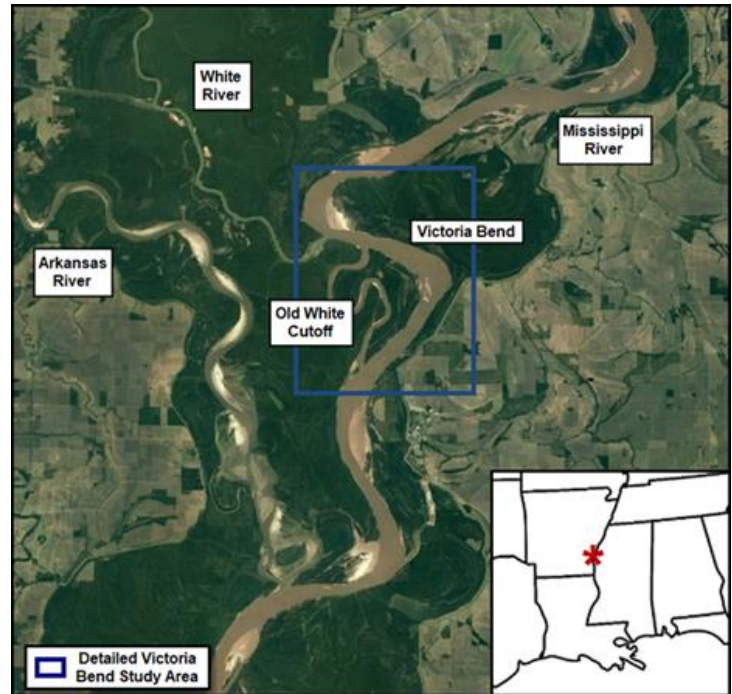




## Victoria Bend Comprehensive Assessment

### Description

Victoria Bend, located on the Lower Mississippi River, has been a historically complex reach from both a navigation and sediment management perspective. Adding to this complexity is the Old White River Cutoff secondary channel which is considered critical from a habitat perspective, but also has an impact on navigation. The project delivery team has proposed a comprehensive approach to the Victoria Bend area that includes geomorphic assessments of the main and secondary channels, ecological assessments to include endangered species, and numerical modeling to develop solutions that balance the main channel navigation along with the stability and habitat within the side channel with the goal of improving all three factors for the region.



### Issue/Challenge To Address

Victoria Bend has historically been a complex reach from a navigation perspective. Numerous river training structures including bendway weirs and both lateral and longitudinal dikes have been constructed to improve navigation. Even with these structures in place, dredging is often needed to maintain a sufficient and safe navigation channel. Dredging has been necessary in 6 of the last 10 years. During 2019 over 30 feet of deposition in the navigation channel halted river navigation completely. The river was closed to navigation for approximately 13 days as dredging was needed to restore sufficient depths for navigation traffic to pass. A 13 day closure equated to an estimated \$33 million dollar loss to the navigation industry.

Recent measurements collected in 2019 exhibit a significant increase in velocity and the amount of flow through the side channel. The impacts that flow splits and diversions have on downstream sediment transport capacity and sediment continuity is well documented with losses in flow reducing the rivers ability to move sediment through the system. Such a reduction in sediment transport capability is a concern from both a navigation and sediment management perspective. A second major concern of increased flows is the channel stability within the side channel. Any major changes within the side channel, such as a cutoff occurring, have the potential to be catastrophic.

In addition to the navigation concerns in the main channel, there are concerns in regards to deteriorating habitat conditions in the secondary channel as a result of channel instability and increased flow which represent a serious concern from an ecological perspective. Side channels provide optimum conditions for numerous species of fish, including the endangered Pallid Sturgeon that prefer these habitats for rearing of young and feeding, and



# National Regional Sediment Management Program Vicksburg District (MVK) and Coastal and Hydraulics Laboratory (CHL):



## Victoria Bend Comprehensive Assessment

freshwater mussels including the endangered Fat Pocketbook that prefer lower velocity areas outside the main channel.

### Successes Lessons Learned

Lessons learned will be compiled during the duration of this study.

### Estimated Benefits & Cost Savings

- Major cost savings to navigation industry if emergency closures can be eliminated
- Reduced dredging volumes and costs
- Environmental habitat improvements

### Expected Products

- Geomorphic Assessment
- Ecological Assessment
- Assessment of Alternatives and Recommendations
- Final Report and Presentation

### Stakeholders/Users

Stakeholders include USACE Vicksburg District (MVK), USACE ERDC Coastal and Hydraulics Laboratory (CHL), USACE ERDC Environmental Laboratory (EL), Lower Mississippi River Conservation Committee (LMRCC), United States Fish and Wildlife Service (USFWS), and USACE Mississippi Valley Division (MVD).

### Projected Benefits Value Added

The ability to keep the LMR open to navigation is of huge economic importance. This effort aims to develop a plan that will aid in maintaining sufficient navigation conditions and reduce dredging requirements while also balancing environmental and ecological habitat concerns.

### Leveraging Opportunities

This effort leverages funding from the Vicksburg District's Channel Improvement Program and the Mississippi Valley Division's Geomorphology and Potamology Program to assist with data collection and analysis. There is also a wealth of information and data for this portion of the system including bathymetry data collected on an annual basis for the main channel and historic fish collections in the side channel itself. A 2D Adaptive hydraulics model recently developed through collaboration of MVK and CHL also exists and will be leveraged as an integral part of this effort.

### Points of Contact

Keaton Jones, ERDC-CHL  
River and Estuarine Engineering Branch, Research Hydraulic Engineer  
601-634-3558  
[Keaton.E.Jones@erdc.dren.mil](mailto:Keaton.E.Jones@erdc.dren.mil)

### Participating Partners

USACE Vicksburg District (MVK), USACE ERDC Coastal and Hydraulics Laboratory (CHL), USACE ERDC Environmental Laboratory (EL), Lower Mississippi River Conservation Committee (LMRCC), United States Fish and Wildlife Service (USFWS), and USACE Mississippi Valley Division (MVD)