



FACT SHEET

U.S. ARMY CORPS OF ENGINEERS

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River Training Structures (River Miles 157-158)

U.S. Army Corps of Engineers (USACE) on the Middle Mississippi

- Congress directed USACE to support navigation on the Mississippi River in 1824.
- The St. Louis District manages 300 miles of the river, including the Middle Mississippi River between the confluence of the Missouri River and the confluence of the Ohio River.
- To maintain the Congressionally-mandated 9' navigation channel, the St. Louis District uses a combination of locks and dams, dredging and river training structures.
- River training structures have an ability to reduce dredging needs by using the force of the river to move sediment out of the navigation channel.
- Less dredging saves money: river engineering provides roughly an \$18 economic benefit for every \$1 spent.



For more information on River Training Structures: www.mvs.usace.army.mil/arec

FREQUENTLY ASKED QUESTIONS

How are River Training Structures planned and funded?

The planning and construction of river training structures (also known as Regulating Works) is funded by Congress. River engineers go through a planning process to identify areas that would benefit from the construction of river training structures. Features identified in planning are constructed as funds become available. The St. Louis District's Applied River Engineering Center collects and analyzes detailed data to evaluate existing physical river conditions and design channel improvement measures.

Why were the dikes adjacent to Hoppies Marina constructed?

Repetitive dredging in the vicinity of river miles 157-158 near Hoppies illustrated the need to construct river training structures for navigation. The table below shows the amount of dredging between October 1999 and November 2006 needed to maintain the channel in the vicinity of Hoppies Marina. Since the construction of these dikes in 2008/09, no dredging has been needed in that area.

Dates	River Mile	Days	Cubic Yards Removed	Cost
Oct 1999	157.5	6	186,323	\$431,538
Jan 2001	157.3	4	94,095	\$106,372
Oct 2001	157.5	9	188,859	\$529,706
Nov 2003	158	5	153,247	\$239,513
Sep 2004	158	5	183,867	\$291,237
Sep 2005	158	4	157,844	\$259,245
Sep 2005	157.8	1	35,015	\$60,417
Nov 2006	157.5	2	61,842	\$101,518
	TOTALS	36	1,061,093	\$ 2,019,546

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1222 Spruce Street, St. Louis, MO 63103

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Were there Hydraulic Sediment Response Studies done for the dikes constructed adjacent to Hoppies Marina?

It is not a requirement to perform a model study or hydraulic study for every structure placed in the river. River engineers rely on a combination of extensive data collection, professional experience and engineering judgment for the design of most river training structures. No model study or other hydraulic study was performed for the three dikes (158.1 R, 157.7 R, and 157.3 R).

Has there been any ongoing monitoring of the area around the dikes near Hoppies Marina?

The St. Louis District has performed comprehensive surveys/soundings around these dikes twice since construction was completed. The District has also performed channel patrol surveys several times per year in this area to ensure the main navigation channel is adequate. The most recent was a bathymetric survey conducted in January 2012 at a cost of \$4,000. Additionally, the Corps of Engineers works with the river industry, receiving direct feedback on conditions in the navigation channel.

Are river training structures causing siltation upstream at Hoppies Marina?

The Mississippi River is constantly undergoing changes due to sediment moving through the river; therefore numerous factors may be contributing to siltation at Hoppies Marina. Shoaling and scour can change over years or in a matter of hours due to changes in the river. Recent surveys indicate that there are numerous areas on the river with significantly increased sediment shoaling. This is believed to have been caused by the record flows on the Missouri River during the 2011 flood events.

What did the dike construction cost for the three structures adjacent to Hoppies Marina?

The total construction cost for all three dikes was \$1,445,000. They were built using navigation funds appropriated in Fiscal Year 2008. Once constructed, Operations and Maintenance program funds are used for repairs and to review the effectiveness of dikes such as those downstream of Hoppies to determine their influence on the river channel.

Can the Corps of Engineers dredge the marina?

