during each of the plan formulation steps identified in Figure 1 comprise what the study team refers to as the "*Decision Model*". A brief description of this six step Decision Model is provided in the subsequent paragraphs.

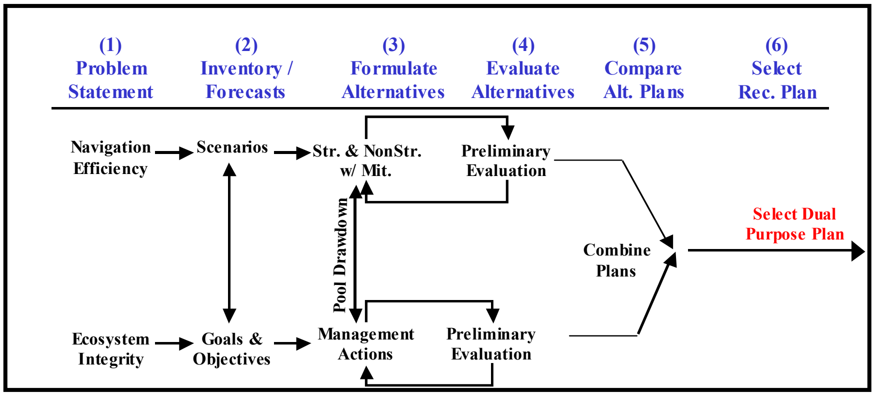


Figure 1. Decision Model for UMR-IWW System Navigation Feasibility Study.

STEP 1: PROBLEMS, OPPORTUNITIES AND CONSTRAINTS

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 cumulative effects of the navigation and the ecosystem restoration needs 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.

The following four major constraints or assumptions have limited the range of options and investigations undertaken as part of this study:

a) No change to the operation and maintenance of the authorized 9-foot draft navigation channel. As a result, no systemic modifications to deepen or widen the channel were considered.
b) This report represents a system level feasibility study that assesses the navigation efficiency and ecosystem restoration needs for the 50 year planning horizon. As such, it differs from a traditional feasibility study in scope and level of detail of site specific planning and engineering. Recommendations for navigation efficiency and ecosystem restoration

improvements will generally require additional site specific planning and engineering documentation prior to initiation of construction activities.

c) This study will only address ecosystem and floodplain management needs related to the navigation system. While this study is systemic in nature, it does not represent a comprehensive watershed study.

d) Due to authority, resource, and time constraints, this study does not represent a full multi-modal study. The study did not attempt to fully assess all possible future alternative transportation modes which could be developed (e.g., possible development of grain pipelines, magnetic levitation trains, etc.) nor the potential environmental impacts associated with increased use of alternative modes if waterway improvements are not made. However, some evaluations of existing primary alternatives (e.g., railroads) were conducted, including an evaluation of transportation cost comparisons and limited evaluation of environmental impacts.

STEP 2: INVENTORY AND FORECASTS

This step characterizes and assesses conditions of the navigation system and ecosystem in their current form and forecasts the without-project condition (or "no action" alternative) over the 50-year period of analysis. This assessment gives the basis from which to compare various alternative plans and their impacts.

Navigation Efficiency - In an effort to address the difficulty and inherent uncertainty of forecasting for a 50-year planning horizon, a scenario-based approach to traffic forecasting has been employed. Five different scenarios were developed that describe the future potential demand for waterway transportation (entire report, *Economic Scenarios and Resulting Demand for Barge Transportation,* is available in the "Reports" section of the study website). The scenarios developed represent a range of alternative views of the future demand for navigation on the UMR-IWW System. For Example, Scenario 1 represents a no growth of overall waterway traffic and forecasts a substantial decrease in grain transportation while scenario 5 represents the most significant increase in waterway transportation due to the most favorable grain export trade scenario. A consequence of applying this scenario-based approach to traffic forecasting is five representations of the without-project condition. As currently constructed, individual scenarios will not be evaluated with respect to numerical probability or likelihood of occurrence. A single most probable without-project condition therefore will not be identified. The decision process will seek a plan that works well under a variety of scenarios.

Ecosystem Restoration – The Mississippi and Illinois Rivers are dynamic large river ecosystems where habitats, flora and fauna evolve and persist in response to a variety of natural and human-caused disturbances. A large number of historic studies have provided a detailed understanding of UMRS geomorphology and climate, historic land cover change, and ecological disturbances in the context of their influence on UMRS ecosystem integrity. More recent studies have carefully analyzed a diverse array of historic and contemporary ecosystem variables (characteristics) in an attempt to forecast possible future conditions. These efforts also identified ecologically and socially desired future ecosystem conditions. These desired future conditions are often described as definitive goals and objectives for the condition of the UMRS ecosystem. As part of the UMR-IWW Nav. Study a series of regional workshops were conducted to collaboratively review, refine, and add to a database of regionally explicit ecosystem objectives. These workshops built upon previous objective setting exercises performed under the EMP Habitat Needs Assessment, Pool Plans, UMRCC Reports, USFWS Comprehensive Conservation Plans, Cumulative Effects Study, and related study efforts. The final workshop report (ENV #50) provides a detailed explanation of the process and methodology that were followed to incorporate and build upon these previous objective setting exercises to create a standardized GIS database that provides a comprehensive documentation and rationale for the UMR-IWW environmental restoration objectives. This document can be found on the study website using the following link: http://www2.mvr.usace.army.mil/umr-iwwsns/documents/Start%20page.pdf

STEP 3: FORMULATION OF ALTERNATIVES

Alternative plans are formulated by combining the management measures to best achieve the study objectives, solve the problems and realize the opportunities identified in step one. An alternative plan may consist of structural and/or nonstructural measures, strategies, or programs formulated to meet, fully or partially, the identified study planning objectives subject to the planning constraints. Plans will be in compliance with existing statutes, administrative regulations, and law, or include proposals for changes as appropriate. Alternative plans will not be limited to those that Corps of Engineers could implement directly under current authorities. Plans that could be implemented under the authorities of other Federal agencies, State, and local entities, and non-governmental interests will also be considered.

Navigation Efficiency Alternatives - This process involved the evaluation of both small-scale (structural and non-structural) and large-scale measures at various lock sites. A large universe of small-scale measures was identified and screened to a small subset for further evaluation. Mooring cells, switchboats, congestion fees, and scheduling are the remaining small-scale measures that were carried forward into the alternative formulation process. Lock extensions or new locks were evaluated at Locks and Dams 11 thru 25 on the Mississippi River and Peoria and LaGrange on the Illinois Waterway (16 sites total). Six locations were evaluated at each site for the best location for lock construction. These locations were screened to a smaller subset for further evaluation and include locks 14-25 on the Mississippi River and Peoria and LaGrange on the Illinois Waterway. By combining various small-scale and large-scale measures a range of alternatives were developed to reduce existing traffic delays and ensure an efficient and reliable navigation system. The remaining navigation efficiency alternatives still being evaluated are outlined below.

1. **No Action.** The no action, or without project condition, describes the future in the absence of additional federal action. This does not preclude routine operation maintenance activities, to keep the system's components safe and operational, nor periodic major rehabilitation activities to ensure the structural soundness and reliability of the existing system. The No-Action alternative forms the baseline against which navigation efficiency alternatives are measured.
2. **Congestion Fees Implemented through a Lockage Fee (imposed on commercial traffic).** This alternative was previously screened out (due to difficulties with implementability), but was brought back into the alternative evaluation for the restructured study, in response to comments received from the National Research Council. The objective of congestion fees is to improve overall system efficiency by charging all users a lock usage fee, subsequently inducing marginal users (those that benefit the least from system use) to leave the system. While that traffic that is induced to leave the system would experience a loss as a result of the fees, the potential gain in the form of lower average delays for all remaining traffic could more than offset this loss from an overall system efficiency perspective. A numerical example of this relationship will help to illustrate.

