

**Illinois Environmental Protection Agency  
Bureau of Water, Permit Section  
(IEPA)**

1021 North Grand Avenue East, Post Office Box 19276, Springfield, Illinois 62794-9276, 217/782-3362

The IEPA has issued a Public Notice of a request for a Clean Water Act Section 401 water quality certification that would allow the issuance of a federal permit for the discharge of pollutants to waters of the State.

**Public Notice Beginning Date:**

Wednesday, October 27, 2021

**Public Notice Ending Date:**

Wednesday, November 10, 2021

**Agency Log No.:C-0208-21**

**Federal Permit Information:** This civil works project is under the jurisdiction of St. Louis District, Regulatory Branch U.S. Army Corps of Engineers

**Name and Address of Discharger:** :United States Army Corps of Engineers, Travis J Schepker - 100 Arsenal Street, St. Louis, MO 63118

**Discharge Location:** In Section 4 of Township 8-South and Range 6-West of the West 3rd Principal Meridian in Randolph County. Additional project location information includes the following: Middle Mississippi River National Wildlife Refuge, near Chester, IL 62233

**Name of Receiving Water:** Mississippi River

**Project Description:** Construction to rehabilitate Crains Island to improve the overall structure and function.

**Construction Schedule:** Unknown at this time

The Public Notice period will begin and end on the dates indicated in the heading of this Public Notice. Interested persons are invited to submit written comments on the project to the IEPA at the above address. Commenters shall provide their name and address along with comments on the certification request. The IEPA Log number must appear on each comment page. Commenters may include a request for public hearing. Only comments that pertain to Clean Water Act Section 401 authority as defined under 40 CFR part 121.3 will be considered. Part 121.3 defines the "scope of a Clean Water Act section 401 certification is limited to assuring that a discharge from a Federally licensed or permitted activity will comply with water quality requirements". Requests for additional comment period must provide a demonstration of need. The final day of comment acceptance will be on the Public Notice Ending date shown above, unless the IEPA grants an extended notice period.

The attached Fact Sheet provides a detailed description of the project and the findings of the IEPA's antidegradation assessment.

If written comments or requests indicate a significant degree of public interest in the certification application, the IEPA may, at its discretion, hold a public hearing. Public notice will be given 30 days before any public hearing. If a Section 401 water quality certification is issued, response to relevant comments will be provided at the time of the certification. For further information, please see the contact information below.

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Post Document. No. C-0208-21-10272021-PublicNoticeAndFactSheet.pdf

The U.S. Army Corp of Engineers (“Applicant”) has applied for a 401 Water Quality Certification for impacts associated with restoration and improvements at Crains Island. Crains Island is the portion of the Middle Mississippi River National Wildlife Refuge (MMRNWR) included in this Upper Mississippi River Restoration Program (UMRR) Habitat Rehabilitation and Enhancement Project (HREP). The project site is located between river miles 103.5 and 105.5 on the right descending bank of the Mississippi River in Township 7 South, Range 6 West, Sections 32 and 33, and Township 8 South, Range 6 West, Sections 3, 4, 5, 10, and 11, approximately 4 miles southeast of the City of Chester in Randolph County, Illinois. The proposed Upper Mississippi River Restoration – Habitat Rehabilitation and Enhancement Project (HREP) includes 4 project features which will provide side channel modifications, depressional wetland restoration and enhancements, construction of a sediment deflection berm and development of reforestation areas. Approximately 1,960,000 cubic yards (CY) of material will be excavated using a combination of land-based and hydraulic dredge for side channel modifications in four construction phases.

Approximately 65,000 Cubic Yards (CY) of material will be excavated to construct two pilot channel entrance features using the spoils to fill the existing side channel entrances and a pilot channel oxbow feature will be constructed by excavating approximately 100,000 CY of material. Spoils from creation of the oxbow feature will be used to construct the berm feature. 18,000 CY of rip rap stone will be placed in the river for construction of stone guide features. Using dozers, agricultural scrapers, and self-propelled sheepsfoot rollers for soil compacting, sediment will be placed for the deflection berm. Placement for the dredge disposal locations will be done with a flexible dredge pipe. Additional maintenance dredging if necessary, will be performed using a small hydraulic and/or mechanical dredge.

Construction of 21 acres of depressional wetlands within the project area has been completed in order to increase the topographic diversity and inundation frequency. Wetland features were completed during a prior phase of construction in the fall of 2020. The spoils from this dredging activity was used to create the sediment deflection berm with an additional kicker berm. This feature will deflect coarse sand and reduce high flows in the project area and in turn aquatic and floodplain forest habitat will be improved. High sand deposits limit forest diversity by preventing the establishment of hard mast trees. Additionally, the berm would improve backing of water from the lower end of the island during high flow and increase fine sediment deposits. This would improve the soil over time so that hard mast trees could become established. The 13,500-ft berm will be constructed from sediment excavated from the side channel and depressional wetlands and will tie into the existing Bois Brule levee curving toward the side channel. The Kicker Berm will be constructed from fine sediments and clay soil excavated from the side channel thus establishing the basis for reforestation. Construction of the sediment deflection berm is currently in progress and is expected to be completed during the summer of 2021.

