

MISSOURI RIVER

Master Water Control Manual Review and Update Study



FACT SHEET

Navigation

This Fact Sheet provides a brief overview of a specific topic important to the Master Water Control Manual Review and Update Study process. Information contained in this Fact Sheet is summarized from technical reports and the preliminary Revised Draft Environmental Impact Statement.



Summary

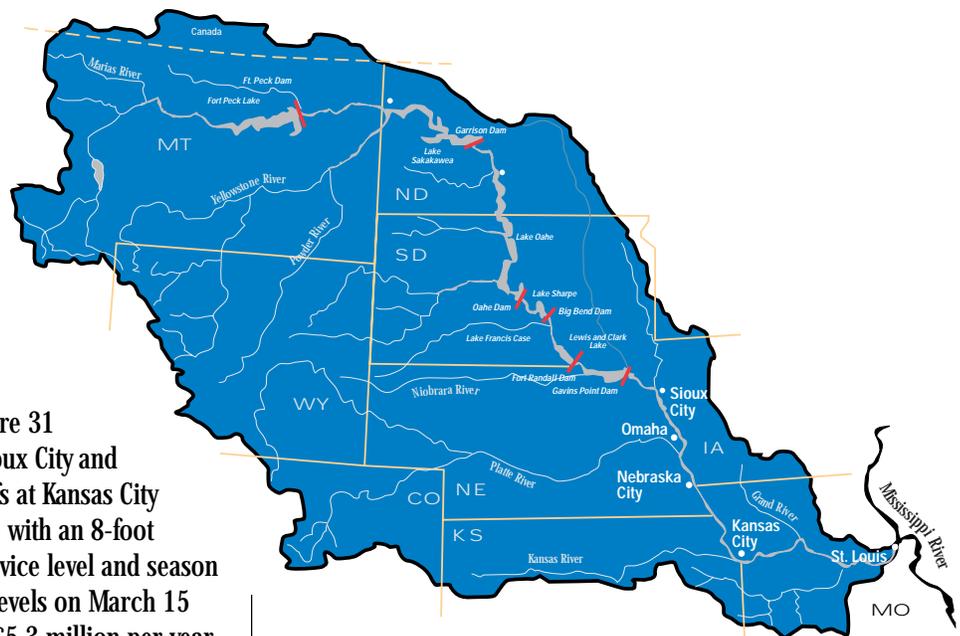
Navigation on the Missouri River is limited to the normal ice-free season, with a full-length season of 8 months. During 1994, total tonnage transported via Missouri River navigation was 8.5 million tons (a Missouri River record high) and commercial tonnage was 1.8 million tons. Flows for full-service navigation with the authorized 9-foot-deep navigation channel are 31 thousand cubic feet per second (kcfs) at Sioux City and Omaha, 37 kcfs at Nebraska City, and 41 kcfs at Kansas City under the CWCP. Flows for minimum service with an 8-foot channel are 6 kcfs lower. The navigation service level and season length provided are determined by storage levels on March 15 and/or July 1. Benefits range from a low of \$5.3 million per year under alternative FW20 to a high of \$6.9 million per year under the CWCP and alternative C18 over the 100-year period of analysis. Alternative FW20 results in a negative impact of 23 percent compared to the CWCP.



Existing Conditions

Navigation on the Missouri River is limited to the normal ice-free season, with a full-length season of 8 months. At Sioux City, the full-length season extends from March 23 to November 22. At the mouth near St. Louis, the full-length season extends from April 1 to December 1. When water supplies are above normal, a 10-day season extension is possible.

During 1994, total tonnage transported via Missouri River navigation was 8.5 million tons (a Missouri River record high) and commercial tonnage was 1.8 million tons. The only year between 1988 and 1996 that the navigation season on the Missouri River was not interrupted or shortened by drought or flood was 1994. Upbound movements of commercial products



have recently exceeded downbound movements by as much as 2 to 1 in some years.

Commercial tonnage moves throughout the navigation season, but tends to peak in the spring and fall. The State of Missouri is typically an origin or destination for over half of Missouri River commercial tonnage. The Port of Kansas City serves as an origin or destination for about one-third to as much as one-half of Missouri River commercial tonnage.

Operating experience has demonstrated that the flows for full-service navigation are 31 kcfs at Sioux City and Omaha, 37 kcfs at Nebraska City, and 41 kcfs at Kansas City. These full-service flows generally provide the authorized 9-foot navigation channel, allowing the loading of barges to an 8.5-foot draft. Flows 6 kcfs lower are provided for the designated minimum navigation service, which generally provide a minimum 8-foot channel, and barges can be loaded to a 7.5-foot draft.



The level of navigation service to be provided is determined by the amount of water in storage on March 15 and/or July 1 of each year. On March 15, if there is more than 54.5 million acre-feet (MAF) in total mainstem storage, full service is provided. The level of service to navigation can also be affected by release restrictions at Gavins Point Dam for the least tern and piping plover nesting season. High flows can also disrupt navigation. The river is generally closed to navigation when stages become so high that towboat prop wash and waves from the tow can damage the levees.

Comparison of the Alternatives

The navigation analysis assessed the effect of each alternative on the amount of commodities transported on the Missouri River. National Economic Development (NED) analysis was used to calculate the economic benefits for each alternative. NED benefits are an estimate of the transportation savings over alternative means of transporting commodities over land. NED values were developed from estimates of transportation savings per ton and tonnage moved by barge adjusted by operation and maintenance costs.

The Daily Routing Model was used to provide a daily simulation of water storage and movement on the Missouri River over a 100-year period. This model was used to determine the number of days that navigation service is provided.

The figure presents the total average annual navigation benefits (\$Millions) for each alternative. Benefits range from a low of \$5.3 million per year under alternative FW20 to a high of \$6.9 million per year under the CWCP and alternative C18 over the 100-year period of analysis. Alternative FW20 results in a negative impact of 23 percent compared to the CWCP.

Overall, increasing the level of conservation has a negative effect, with navigation values dropping progressively from the CWCP as conservation is increased through alternatives C18, C31, and C44. Changing service levels on the Lower River by increasing spring/summer flows to benefit fish and wildlife (FW10, FW15, FW20) also results in a progressive decrease in navigation benefits when compared to the CWCP. Alternative FW20, which has the highest navigation guide curves and the highest increase in spring/summer flow releases, provides the lowest benefit (\$5.3 million). The St. Louis target alternative (M66) has only a slight negative impact on navigation when compared to the CWCP.

Total average annual Missouri River navigation benefits

