In your hands: the master plan for the upper Mississippi River. [Supplement, Vol. 5, No. 5] September-October 1981

[Madison, Wisconsin]: [Wisconsin Department of Natural Resources], September-October 1981

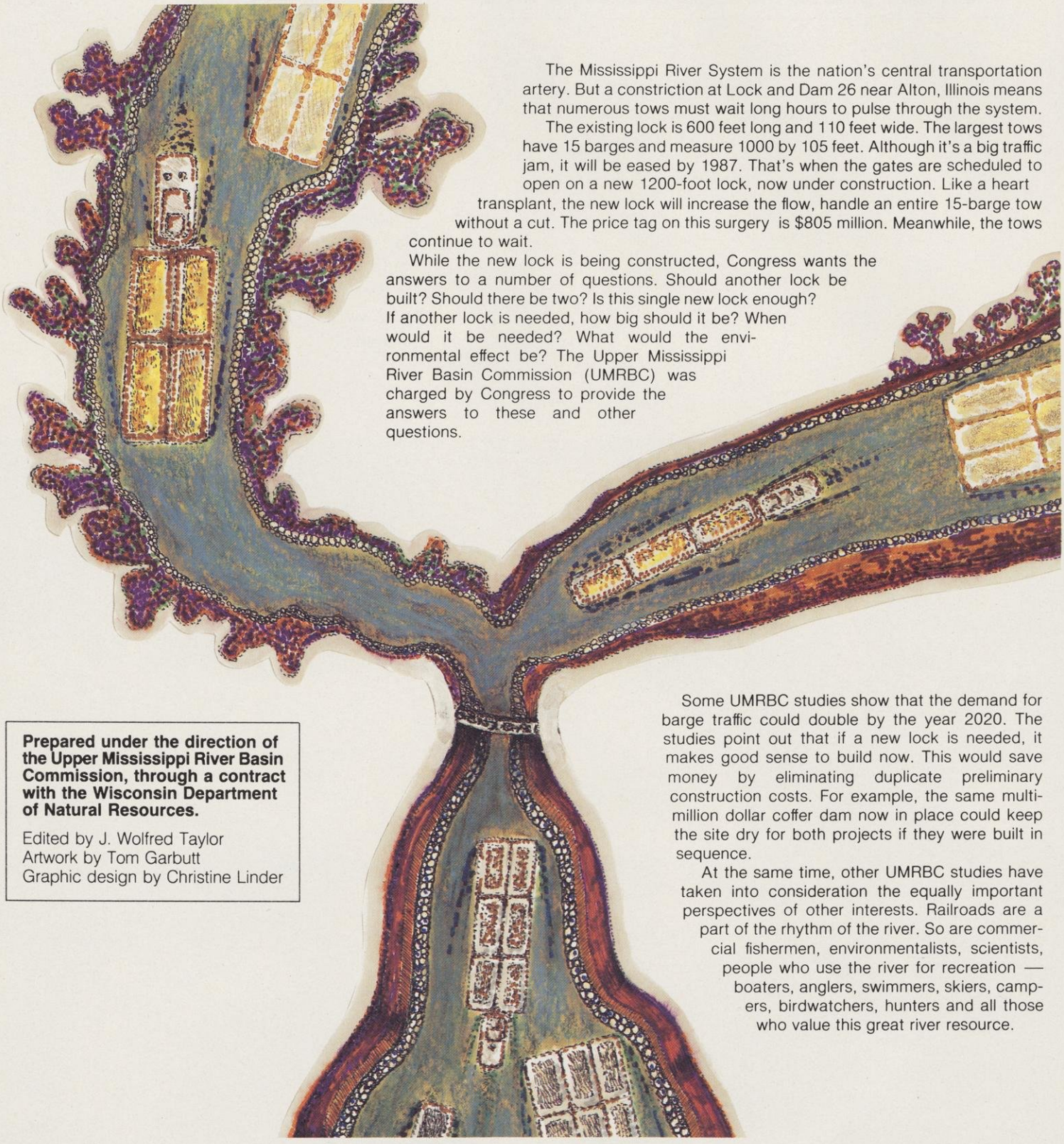
IN YOUR HANDS:

The master plan for the Upper Mississippi River

Upper Mississippi
River Basin Commission

CONTENTS

Constricted artery



The Mississippi River System is the nation's central transportation artery. But a constriction at Lock and Dam 26 near Alton, Illinois means that numerous tows must wait long hours to pulse through the system.

The existing lock is 600 feet long and 110 feet wide. The largest tows have 15 barges and measure 1000 by 105 feet. Although it's a big traffic jam, it will be eased by 1987. That's when the gates are scheduled to open on a new 1200-foot lock, now under construction. Like a heart transplant, the new lock will increase the flow, handle an entire 15-barge tow without a cut. The price tag on this surgery is $805 million. Meanwhile, the tows continue to wait.

While the new lock is being constructed, Congress wants the answers to a number of questions. Should another lock be built? Should there be two? Is this single new lock enough? If another lock is needed, how big should it be? When would it be needed? What would the environmental effect be? The Upper Mississippi River Basin Commission (UMRBC) was charged by Congress to provide the answers to these and other questions.

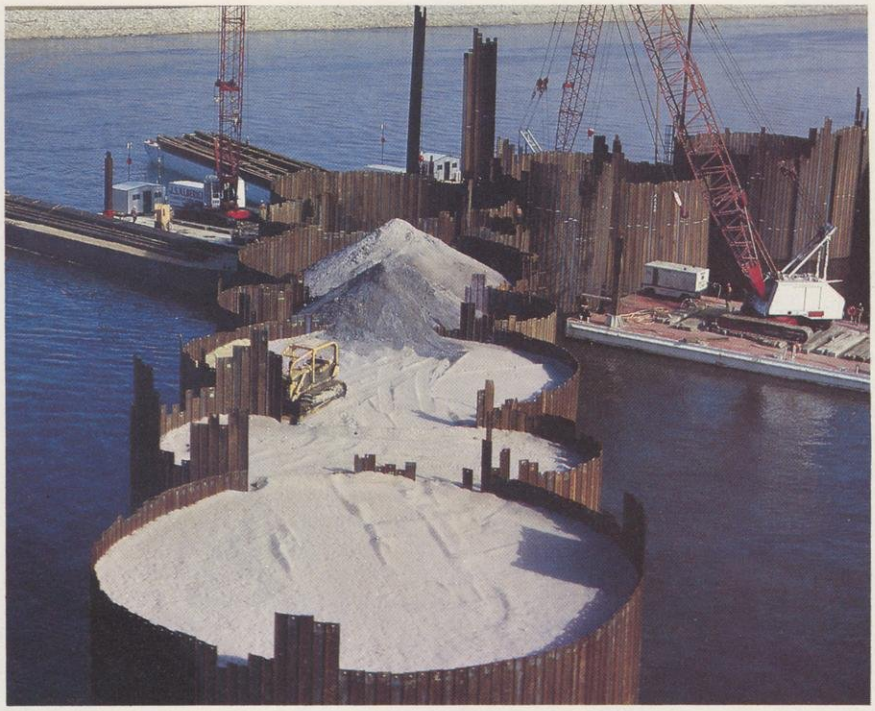
Some UMRBC studies show that the demand for barge traffic could double by the year 2020. The studies point out that if a new lock is needed, it makes good sense to build now. This would save money by eliminating duplicate preliminary construction costs. For example, the same multi-million dollar coffer dam now in place could keep the site dry for both projects if they were built in sequence.

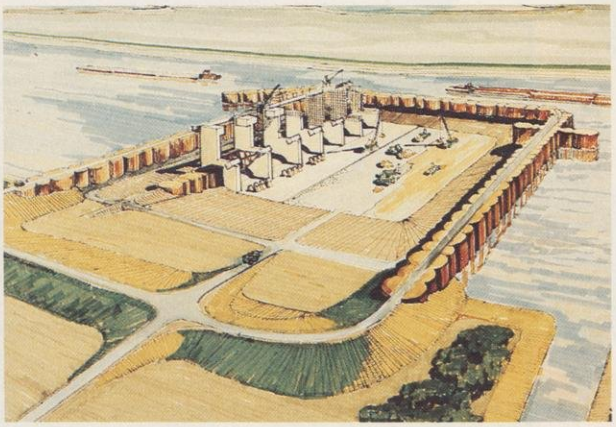
At the same time, other UMRBC studies have taken into consideration the equally important perspectives of other interests. Railroads are a part of the rhythm of the river. So are commercial fishermen, environmentalists, scientists, people who use the river for recreation — boaters, anglers, swimmers, skiers, campers, birdwatchers, hunters and all those who value this great river resource.

Prepared under the direction of the Upper Mississippi River Basin Commission, through a contract with the Wisconsin Department of Natural Resources.

Edited by J. Wolfred Taylor
Artwork by Tom Garbutt
Graphic design by Christine Linder

What's happening!





▲ Workers will first build a temporary "coffer dam" then construct the permanent structure inside it. *Artist's conception*

◀ Preliminary work on Alton's new Lock and Dam 26 began in the summer of 1980.

▼ The old lock, now in use at Alton. When completed in 1987, the new 1,200-foot lock should go a long way toward relieving this kind of tie-up. Corps of Engineers photos

Congress has the key

THE MASTER PLAN

When Congress authorized one new 1,200-foot lock at Alton, it indicated that more information was needed before deciding on a second one. Lawmakers set a deadline of January 1, 1982 for receiving a report containing this information. The Upper Mississippi River Basin Commission was charged with providing it. The report to Congress is called a "Master Plan" and is designed to balance present and future navigation activity with the economic, environmental and recreational objectives of the river system.