The reforestation plans for this project are designed to diversify forest age, structure and species composition by planting of both hard and soft mast species. This feature will restore bottomland forest community dynamics and improve native species habitat. The filled original side channel entrances, kicker berm and sediment deflection berm slopes, and areas disturbed for side channel access will be the main areas of reforestation for a total of 61 acres of bottomland hardwood forested.

Information used in this review was obtained from the application documents dated November 6, 2018, August 18, 2021, August 26, 2021, and August 31, 2021.

### **Identification and Characterization of the Affected Water Body.**

The Mississippi River has 47,600 cfs of flow during critical 7Q10 low-flow conditions and is classified as General Use Water. The Mississippi River is not listed as a biologically significant stream in the 2008 Illinois Department of Natural Resources Publication *Integrating Multiple Taxa in a Biological Stream Rating System* nor is it given an integrity rating in that document. This segment of the Mississippi River is not subject to enhanced dissolved oxygen standards. The Mississippi River, Waterbody Segment IL\_I-84, is listed on the 2018 Illinois Integrated Water Quality Report and Section 303(d) List as impaired for fish consumption with potential causes given as mercury and polychlorinated biphenyls (PCBs) and primary contact recreation with a potential cause given as fecal coliform. Aquatic life use, aesthetic quality and public and food processing water supplies use are fully supported.

### **Identification of Proposed Pollutant Load Increases or Potential Impacts on Uses.**

The pollutant load increases that would occur from this project include some possible increases in total suspended solids. These increases are a normal and unavoidable result of excavation and placement of fill material into existing side channels and placement of rock structures and temporary islands in the main waterway. Any suspended solid increases would be most evident at the discharge point and would fall.

Discharge into main Mississippi River will consist of 1,492,000 CY (1,276,740 clay and 280,260 sand) of fill and an additional 65,000 CY will be placed in the existing side channels in order to fill the old entrances. 45,000 CY fill will be from dredging the new upper entrance and 20,000 CY will be from dredging the new lower entrance. The total amount of fill will consist of 1,557,000 CY clay and sand with the remainder of the spoils (1,960,000 CY total dredged material) being placed outside waterway as the sediment deflection berm. Additionally, 18,000 CY of clean fill rip rap stone will be used to construct stone guide features in the main waterway. The sediment not used for the sediment deflection berm will be placed in the existing dredge disposal site at RM 103.3, behind 4 existing chevron dikes at RM 103.4, RM 103.7, RM 104.0, RM 104.4, and a new disposal site created at RM 105.5. Although not recognized as an official benefit for the project, the sediment deflection berm will improve water quality for the Middle Mississippi River by removing fine suspended sediments from the system.

### **Fate and Effect of Parameters Proposed for Increased Loading.**

The increase in total suspended solids would be local and temporary. Although the existing benthic habitat would be permanently removed by the dredging activities, it is anticipated to recover and improve over time due to the improvements in habitat and water transport capacity. Wetlands in the project area will be impacted by the construction of the sediment deflection berm. However, impacts to the approximately 38 acres of wetlands will be offset by restoration of approximately 21 acres of constructed wetlands and enhancement of approximately 109 acres of abandoned agricultural fields and floodplain forest. 61 acres of hard mast trees will be planted on the sediment deflection berm and within the project area. The wetland impacts will be outweighed by improvement to 191 acres that would remain degraded habitat without the project.

Pilot channel entrances will be constructed during low water events (intermittent side channel flow) to allow suspended materials to settle within intermittent pools and out of water column causing negligible impacts to Mississippi River during construction. Construction shall be limited to times of intermittent flow within the side channel; therefore, construction would have no direct significant effects on water chemistry outside the project area. Given that the purpose of the new Lower Entrance is to increase flow and aide with self-maintenance, it is anticipated that sediment transport will increase during high water events. Land-based excavation will be used for pilot channel work (entrance features and oxbow). The Stone Guide Features are considered clean discharge and will have no significant impacts to local water quality. Construction of pilot channel entrances and stone guide structures will both occur during low water events.

