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US Army Corps of Engineers
St. Louis District

Information Paper
H. Switchboats

Upper Mississippi River System - Navigation and Ecosystem Sustainability Program

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Location/Description

The program area comprises the Upper Mississippi River System, as defined by Congress in the Water Resources Development Act of 1986 (WRDA 1986), which includes the Upper Mississippi River from Minneapolis, Minnesota, to Cairo, Illinois; the Illinois Waterway from Chicago to Grafton, Illinois; and navigable portions of the Minnesota, St. Croix, Black and Kaskaskia Rivers. This multi-use resource supports an extensive navigation system (made up of 1200 miles of 9 foot channel and 37 lock and dam sites), a diverse ecosystem (2.7 million acres of habitat supporting hundreds of fish and wildlife species), floodplain agriculture, recreation and tourism. Based on the recommendation of the recently completed UMR-IWW System Navigation Feasibility Study that examined system needs over the next 50 years, the Navigation and Ecosystem Sustainability Program (NESP) was implemented to achieve the dual purposes of UMRS ecosystem restoration and navigation improvements. The Switchboat project is one of 8 initial NESP navigation efficiency component projects being implemented under this new UMRS program.

Switchboats would be implemented in two phases at Lock and Dams 20 through 25, five sites. Initially one or two Switchboats would be implemented at any of the lock and dam sites, then based upon results and funding, expanded to provide efficiency benefits at Lock and Dams 20 – 25 on the Mississippi River.

Problem Statement

Most Mississippi River locks are 600 feet long by 110 feet wide. Tows this size or smaller are able to lock through as a single lockage or in one piece. Larger tows, such as the prevailing 15-barge tow size, which is about 1,200 feet long by 105 feet wide, must lock through as a double lockage or in two pieces. The double lockage adds several steps to the lockage process as well as considerable time which decreases lock performance.

Lock performance has been defined as the lock's ability to lock tows efficiently. The lower the lock's transit time for tows, the higher the efficiency. While large scale measures eliminate steps in the lockage process, small scale measures primarily decrease delay time for tows by reducing the time required for certain steps in the lockage process. Thus, more tows could be locked in a given time period, and delays to tows using the lock could be reduced or eliminated.

Small scale measures are defined as lower cost measures that can reduce traffic delays and congestion at the system locks without the major construction and expense involved with extending the existing lock chamber or building a new lock.

Current Status

An Implementation Report was completed that consolidated all the legal, liability, navigational servitude, and performance issues that could be expected to arise with the use of Switchboats. A draft Design Documentation Report is being prepared and the Environmental Assessment will be completed.

Authority

The Water Resources Development Act of 2007, TITLE VIII Upper Mississippi River and Illinois Waterway System, authorized the project.