

THE CHANNEL IMPROVEMENT PROJECT

Before 1866, the Upper Mississippi River still possessed most of its natural character. Hundreds of islands divided it, dispersing the waters into innumerable side channels and wetlands. Sandbars divided the natural river. At low-water, these bars were near to or broke the surface.

As population and agricultural production grew and as railroads gained control of shipping bulk commodities, pressure mounted on Congress to authorize more significant improvements along the Mississippi River. Responding to farmers and states along the upper river, Congress authorized the 4 1/2-foot channel project in 1878. Under this project, Congress directed the Corps to turn the Upper Mississippi River into a reliable transportation route.

To achieve the 4 1/2-foot channel, the Corps narrowed the river's main stem with wing dams and employed dams to cut off its side channels. Placed in a series along one or both sides of the river, the wing dams reduced the channel width at low flows. Closing dams ran from the shore to an island or from one island to another to close side channel openings.

Despite navigation improvements made under the 4 1/2-foot channel project, steamboat traffic declined. Railroads, which expanded after the Civil War, offered greater reliability. Responding to regional and national campaigns for navigation improvements, Congress authorized the 6-foot channel project March 2, 1907. Under this project, the Corps built more wing dams and closing dams, controlling the upper river further.

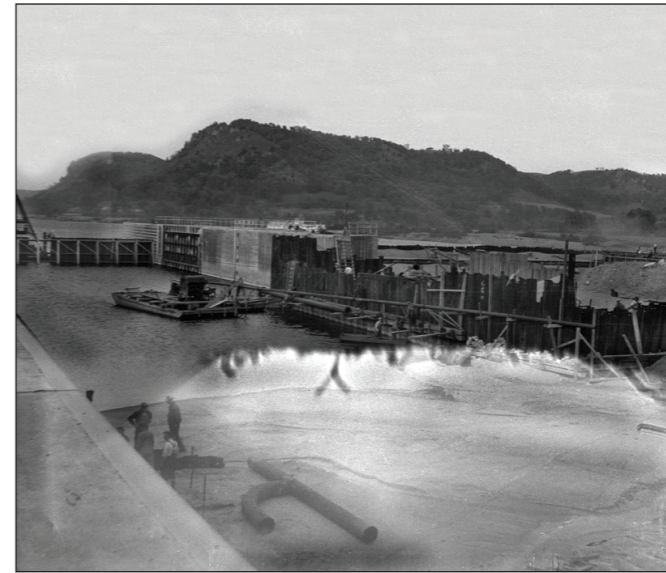


THE 9-FOOT CHANNEL NAVIGATION PROJECT

Despite the Corps' 6-foot channel improvement efforts, by 1918, virtually no through traffic moved between St. Paul, Minnesota, and St. Louis. Fearing the Midwest would become an economic backwater without a diverse transportation system, business and navigation interests initiated another movement to revive navigation. Between 1925 and 1930, they fought to restore commerce and to persuade Congress to authorize a new project for the river, one that would truly compete with railroads. Responding to this movement, Congress included the 9-foot channel project in the 1930 Rivers and Harbors Act.

With the 9-foot channel project, Congress authorized a new approach to navigation on the Upper Mississippi River. Rather than narrowing the river and depending solely on the flow of water from the basin, Congress approved a lock and dam system to be built to store water in reservoirs or pools. Only in this way, the engineers insisted, could they guarantee a 9-foot channel.

The project began in 1931 at Locks and Dam 15 in Rock Island, Illinois, which was the most difficult spot to navigate. By 1940, 26 locks and dams crossed the river between Minneapolis and Alton, Illinois. Lock and Dam No. 19 had been completed in 1913, Lock and Dam No. 1 in 1917 and Lock and Dam No. 2 in 1930. Lower and Upper St. Anthony Falls locks and dams would be completed in 1956 and 1963, respectively, and Locks and Dam No. 27 in 1964, bringing the total number of locks to 29. With a consistently deep and reliable channel, commerce returned to the river. Today, more than 90 million tons of commerce moves on the upper river annually.