Tons	Expected Ave Delay (hrs)	Total Delay (hrs)
100	5	500
110	7	770
120	10	1,200

If 100 tons use the lock and an additional 10 tons are added, expected delay for all 110 tons, not just the additional 10 tons, becomes 7 hours. Thus, the additional 10 tons each bear on average the 7 hours of average of delay that they presumably are willing to bear if they use the lock. However, the initial 100 tons now have two additional hours of expected delay that must be borne if these original tons continue to use the lock. Thus, the additional 10 tons have imposed losses on those tons already using the lock for which they (the additional 10) do not pay. Thus, society in general pays not only the value of 70 hours of delay for the additional 10 tons to use the lock but also the value of 200 (2 hours x 100 tons) hours of delay. As a result, freedom of access to the lock by all comers results in a cost for the additional 10 tons far in excess of the cost that those additional tons bear. Presumably the shippers of the extra 10 tons desire lock service because they are willing to bear the 7 hours of delay, but these additional shippers do not bear the cost of the 200 hours of delay imposed on shippers already using the lock. This cost is external to the 10 additional tons and an economic externality is said to exist. The key to a socially desirable decision as to whether the additional 10 tons should use the lock is confronting the shippers demanding waterway service with a bill for the value of the 200 hours of expected delay imposed on other shippers. If these shippers are willing to absorb the value of the 200 hours of expected delay then society benefits by their using the lock. If not, society can benefit if these shippers no longer use the navigation lock. Congestion fees present an option for "internalizing" the external social cost of additional traffic at a navigation lock. Potential impacts not traditionally measured by Corps feasibility investigations--typically impacts associated with landside transportation modes--should not be ignored when considering the performance of any fee-for-use scheme. Specifically these impacts could include such things as landside congestion, differential air quality impacts, and differential accident rates, all resulting from traffic shifted off the waterway. There are no existing instances of fee-for-waterway use in the United States as a consequence of current law, which prohibits charge, or toll of any type for waterway use. Such a prohibition by current law does not however, prevent the evaluation of such fee-for-use mechanisms. Corps guidance allows that alternative plans may propose necessary changes in such statues, administrative regulations, or established common law.

3. **Traffic Scheduling.** The specific measures that will make up this alternative are still being formulated. At this time, measures such as charges for exceptionally long lockage times and traffic scheduling are under consideration. The objective behind charges for long lockage times is to provide incentives for efficient lockage operations. The primary objective with scheduling is to improve overall system efficiency by smoothing the flow of traffic. The Volpe Natl. Transportation Systems Center (USDOT) is developing this alternative along with reasonable estimates of cost and benefits. A final report from the Volpe Center is expected within the next 30-days.
4. **Moorings (12, 14, 18, 20, 22, 24, and LGR), Switchboats at Locks 20-25.** Moorings are tie-off facilities that allow the next tow to be served to wait closer to the lock chamber, thereby decreasing approach time. Switchboats would be employed as hired vessels permanently stationed on both the upstream and downstream sides of a lock. Switchboats would assist in handling the cuts of a double lockage, resulting in a shorter lockage time. Switchboats as employed in this

alternative and others are a substitute for guidewall extensions with powered traveling kevels (PTK) described in the Interim Report. Switchboats have replaced guidewall extensions w/ PTK because the current assessment of these two measures indicates that switchboats are both less costly and more efficient in reducing the time required for double cut lockages than guidewall extensions w/ PTK. First Cost of Infrastructure Improvements: $5M (w/o mitigation or O&M); Annual SWB Operation Cost: $18.1M; Total Avg. Annual Cost: $18.5M; Completion Date: 2009.

5. **Moorings (12, 14, 18, 24, and LGR), Lock Extensions at Locks 20-25, Switchboats at Locks 14-18, La Grange and Peoria.** This alternative incorporates the next level of capacity expansion, 1200' lock extensions, at UM 20-25. It also includes switchboats at UM 14-18 to address potential induced traffic effects that may result from the downstream lock extensions. Mooring at UM 20 and UM 22 are eliminated with this alternative due to physical interference with lock extensions. On the Illinois Waterway switchboats are also included at Peoria and LaGrange. First Cost of Infrastructure Improvements: $652.4M (w/o mitigation or O&M); Annual SWB Operation Cost: $35.9M; Total Avg. Annual Cost: $108M; Completion Date: 2023.
6. **Mooring (12, 14, 18, and 24), New Locks at 20-25, La Grange, and Peoria; Lock Extensions at 14-18; and Switchboats at Locks 11-13.** This alternative incorporates the greatest degree of capacity expansion, new 1200' locks, at UM 20-25, and also at Peoria and Lagrange on the Illinois Waterway. On the Mississippi River, additional capacity expansion is also included in the form of 1200' lock extensions at UM 14-18, and switchboats at UM 11-13 to address potential induced traffic effects that may result from downstream new locks. Mooring at UM 20, UM 22, and LaGrange are eliminated with this alternative due to physical interference with lock improvements. New 1200' locks at 20-25 differ from the 1200' lock extensions described in alternative 5 in terms of both cost and performance. New locks, while representing the same chamber size as the lock extension are more efficient than the extensions because of a faster filling and emptying system. However, this added performance comes at the price of higher construction expenditures. First Cost of Infrastructure Improvements: $2.1B (w/o mitigation or O&M); Annual SWB Operation Cost: $8M; Total Avg. Annual Cost: $188M; Completion Date: 2035.

Ecosystem Restoration Alternatives - Ecosystem restoration strategies (Figure 2) are being developed and evaluated in the form of environmental alternative plans. These plans will incrementally increase the restoration effort (i.e., restoration level) and evaluations will be performed to assess their overall cost and outcome at each level. Restoration alternatives will be measured against both the environmental objectives and the without project condition.

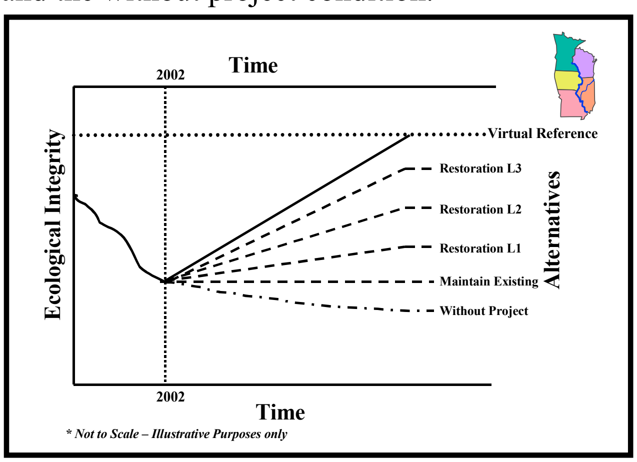


Figure 2. UMR-IWW environmental restoration strategies.

The UMR-IWW environmental alternative plans are being developed using the following range of restoration strategies:

(a) Without Project: The without project condition assumes all ongoing environmental management activities (refuges, states) and restoration efforts (i.e. EMP, Env. CAP) will continue at historic levels. Although great strides have already been made in some environmental areas (e.g., water quality), this level of effort is not enough to reverse the general loss of diversity and overall trend toward environmental degradation.

(b) Maintain Existing: To maintain the existing condition, structural measures and operational measures such as island protection and water level management can be implemented. Current land management activities by state and Federal agencies need to be continued and expanded. Pool-wide water level management, where practical to implement, could be used to maintain aquatic plant communities.

(c) Restoration Level 1: Aquatic habitats directly affected by the navigation system (channel, channel border, impounded areas, and lower pool backwaters) would be restored to some minimum level. Example management actions include: backwater dredging, island construction (these two are often coupled), and fish passage at some sites.