Congress asked for answers about:

- The impact of commercial navigation on recreation, potential wilderness areas and cultural resources.
- The carrying capacity of the Upper Mississippi River System including the Illinois River and parts of the Minnesota, Kaskaskia, Black and St. Croix rivers.
- Costs and benefits to the nation of expanding the system's capacity for navigation.
- The effect of expansion on railroads, on national transportation policy and on those who need rail service.
- The economic need for a second lock at Alton, Illinois.
- Ways to mitigate any damage that might be caused by a second lock.
- Costs and benefits of disposal of dredge spoil outside the floodplain.
- The possibility of a computer information system to analyze effects of alternatives.

The plan also presents ways to improve institutional arrangements for managing the river. It considered ways to resolve conflicts over competing uses. There is need for continued coordination among states and federal agencies involved, if the river is to be managed as a whole.

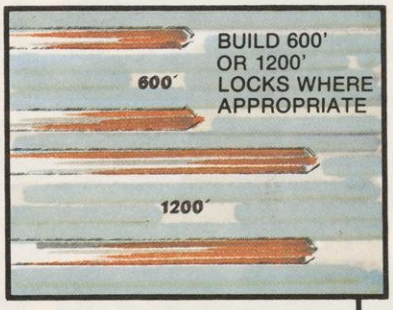
Barge operators, railroads, the Corps of Engineers, the Fish and Wildlife Service, the states, conservation groups and others all see the Upper Mississippi system in a different light. UMRBC's job is to recognize, understand and consider ways to balance all these views.

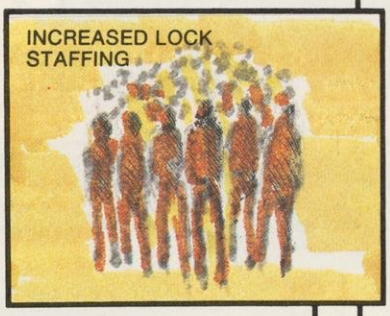
Master Plan studies are now complete and a draft of recommendations has been drawn up. This will be reviewed and revised after UMRBC hears and considers input from citizens through public meetings and hearings. The final Master Plan, approved by the Basin Commission, will then be submitted to Congress and the Administration for consideration.

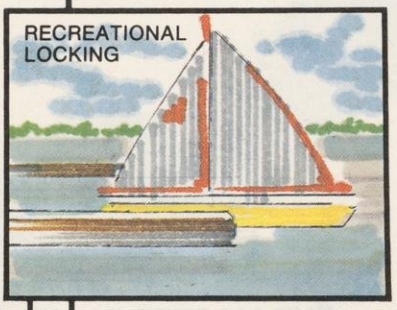
Ways to increase capacity

The Master Plan looked at a number of different structural and nonstructural measures for increasing the navigational carrying capacity of the Upper Mississippi River System. Some of these measures require the waterway industry to take on most of the effort and expense of the increase, while others have government doing most of the work. Still others lie somewhere in between.

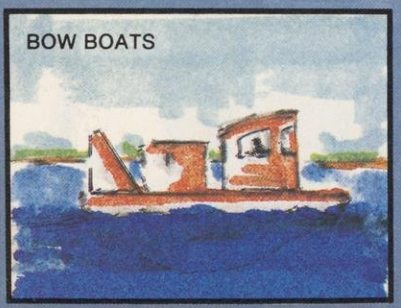
Some of these measures are shown here. Not shown are proposals for improving approaches and lock design, and speeding up operations in winter.

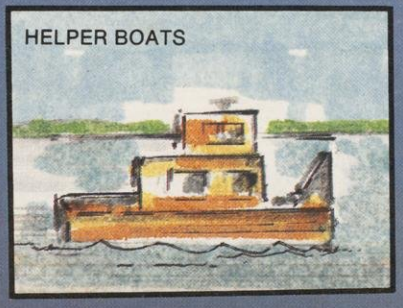






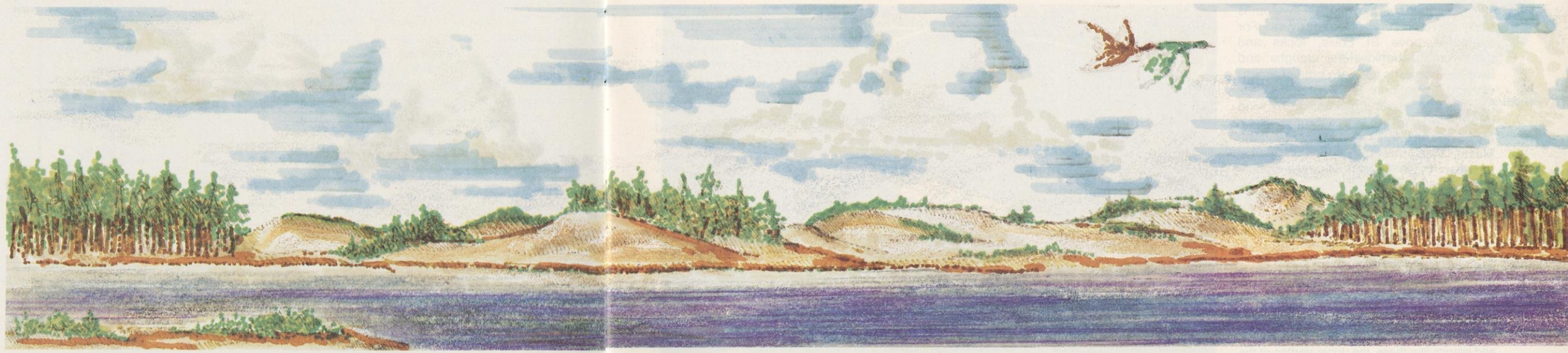
The confluence of the Mississippi and Illinois (right) Rivers. Photo by Richard F. Ashley, Schlitz Audubon Center





Balance

NOT THIS

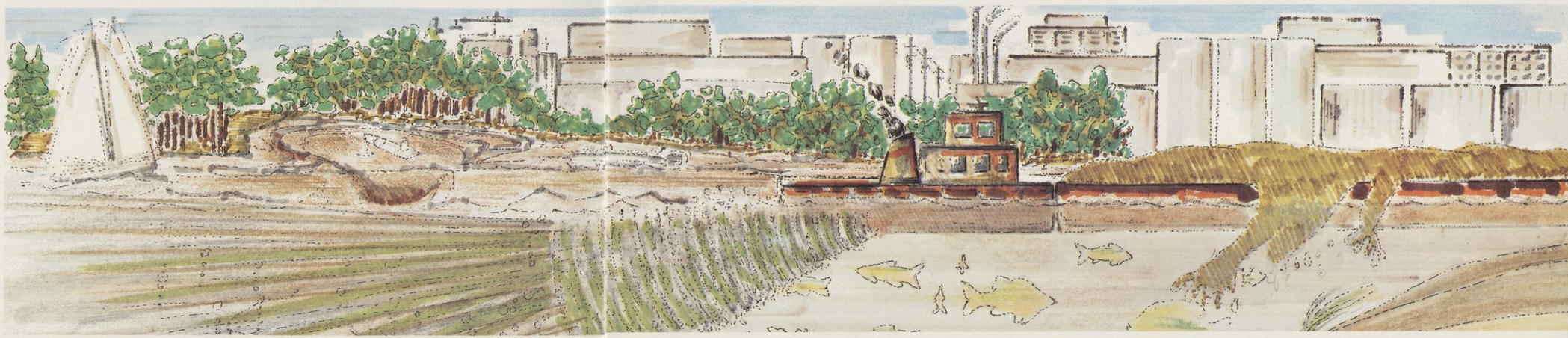


THIS:
THE MASTER PLAN

The Master Plan aims to strike a balance among all the various uses of the river. None can dominate. The Upper Mississippi will not become a barge canal and drive everything else away. Nor is returning to a pristine "Garden of Eden" era realistic either.

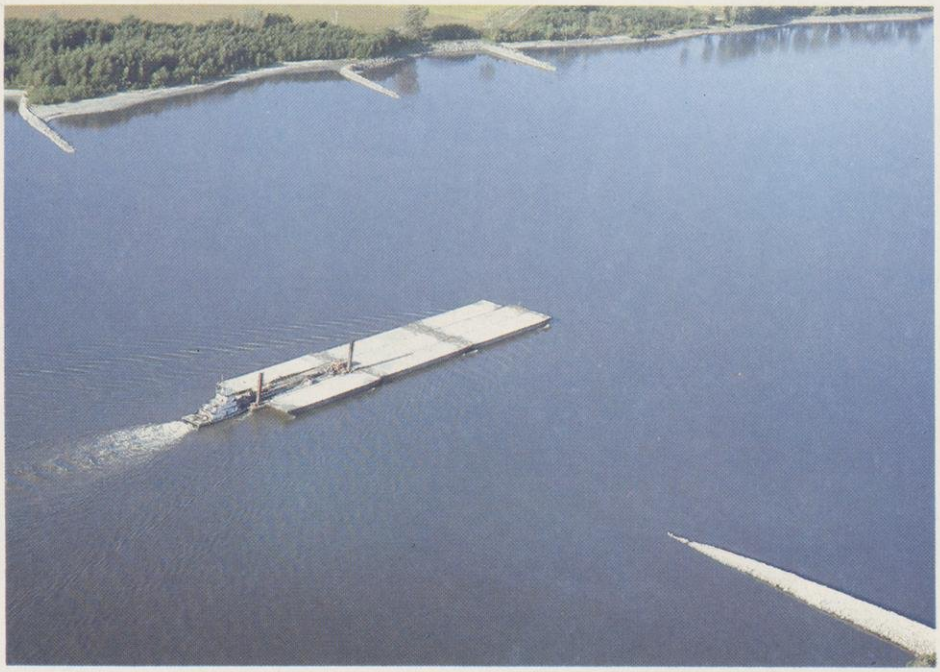
What is planned is a place for everything—commerce, industry, solitude, wildlife, recreation and all multiple uses.

