



REPLY TO  
ATTENTION OF:

## DEPARTMENT OF THE ARMY

MISSISSIPPI VALLEY DIVISION, CORPS OF ENGINEERS

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CEMVD-PD-SP

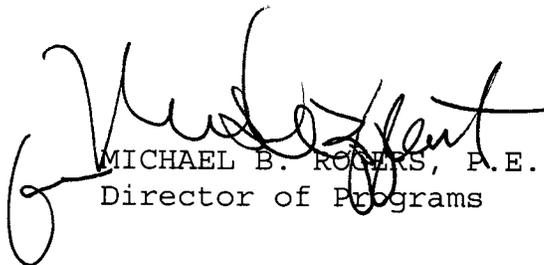
25 October 2005

MEMORANDUM FOR Commander, St. Louis District, ATTN: CEMVS-PM-N

SUBJECT: Upper Mississippi River System - Environmental Management Program (UMRS-EMP), Wilkinson Island, RM 88.5-95.0, Jackson County, Illinois, and Perry County, Missouri, Habitat Rehabilitation and Enhancement Project (HREP), Fact Sheet Approval

1. Reference memorandum, CEMVS-PM-N, 29 September 2005, subject as above.
2. Subject fact sheet, as revised, is approved for continued HREP planning (encl).

Encl

  
MICHAEL B. ROGERS, P.E.  
Director of Programs

# Upper Mississippi River System Environmental Management Program Fact Sheet

## Wilkinson Island Middle Mississippi River, Illinois, St. Louis District

**Location:** The Wilkinson Island Division of Middle Mississippi River National Wildlife Refuge is located along the left descending bank of the Mississippi River between river miles 88.5 and 95, approximately 37 miles north of Cape Girardeau, Missouri. The 2700-acre Division is owned by the U.S. Fish and Wildlife Service (FWS) and was purchased following the 1993 flood. 870 acres of privately-held land exists between the Division and the main river channel.

**Existing Resources:** Prior to FWS acquisition, Wilkinson Island consisted primarily of leveed farmland. The levee was breached during the 1993 flood and has not been repaired, so the unit is open to flood pulses. Farming has been eliminated and lower elevation crop fields have revegetated to early successional willow and cottonwood forest (about 600 acres). Higher elevation fields are dominated by grass/forbs/shrubs (about 900 acres), with a high proportion of Johnsongrass in some areas. The unit also contains about 900 acres of cottonwood/willow/silver maple forest. Reeds Creek flows through Wilkinson Island and connects with the drainage ditch of an adjacent levee district.

**Problem Identification:** Wilkinson Island has accreted to the mainland and no longer provides historic island and side channel habitat that is an important component of the open river ecosystem. Forest habitat is fragmented with low diversity. Non-native grasses have invaded some of the former farm fields.

The existing habitat conditions, future habitat needs and proposed actions required for habitat restoration on the MMR are addressed in various publications, including the St. Louis District's Middle Mississippi River Side Channels Plan (MMRSCP) (COE, undated), the Upper Mississippi River System (UMRS) Habitat Needs Assessment (HNA) Summary Report (COE, 2000), the U.S. Fish and Wildlife Service's Pallid Sturgeon Recovery Plan (USFWS, 1993), and its Final Biological Opinion for the Operation and Maintenance of the 9-Foot Navigation Channel on the Upper Mississippi River System (USFWS, 2000).

Side channels are a critical component of the Mississippi River ecosystem, and those that remain are in various stages of degradation. Most have been degraded by a variety of factors including: reduced flow, uniform bottom depths, lost connectivity to the river and adjacent wetlands, a loss of aquatic habitat structure, increased sedimentation, and a loss of overall habitat diversity. These degradation processes are anticipated to continue in the future, and will eventually eliminate a critically important habitat component of the riverine ecosystem. The HNA report estimates there is a need to create or restore MMR backwater and secondary channel habitat by 25,000 acres.

There is also a need to restore side channels for the benefit of the pallid sturgeon, a federally endangered species. Pallid sturgeon evolved in the diverse environments of the Missouri and Mississippi Rivers. Floodplains, backwaters, chutes, sloughs, islands, sandbars and main channel waters formed the large-river ecosystem that provided macro habitat requirements for pallid sturgeon and other large river fish. The transition zone between the vegetated floodplain and the main channel included habitats with varied depths described as chutes, sloughs or side channels. The chutes or sloughs between the islands and shore were shallower and had less current than the main channel. These areas provide valuable diversity to the large river fish and probably served as nursery and feeding areas for many aquatic species (Funk and Robinson 1974). The still

waters in this transition zone allowed organic matter accumulations, important to macroinvertebrate production. Both shovelnose sturgeon and pallid sturgeon have a high incidence of aquatic invertebrates in their diets (Carlson et al. 1985, Gardner and Stewart 1987). Recent telemetry studies of pallid sturgeon indicate an active selection for downstream island tip habitat that develops at the confluence of the side channel and main channel. In addition, the Missouri Department of Conservation has collected larval pallid sturgeon in this type of habitat.