(d) Restoration Level 2: Similar to level 1, but expanded to include most contiguous aquatic areas regardless of location in the reach. Additional management actions beyond level 1 include moist soil unit construction and floodplain restoration to achieve suitable habitat conditions. Within this level, we will seek to include measures which individually appear to maximize cost effective incrementally justified restoration benefits.

(e) Restoration Level 3: Similar to level 2, but expanded to address most restoration objectives in contiguous aquatic areas maximizing opportunities associated with operating and maintaining the 9-foot Navigation channel project. Additional actions would presumably be more of the actions identified at lower restoration levels and would include a large proportion of environmental objectives that can be accomplished in the context of the navigation project.

(f) Virtual Reference: Includes all ecologically relevant environmental objectives. It is anticipated this would require actions far beyond the scope of any navigation project authority.

Reference conditions are used to gage the present condition of a system, and progress of management from a baseline toward some desired system state or condition. On the UMR-IWW, multiple reference conditions have been identified including pre-European (1800), pre-navigation (1850), pre-dam construction (1900), early post-dam construction (1940), or present conditions (2000). Because of the difficulty in selecting a single target reference condition for the UMR-IWW ecosystem, a "virtual" reference condition has been constructed using a defined set of ecosystem attributes that comprise a sustaining, complete, and socially desired ecosystem. Through information gathered from previous study efforts, stakeholders, and an expert panel, this reference condition has been developed by identifying and setting specific, quantitative, and local to regional scale environmental goals and objectives. This target set of future conditions will serve as the virtual reference for purposes of the Navigation Study and future UMR-IWW management.

Environmental goals and objectives were identified at multiple scales (i.e., system, reach, pool, and site-specific). This information is being used to develop and evaluate regional-scale alternative plans (e.g., Pools 1-13) made up of management actions with general levels of locational specificity. For example, an alternative plan may include 100-acre backwater restoration projects targeted for several navigation pool sub-areas, one foot drawdowns planned for Pools X, Y, and Z, and island/secondary channel restoration targeted for river miles D-L. Detailed planning (e.g., locating the best project sites, refining the management actions, and developing a monitoring program) will occur during the implementation phase with site-specific project development, incremental analysis, and design.

During the alternative formulation process, restoration plan costs and outcomes will be examined to evaluate their effectiveness, completeness, and efficiency in addressing identified objectives. Effectiveness will be assessed by identifying the extent to which the alternative plan contributes to achieving each objective. The assessment of completeness will investigate the extent to which alternatives provide for all identified objectives. Efficiency will be evaluated to identify how cost effective the alternatives are in achieving the objectives. This formulation process will allow for further refinement of the alternatives and provide an overall assessment of their ability to achieve the desired UMR-IWW environmental objectives.

STEP 4: EVALUATION OF ALTERNATIVES

The evaluation of navigation efficiency and ecosystem restoration alternatives is an iterative process that will be largely driven by comparison of the net economic and ecosystem benefits. Economic and environmental models provide the navigation efficiency and environmental impacts information respectively (e.g. traffic forecasts, time-savings, larval fish entrainment, equivalent adult fish loss, aquatic plant effects, ….etc.) needed to complete individual alternative net economic and environmental benefit computations.

Navigation Efficiency Alternatives **-** Navigation efficiency alternatives will be evaluated under the four accounts of (1) National Economic Development, (2) Environmental Impact Assessment, (3) Regional Economic Development, and (4) other Social Effects. A description of each account and the current status of these efforts is provide below:

(1) NATIONAL ECONOMIC DEVELOPMENT:

The evaluation of alternatives for navigation efficiency recognizes the uncertainty associated with the future demand for waterway transportation and the lack of definitive data on demand elasticity for waterway transportation of commodities shipped on the UMR-IWW, particularly grain. The uncertainty in demand elasticity for waterway transportation of commodities is being represented by the use of 3 different economic model conditions. The question of demand elasticity centers on the issue of how the demand for waterway shipment of commodities responds to rising transportation costs. The condition reflecting an inelastic state is represented by the Tow Cost Model (TCM) while the upper and lower bounds of elasticity are derived from the Essence Model:

TOWCOST (TCM): TCM has been developed over many years by the Corps and has been used in numerous feasibility reports and Environmental Impact Statements supporting construction authorizations for major investments in inland navigation improvements**.** The Tow Cost Model measures the benefits of waterway improvements as the savings in transportation costs in using the waterway over the alternative transportation method. The Corps believes it is important to display the results of the Tow Cost analysis for the navigation efficiency improvement alternatives for the Upper Mississippi River and Illinois Waterway System to assess the performance of these alternatives versus other major inland navigation investments nationwide using a common and accepted benefit evaluation methodology. The Federal Principals Group endorsed the use of existing and accepted economic models while research and development on improved models moves forward but within the context of an adaptive management process that would review study results as new models are developed, tested and accepted. The framework of the TCM assumes that individual waterway movements are not sensitive to the price of water transportation until the level of the next least costly mode of transportation is reached. At that point, zero quantity will be shipped. Alternative uses of the commodity (typically associated with a different destination and perhaps a different mode) and the possible substitution of supply regions are not recognized.

ESSENCE: The ESSENCE model introduces the notion that individual waterway movements are sensitive to the price of water transportation before the threshold level of the next least costly transportation mode is reached. The implication of the demand for water transportation being price sensitive (demand elasticity) is potentially large depending on the degree of elasticity. The Corps believes it is important to display the potential impact of demand elasticity for decision makers in the feasibility report. Since the TCM is not capable of incorporating meaningful spatial equilibrium concepts, the ESSENCE model will be used as a sensitivity analysis. The most controversial and weakest aspect of the ESSENCE model is the methodology for specifying the price responsiveness of the waterway movements. Rather than specifying a single elasticity value, the sensitivity analysis will incorporate an upper (E_{UB}) and lower bound (E_{LB}) of demand elasticity based on available information and expert opinion. The Corps has initiated a Navigation Economic Technologies (NETS) research program to further develop and incorporate the spatial equilibrium concept into future economic modeling efforts. One product of the NETS program that will be used in this study will be price elasticity information for water transportation. This information will be incorporated into the feasibility decision process as appropriate.

The benefits of the navigation efficiency alternatives will be evaluated under each scenario and under each model condition. The results will be represented in an evaluation assessment matrix (Table 1). The evaluation of benefits under 5 scenarios and 3 different economic model conditions will necessitate a different decision process than is applied in a typical Corps study. In a typical Corps feasibility study there is a most probable future condition and a single set of benefits for each alternative. The plan that is normally recommended is the plan that maximizes net benefits (has the greatest positive benefits when costs are subtracted from benefits). For the UMR-IWW study, each navigation efficiency alternative will have 15 different model outputs for net benefits depending on the scenario and the benefit model. These 15 economic conditions for each alternative will be presented in an assessment matrix as outlined below in Table 1. The process the study team will use will not focus on any one economic condition since this implies the most likely future economic condition is known. Instead it will look at the broad range of economic conditions and search for alternatives that perform well across the entire matrix.

Table 1: Navigation Efficiency Alternative Assessment Matrix.

	Scenario 1			**Scenario 2**			**Scenario 3**			**Scenario 4**			**Scenario 5**		
Model	**TCM**	**E_{LB}**	**E_{UB}**	**TCM**	**E_{LB}**	**E_{UB}**	**TCM**	**E_{LB}**	**E_{UB}**	**TCM**	**E_{LB}**	**E_{UB}**	**TCM**	**E_{LB}**	**E_{UB}**
Alt. 1															
Alt. 2															
Alt. 3															
Alt. n															

(2) ENVIRONMENTAL IMPACT ASSESSMENT

Any environmental consequences resulting from the incremental effects of the aforementioned navigation efficiency alternatives must be accounted for and will be factored into the final net benefit computations. The environmental impact assessment is ongoing with anticipated economic mitigation numbers for each alternative expected by the end of September 2003. The following paragraphs are provided to furnish a more thorough understanding of how the environmental impacts are being analyzed and how they will ultimately be factored into the net economic benefit/cost ratio.