St. Paul District
U.S. Army Corps of Engineers
180 5th St E, Ste. 700
St. Paul, MN 55101
www.mvp.usace.army.mil

Rock Island District
U.S. Army Corps of Engineers
Clock Tower Building
P.O. Box 2004
Rock Island, IL 61204
www.mvr.usace.army.mil

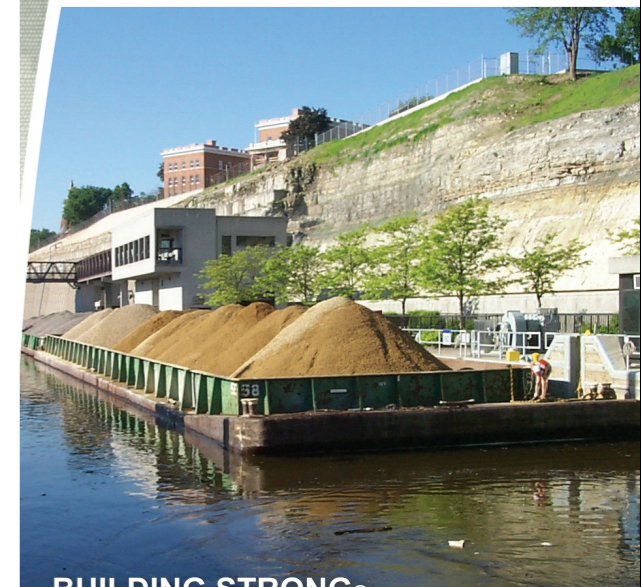
St. Louis District
U.S. Army Corps of Engineers
1222 Spruce St.
St. Louis, MO 63103
www.mvs.usace.army.mil

Mississippi Valley Division
U.S. Army Corps of Engineers
P.O. Box 80
Vicksburg, MS 39181-0080
www.mvd.usace.army.mil

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NAVIGATION

Navigation is travel or transportation over water. Many different kinds of vessels are used on rivers to move people and products from place to place. The most common way of transporting products on rivers is by towboat and one or more barges. The barges are loaded with products, such as grain, coal and petroleum.