The Pallid Sturgeon Recovery Plan (USFWS, 1993) and the Biological Opinion for the Operation and Maintenance of the 9-Foot Navigation Channel Project (USFWS, 2000), identified past, present and ongoing loss of habitat diversity in the MMR as a major factor impacting on the endangered pallid sturgeon. As a result, the Reasonable and Prudent Alternative identified in that document specifically included implementation of a long-term habitat restoration program which placed high priority on the restoration of side channels and sandbars to benefit all life stages of pallid sturgeon.

River engineers and biologists currently have the expertise to describe, verify, and modify side channel conditions (principally through micro-modeling) prior to and following side channel restoration. Given that river resource managers have placed a high restoration priority on Wilkinson Island as an MMR side channel, this project is proposed for PDA study initiation.

**Project Goals and Objectives:** Improve aquatic habitat diversity by increasing the amount of side channel habitat. Increase floodplain forest and grassland diversity.

**Proposed Project:** Following the 1993 flood, the Corps constructed stone dikes at the north end of the unit to repair extreme bankline erosion. The proposed project would include removal of a section of the stone protection, excavation of a channel through the upper end of the unit to provide flow-through during high and moderate river levels, and placement of chevron dikes in the main river channel to provide adequate flow to the side channel (project "A"). Additional side channel and island habitat could be created by unrooting existing stone dikes to create flowing water along the main channel border (project "B"). Dike notching efforts in the St. Louis District have demonstrated that dike modification can create a more diverse pattern of sediment deposition resulting in more diverse habitat. The project would also include planting up to 500 acres of hard mast trees to increase floodplain forest diversity (project "C"). Installation of water control structures at several locations where natural swales or old river channels occur will allow longer retention of water in the temporary wetlands (project "D"). The proposed restoration features will be based on input from the existing literature, the optimized hydraulic configuration of the side channel (using MVS micro-modeling methodology), and best scientific judgment.

**Implementation Considerations:** Wilkinson Island provides some of the only publicly owned land in the Middle Mississippi River floodplain. However, some project features might need to be postponed until the one remaining private inholding can be acquired. The inholding has been approved for acquisition by FWS when funding becomes available and agreement can be reached with the landowner.

Various assumptions are inherent to this proposal:

Individual side channels may be proposed and worked simultaneously with one another for improved construction efficiency. Each side channel can best be "fast-tracked" by micro-modeling, funding, and constructing each side channel independently. The Wilkinson Island project will generate a PDA document.

Given the productivity functions of side channels and the importance of downstream island tip habitat to the pallid sturgeon, side channel restoration projects are assumed to provide valuable benefits to this endangered fish. Studies underway and to be conducted over the next few years will be used to further refine side channel restoration work for the benefit of endangered species.

A 25-year project life is assumed for the side channel work, and no post-construction maintenance dredging would occur. The project's Incremental Cost Analysis will take into account any declining habitat value resulting from any subsequent river sedimentation effects.

Similar to other EMP projects, it is assumed that construction of the Wilkinson Island project could be completed within project existing boundaries. However, it may be necessary to acquire a real estate interest for ingress and egress over private property to gain access to the construction site. Rights-of-entry would be obtained from private landowners for this purpose prior to any construction.

An MCACES cost estimate will be performed.

**Authority:** The Wilkinson Island Habitat Project is being planned under the authority of the Upper Mississippi River System – Environmental Management Program (EMP). The EMP was authorized by Section 1103 of the Water Resources Development Act (WRDA) of 1986, and reauthorized by WRDA 1999.

**Financial Data:** The total estimated base year cost for this project is currently \$3,980,000. The annual O&M costs for the project are estimated to be \$15,725. All project features are located on federally owned lands managed as a National Wildlife Refuge. Accordingly, under the provisions of Section 906(e) of WRDA 1986 as amended, the project first costs are 100 percent federal. O&M costs are the responsibility of the USFWS as the project's sponsor.

**Status of Project:** Fact Sheet, pending approval and allocation of FY 06 funds to initiate PDA work.

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**Attachment:** Project area map.