Any negative environmental consequences resulting from the incremental effects of the aforementioned navigation efficiency alternatives must be accounted for and will be factored into the final net benefit computations. The environmental impact assessment is ongoing with anticipated economic mitigation numbers for each alternative expected by the end of September 2003. The following paragraphs are provided to furnish a more thorough understanding of how the environmental impacts are being analyzed and how the will ultimately be factored into the net economic benefit/cost ratio.

Ecological Risk Assessment – An ecological risk can be defined as the probability of observing a specified adverse ecological impact, combined with some statement concerning its consequences or significance. Risk assessment is generally designed to address three basic questions: What can go wrong? How likely is it to happen? And, what are the implications if it does? This simple description of risk provides a conceptual basis for the Navigation Study ecological risk assessment. The Guidelines for Ecological Risk Assessment (USEPA 1998) identify four components of an ecological risk assessment: (a) problem formulation, (b) analysis of exposure, (c) ecological effects analysis, and (d) risk characterization. The following paragraphs provide a brief explanation of how each of these components will be incorporated into the UMR-IWW Navigation Study:

- *(a) Problem Formulation*: The problem formulation step emphasizes the need for discussion and participation among risk managers, risk assessors, and stakeholders in developing the overall design for risk assessment. Consistent with the USEPA Guidelines, detailed plans of analysis were collaboratively developed for assessing ecological risk posed by commercial vessels to submerged aquatic vegetation, freshwater mussels, bank erosion, backwaters/side channels (BW/SC) and fish in the UMR-IWW.
- *(b) Exposure Analysis*: In each ecological risk assessment, the ecological stressors take the form of the physical forces produced directly by commercial vessels navigating the UMRS and indirect effects that result from these forces. To characterize current commercial traffic intensity, a baseline number of vessels passing through each pool each month was developed using a recent 5 year average. Existing fleet data were also analyzed to construct a data set that describes, by pool and by month, the relative distribution of vessels among categories of vessel direction, size, speed, load, and whether or not the vessel had a Kort nozzle. This classification scheme produced 108 possible configurations of commercial vessels operating on the UMRS. Alternative traffic scenarios were developed for the years 2000 through 2050, with projected trips/year made for each ten-year increment during this period. In developing and assessing alternative traffic scenarios, the five year average fleet configurations were assumed to apply through the year 2050. The direct physical forces imposed by operating commercial vessels include increases in river current velocity, return currents, or drawdown; pressure changes and shear stresses associated with the propeller jet; shear stresses associated with the hull movement; shear stresses on the bed sediments beneath the vessel; and bed shear stresses extending to the channel borders and backwaters. The primary indirect physical effect assessed for commercial (and recreational) vessels was sediment resuspension. These physical forces were quantified by performing laboratory experiments on physical replicas of river segments; making direct measurements on selected pools; and developing mathematical

models to quantify the frequency, magnitude, extent, and duration of the physical forces. These estimated forces constitute the "exposure" that can produce probable ecological impacts (i.e., risk).

(c) *Analysis of Ecological Effects*: The possible adverse ecological effects were identified for each of the assessments (e.g., plants, mussels, fish, bank erosion, BW/SC). These effects included commercial traffic-induced increases in fish early life stage mortality, degradation or loss of fish spawning habitat, physical breakage of submerged aquatic vegetation, impacts on the growth and reproduction of submerged aquatic vegetation, and impacts on the growth and reproduction of freshwater mussels. The increased likelihood of direct entrainment of fish larvae into the propeller jets of commercial vessels posed a risk of incremental increases in fish mortality. Vessel-induced changes in current velocities or alterations in sediment substrate might reduce the quantity and quality of suitable habitat for certain spawning guilds of fish in the UMRS. Sudden increases (or shifts in direction) of current velocity or increased wave heights resulting from vessel passage might physically uproot or break submerged aquatic plants. Increases in suspended sediment concentrations resulting from commercial traffic might reduce the available underwater light and inhibit photosynthesis. Reduced photosynthesis implies fewer carbohydrates available for allocation to growth and vegetative reproduction. Increased suspended sediments might also impair the filter feeding capabilities of freshwater mussels, including several threatened and endangered species that inhabit the UMRS, which would affect mussel growth and reproduction. The objective of the Navigation Study ecological risk assessment was to estimate these direct ecological impacts for alternative commercial traffic scenarios.

(d) *Risk Characterization*: The potential ecological risks posed by commercial traffic will be estimated using the models of ecological effects and the models that quantified the magnitude, extent, and duration of the physical forces produced by commercial vessels. The alternative traffic scenarios provide the input data (e.g., vessels/day, vessel and barge configuration, direction, speed, draft) for the physical forces models. The results of the physical forces models provide the inputs to the ecological models that estimate the corresponding impacts for each traffic scenario. Bias and imprecision are possible for each general component of the Navigation Study ecological risk assessments: traffic projections, physical forces models, and ecological effects models. The nature and sources of bias and imprecision associated with each aspect of the UMRS risk assessments will be addressed during the Navigation Study. Where possible, uncertainties will be quantified, incorporated into the calculations of ecological impacts, and included in the assessment of impacts.

A programmatic, tiered approach will be used in addressing environmental consequences of the study recommendation. This is consistent with Council on Environmental Quality (CEQ) Guidelines (40 CFR parts 1502.20, 1508.28), which discuss the concept of tiering of environmental documents to avoid repetition and consider only those issues ripe for decision; the Guidelines also address EISs done at early project stages which consider need or site selection. This approach is appropriate when broad program or policy statements are prepared, which eventually lead to more specific assessments within these broad areas. Similarly, the Navigation Study EIS considers a recommended set of improvement measures (resulting from a qualitative and quantitative screening process), and the timing of potential implementation of these measures, for the entire UMRS. An accepted recommendation would result in supplemental, site-specific Environmental Assessments (EAs) prepared for each location where improvement measures are to be constructed.

Mitigation Plan – Mitigation consists of those measures taken to avoid, minimize, or compensate for adverse environmental impacts. A mitigation plan, currently under development, takes into consideration discussions, presentations and coordination with the Navigation Environmental Coordinating Committee (NECC), beginning in 1997. Based on the study results, and on identification of significant effects, the plan recommends applicable avoid, minimize or mitigation measures from those previously reviewed with the NECC. Any mitigation actions for the Navigation Study will be adaptive in nature, and an authorized mitigation plan and costs will have leeway to modify mitigation features and measures based on field results and future river conditions. Simply, is the mitigation plan working? More formally, adaptive management has been defined as an iterative approach to managing ecosystems, where the methods of achieving the desired objectives are unknown or uncertain. An adaptive approach should aim for an optimal management capacity, seeking critical knowledge and generating innovative approaches. Adaptive management has had limited practical application, and though conceptually attractive, should consider a number of potential barriers, including fragmented system management, limited time and resources, and the resistance to moving forward with limited or imperfect information. An adaptive process is well suited for the temporal and spatial scales of the Navigation Study. The planning horizon for the Navigation study includes the next 50 years, during which technological and scientific advancements will likely improve our ability to identify and mitigate for adverse impacts.

A mitigation plan will be prepared to describe the general mitigation approach and identify region and site specific measures for each resource group (i.e. fish, plants, mussels, cultural resources, bank erosion, backwaters & sides channels). A narrative will be provided for each resource group and will focus on the following main topic areas:

Designation of Significance - process by which impacts and/or species are elevated or eliminated in terms of their relative importance.

