



US Army Corps of Engineers

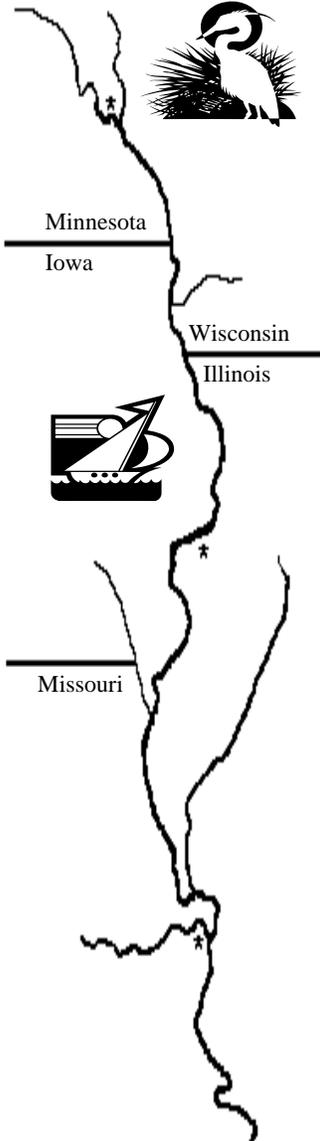
Upper Mississippi River - Illinois Waterway System Navigation Study

UMR-IWWS Navigation Study Newsletter

February 1994

Vd. 2 No.1

CORPS/AGENCY COORDINATION COMMITTEES ESTABLISHED



GOVERNORS' LIAISON COMMITTEE

-By Jacqueline Chandler-

The U.S. Army Corps of Engineers is currently in the second phase of the Upper Mississippi River - Illinois Waterway (UMR-IWW) System Navigation Study - the feasibility phase. The initial work in this phase involves collecting, compiling, and evaluating the engineering, economic, and environmental data. Through the system-wide analyses, the Corps of Engineers will work with others to identify and prioritize needs, quantify benefits from alternative future actions, and identify impacts of increased navigation traffic and of implementation of measures. The study will result in a report to the Corps' Headquarters in Washington, DC, and ultimately to Congress for consideration and authorization of a system of projects if economically and environmentally feasible improvements are identified. The economic justification for any recommended improvements will be based on national benefits derived from transportation savings.

It is felt that the greatest impacts, both beneficial and adverse, will be felt most by the people who live within the study area.

Therefore, the Assistant Secretary of the Army (Civil Works) asked the Governors of Illinois, Iowa, Minnesota, Missouri, and Wisconsin to designate a representative to provide a coordinated State governmental position for the navigation study. These representatives have formed the Governors' Liaison Committee.

The Governors' Liaison Committee is chaired by North Central Division. Other Corps of Engineers attendees include Lower Mississippi Valley Division personnel and the technical managers of the study management, economics, engineering, environmental, and public involvement work groups. Some meetings are also attended by the St. Paul, Rock Island, and St. Louis District Engineers; North Central and Lower Mississippi Valley Division Engineers; and Headquarters, Washington, DC, personnel. Committee members meet to discuss study information, views, and ideas.

This forum will facilitate efforts to establish a shared set of goals and expectations for the navigation study and to discuss important issues throughout the study. The five States share many common interests within the study area.

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There are many interrelated issues such as transportation, agricultural and industrial activity, recreation, and the environment.

The following people have been appointed as the Governors' representatives:

Mr. Donald R. Vonnahme
Director
Division of Water Resources
Illinois Department of Transportation
3215 Executive Park Drive
P.O. Box 19484
Springfield, Illinois 62706

Mr. James Hall
Iowa Department of Transportation
Bureau of Policy and Information
800 Lincoln Way
Ames, Iowa 50010

Mr. Ron Nargang
Deputy Commissioner
Minnesota Department of Natural Resources
500 Lafayette Road
St. Paul, Minnesota 55155-4050

Mr. David A. Shorr
Director
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, Missouri 65102

Mr. Patrick J. Osborne
Deputy Secretary
Department of Industry, Labor and Human Relations
201 East Washington Avenue
Madison, Wisconsin 53702

The Governors' Liaison Committee meetings are held quarterly on the day before meetings of the Upper Mississippi River Basin Association (UMRBA). The UMRBA is formed by the five above States to foster coordination of their water resources planning activities. Committee members may invite representatives of other public and private agencies to attend or participate in the meetings as official observers.