NOR THIS



Different rivers

The Upper Mississippi River System is really several very different rivers. For example above St. Louis, locks and dams create backwaters, sloughs and lake-like pools. Its uses are both commercial and recreational. Below St. Louis, the navigation channel is maintained by wing dams, dredging and high riverbank dikes. Its uses are mostly commercial. The Master Plan strives to strike a balance between these different rivers and their many uses.

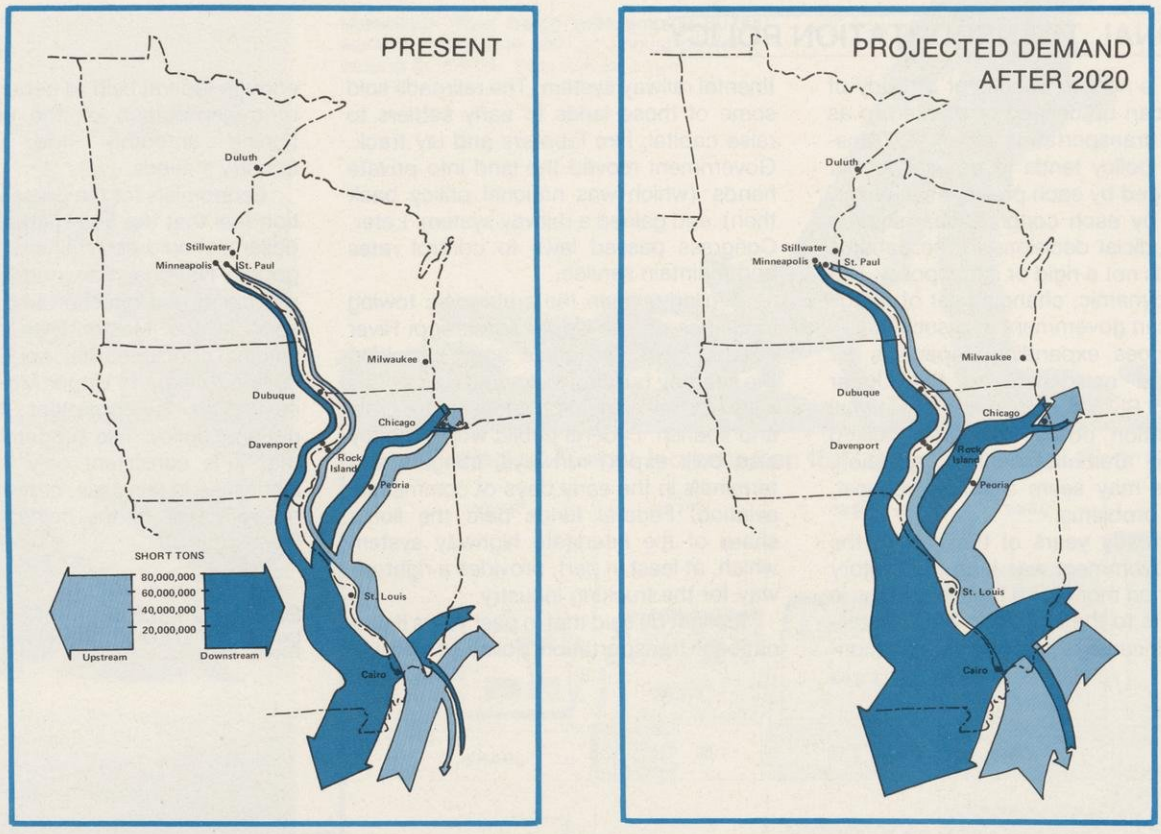


Wing dams and dikes that prevent flooding ▶ and aid navigation are principal features of the river between Cairo, Illinois and St. Louis.

▼ Scene north of Winona, Minnesota. Characterized by sloughs, chutes, lakes, backwaters and islands like these, the upper portion of the Mississippi River is rich in recreational and environmental amenities.

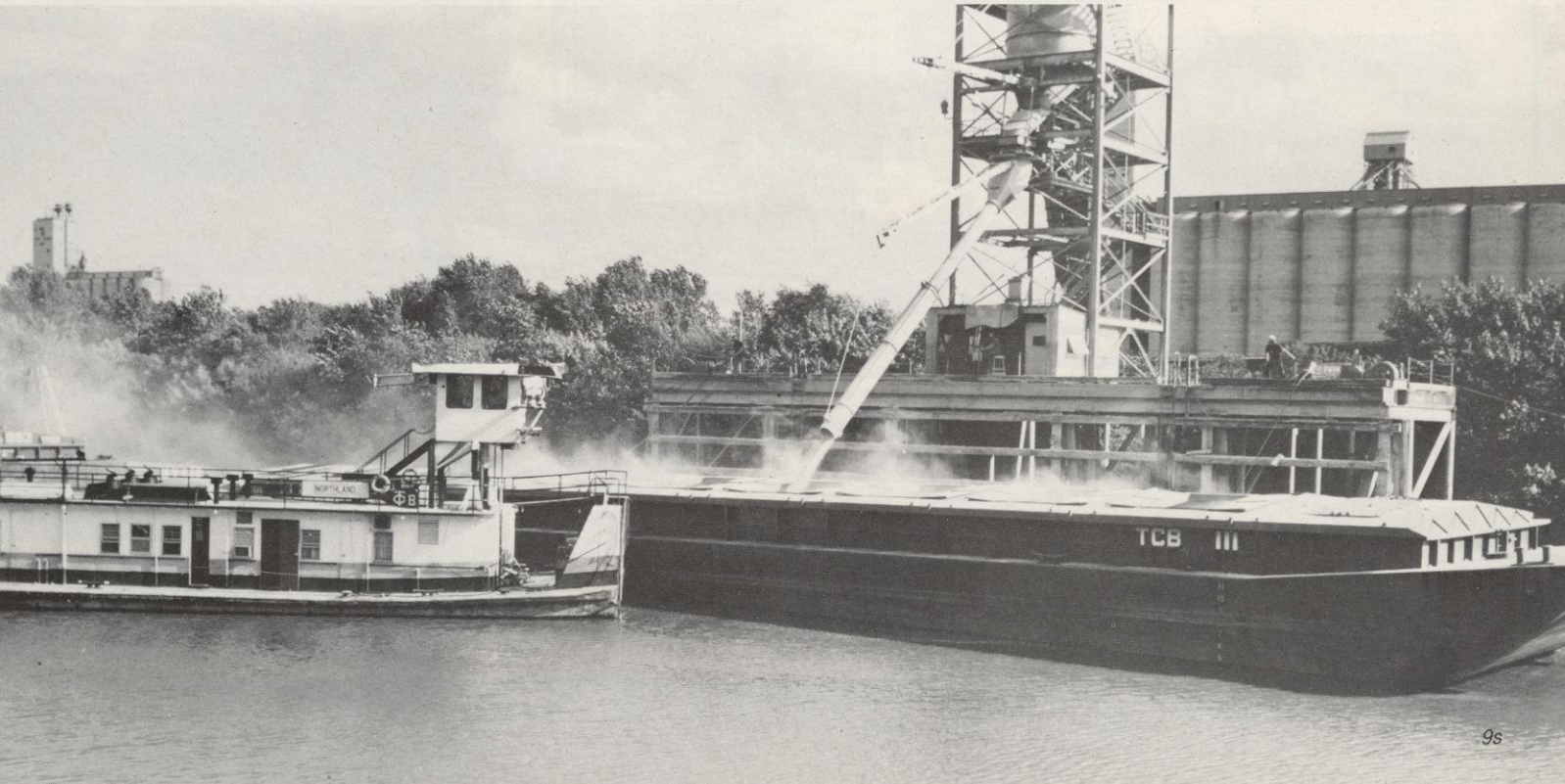
Photos by Richard F. Ashley, Schlitz Audubon Center

Commodity movement



Traffic projections show that if all possible improvements are made, demand for moving cargo on the Mississippi system could more than double sometime after the year 2020. There will not be twice as much traffic everywhere. Some places will be higher, others lower. Drawing by Georgine Price

Loading grain at Savage, Minnesota, near Minneapolis-St. Paul. Grain from the nation's breadbasket makes up 60% of all downstream traffic on the Mississippi's main stem. Photo courtesy Twin City Barge and Towing Co.



Railroad and river

NATIONAL TRANSPORTATION POLICY

There is no one document or body of law that can be defined or pointed to as "national transportation policy." Transportation policy tends to be worked out and changed by each presidential administration, by each congressional session and by judicial decisions in the nation's courts. It is not a rigid or static policy. It is rather a dynamic, changing set of trends in American government and society.

How does expanding capacities for commercial navigation on the Upper Mississippi River System relate to national transportation policy? Congress asked the Basin Commission that question. While this may seem a simple request, there are problems.

In the early years of the nation, the federal government was long on territory and short on money, so it gave millions in land grants to the country's fledgling railroads as incentives to build the transcontinental railway system. The railroads sold some of those lands to early settlers to raise capital, hire laborers and lay track. Government moved the land into private hands (which was national policy back then) and gained a railway system. Later, Congress passed laws to control rates and maintain service.

Similarly, when the embryonic towing industries on the Upper Mississippi River needed help, Congress again provided the seed by building locks and dams. This allowed the navigation industry to grow and flourish. Federal public works money also built airport runways, hangars and terminals in the early days of commercial aviation. Federal funds paid the lion's share of the interstate highway system which, at least in part, provides a right-of-way for the trucking industry.