**References:**

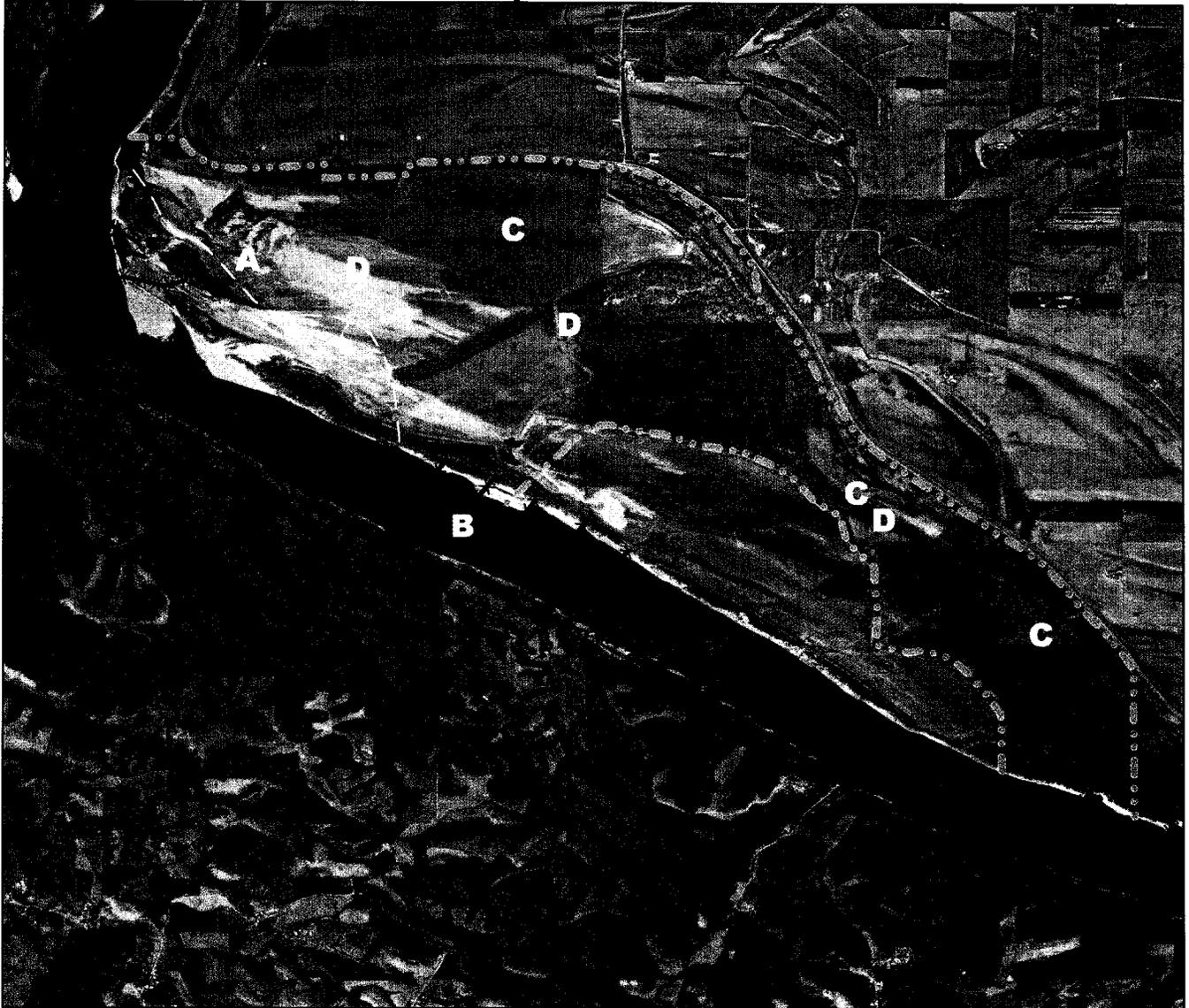
COE, 2000. Upper Mississippi River System Habitat Needs Assessment: Summary Report 2000. U.S. Army Corps of Engineers, St. Louis District, St. Louis, Missouri. 53 pp.

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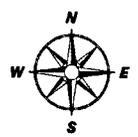
USFWS, 1993. Pallid sturgeon recovery plan. U.S. Fish and Wildlife Service, Bismarck, North Dakota. 55 pp.

USFWS, 2000. Final Biological Opinion for the Operation and Maintenance of the 9-Foot Navigation Channel on the Upper Mississippi River System. U.S. Fish and Wildlife Service, Bismarck, North Dakota. 243 pp.

**Mississippi River  
Environmental Management Program  
Wilkinson Island  
September 2005**



- Refuge\_Boundary
- Side\_Channel\_Development
- DIKE\_CENTERLINE
- Proposed\_Dike
- PROJECT BOUNDARY



- A Side Channel Development**
- B Dike Modification**
- C Forest Restoration**
- D Wetland Enhancement/Development**