Utilization of the features described above, in addition to the removal of the remnant pile dikes, will increase flow, consequently increasing scour in the side channel. It is difficult to predict how much will need to be dredged but it is estimated that between 750,000 and 1,492,000 CY will be dredged during multiple dredge seasons. 100% of the dredged material will be used to construct upland berms and island habitat, with no spoils placed in river thalweg. Additionally, no dredging will occur during the spring spawning period from April 1 to May 31. The areas of dredge disposal are characterized by relatively low flow levels, which would promote decreased settling times. To promote beneficial use, dredged material will be mounded above the waterline so that temporary islands can be formed. These temporary islands are not considered to be project features. Other beneficial uses will be sought out and may include but are not limited to levee repair and road construction. High sediment plasticity, as well as log jams and other excessive woody debris in the side channel may make hydraulic dredging difficult. Because of these factors, there may be times where mechanical dredging of the side channel is necessary.

The applicant proposes a Dredge Material Management Plan (DMMP) to address BMPs for hydraulic dredging. The primary objective of the DMMP is to ensure that the suspended sediment levels in the water column do not exceed background levels not commonly observed. If suspended solids, dissolved oxygen, oxidation reduction potential, turbidity, temperature and conductivity levels exceed the water quality criteria or background levels, precautions will be taken. These precautions include decreasing the consecutive hourly discharge, employing the use of flocculants and coagulants, and lowering the dredge pipe.

Because this is an environmental enhancement project the benefits of the project significantly offset any negative impacts associated with the HREP for Crains Island. The above-mentioned BMPs, DMMP and a Stormwater Pollution Prevention Plan (SWPPP) have been proposed as actions to reduce any potential environmental impacts.

**Purpose and Social & Economic Benefits of the Proposed Activity.**

The HREP for the UMRR implements a program for the planning, constructing and evaluation of measures for fish and wildlife habitat rehabilitation and enhancement. Crains Island is on federally owned lands managed as part of the USFWS MMRNWR which is dispersed along 195 miles of the Mississippi River between the confluences of the Missouri and Ohio Rivers. It includes approximately 7,000 acres of river islands and bottomland forest.

The purpose of the proposed project is to restore and improve the quality and diversity of aquatic side channel, floodplain forest, wetlands and overall function and structure of Crains Island.

**Assessments of Alternatives for Less Increase in Loading or Minimal Environmental Degradation.**

Alternatives developed for this project included a range of reasonable alternatives for a proposed Federal action. Thirteen restoration features and activities were screened to form alternative plans with six eliminated based on screening criteria. The following criteria was used to determine which features to consider further:

- Meets at least one project objective or is not carried forward
- Acceptability to the public, federal and non-federal entities
- Sustainability over the 50-year period of analysis

The final array of restoration features is outlined in the table below:

<b>Restoration Feature</b>	<b>Code</b>	<b>Description</b>
<b>Sediment Deflection Berm</b>	A0	No Action
	A2	Starts at Bois Brule levee then curves back toward side channel and runs downstream along bank of side channel
	A2*	Starts at Bois Brule levee then curves back toward side channel and runs downstream

		along bank of side channel, with an additional kicker berm
<b>Reforestation</b>	F0	No Action
	F1	Reforestation throughout study area
	F2	Reforestation throughout study area dependent on A2* feature
<b>Side Channel</b>	S0	No Action
	S3	Increase side channel depth and width, no benching
	S7	Increase side channel depth and width, benching where opportunistic
<b>Wetland</b>	W0	No Action
	W1	Depressional wetlands

A No Action alternative was reviewed as well as four separate alternatives for dredge discharge placement.

The Applicant has provided four alternatives using various restoration feature combinations while eliminating 4 alternatives that were not considered cost effective. The six remaining alternatives were reduced to four by removing the two alternatives not considered a “Best Buy”. The four Best Buy alternatives were assessed on their ability to meet acceptability, completeness, effectiveness, and efficiency criteria.

No Action: Under the No Action Alternative, the Project area would continue to receive coarse sediment deposits during high flow events. Habitat would continue to fragment as a result of sediment deposits preventing a natural sequence of processes from occurring to achieve a floodplain forest community. The current state would continue to support willow and silver maple which can survive in soil with a high sand composition. This forest community would continue to have limited species diversity. Within the side channel, conditions would continue to deteriorate due to the lack of flow, low dissolved oxygen, high temperatures during the growing season, and lack of depth. The No Action Alternative does not meet any of the project objectives and does not improve the habitat at Crains Island. There is no cost associated with this alternative. This alternative does not utilize any of the restoration feature codes outlined in the table above.

Alternative 9A: This alternative would improve aquatic and wetland resources by creating habitat and providing filtration during high-flow events. This alternative includes a 21.2-acre

wetland with a projected cost of \$1,113,000. Restoration of wetland ecosystem is the only planning objective met. This alternative utilizes only restoration feature code W1 outlined in the table above and was not chosen as it doesn't adequately meet the project objectives. This alternative was not chosen.