The meetings are also open to the public. The scheduled dates and places will be publicly announced. The next meeting will be held on May 17, 1994, in St. Paul, Minnesota. For further information about the Governors' Liaison Committee, you may write to, or call, Mr. Tom Hempfling of the Corps of Engineers' North Central Division,

111 N. Canal Street - 12th Floor, Chicago, Illinois 60606-7205, 312/353-6351. Updated information will also be provided on our 800 number (1-800-872-8822).



ECONOMICS COORDINATING COMMITTEE

-By Paul Soyke-

The Economics Coordinating Committee (ECC) will assist the Economics Work Group by reviewing Scopes of Work and draft products and exchanging information so there is a thorough understanding of the economic analyses, the underlying assumptions, and the accuracy of the final product.

The Economics Coordinating Committee met for the first time on January 27, 1994, and will continue to meet several times a year in advance of the Governors' Liaison Committee and the Upper Mississippi River Basin Association (UMRBA) meetings to review the progress and discuss the issues.

The members currently are:

IL - James Johnson, Department of Transportation
IA - James Hall, Department of Transportation
MN - Dick Lambert, Department of Transportation
MO - Jack Hynes, Department of Transportation
WI - Ellen Fisher, Department of Transportation
MARC 2000 - Christopher Brescia

The Corps of Engineers' point of contact for the Economics Coordinating Committee is Dr. Don Sweeney of the Corps' St. Louis District. Dr. Sweeney can be reached at 314/331-8473. Representatives of other agencies and interests are welcome to attend the meetings or become new members.

NAVIGATION ENVIRONMENTAL COORDINATING COMMITTEE

-By Ken Barr-

The Navigation Environmental Coordinating Committee (NECC) is an interagency committee formed to review and comment on environmental studies being conducted for the navigation study. The NECC contributes to satisfying statutory requirements for interagency coordination and is the primary communication vehicle between the Corps and the natural resources agencies. Corps of Engineers participants include natural resource staff from St. Paul, Rock Island, and St. Louis Districts, and North Central and Lower Mississippi Valley Divisions. The Corps of Engineers' point of contact for the NECC is Mr. Ken Barr of the Corps' Rock Island District. Other Federal and State participants include the following representatives:

- Rick Nelson - U.S. Fish and Wildlife Service
- Al Fenedick - U.S. Environmental Protection Agency (Region 5)
- DeWayne Knott - U.S. Environmental Protection Agency (Region 7)
- IL - Dick Lutz - Department of Conservation
- IL - Butch Atwood - Department of Conservation
- IA - Kevin Szcodronski - Dept of Natural Resources
- IA - Bernie Schonhoff - Dept of Natural Resources
- MN - Steve Johnson - Dept of Natural Resources
- MO - William H. Dieffenbach - Dept of Conservation
- MO - Norman P. Stucky - Dept of Conservation
- WI - Gretchen Benjamin - Dept of Natural Resources

Representatives for the NECC were solicited toward the end of the reconnaissance phase, which was the first phase of our study. The first meeting was held in December 1992 and there have been seven meetings to date. Meetings are held in Moline, Illinois, to provide a central meeting location for the five States, and are chaired by Rock Island District. The meetings are open to the public. Attendance has included transportation interests (represented by MARC 2000), the Quad City Conservation Alliance, Illinois State Water Survey, and others. A typical meeting lasts six hours. The next NECC meeting will be held on May 3, 1994, from 8 a.m. to 1 p.m. at the Moline Holiday Inn.

The NECC members nominate scientific experts for various technical work groups to assist in the detailed design of biological impact studies. Preliminary study plans developed by the work groups are presented to the NECC for comment. Study plans are then finalized by the Corps, considering NECC comments and input from the technical work groups. Information on the status

and direction of the other major study disciplines including Engineering, Economics, Public Involvement, and Study Management has been provided at NECC meetings. An understanding of the relationship between the major study elements is imperative for the NECC to provide constructive study input.

The NECC input will continue to guide detailed environmental impact study planning. The Committee has proven to be an important tool for focusing issues and providing a forum for discussion. As the environmental studies begin to provide results, the NECC will be a major conduit for dialogue concerning environmentally sustainable development.

In the first year of this big study, the NECC has served us well as a meeting ground for five States, the Corps, the Fish and Wildlife Service, the Environmental Protection Agency, and other interested publics. As the studies begin to create results, we look forward to substantive future discussions.

WHAT'S HAPPENING IN FISCAL YEAR 1994?