Identification of Avoid/Minimize Measures - actions or measures that could be taken to prevent or decrease the impact or species losses.

Mitigation Alternatives - if impacts or losses are unavoidable due to a chosen course of action then measures will be considered to compensate for them.

Monitoring and Evaluation - monitoring is essential in the evaluation of an action's performance, success, and effectiveness.

(3) REGIONAL ECONOMIC DEVELOPMENT (RED) ANALYSIS:

In this analysis, total economic impacts will be estimated with an input-output model and database purchased from Regional Economic Models Incorporated (REMI). A meeting was held in the Rock Island District with the Tennessee Valley Authority (TVA) on May 15, 2003 to meet with interested parties regarding the RED analysis. TVA will conduct the RED analysis. The purpose was to solicit stakeholders with respect to what they think should be considered in the RED and to identify data and analysis requirements for each RED item. TVA is scheduled to provide a Draft report of their findings by early October 2003.

(4) OTHER SOCIAL EFFECTS:

Emissions, Energy, and Safety Impacts of Alternative Transportation Modes: This work will evaluate and quantify positive or negative impacts of rail and waterway traffic emissions, energy conservation, safety, accidents, noise and other community impacts.

Emissions Impacts. The change in rail and waterway traffic emissions impacts attributable to each alternative will be quantified. To accomplish this quantification gallons of fuel consumed in waterway and rail transportation for each alternative will be estimated. Given the estimates of fuel consumption by barge and rail, estimates of waterway and rail transportation emissions for each alternative will be made. Emission factors per gallon of fuel consumed will be used in developing the estimates. The annual costs from primary and secondary effects of increased emissions will be addressed for each alternative.

Energy Conservation Impacts: The change in rail and waterway energy conservation impacts attributable to each alternative will be evaluated and quantified.

Safety Impacts: The change in rail and waterway traffic safety impacts attributable to each alternative will be evaluated and quantified.

Accident Impacts: The change in rail and waterway traffic accident impacts attributable to each alternative will be evaluated and quantified. Included in this evaluation will be estimates of accident and fatality rates for waterway and rail transportation.

Noise and Other Community Impacts: The change in rail and waterway traffic noise and other community impacts attributable to each alternative will be evaluated and quantified.

(5) EVALUATION CRITERIA.

After completion of the assessment matrix, a series of criteria including risk, robustness, flexibility/adaptability, acceptability will be applied to each alternative to assess its ability to meet the study objectives. A short description of each criteria is listed below:

Risk: The potential net economic costs and benefits of selecting or not selecting an alternative. This can be measured by the differential between costs or benefits of an alternative depending on the scenario and model output. Stated another way, if you select the wrong alternative, given a particular set of economic conditions, how serious would the consequences be either in terms of unnecessary investment if too large an investment in navigation improvements is selected or benefits foregone if too small an investment is selected.

***Robustness*:** The extent to which the alternative is economically justified over a wide range of traffic scenarios and economic model assumptions.

***Flexibility/Adaptability*:** The ability to adjust the alternative based on changes in future conditions.

***Acceptability*:** Acceptability is the workability and viability of the alternative plan with respect to acceptance by State and local entities and the public and compatibility with existing laws, regulations, and public policies.

Preliminary Economic Model Computations of Net Benefits (w/o mitigation)

As stated above, the evaluation of alternatives is an iterative process. The first iteration is completion of preliminary economic results for the purpose of determining traffic effects from each alternative. The traffic effects are then analyzed to determine environmental impacts and a mitigation plan developed. The preliminary economic evaluations are complete and traffic is being evaluated for environmental impacts. A mitigation plan is under development and will be incorporated into the final economic analysis when complete. Table 2 represents the **DRAFT** assessment matrix with net benefits determined to date (w/o mitigation). These numbers represent net benefits, which are simply average annual benefits minus average annual cost. The positive numbers represent benefits to the nation and the negative numbers represent a loss to the nation for each alternative and economic condition evaluated. The numbers have been adjusted to a common base year of 2023 and do not yet include costs for mitigation. The information shown in Table 2 represents a work in progress. It should also be noted that the environmental quality, RED, and other social impacts accounts are not yet complete, but will be incorporated prior to presentation of the tentative plans at the October public meetings.

Table 2. Net benefits adjusted to common base year 2023, exclusive of system mitigation costs.

($ Thousands)

	Scenario 1			Scenario 2			Scenario 3		
	TCM	E_{LB}	E_{UB}	TCM	E_{LB}	E_{UB}	TCM	E_{LB}	E_{UB}
Alt 1	0	0	0	0	0	0	0	0	0
Alt 2	8,877	16,221	20,000	100,743	61,728	52,798	143,079	96,236	62,042
Alt 3									
Alt 4	-17,667	-21,609	-26,944	41,965	10,405	-4,457	61,983	27,965	-3,603
Alt 5	-55,791	-59,553	-66,505	87,647	15,711	-21,633	133,888	58,014	-5,633
Alt 6	-114,016	-119,270	-125,395	63,046	-18,941	-62,686	154,433	52,219	-34,258

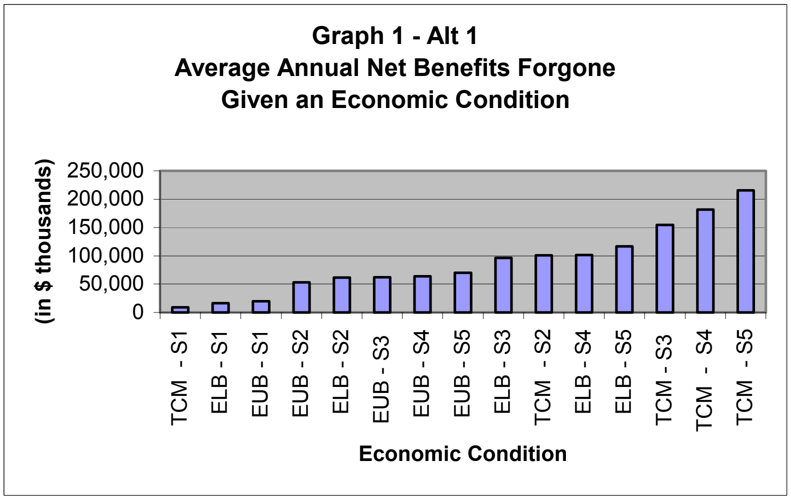
	Scenario 4			Scenario 5		
	TCM	E_{LB}	E_{UB}	TCM	E_{LB}	E_{UB}
Alt 1	0	0	0	0	0	0
Alt 2	158,183	101,364	63,926	172,761	116,625	70,239
Alt 3						
Alt 4	71,884	28,608	-2,824	78,041	34,657	222
Alt 5	129,161	59,397	-4,605	141,069	70,674	5,040
Alt 6	181,500	59,620	-31,144	215,354	88,257	-13,836

* Alternative 3 is still under development.

Preliminary Application of Evaluation Criteria. Information that will be provided at the October public meetings will include the assessment matrix and application of the criteria presented above. The preliminary application of the evaluation criteria to the preliminary economic analysis (w/o mitigation) for each alternative is presented in the subsequent text, and graphs.

RISK

Alternative 1. The cost, or risk, of the no action alternative is positive for all 15 economic conditions as shown in Graph 1. These positive costs indicate that there is some alternative investment that yields positive net benefits for all economic conditions. Put simply, in every case, there is a risk that benefits will be lost if the decision is made to take no action. The cost shown for each economic condition represents the difference between the net benefits of the alternative that produces the highest level of net benefits and the net benefits for the alternative in question. For example, the costs shown in Graph 1 for the economic condition represented the Tow Cost Model (TCM) and Scenario 5 (S5) is $215,000. $215,000 is the difference between the annual net benefits for Alternative 6, the alternative that generates the largest net benefits for economic condition represented by TCM S5, and the annual net benefits for the alternative in question, in this case, no-action.