It might be said that in past years it was national transportation policy to provide enough federal help to get any new mode of transportation off the ground, functioning smoothly and serving the country's needs.

Economists for the present administration feel that the free market, not federal dollars, should determine who moves the goods. National transportation policy is moving in that direction and it is used as such in the Master Plan studies. The studies conclude that spending federal dollars to expand Upper Mississippi River navigation is consistent with current national policy. The economists point out that it is consistent only if the beneficiaries — in this case, barge interests — repay a part of the costs through user fees.

Economists are considering higher user fees for barges plying the Mississippi waterway. Photo by Robin J. Irwin.

COMPUTER MODEL

How much traffic can the Mississippi River System carry? Is there an economic need for a second new lock at Alton, Illinois? What are the costs and benefits of expanding navigation capacity?

A math simulation computer model was developed to help answer these questions. The model was programmed with information on what goes up and down the Illinois Waterway and the Mississippi on barges, how locks operate, what sort of equipment the navigation industry uses and some projections of future events.

With that information, the model can tell planners a great deal about what would happen to commercial traffic, given a range of possibilities. There is an inventory of structural and nonstructural ways to increase navigation. A total of 43 ways were identified.

Some require minimum government and maximum industry effort to achieve, while others are just the opposite. A cost-benefit analysis was done for each scenario to help decision-makers.

Increasing barge traffic could have an effect on railroads. Photo by David H. Thompson

FINANCING: user fees

As is the case with management of any natural resource, the river decisions Congress makes will cost money. There will be costs to keep the river commercially navigable for whatever level and nature of traffic Congress feels appropriate. There will be costs associated with providing recreational opportunities for the boater, hunter, angler and nature lover — and costs to protect the environmental quality of the river, especially in areas where public or commercial uses are competing.

Congress is expected to use the information in the Master Plan to help calculate these expenditures based on decision options presented to it. But beyond that, Congress will likely draw on other studies of both the river and related issues, plus public hearings, before deciding who pays for the benefits.

In some cases, it is possible that river management costs will not be much different from waterway management financing elsewhere in the nation. But Congress may decide special steps need to be taken to meet commercial, environmental or recreational management objectives of the Upper Mississippi. If so, Congress must also decide who pays the bills and how to apportion them.

It's also possible the different users may disagree on what is a fair share. If a new lock is important to commercial traffic, should commercial operators pay the entire cost or should recreational boaters who also use the lock pay a share, too? And if so, how is that share assessed?

In other cases, Congress may decide that the nation's taxpayers should pick up certain river-related costs to benefit economic health and national security.

Assuming commercial users pay for river management, to what extent will the consumer be affected? Our economic system lets the entire cost of a product — from raw material to store shelf — be passed on to the consumer. It is possible river user fees will be reflected in consumer prices. Evidence of that would not be limited to Minneapolis or Memphis, but would even extend to grocery stores in foreign cities. Midwest grain, in these days of international commerce, often ends up a long way from home via the Mississippi.

EFFECT ON RAILROADS

The master plan investigated the effect of expanded navigation on the financial health of the railroads. It examined a series of "scenarios". They ranged from no further construction on the river after the one new lock and dam at Alton, to major renovations. The possible renovations included expansion of more than a dozen locks and dams on both the Illinois and Mississippi rivers.

Completed studies recognize that without any improvements, a part of future increases in traffic would have to be diverted from the river to the railroads. If improvements *are* made, the amount of freight diverted may be reduced.

Any expansion of navigation capacity that takes place over a long period of time may not affect the railroads. Long-term change gives railroads a chance to adapt and invest their efforts and capital according to future market demands.

The studies

One study analyzes the relationship of waterway expansion to the whole transportation picture in the Midwest and the nation. It talks about possible affects of federal programs, including railroad deregulation, waterway use charges and railroad revitalization. It catalogues both state and national policies.

Any expansion of navigation capacity may affect railroads. To estimate what the impacts might be, the Commission evaluated cargo shifts from rail to barge that might occur if navigation capacity increases. Barges and railroads carry many of the same commodities like grain, coal and chemicals and often compete with each other. The study collects information about the financial condition of key Midwestern railroads, including information about labor agreements, financial risks, past business problems and rail deregulation.

The various levels of navigation are analyzed and estimates made about which commodities may shift from rail to barge for financial reasons.

Have your say!

PUBLIC PARTICIPATION

The Upper Mississippi River System is a 1,300 mile waterway that links five states and 21 million people. They count on it for commercial navigation and recreation, for a way to assimilate treated waste and provide drinking water. They want it to preserve habitat for fish and wildlife and at the same time cool turbines for electricity. The river moves their coal, grain and other commodities and brings more goods at cheaper cost. But it's not all roses. Today, we realize there are limits to all these uses.

Proposals for increased use could alter river amenities forever. Some are economic, some recreational and others environmental. Trade-offs are required. A way of life for millions of people could be affected. For this reason lawmakers required that the public be involved in the Master Plan every step of the way.

If you love the river, if you like its backwater sloughs and its wildlife, its lonely places or its bustling commerce, then you have an interest in the Master Plan. If you're a farmer, shipper or earn your living in agri-business or chemicals, you have an interest. If you flick an electric switch or eat a pizza, hunt waterfowl, fish, watch birds, swim or boat, you have an interest.

There is no doubt about it. The Master Plan will affect you! To find out more, to make comments or to obtain copies of the draft plan write:

Upper Mississippi River
Basin Commission
7920 Cedar Ave. South, Room #210
Minneapolis, MN 55420
or phone (612) 725-4690

THE FORMAL PROCESS

UMRBC created a Public Participation and Information work team to hold meetings, gather opinion and get out the word. The work team arranged for every study group which produced an element of the Master Plan to have four public members — two representing economic interests and one each for the environment and recreation.

Liaison was established with major environmental groups which then sent a 50-page questionnaire to 400 of their counterparts in the region. The answers comprise the environmental viewpoint on managing the river system.

The work team also conducted a public opinion survey. It revealed that more than half the residents of the basin think environmental integrity of the river rates number one, commerce second and recreation third.

About one-third of those polled feel environmental quality, in general, is improving and that current regulations are adequate. Local officials tend to favor commercial and industrial activity over environmental protection. The general public believes many recreational activities on the river have improved in quality but waterfowl hunters say theirs is on the decline.

A second survey is being conducted to determine whether attitudes have changed in the past 18 months.

CITIZEN REVIEW COUNCIL

A Citizen Review Council was appointed consisting of 98 individuals representing a cross section of expertise and interest in the Upper Mississippi River. Management issues were regularly bounced off these people and reactions made available to those working on different elements of the Master Plan.

The following statements were made by panel members when they were first identifying management problems:

On erosion and sedimentation:

"The problem is that we have no way of directly charging back to farmers the cost of dredges, of loss of habitat, etc. necessitated by land practices that result in erosion and sedimentation. These costs are borne by the national public."

On land use:

"No single agency (federal, regional, state) has authority to exercise land use controls, except over limited portions of the floodplains of the river channels. Authority instead is fragmented among counties, municipalities and townships with deleterious effects on such river-related problems as nonpoint source pollution from agricultural and urban runoff."

On the Corps of Engineers:

"On Inland Waterways, the barge lines and allied parts of the Corps have preempted total authority. Only the Fish and Wildlife agency really represents the rest of the public and its privileges."

"I believe the US Engineers and the Coast Guard have done a good job for nearly 200 years. We do not need any more enforcement agencies."

On research:

"Research is needed on the impact of commercial navigation/development on other functional areas which are declining, specifically on fish and wildlife, critical areas, 'other' recreation and water quality."

Citizen Review Council opinions indicated a wide variety of interests. But, in spite of sometimes opposing views regarding the use of specific resources, the Council eventually recorded a high degree of agreement on the need and method for better coordination among agencies, levels of government and the private sector.

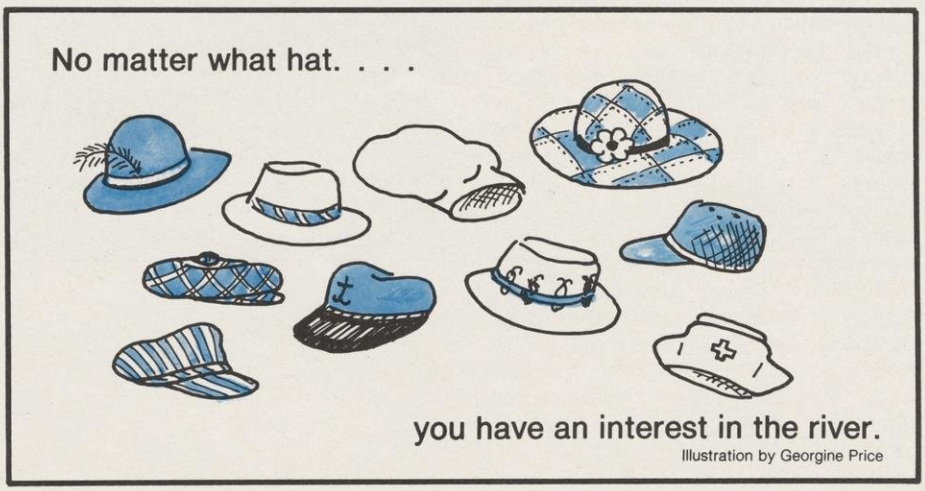


Illustration by Georgine Price

Management ecosystem

INSTITUTIONAL ARRANGEMENTS

From its headwaters in Minnesota all the way to New Orleans, the Mississippi River System is governed by a maze of overlapping authorities. The stretch that involves the Master Plan, from Minneapolis to Cairo including the Illinois Waterway, flows past the borders of five states and through the jurisdiction of at least 21 state agencies and 10 federal departments. Add to these the control exercised by county, city and township government and you get a mixture of institutional relationships that some refer to as the "management ecosystem." It is nearly as complex as the natural ecosystem.