-By Nelson Cordoba-

Fiscal Year 1994 should prove to be interesting and challenging to those working on the Upper Mississippi River - Illinois Waterway System Navigation Study. A total of \$9.0 million is expected to be spent in executing critical elements of the navigation study. Those involved in performing the work include: St. Paul, Rock Island, and St. Louis Districts of the U.S. Army Corps of Engineers; the Corps' Waterways Experiment Station (WES); the Fish and Wildlife Service's Rock Island Field Office (RIFO) and Environmental Management Technical Center (EMTC); and several Architect-Engineer firms.

The work for this fiscal year will be particularly interesting because many of the analyses and assessments being conducted have never been applied on a "system-wide" basis. The assessments will look at the system from varying perspectives, to include: (1) environmental impacts due to increased traffic; (2) assessment of historical operation and maintenance and evaluation of future operation and maintenance policies, practices, needs, and costs required to keep the existing system operational; (3) evaluation of low cost design of small and large scale improvement measures; (4) determination of physical effects through numerical and physical modeling efforts; and (5) formulation of improvement measures and alternatives to be evaluated.

CORPS HOLDS INFORMATIONAL PUBLIC MEETINGS

-By Sue Simmons-

A series of 14 informational public meetings were held along the Upper Mississippi River and Illinois Waterway in October and November 1993. These meetings were designed to provide basic information to those who were unfamiliar with or who had little knowledge of the Upper Mississippi River - Illinois Waterway System Navigation Study.

The meetings were conducted by members of the Public Involvement Work Group. Approximately 275 people attended the meetings, where they viewed a slide presentation which described the study's background; the study process; and the study's status, including an overview of each work group's current tasks.

At the final seven meetings, we asked those who attended a few short questions. The statistics below give preliminary results from those who responded to our questions:

- 55% had NOT previously attended a meeting on navigation
- 63% had NOT attended a Corps of Engineers meeting in the past 5 years
- 60% learned something new about the navigation study
- 81% learned something new about the Corps' study process
- 74% said the meeting was worth their time to attend

We are grateful to those who attended the meetings. Many technical questions were asked, and we are in the process of getting responses to those questions. The next issue of our newsletter will contain some questions and answers from those meetings. All persons in attendance at the meetings will receive a complete set of questions and answers. If you didn't attend the meetings but wish to receive a copy of the questions and answers, please call our toll-free telephone system at 1-800-872-8822, press 77, leave your name and address, and we will send them to you.

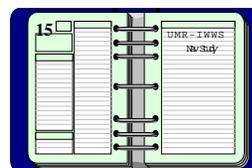
OTHER PUBLIC INVOLVEMENT ACTIVITIES

The informational public meetings were just a part of the total public involvement program. As stated earlier, they were designed to bring those unfamiliar with the study "up to par" with those previously

involved. Other public involvement activities that will continue throughout the study include, but are not necessarily limited to, the following:

Newsletters - We will continue to provide a study newsletter three times a year. One of the results of the public meetings was that the interested public wants more technical information and details about the study. Future newsletters will contain more technical information on current activities or studies.

Toll-Free Number - The 800 toll-free telephone number will be available throughout the remainder of the study. It's as easy as dialing 1-800-872-8822 to get current study and meeting information, to ask questions, or to leave comments for study team members.



UPCOMING MEETINGS

May 3, 1994 - Navigation Environmental Coordination Committee Mtg, Moline, IL, 8 a.m. - 1 p.m.

May 17, 1994 - Governors' Liaison Committee Mtg, St. Paul, MN, 3 p.m. - 6 p.m.

May 18, 1994 - Upper Mississippi River Basin Association Mtg, St. Paul, MN, 9 a.m. - 3:30 p.m.

Fall 1994 - NEPA Process Scoping Public Meetings

ENVIRONMENTAL WORK GROUP STATUS

-By Ken Barr-

The study plan for the UMR-IWWS System Navigation Study identifies 14 individual tasks and studies which are to be conducted to assess the system-wide environmental impacts of commercial navigation. In addition to the system studies, impacts at potential construction sites will be assessed, two important technical committees are to be formed, and an Environmental Impact Statement (EIS) will be prepared in compliance with the National Environmental Policy Act (NEPA). The following is a status report on the first nine months of this six-year study effort.

The Navigation Environmental Coordinating Committee (NECC) was formed and met seven times (see article on page 3 for details). Final arrangements are being made to retain the National Academy of Sciences to review the overall scientific approach of the environmental studies. The Math Modeling Work Group has been formed and has met twice to guide design of models to be used for impact analysis and extrapolation to the Upper Mississippi River System. The Rock Island Field Office of the U.S. Fish and Wildlife Service initiated activities pursuant to the Fish and Wildlife Coordination Act.