Alternative 2. Graph 2 (on page 17) is a representation of the benefit distribution sorted in ascending order for the 15 different economic conditions (This graph was not generated for Alternative 1, because it produces no net benefits). Alternative 2 exhibits positive net benefits across all economic conditions. Average annual net benefits range from a low of $9 million to a high of $173 million. Alternative 2 also generates the highest level of net benefits for 12 of the 15 economics conditions. As a consequence Graph 3 shows zero costs for the 12 economic conditions under which alternative 2 yields the highest net benefits. That is, for these 12 economic conditions, there is no risk that another investment choice would produce a higher net benefit.

Alternative 3. The benefit numbers for Traffic Management have not yet been determined.

Alternative 4. The average annual net benefits for alternative 4 range from a -$27 million in annual costs to the nation to $78 million in annual net benefits to the nation. These net benefits are shown in Graph 4. Because net benefits for alternative 4 do not produce the maximum for any economic condition, the risk costs shown in Graph 5 are all positive values. Comparing the risk costs associated with alternatives 2 and alternative 4 indicates that alternative 4 has an overall higher level of risk.

Alternative 5. Alt.5 contains a broad range of positive and negative net benefits depending on the economic condition. If the decision was made to select alternative 5 and if scenario 1 level traffic occurs under an elastic condition assumption represented by E_{UB}, this will result in a $66 million annual cost to the nation. If scenario 5, level traffic occurs under an inelastic condition represented by TCM, it would result in annual net benefits of $141million. These results are illustrated in Graph 6. Graph 7 displays the risk costs for alternative 5. As is the case with alternative 4, alternative 5 does not generate the greatest level of net benefits for any economic condition. Accordingly, the risk costs are positive for all economic conditions. Overall, the level of risk for alternative 5 is lower than alternative 4.

Alternative 6. This alternative has a more even distribution of positive and negative benefits, as represented in Graph 8. Average annual net benefits range from a -$125 million annual costs to the nation, to a $215 million annual net benefits to the nation. The wide range of net benefits for alternative 6 results in the highest level of net benefits for three economic conditions and the lowest level of net benefits for eight economic conditions. Graph 9 displays the risk costs for alternative 6. Characterization of the overall level of risk associated with alternative 6 compared to alternative 5 is somewhat indeterminate given that alternative 6 generates more extreme values on both ends of the risk cost scale compared to alternative 5.

ROBUSTNESS

Alternative 1. Base condition.
Alternative 2. As seen in Graph 2, this alternative is very robust since it is economically justified across all 15 economic conditions.
Alternative 3. (Not yet available)
Alternative 4. As seen in Graph 4, 9 out of the 15 economic conditions are represented by positive net benefits (w/o system mitigation costs), which would make this a relatively robust alternative.
Alternative 5. As seen in Graph 6, 9 out of the 15 economic conditions are represented by positive net benefits (w/o system mitigation costs), which would make this a relatively robust alternative.
Alternative 6. As seen by Graph 8, 7 out of 15 economic conditions are represented by positive net benefits (w/o system mitigation costs), which would make this alternative less robust than the other alternatives.

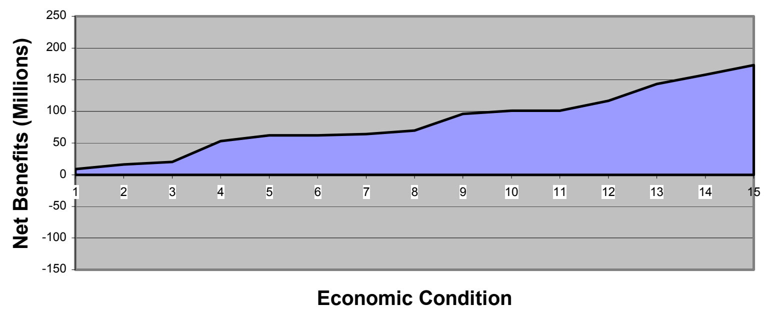
ADAPTABILITY

Alternative 1. Base condition.
Alternative 2. The implementation of congestion fees will require congressional action and could be in place within a relatively short timeframe (assumed to be 2 years). This alternative is very flexible in that, once authorized, it can be implemented or dismantled relatively quickly.
Alternative 3. (Not yet available)
Alternative 4. The implementation timeline for this alternative is divided into a planning, engineering and design phase, and a construction phase. Each of these phases could be considered a decision point in an adaptive management type of process. For instance, a decision could be made to complete the planning, engineering and design phase and then re-evaluate the need for this alternative. This would minimize the risk by controlling the magnitude of the investment decisions. An advantage of the switchboats is that they can be put in place and removed in a relatively short amount of time.
Alternative 5. This alternative can also be divided into distinct phases for consideration in an adaptive management framework. Decision points could be established at the end of major building blocks and would serve as re-evaluation points. For example, a recommendation could be to start only the planning, engineering and design for alt. 5, which will take 3 years at a cost of 7-10 million per site. A re-evaluation would be accomplished at the end of 3 years to confirm the continued feasibility of the initial investment decisions.
Alternative 6. This alternative is similar to alternative 5 in that distinct phases could be developed that would control the magnitude of the investment decisions.

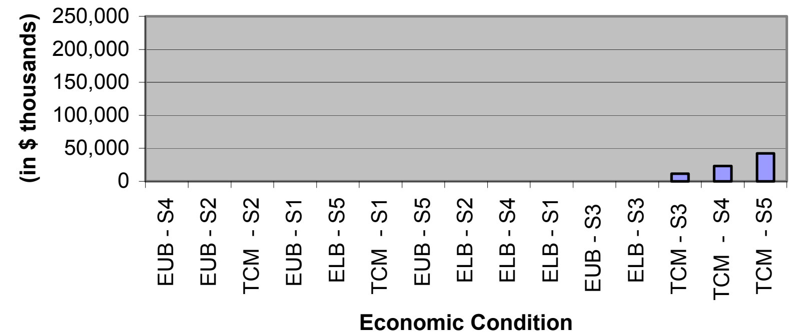
ACCEPTABILITY

The acceptability criteria will be applied by soliciting input from the various stakeholder groups involved in the study on the tentative plans that will be presented this fall. This information will be used as additional criteria in selecting a recommended plan that will be presented at the Alternative Formulation Briefing scheduled for Jan 04.

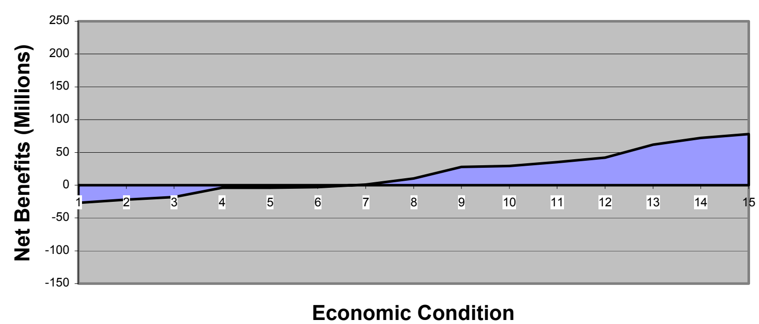
Graph 2 - Alt. 2 Benefit Distribution



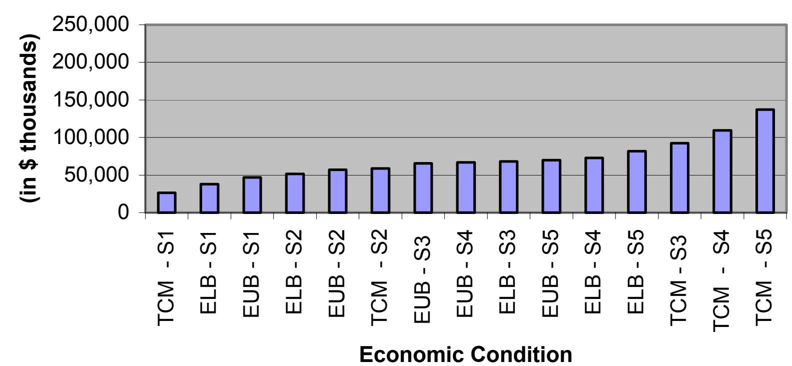
Graph 3 - Alt 2
Average Annual Net Benefits Forgone
Given an Economic Condition