The Corps of Engineers cannot use public funds to dredge for private exclusive benefit such as a private marina like Hoppies. Navigation authority and appropriated funds were used to construct the three dikes near Hoppies Marina, which restricts their use to new construction providing for improvements to the 9-foot deep, 300-foot wide navigation channel. Under the Operations and Maintenance authority, the Corps can perform work outside of the navigation channel with environmental or recreational benefits. However, very few funds are appropriated for these purposes. If funds are appropriated for the purpose of recreational dredging and the work does not provide private benefits, the Corps can perform the work. This work would have to be prioritized with other backlog needs.

Can the river training structures be removed or modified?

We are examining possible solutions to the sediment deposition, and will communicate any authority or appropriation we can use in implementing a solution. One possibility discussed is the use of funds identified for recreation on the river. While it is within our authority, there are not adequate Recreation or Environmental funds appropriated to design or construct alterations to the dikes. Our first priority is to find the cause of the increased siltation and identify any possible solutions.

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Were the dikes near Hoppies Marina part of the Cliff Cave-Kimmswick Study?

The Cliff Cave - Kimmswick Hydraulic Sediment Response (HSR) model study, UMR miles 168.0-156.6, was an environmental study completed in September 2006 to evaluate environmental design alternatives for the development of side channel and island habitat using an existing dike field on the Mississippi River. This environmental work was funded under the Operations and Maintenance appropriation and was authorized by a jeopardy decision to mitigate other Corps activities within the navigation channel under the Biological Opinion program. Under this authority, the Corps is obligated to take pro-active steps to promote the habitat and protection of endangered species. This work has to be coordinated with the U.S. Fish and Wildlife Service and that is the purpose for the study. The three structures downstream of Hoppies Marina are for navigational benefits, funded under a separate authority and appropriation, and are not part of the Biological Opinion program and hence not part of this study.

What effect will chevrons built at the mouth of Meramec River have at river mile 158?

The dike shortening and chevron construction for the Cliff Cave -Kimmswick environmental project was designed to have a localized effect in the vicinity of where the structures were constructed.

Have any studies been conducted showing how these structures impact the local fishery?

Surveys conducted around notched or rootless dikes on the Mississippi River indicate that these types of structures provide increased fish habitat diversity in the river when compared to the habitat produced by traditional spur dikes.

Scientific papers are available from the U.S. Army Corps of Engineers website. These studies were conducted both internally through the Corps as well as from fisheries biologists associated with Southern Illinois University, Eastern Illinois University, Western Illinois University, and the Missouri Department of Conservation. The designers of the structures near Hoppies Marina incorporated large notches between the bankline and the structures for environmental habitat at no extra cost to the project.

Is there an impact to emergency responders?

Any impacts to emergency responders may be offset through other access areas. According to the U.S. Coast Guard, the fire department has a 24-hour post at mile marker 176, just south of downtown St. Louis, which can be used as an alternate emergency access point during low water. This is about 20 miles from Hoppies Marina (mile marker 158). The U.S. Coast Guard has also looked at some additional areas that, while not considered public access, could be used by emergency responders to access the river in low water. The Corps remains open to suggestions and discussions to improve emergency responses on all reaches of the river.

What effect will the silting and deposition pertaining to the narrowing of the channel have in relations to the water levels in flooding conditions?

Continuous cycles of scour and deposition from bank-to-bank in the Mississippi River are a common and natural occurrence. The riverbed changes in every location each year and further fluctuation occurs during times of high water and flooding. Numerous studies conducted by the Corps of Engineers have concluded that the river training structures, natural deposits of sand, and the navigation channel do not affect river stages.

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With the narrowing of the channel, will this cause major ice gorging?

The Middle Mississippi River contains approximately 1,400 individual river training structures along 195 miles of river. Construction has been ongoing and has taken nearly 150 years to build these structures and make ongoing repairs. The movement of ice along the river is monitored every winter. Ice gorging has not occurred as a result of these 1,400 other river training structures.

Where can I find more information?

More information on river training structures can be found on the Applied River Engineering Center's web site: www.mvs.usace.army.mil/arec. Additional questions can be directed by e-mail, phone or letter to the St. Louis District Public Affairs Office.

St. Louis District Public Affairs Office
314-331-8000
TeamStL-PAO@usace.army.mil
1222 Spruce St.
St. Louis, MO 63103-2833