These entities manage the river. Decisions made in one place can often have an effect on other locations. Whether to build an extra lock at Alton and increase barge traffic in several other parts of the system is an example. There are others. If an upstream jurisdiction allows excessive nonpoint pollution, a downstream jurisdiction may not be able to improve water quality. If hydroelectric plants are developed that hold back water upstream, recreation and the environment may be hurt downstream.

Questions like these arise: Can recreation and commercial navigation live together? How can environmental rules mesh with the need to dredge?

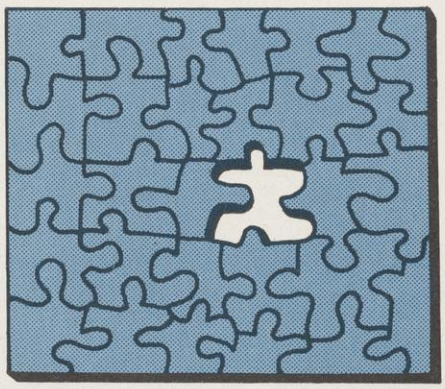
Some system to handle river management is necessary. The system must be able to see the big picture and resolve conflict. States and the federal agencies often have different river management goals. Can some way be found to resolve them?

The Upper Mississippi River Basin Commission, as now constituted, plans and coordinates management goals for the several states and federal agencies involved with the river system. The Commission has no authority to fund, implement or enforce any of the policies it recommends. Many members prefer this system over a strong central authority.

As part of the Master Plan, the Commission studied the present institutional arrangement. Goal was to see if the present arrangement or some other one is a better way to manage the river. Studies originally identified 13 different possibilities. These were reduced to six, and eventually refined to three.

These are the options:

- Maintain individual state and federal authorities with coordination on an "as needed" basis by project with no regional entity.
- Interstate Compact Commission — Governors of the five river basin states and federal agency representatives would develop a comprehensive plan emphasizing regional rather than national goals.
- State-supported River Basin Coordinating Arrangement — A new organization would be formed to mold various state water resource management plans into a comprehensive plan. Each state would have one representative. The organization could add federal agency members if it so desired.



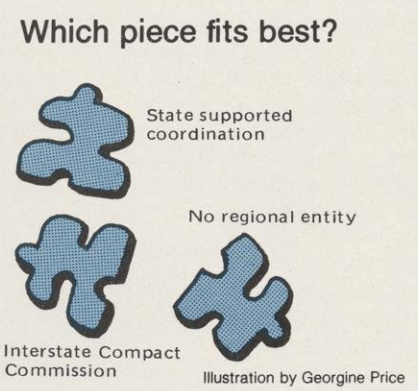


Illustration by Georgine Price

Some of the alternatives called for shifts in responsibility which would probably be resisted by those agencies or states that would lose authority to decide their own fate. Another issue centers around the call for more governmental structure in a time when the trend is toward less government.

Whatever alternative is chosen, priorities now in place will have to form the basis for future action. These have already been identified by the several federal agencies and states that rule the river.

UPPER MISSISSIPPI RIVER BASIN COMMISSION

Rod Searle, Chairman Designate

States:

Illinois—Frank Kudrna, Director, Division of Water Resources, Illinois Department of Transportation
Iowa—Samuel J. Tuthill, Iowa Power and Light
Minnesota—Thomas Kalitowski, Chairman, Minnesota Water Planning Board
Missouri—Alfred H. Kerth, First National Bank of St. Louis
North Dakota—Vern Fahy, State Engineer, North Dakota State Water Commission
Wisconsin—Linda Bochert, Executive Secretary, Department of Natural Resources

Federal Agencies:

Agriculture—William J. Brune, State Conservationist, Soil Conservation Service
Corps of Engineers—Brigadier General Scott Smith, Division Engineer, North Central Division
Commerce—Dean Braatz, First alternate member, Chief hydrologist, National Weather Service, River Forecast Center
Environmental Protection Agency—Harlan Hirt, First alternate member, Region Five
Energy—Robert Bauer, Regional Representative of the Secretary
Health and Human Services—Christopher B. Cohen, Chief, Region Five
Housing and Urban Development—Ronald M. Gatton, Region Five Administrator
Interior—Garrey Carruthers, Assistant Secretary for Land and Water Resources
Transportation—Captain Richard C. Walton, U.S. Coast Guard
Federal Emergency Management Agency—Patrick J. Breheney, Region Seven Director

Commerce and trade

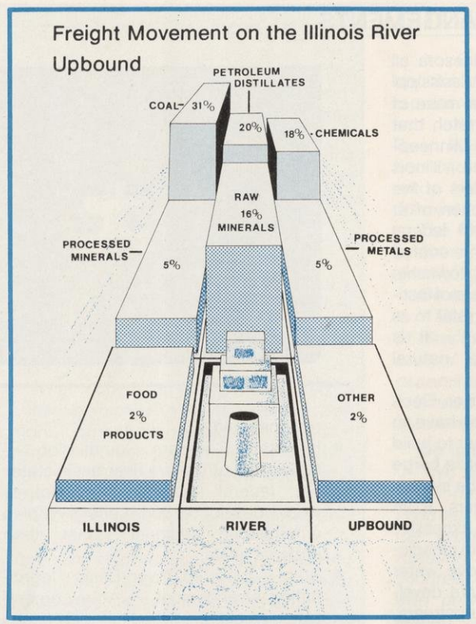
Upper Mississippi River barge traffic is important to the nation and to the Midwest because it moves essential goods, especially for agriculture. More than half the grain leaving the Upper Mississippi basin and 40% of the incoming fertilizer move by barge.

Power plants rely on barges to bring in more than 50% of the coal used to generate electricity. Roughly a quarter of all the basin's petroleum products arrive by water. Most of the rest move through pipelines.

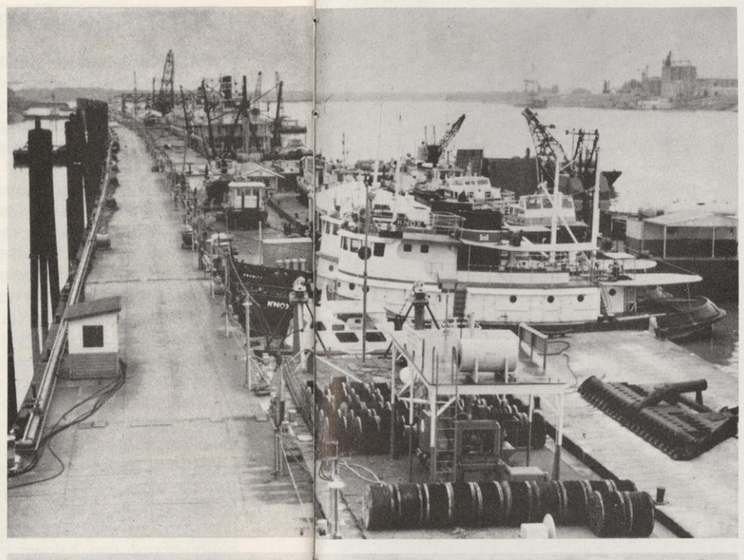
The waterway industry employs 80,000 workers and has an annual payroll of near $1-billion.

A single barge can move as much as 15 freight cars or 60 trucks. For a 15-barge tow, capacity is more than twice that of a 100-car train or equal to nearly 1,000 trucks. Figures show that when shipping by air $1.00 will move one ton of freight 2.7 miles. In a truck it's 8.9 miles, and a train 42.2 miles. But by barge, $1.00 will get you a whopping 181.9 miles.

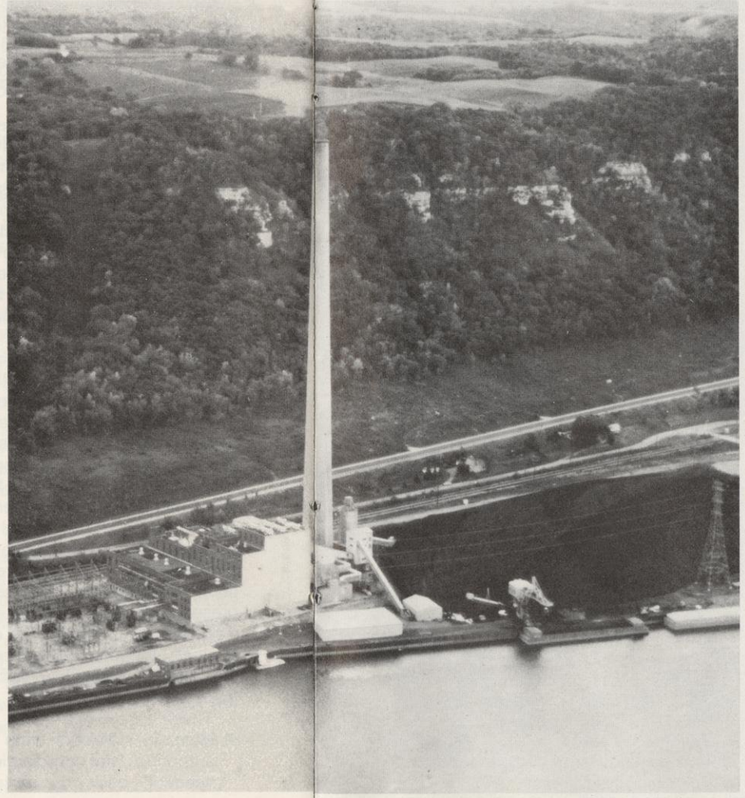
Barges are important now and could become even more so in the future. Data show that barges on the Upper Mississippi and the Illinois River moved 100-million tons of material in 1980.