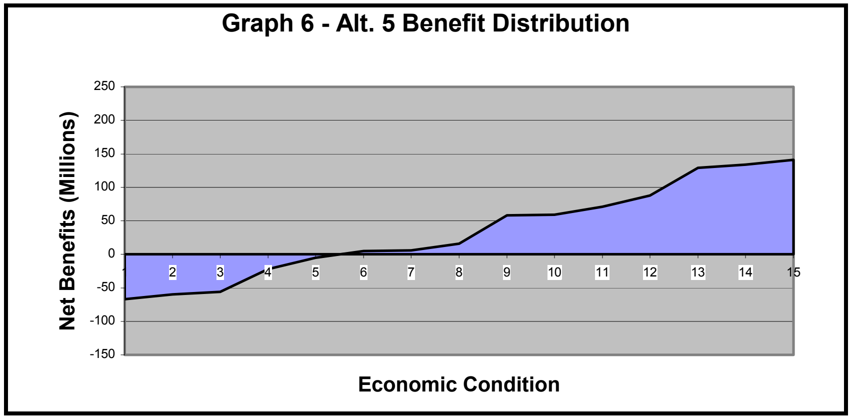


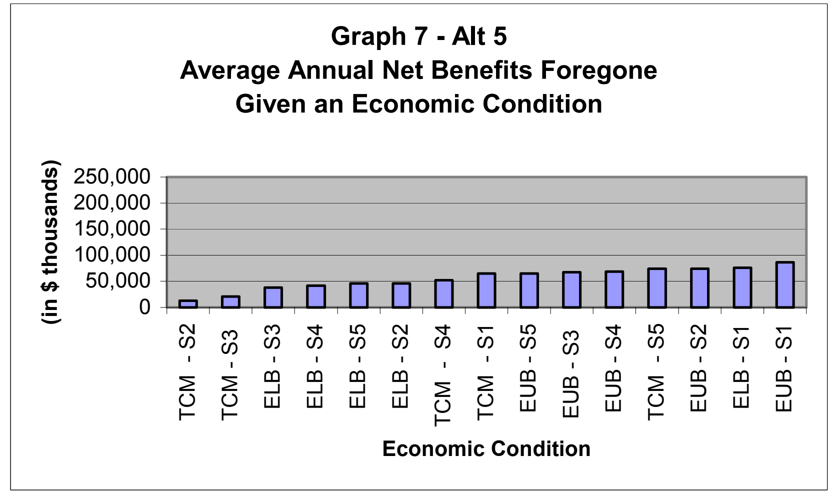
Graph 4 - Alt. 4 Benefit Distribution

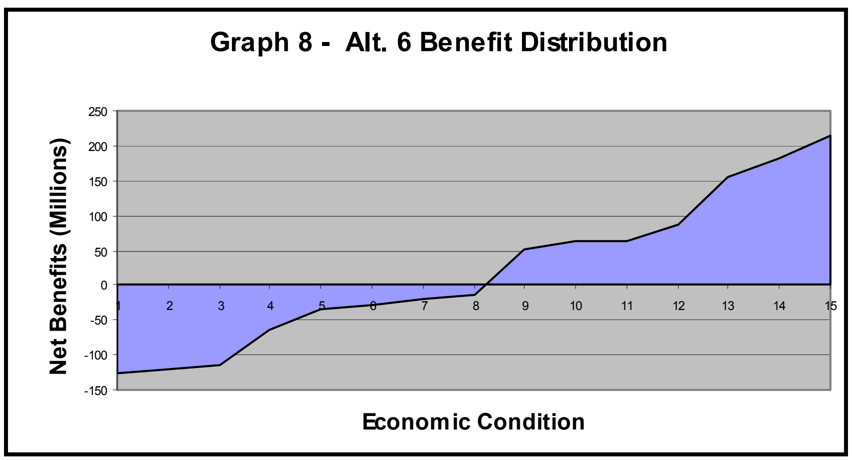


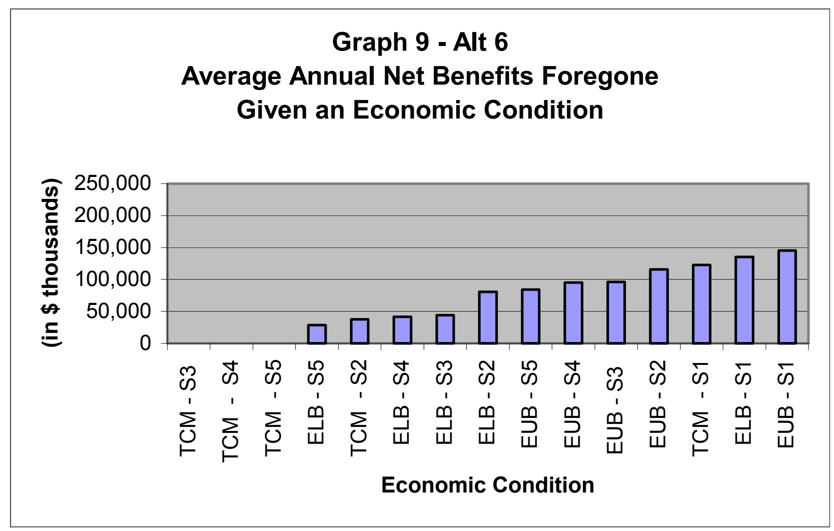
Graph 5 - Alt 4
Average Annual Net Benefis Foregone
Given an Economic Condition




Graph 6 - Alt. 5 Benefit Distribution
Net Benefits (Millions)
250
200
150
100
50
0
-50
-100
-150
2 3 4 5 6 7 8 9 10 11 12 13 14 15
Economic Condition


Graph 7 - Alt 5
Average Annual Net Benefits Foregone
Given an Economic Condition
(in $ thousands)
250,000
200,000
150,000
100,000
50,000
0
TCM - S2
TCM - S3
ELB - S3
ELB - S4
ELB - S5
ELB - S2
TCM - S4
TCM - S1
EUB - S5
EUB - S3
EUB - S4
TCM - S5
EUB - S2
ELB - S1
EUB - S1
Economic Condition


Graph 8 - Alt. 6 Benefit Distribution
Net Benefits (Millions)
250
200
150
100
50
0
-50
-100
-150
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Economic Condition


Graph 9 - Alt 6
Average Annual Net Benefits Foregone
Given an Economic Condition
(in $ thousands)
250,000
200,000
150,000
100,000
50,000
0
TCM - S3
TCM - S4
TCM - S5
ELB - S5
TCM - S2
ELB - S4
ELB - S3
ELB - S2
EUB - S5
EUB - S4
EUB - S3
EUB - S2
TCM - S1
ELB - S1
EUB - S1
Economic Condition

Ecosystem Restoration Alternatives – Environmental alternative evaluation will occur in two stages as we move towards a selected plan. The first stage will primarily examine alternative plan outcomes and costs to evaluate their effectiveness, completeness, and efficiency in addressing identified objectives.

Effectiveness: will be assessed by identifying the extent to which the alternative plan contributes to achieving each objective.

Completeness: will investigate the extent to which alternatives provide for all identified objectives.

Efficiency: will be evaluated to identify how cost effective the alternatives are in achieving the objectives.