Field data previously collected by the Illinois State Water Survey to measure waves and turbulence created by moving barge tows is being analyzed for input to the Physical Model Study. A 1:25 scale physical model of various cross-sections of the river is being built at the Corps of Engineers Waterways Experiment Station (WES) at Vicksburg, Mississippi. The model will be used to predict the various physical effects of barge traffic.

Work Groups have been formed and preliminary study plans drafted for the following biological impact studies: Mussels, Adult Fish, Early Life Stages of Fish, and Draw-down Effects to Fish. An annotated bibliography addressing resuspended sediment and wave effects on plants has been produced to support study plan development. The biological study plans will be refined after input from the Math Modeling Work Group is integrated into the study designs to ensure appropriate coupling with other study elements.

Work Groups to be convened in 1994 include: Bank Erosion, Recreation Craft Impacts on Backwaters, Impacts on Spawning Behavior and the Habitat Use of Fish, and Spatial Database Development for Impact Extrapolation.

INNOVATIVE LOCK DESIGNS

-By Paul Kosterman-

The Engineering Work Group is currently investigating large scale capacity expansion alternatives as part of the engineering analysis. Large scale expansion means the potential for addition of a second lock chamber at existing lock and dam facilities. The second chamber may be either 600 or 1,200 feet long. We are exploring the feasibility

of adding a chamber at several locations within each lock and dam. Locations include landward of the existing lock, through the existing dam control structure, and beyond the control structure – possibly through an overflow embankment. Other considerations are extending the existing lock and completing the auxiliary lock chamber.

Alternative designs spanning a range of performance levels and life expectancy are being analyzed to establish life cycle costs and technical feasibility. The alternatives will consider innovative methods to include construction without dewatering, sheetpile cellular designs, modular construction, and small scale float-in technologies. The engineering alternatives will be coordinated with the economics and environmental disciplines for analysis toward determining the optimal solution.



This photo shows major rehabilitation at Lock 15 in Rock Island, IL.

ESTABLISHING THE RELIABILITY OF EXISTING LOCKS AND DAMS

-By Jack Carr-

The Engineering and Economics Work Groups are working together to determine the timing and consequences of lock rehabilitation and lock closures for the future. The reliability of all lock and dam structures on the Upper Mississippi River and Illinois Waterway will be evaluated, rehabilita-

tion costs will be estimated, and economic justification will be determined for each lock and dam structure in need of rehabilitation and included in the "future without" condition. Optimal timing of rehabilitation to keep the existing system operating over the 50-year period of analysis will be defined. The results will be used in determining the cost and timing of major rehabilitation projects as part of the "future without" condition.

The following major work items will be completed in estimating the reliability of the system:

Establish reliability indices vs. time relationship for a 50-year planning period for each site (without- and with-rehabilitation) - Engineering Work Group

Determine the consequences for unsatisfactory performance and the probable action to correct, and the associated rehabilitation cost - Engineering Work Group

Determine the cost to navigation resulting from unsatisfactory performance - Economics Work Group

Estimate probabilities of unsatisfactory performance based on reliability indices calibrated to past performance - Engineering & Economics Work Groups

Based on probability and consequence, determine the feasibility and optimal timing of rehabilitation of each site - Economics Work Group

ECONOMICS WORK GROUP STATUS

-By Jeff Marmorstein & Jack Carr-

The Economics Work Group has obtained preliminary detailed 1991 Upper Mississippi River - Illinois Waterway waterborne commerce traffic data from the Corps of Engineers' Waterborne Commerce Statistical Center. This data set contains information regarding the origins and destinations of individual shipments of the various commodities transported on the Upper Mississippi River - Illinois Waterway navigation system. These data are being examined for consistency with similar data collected at Upper Mississippi River - Illinois Waterway system locks through the Corps' Lock Performance Monitoring System. This material is important as it provides one of the foundations for both the economic and environmental evaluation of the existing system and possible alter-

natives under investigation in the navigation study.

The work group has begun to compile a comprehensive list of the towboats operating in the study area. Included on this list are the characteristics of the towboats, such as physical size and horsepower.

Work is continuing on the following tasks:

Scoping the analysis for recreational craft impacts - Recreation usage of the system is important with respect to its impact on the environment and on commercial navigation.