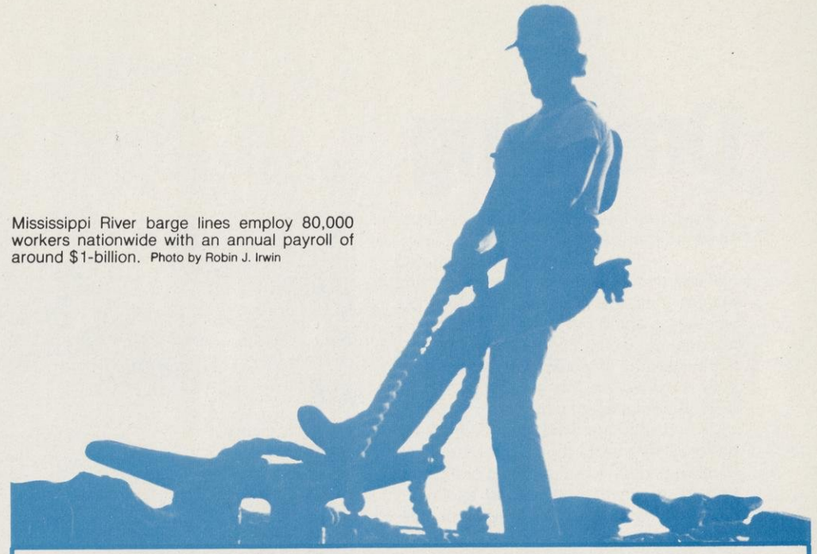
Roughly 60% of all traffic on the Mississippi system goes up and down the Illinois River, to and from Chicago and other river ports.



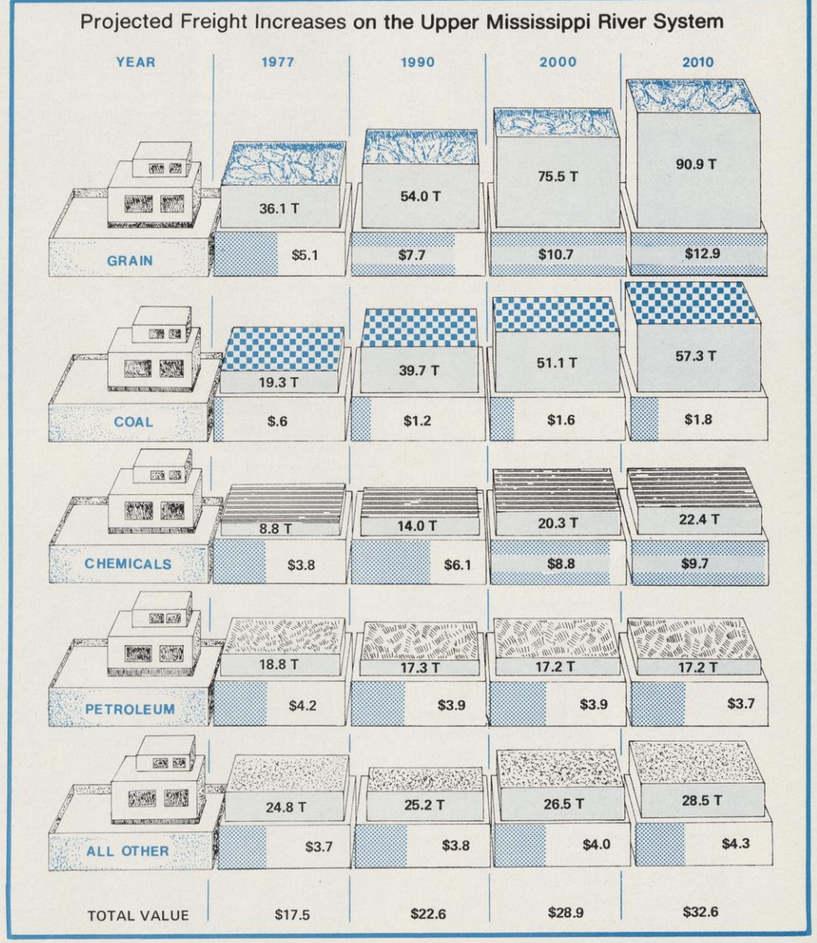
Top right: Riverboats line the dock at a busy repair yard. Photo by David H. Thompson



Barges transport coal for power plants and industries up ▶ and down the river. Photo by Richard F. Ashley, Schlitz Audubon Center



Mississippi River barge lines employ 80,000 workers nationwide with an annual payroll of around $1-billion. Photo by Robin J. Irwin



The demand to haul on the system is projected to increase over time. It may double by around 2020. Grain will increase most, while petroleum products will slowly decrease. Both dollar and tonnage figures are millions.

Dredging

Environmental effects caused by deposition of dredged material in the Mississippi and on shore prompted consideration of the problem by the Master Plan. Congress wanted to know whether it would be feasible to move the material out of the floodplain. Conclusion is that, overall, it would not be beneficial. This is based on the effort, dollars and environmental effects involved.

To ensure safe water depths for navigation, 340 sites in the Upper Mississippi River require periodic dredging or excavation of underwater sand and sediment. Dredged material has two basic sources: runoff from upland cultivated fields and stream bank erosion.

During the past 50 years the Corps of Engineers has dredged an estimated 70 million cubic yards of this material from the river. That's enough to cover the city of Minneapolis a foot deep or fill the Sears Tower in Chicago 5½ times. Today, yearly volumes are much less than in the past and depend upon whether the year has been dry or wet. During a 10-year period, some sites may not be dredged at all, while others are worked seven or eight times.

Where to put dredged material is often a problem. Until the mid-70's material was usually dumped within a half mile of the dredge cut, either on shore, on islands off the main channel or in the channel. A number of people view these disposal practices as harmful to the river system.

For the past several years, states and agencies have worked with the Corps through the GREAT program to look at ways of reducing the amounts dredged and to select sites for disposal.

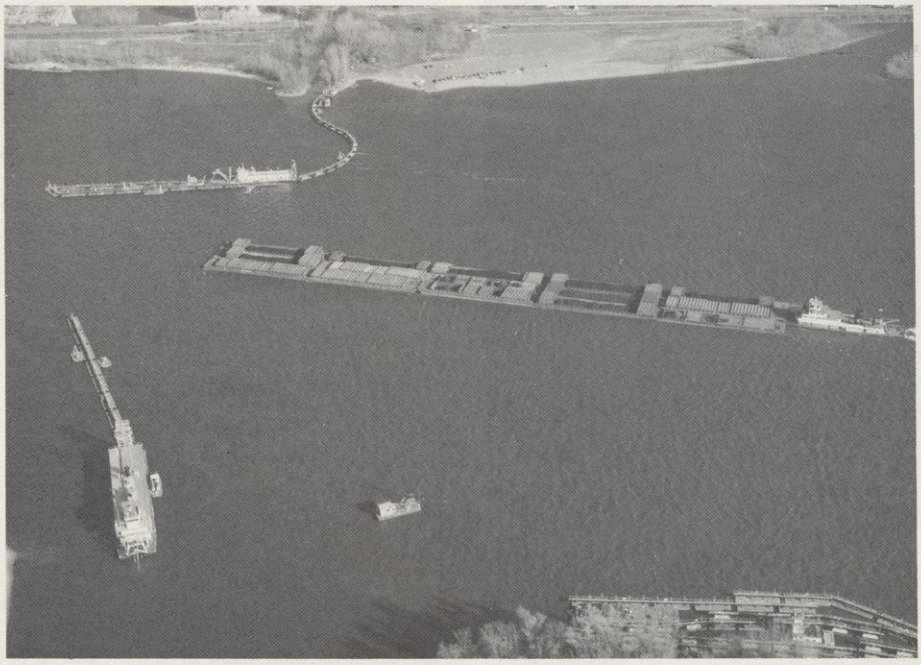
Master Plan and GREAT studies show that dredged material can be used for a variety of beneficial purposes outside the floodplain. Examples are fill, ice control, concrete, asphalt, beach sand, bricks, surface mine reclamation and soil conditioning. One problem with moving dredged material out of the floodplain involves Corps of Engineers' equipment. They are responsible for this task and to do the job right would need new equipment.

Feasibility of disposal outside the floodplain requires consideration of many factors. These include cost of transporting the material, location of the dredge site, the kind of equipment used and the place where any environmental impact might occur.

Dredging has beneficial as well as adverse effects. For example, islands and beaches built from dredged material are used by both boaters and swimmers and in some areas even provide habitat for wildlife.

A road is built along the river using dredged material. Photo by David Kennedy, Great River Study Committee

Dredged material creates islands that are major attractions for boaters, swimmers, campers and others. UMRBC photo



A dredge separates to allow passage of a tow loaded with coal and other commodities. Pumped out of the floodplain, the dredged material will eventually be used for roads, construction and other purposes. Corps of Engineers photo

The Illinois River: A MAJOR SEGMENT OF THE UPPER MISSISSIPPI RIVER SYSTEM

The Illinois Waterway is a chain of several rivers and canals that combine to make up a navigable 333-mile water highway from the Mississippi River to Lake Michigan. The waterway follows the Illinois and Des Plaines rivers to Lockport, near Chicago and from Lockport, through the Chicago sanitary Ship Canal into Lake Michigan. There are eight locks in the system.

The Illinois carries 60% of the combined Upper Mississippi System's freight tonnage. In 1977, this relatively narrow stream transported more than 44-million tons of coal, petroleum products, grain, sand and gravel, chemicals, iron and steel.