RECREATION

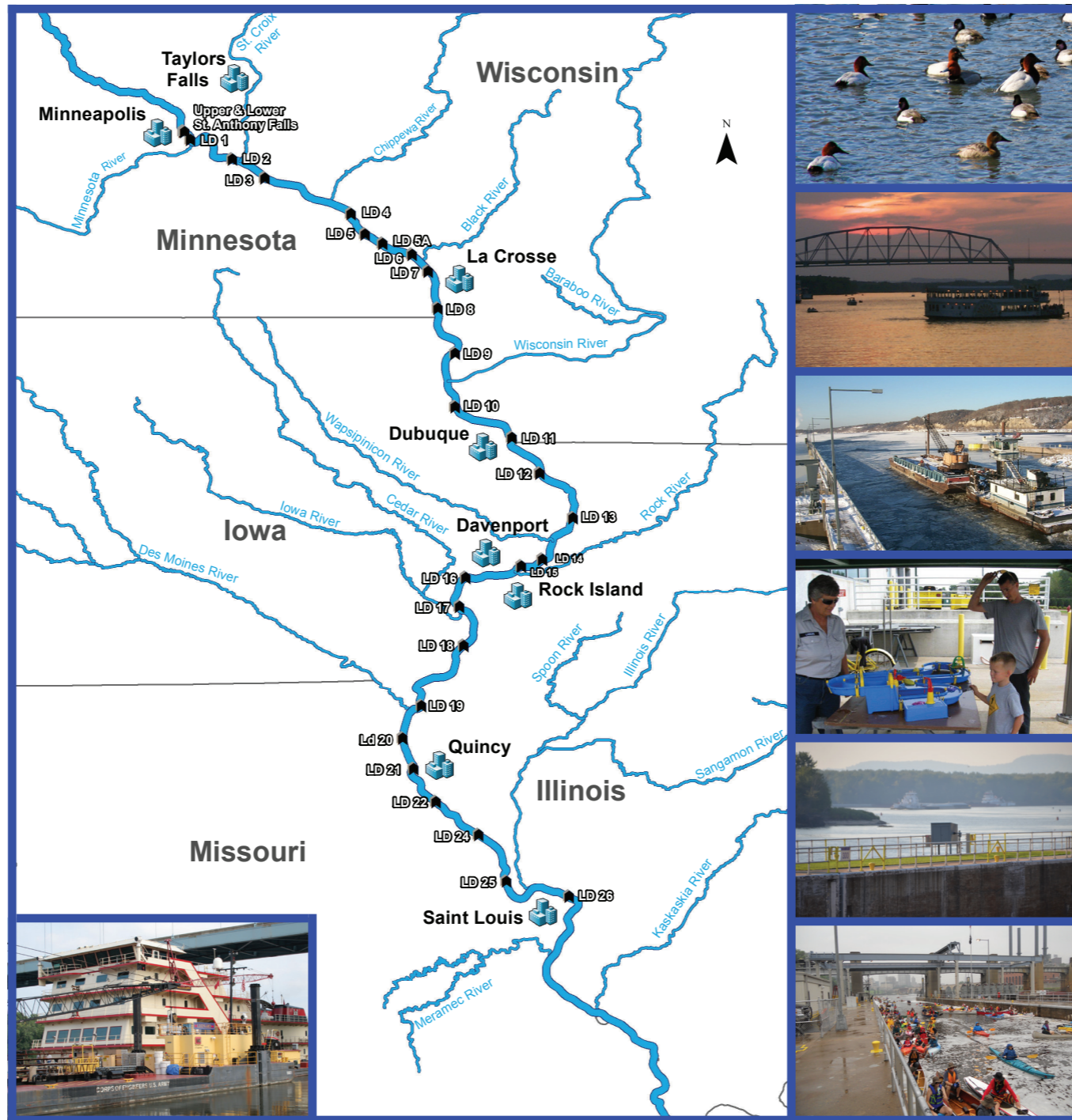
The Upper Mississippi River navigation project created water surfaces ideally suited for water-associated recreational activities. The Corps operates a number of recreation areas along the river, ranging from full service campgrounds and day-use areas to simple boat launches. The river also offers many wildlife-oriented recreation opportunities including fishing, waterfowl observation and hunting.

NATURAL RESOURCES

Lands purchased by the Corps for the navigation project are part of a rich river-floodplain ecosystem that provides important habitat for migratory waterfowl, songbirds and many other species of wildlife and fish. The Upper Mississippi River System consists of 1,300 miles of the Upper Mississippi and Illinois rivers and several major tributaries.

In 1986, Congress formally recognized the uniqueness of the system and the need to balance commercial navigation with ecosystem objectives by establishing the Upper Mississippi River Restoration Program.

The Upper Mississippi River Restoration Program is a partnership of the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the U.S. Geological Survey and the Minnesota, Wisconsin, Iowa, Missouri and Illinois natural resource agencies. The EMP is designed to restore and protect natural resources through two major components: habitat rehabilitation and enhancement projects and long-term resource monitoring.



LOCKS AND DAMS

Locks and dams are needed when the river channel is too shallow for a barge or boat. The types of barges used on the river need 9-feet of water, so the Corps maintains the channel at a minimum depth of 9-feet. This provides the Midwest with a shipping channel to import and export products.

The dams form pools that make the river navigable in shallow areas. The locks are the passageways through the dams, allowing the boats to travel from one pool to the next. Downstream of St. Louis, the river is deep enough that locks and dams aren't needed to maintain a 9-foot channel.

NAVIGATION CHANNEL

The Corps routinely surveys the river bottom to determine where sand has accumulated in the navigation channel. Removal of this material, or dredging, is accomplished with specialized equipment such as a hydraulic dredge. A sand and water mixture is pumped via a pipeline to a designated placement site, where sand is deposited and water is returned to the river. Another means of dredging is to excavate the material with a crane or backhoe, load it on barges and transfer it to a placement site.

Uses for the dredge material include using it as fill material for environmental enhancement projects, maintaining recreational beaches and for commercial or residential development. It is also used for ice control on highways and as a construction materials aggregate.