Developing a model to predict the occurrence and duration of future navigable pass conditions at Peoria and LaGrange Locks on the Illinois Waterway - Both facilities were constructed with dams which can be lowered. Large wickets in sections span the dam. When river flow and stage levels upstream and downstream of the dam are moderately high, the wickets may be lowered. This allows vessels to pass over the lowered wickets, thus saving time by precluding the necessity to lock through. The future occurrence of navigable pass conditions has an impact on the possible congestion at these two locks.

Improving the congestion estimation model - This model is used to estimate the delays encountered by traffic at various traffic levels for the locks in the navigation system.

Compiling a census of fleeting locations and capacities - This information will be used in both economic and environmental analyses.

The Economics Work Group has completed the system benefit model. The General Equilibrium Model (GEM) is the system model that will be employed by the study team to evaluate the economic benefits of the existing system and potential changes to the system.

PLAN FORMULATION PROCESS

-By Nelson Cordoba-

One of the most challenging aspects of the Upper Mississippi River - Illinois Waterway System Navigation Study will be the plan formulation process and how all interests will participate.

This study is unusually complex compared to traditional Corps studies. Rather than addressing only one location, this system study will formulate

alternative plans for the entire Upper Mississippi River System, an area of almost 700,000 square miles, including 37 lock sites.

First, we need to clearly detail and define the problems and opportunities and establish the existing condition for the year 2000, which is the base year for the study.

A critical step in the plan formulation process is to identify future conditions without any newly authorized Corps project ("future without" project). This 50-year look into the future serves as the basis against which all proposed and considered alternatives are evaluated. The data from one work group serves as input to the analysis of the other work groups as the "future without" condition is projected.

Concepts for individual measures to alleviate or reduce identified problems or to take advantage of opportunities will be developed and evaluated in combinations at individual and multiple locations within the study area. Alternatives with obvious economic, engineering, or environmental deficiencies will be rejected from further consideration. Alternatives that address the identified problems will be packaged together to create a comprehensive system-wide plan for improving the navigation system. Individual measures will be considered singly and combined at various locations in developing a series of alternative plans for the study. Plans may differ not only in their constituent features, but also in the timing of their implementation. Formulation will be a dynamic process in which the recommended plan

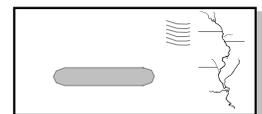
will evolve only after many iterations of the formulation-evaluation sequence.

The plans will then be evaluated in terms of engineering feasibility, economic viability, and environmental acceptability, as well as public acceptance. Plans will be evaluated against the "future without" condition to determine their economic, environmental, and social impacts.

Following the assessment and evaluation of the alternative plans, the study team will screen all evaluated plans to first, segregate feasible plans; and second, to identify among the feasible plans the National Economic Development (NED) plan. The plans are feasible if they are engineeringly cost effective, economically justified, and environmentally acceptable. The feasible NED plan is the plan that reasonably maximizes net national economic development benefits among the alternatives meeting the aforementioned criteria.

Before a plan will be forwarded for recommendation, it will be reevaluated using the completed system-wide environmental information. Results of this evaluation may require further modification of the NED plan, or the addition of mitigation features.

Completion of the plan formulation process will result in the optimum plan for improvement of the navigation system which will be forwarded for recommendation. The recommended plan will be one that best addresses the problems and opportu-



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nities identified during the study and meets the criteria for acceptability. If the recommended plan is not the NED plan, then detailed justification and explanation is required.

As you can see, the Upper Mississippi River - Illinois Waterway System Navigation Study will be challenging from a coordination standpoint. To successfully execute a study of this magnitude, we will need, throughout the study, to inform and involve our many participants and partners in this study: elected officials, the various State and Federal agencies, leaders and members of organized interest groups, waterway system users, the media, the Architect-Engineer firms, the Corps districts and labs, and the interested public.

FUTURE ARTICLES

Look for the following articles in the April-May issue of this newsletter:

- * Benefits - Read about how different types of benefits are evaluated.
- * Response to questions raised at the initial public meetings.
- * Upcoming public involvement activities - Read about the scheduled public meetings.

Questions?

...for general study information, call Nelson J. Cordba, study manager, at 309/794-5399 or write to the address below, ATTN: CENCR-PD-W.

...or for information on Public Involvement meetings, call the toll-free telephone number, 800/USA(872)-8822. Meeting announcements will be in the Public Involvement menu. Or call Kevin Blum, public involvement coordinator, at 612/290-5247, or write to the address below, ATTN: CENCR-PD-C/Blum.

...if you want to be added to the mailing list for future newsletters, study updates, and meeting announcements, write to the address below, ATTN: CENCR-PD-C or call the toll-free telephone number and leave your information in the Public Involvement menu.

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