Despite serious siltation and pollution problems, the river is still attractive for wildlife, recreation and commercial fishing. The Chatauqua National Wildlife Refuge and other state and private wildlife areas help maintain waterfowl populations. The Peoria and Starved Rock pools are especially popular for recreation.

A barge moves through downtown Chicago. Twin City Barge and Towing Co. photo

The lock and dam at Starved Rock State Park.

Illinois Natural History Survey photo

The Upper Mississippi River:

The system includes not only the Mississippi and Illinois River but also portions of the Kaskaskia, Minnesota, Black and St. Croix rivers.

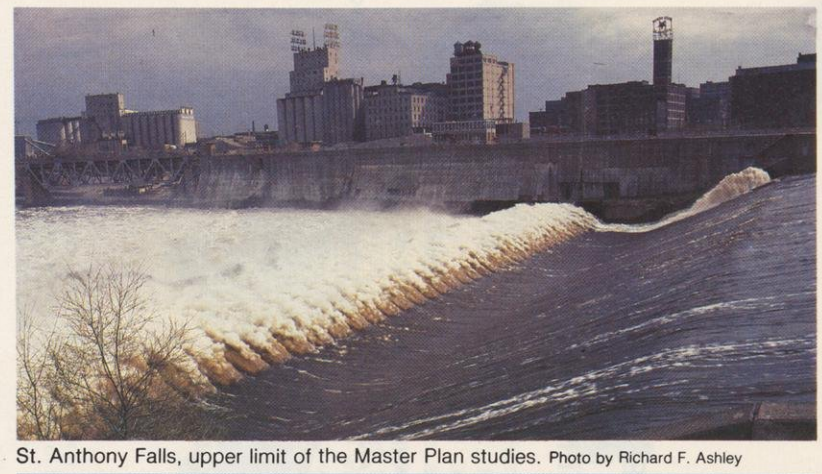
The Upper Mississippi River is an 860-mile waterway extending from Minnesota to the confluence with the Ohio near Cairo, Illinois. For 669 miles of that distance — from St. Anthony Falls in Minneapolis to the Chain of Rocks Canal above St. Louis — the river drops about 420 feet, molded by 29 locks and dams into a series of lakes, or "pools."

The locks and dams help regulate the river for maintaining a nine-foot navigation channel.

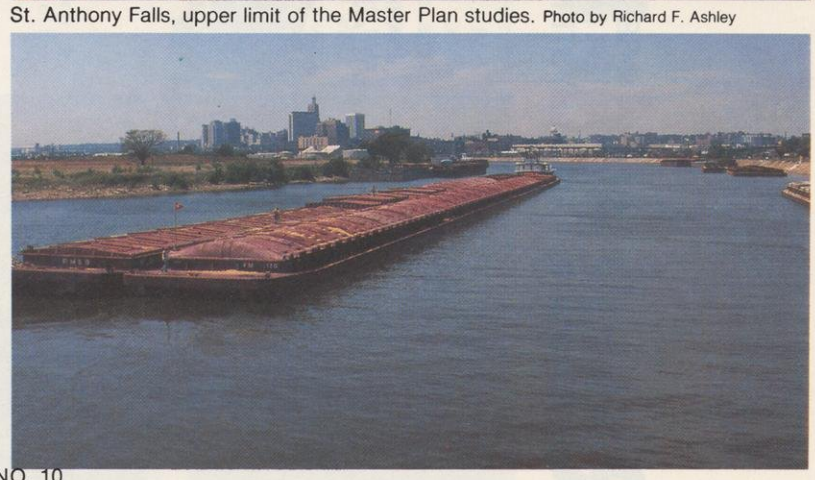
Below the last lock and dam — number 27, above St. Louis — the Mississippi is a much different river from its upper reaches. Through and below St. Louis, all the way past Cairo and down to New Orleans, the Mississippi is an "open" river, unconstrained by locks and dams. Here, channel depth is maintained by dredging and with rock "wing dams" that constrict the river's flow into one main channel. High earthen dikes line the banks to control flooding.

In addition to being a mighty barge way, the Mississippi River is also a recreational mecca. Two National Wildlife Refuges — The Upper Mississippi River Wildlife and Fish Refuge and the Mark Twain National Wildlife Refuge — extend from Wabasha, Minnesota to St. Louis, Missouri. Together they form more than 200,000 acres of wooded islands, waters and marshes. These and three smaller refuges on the Illinois, Minnesota and Trempeleau rivers have been mentioned for national wilderness designation.

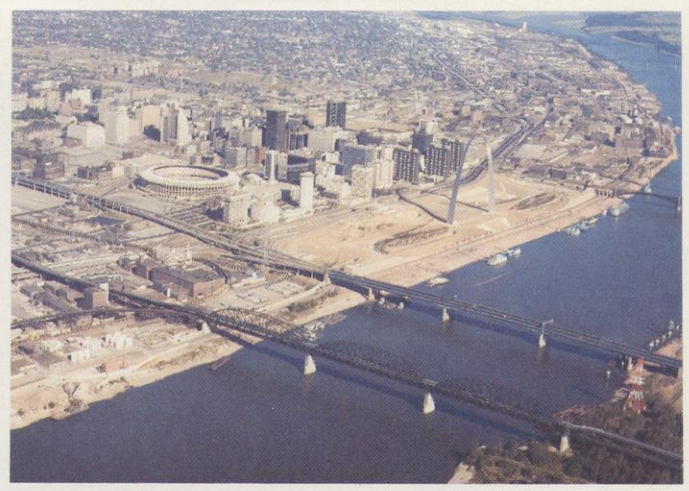
Numerous state and county parks line the river's banks. It is rich in treasured historic and prehistoric sites and other culturally important places.



St. Anthony Falls, upper limit of the Master Plan studies. Photo by Richard F. Ashley

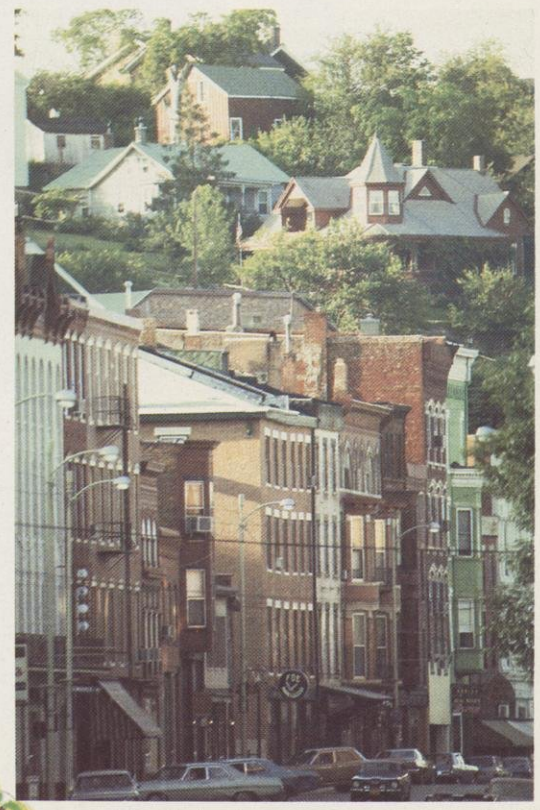


A tow starts its journey downstream from St. Paul. The Twin Cities are a main shipping point on the system and their principal cargo is grain. Twin City Barge and Towing Co. photo



St. Louis has been a major trans-shipment point and terminal since the fabled days of the packet boats. Today tow boats are a major industry which move merchandise destined for both national and international ports. Photo by Richard F. Ashley, Schlitz Audubon Center

Cairo, Illinois, where the Ohio River (right) empties into the Mississippi. This is the southernmost point involved in the Master Plan. Photo by Richard F. Ashley, Schlitz Audubon Center



Historic riverfront towns line the Mississippi's banks. This is Galena, Illinois, home of Ulysses S. Grant. UMRBC photo

Conflict and compromise

TRADE-OFFS

Handled properly, the dredging and diking necesssary to maintain a navigation channel may benefit wildlife and recreation, too. The Master Plan did some detailed studies on ways this might be done.

Where important commercial projects produce undesirable side effects, trade-offs can be worked out.

Some methods already being used include:

Riprapping: This prevents stream bank erosion. Natural rock or quarry stone can be used. Although expensive, it can be installed almost anywhere flow is heavy and scouring high.

Wing dams: When built at an angle, they deflect current into the main channel and the fast flowing water they create is good for bluegills, smallmouth bass and walleyes.

Vegetation: Shoreline plantings can help stabilize the bank. They also enhance recreational use, enhance esthetics, improve water quality, and expand wildlife habitat.

Dredged material islands: Waterfowl and people use them. Sometimes they even provide habitat for the least tern, an endangered species.

Fish barriers: These can keep undesirable species away or steer desirable ones into protected locations.

Hundreds of possible trade-offs exist. Many will probably be negotiated among large, wildlife, recreation and environmental interests as navigational use of the river system increases.