This first stage of evaluation will allow for further refinement of the alternatives and provide a preliminary assessment of their ability to achieve the desired UMR-IWW environmental objectives. The second stage of evaluation will assess the overarching criteria of alternative risk, robustness, acceptability, and adaptability to identify the most appropriate environmental alternative plan for the UMR-IWW system. Similar, to the navigation efficiency evaluation, a matrix format will be utilized. The cells in the matrix would be populated with the number of objectives or habitat units being achieved and the cost of achieving them at each alternative restoration level. The costs and outcomes are further broken down by the UMR-IWW ecosystem components addressed by the alternatives (i.e., hydrology, geomorphology, water quality, habitat, and biota). To a large extent, this ecosystem restoration matrix is still in a developmental form and is not yet ready for distribution. Subsequent monthly status reports will continue to track the progress of this effort.

STEP 5: COMPARISON AND INTEGRATION OF ALTERNATIVE PLANS

Alternative integrated plans will be developed by combining the alternatives derived for each of the two study elements, navigation efficiency and ecological restoration. Each alternative plan will be formulated with respect to the Principles and Guidelines criteria of completeness, efficiency, effectiveness, and acceptability. The primary challenge is to align the alternatives in such a way that the resulting plan can simultaneously meet the dual objectives of navigation efficiency (reduction of lock congestion delays) and ecosystem integrity (an environmentally sustainable system). The environmental and navigation improvements that are combined must be compatible and internally consistent such that no component of the alternatives constrains the ability to implement the other. The integrated plans will be developed over the next two months and presented at the October public meetings.

STEP 6: SELECTION OF RECOMMENDED DUAL PURPOSE (INTEGRATED) PLAN

Risk, robustness, adaptability and acceptability will be the criteria for evaluating the integrated plans and selecting a recommended plan. Input from the October public meetings will be used to develop a recommended plan that will be documented in the Draft Feasibility Report scheduled for completion in April 2004. The Mississippi Valley Division Commander is responsible for the final alternative plan selection, documentation and justification.

II. ADDITIONAL TOPICS OF INTEREST:

NATIONAL RESEARCH COUNCIL (NRC) REVIEW – The U.S. Army Corps of Engineers has entered into an agreement with the National Research Council (NRC) to conduct a review of the Upper Mississippi River -Illinois Waterway Restructured Navigation Study. The NRC review will be conducted by a committee of approximately 13 members with a breadth of expertise including aquatic ecology, agricultural and transportation economics, water resources planning, systems engineering, public policy, econometrics, transportation, watershed science, hydrologic engineering and system operations. Qualified committee members will likely come from academia, industry, consulting, government, and non-governmental organizations. The committee will conduct its review on a parallel path with other study activities and provide input at key study milestones and decision points. The independent review will be conducted generally in accordance with the NRC recommendations in its recent report Review Procedures for Water Resources Project Planning.

COLLABORATION AND COMMUNICATION - A recent National study of 105 ecosystem management projects found that *collaboration* was cited more than any other variable (61%) as critical to project success (Yaffee, Phillips et al. 1996). 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. Since the restart of the restructured navigation study, all interaction with the stakeholders has been accomplished in a collaborative atmosphere. The study team has been working very closely with the stakeholders of the system in providing real time information at coordination meetings and through monthly status reports posted to the study website. Detailed responses to frequently asked questions are provided on the study website and updated periodically. In addition, newsletters are published semi-annually and distributed to a mailing list of over 9,500 stakeholders and members of the interested public, and the study website is updated as information becomes available. Over the next year, there are several key time periods where significant information will be available for widespread public dissemination and review. The following provides the approximate date and general description of these key information release dates:

- ✓ **Oct. 03:** Release of Tentative Plans to stakeholders and public.
- ✓ **Jan. 04:** Announcement of the Alternative Formulation Briefing.
- ✓ **April 04:** Release of Draft Feasibility Report with EIS for Final Public Review.
- ✓ **Aug 04:** Release of Final Feasibility Report with EIS.
- ✓ **Oct 04:** Release of Chiefs Report.

REMAINING MILESTONES AND SCHEDULE - There are obviously hundreds of activities involved in completing the Feasibility Study, however the remaining schedule can be categorized into 4 separate stages for the purposes of this discussion (Figure 1).

FY03				FY04				FY05
1	2	3	4	1	2	3	4	1
Data Collection & Analysis Documentation / Refinement of Env. And Econ. Models		**Evaluation Phase** Identification and Justification of Tentative Alternative Plans		**Coordination** State / Fed / NGO / Public / DRAFT Report Completion / AFB / ITR		**Review** Public / Agencies / USACE-HQ	**Final Processing** Final Feas. Rpt / Div. Cmdr. Notice/ Chiefs' Rpt	

Figure 1. Graphical representation of remaining stages in the completion of the Feasibility Study. Fiscal years (i.e. FY03) are subdivided into quarterly blocks (i.e. 1 = Oct-Dec, 2 = Jan-Mar, etc.)

(1) Evaluation (Present to 1 Oct 03) **-**The team is currently working on the evaluation of navigation efficiency and ecosystem restoration alternatives. This will result in the development of a series of tentative plans that will integrate all economic and environmental information from contractors, ERDC, and study team.

(2) Coordination of Tentative Plans (1 Oct 03-1 April 04) **-**This stage includes public meetings, an Alternative Formulation Briefing, Section 7 Formal Consultation and Biological Opinion determination and completion of the Independent Technical Review process. During this phase the study team will select a tentative recommended plan that will be documented in the draft Feasibility Study scheduled for completion on 1 April 04.

(3) Review of Draft Feasibility Report and EIS (1 April 04-1 Sept 04) **-**This stage includes the formal public (90-d) and Corps policy review of the Draft Feasibility Study and EIS, resolution of comments received and completion of the final Feasibility Report and EIS by 1 Sept 04.

(4) Final Processing by MVD and USACE (1 Sept 04-29 Oct 04) **-** This stage includes all processing needed to complete a Division Commanders Notice and Chiefs Report.

COST-SHARING ISSUES - It has been tentatively concluded that implementing ecosystem restoration measures to assure the sustainability of the system will require a combination of 100% Federal and cost-shared measures. A preliminary draft cost-sharing memorandum was presented at the GLC on 13 May and provided to the state and other Federal Agencies on 28 May. Based on comments received, a revised version was created and resubmitted, on 27 June, to the GLC/NECC/ECC for their review and comment. This memorandum presents options and recommendations for cost sharing and implementation actions. Comments from the states are being consolidated through the GLC. This was a topic of discussion at the recent GLC meeting (August 5). The tentative application of the criteria for how the ecosystem restoration components will be funded is scheduled to be accomplished this fall and will be shared with the stakeholders sometime in Sept. prior to the Oct public meetings.

NAV. STUDY NEWSLETTER – Volume 9, Number 2, of the UMR-IWWS Navigation Study newsletter will be finalized for print by mid September. The main topics will be: the announcement of the October public meetings and their locations, times & format; and study results.

PUBLIC MEETINGS (OCT. 2003) – A series of seven public meetings will be held the last two weeks of October '03 to present the array of tentative alternative plans. The dates and cities will be as follows:

20 Oct - St. Louis, MO	**28 Oct - St. Paul, MN**
21 Oct – Quincy, IL	**29 Oct - La Crosse, WI**
22 Oct – Peoria, IL	**30 Oct – Dubuque, IA**
23 Oct – Davenport, IA	

*Final format***:** Open House - 3-5 p.m. (include stakeholder involvement and displays)
Opening Presentation - 6:30-7:15 p.m.
Presentation-related Q's & A's - 7:15-8:00 p.m.
Group Completes Comment Sheets - 8:00-8:30 p.m.
General Q&A/Statements