▲Waves made by passing barges can sometimes cause problems for recreational boats. Photo by Richard F. Ashley, Schlitz Audubon Center

▼As traffic on the river increases, the potential for conflict between commercial and recreational craft also rises. The Master Plan anticipates these problems. Aim is to provide room for both. Photo by David H. Thompson

River wildlife

On-shore are flowers of every kind. This is a pink lady slipper. Photo by Richard F. Ashley, Schlitz Audubon Center

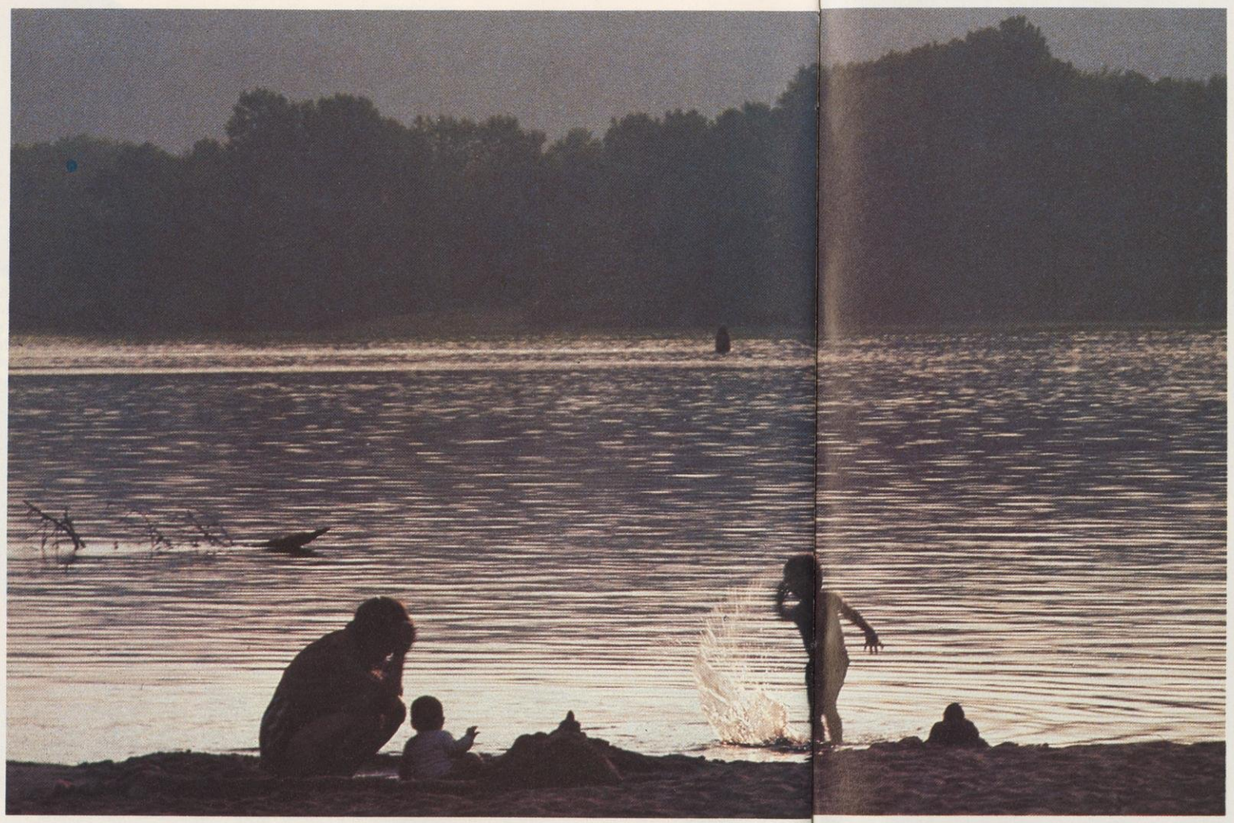
Seventeen endangered species use the river bottom including the Higgins Eye Pearly Mussel. The Master Plan recognizes the need to preserve habitat vital to all these species. Photo by David H. Thompson

Egrets use the river bottom and delight whoever sees them. Photo by Richard F. Ashley, Schlitz Audubon Center

More than 75% of the nation's canvasback population use the Upper Mississippi River as a staging area prior to migrating to the East Coast. It is their last habitat stronghold and the Master Plan recognizes the need to protect it. Photo by Louis George, US Fish and Wildlife Service

Recreation

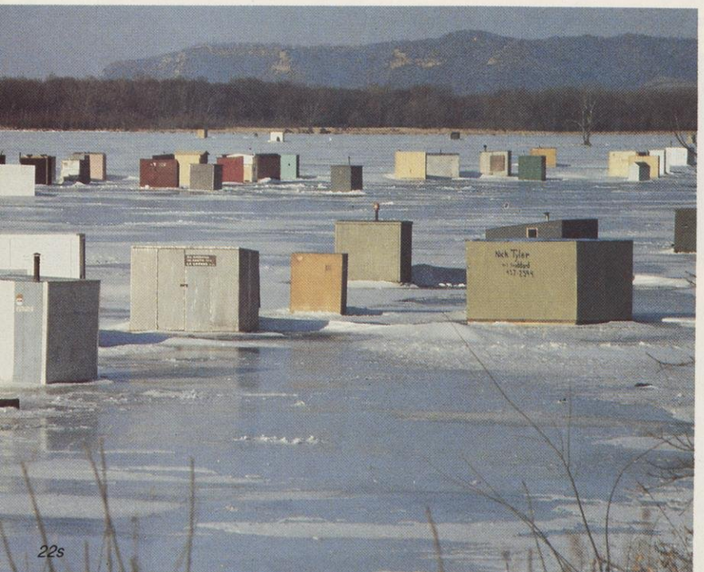
The Upper Mississippi River System provides many recreational opportunities for people living near it. Besides helping commerce, the locks, dams and related navigation aids also created opportunities for boating, fishing, hunting, swimming, sight-seeing, nature study and a myriad of winter sports. Existence of the commercial navigation system has influenced recreation for over a generation but it offers mixed blessings.

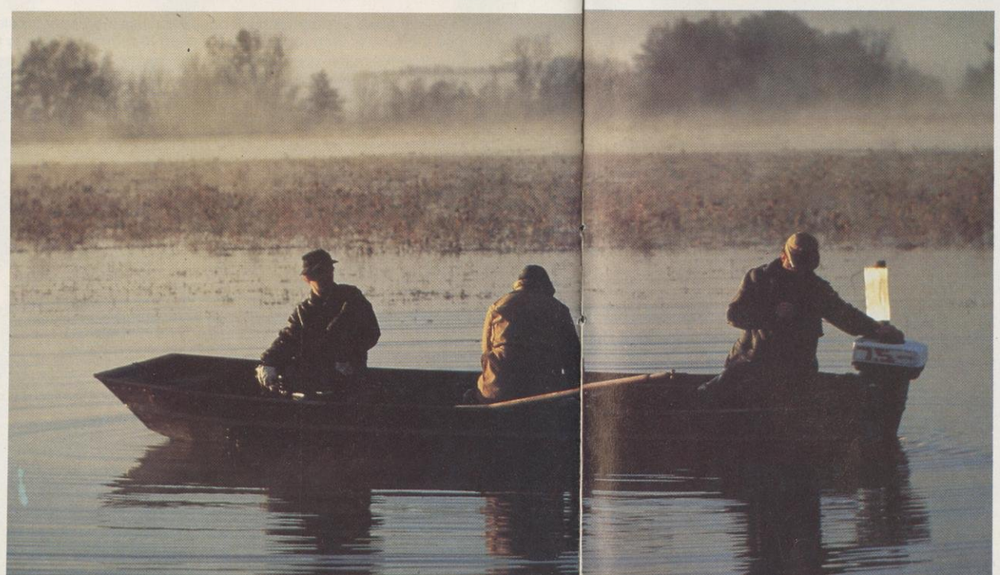


Dredged material can help form beaches for swimmers. It also provides a spot for picnics and camps, but improperly placed can hurt habitat for wildlife. There is need for balance. The Upper Mississippi region chalked up 252-million swimmer days in 1980. This includes the Upper and Lower Illinois which recorded a surprising 123-million. Photo by David H. Thompson

Backwater sloughs and side channels created by the Mississippi's dams attract canoers and others who like to explore. Statistics for 1980 show 6½ million canoe days in the region including a million on the two sections of the Illinois. Photo by David H. Thompson

Fishing is a big draw both summer and winter. Anglers catch walleyes below the dams, catfish in the channels and bass in the backwater lakes. Commercial fishermen take carp and catfish.





Locks and dams facilitate movement of recreational craft from pool to pool. Here they wait in line to lock through. Maintaining adequate depth for commercial navigation also helps pleasure boats. About 50-million boater days are predicted for the Upper Mississippi region by the year 2000. Minnesota-Wisconsin Boundary Area Commission photo

The future

History has impressively recorded the importance of the Upper Mississippi River System to the well-being of the five Upper Midwest states most directly influenced by its waters. Commerce, culture, recreation, agriculture and more have been, and continue to be tied to The Father of Waters.

But what does the future hold for the Mississippi? In the past, it has served our needs. But we ask even more of it.

Perhaps it can give us more, but only with our help and guidance. If the Mississippi is to serve our continuing and escalating needs, we must manage it wisely. Plans must be made and uses balanced.

The Congress of the United States, in 1978, authorized the Upper Mississippi River Basin Commission to develop those plans and make recommendations regarding the river's future. The plans and recommendations will be considered by Congress and the states.

Because people up and down the river are so dependent on it for jobs, food, recreation and solace, it was entirely appropriate that Congress insisted that the people take part in this planning process.

This pre-hearing document is a part of the citizen participation effort. It is an overview — and just that — of the upper river itself and the planning process we have been involved in to prepare for its future. It has been kept general so as not to burden you with details and technical data.

I encourage you to consider this document an invitation: an invitation to seek more information on the studies and recommendations we list, an invitation to attend the public meetings we will sponsor, and more importantly an invitation to any one of the five formal public hearings planned to record your comments (written or oral). Dates, times and places are listed inside.

Again, I appreciate your interest and invite your participation.

Rod Searle

Rod Searle
Chairman-Designate
Upper Mississippi River Basin
Commission

Front cover: The future of the Mississippi lies in the hands of those who love and use it.

Back cover: With care, the river can be protected for the benefit of generations to come.

Photos by David H. Thompson