Alternative 2A : This alternative includes 21.2 acres of wetland, 61 acres of reforestation, a sediment deflection berm expected to improve 109 acres of forest, and side channel excavation. This alternative has less direct reforestation than Alternative 2B but more indirect reforestation by way of protection of forest acreage from the sediment deflection berm. The cost of this alternative is approximately \$33,630,000. Alternative 2A utilizes restoration feature codes A2, F1, S7 and W1. This alternative meets all of the project objectives and would allow for the floodplain forested habitat to improve overtime with reduced habitat fragmentation and the establishment of a hard mast forest community. Connectivity and depth restoration to the side channel would allow aquatic organisms and fish access to the resulting habitat. Wetland and aquatic resources will improve. This alternative was originally designated the Preferred Alternative in 2018 but it has been determined that Alternative 2B will now be the preferred alternative.

Alternative 2B (Preferred Alternative): This alternative is similar to Alternative 2A with the addition of approximately 40 additional acres of reforestation on the sediment deflection berm in the form of a kicker berm. The cost is approximately \$37,380,000. Overall Alternative 2A and 2B are very similar where efficiency and ecosystem restoration is concerned. Alternative 2B utilizes restoration feature codes A2\*, S7, F2, and W1 and sufficiently meets all project objectives at a higher cost. Like Alternative 2A, this alternative would allow for the floodplain forested habitat to improve overtime with reduced habitat fragmentation and the establishment of a hard mast forest community. Connectivity and depth restoration to the side channel would allow aquatic organisms and fish access to the resulting habitat. Wetland and aquatic resources will improve. This alternative, though more costly was chosen as the Preferred Alternative.

The following discharge alternatives were studied as well:

- No Discharge Alternative: This option would require the project not be completed, leaving water quality to remain the same as current conditions. Low dissolved oxygen, shallow depth and isolation from the river would continue in the interior water bodies.
- Thalweg Discharge Alternative: This option would not be considered beneficial use as it would have the greatest impact to sediment loading downstream.
- Upland Placement Alternative: This option involves placing sediment in degraded wetlands and abandoned farm fields, upland land adjacent to the side channels. Because an objective of this project is to enhance those areas by converting them to functional wetland, this alternative is not feasible. Though the applicant has contacted local landowners regarding stockpiling materials for beneficial use, a partner for this alternative has not been identified.
- Ephemeral Island Creation Alternative: This option uses dredged sediment to create ephemeral islands to add habitat diversity and benefit aquatic life. The islands are not

long-term and therefore their creation is not considered a project feature. Hydraulically dredged material will be mounded downstream of chevrons and dikes where flow is minimal to allow for temporary islands to form. The islands will gradually erode during high water events when background sediment levels are already high. Impacts to water quality are expected to be local.

### **Summary Comments of the Illinois Department of Natural Resources, Regional Planning Commissions, Zoning Boards or Other Entities.**

An EcoCAT endangered species consultation was submitted on August 31, 2021, Project #2203881. Illinois Department of Natural Resources letter dated August 31, 2021 states that protected resources may be in the vicinity of the proposed action but that adverse effects are unlikely. The consultation was terminated.

The project was reviewed for federally listed species, and the USFWS IPaC resource listed 7 species known to occur in or near the vicinity of the project area. The list is compiled from two separate reports dated September 18 and September 19, 2017.

Endangered species potentially affected by the project include the following:

- Indiana Bat (*Myotis sodalis*)
- Gray Bat (*Myotis grisescens*)
- Least Tern (*Sterna antillarum*)
- Pallid Sturgeon (*Scaphirhynchus albus*)
- Grotto Sculpin (*Cottus specus*)

Threatened species potentially affected include the following:

- Northern Long-eared Bat (*Myotis septentrionalis*)
- Small Whorled Pogonia (*Isotria medeoloides*)

It was determined that no critical habitat has been designated in this area for the federally listed species.

The Middle Mississippi River National Wildlife Refuge lies fully or partially within the project area.

The Illinois State Historic Preservation Office (SHPO) issued a letter dated December 21, 2016 which states that the office has reviewed documentation provided for the project. The SHPO noted that the project as proposed will have no adverse effect on any historic properties.

The project will not adversely affect any sacred properties or properties of cultural significance. No further concerns were addressed however, if any archeological surveys are required, tribes will be contacted, and consultation will take place.

### **Agency Conclusion.**



This preliminary assessment was conducted pursuant to the Illinois Pollution Control Board regulation for Antidegradation found at 35 Ill. Adm. Code 302.105 (antidegradation standard) and was based on the information available to the Agency at the time this assessment was written. We tentatively find that the proposed activity would result in the attainment of water quality standards; that all technically and economically reasonable measures to avoid or minimize the extent of the proposed increase in pollutant loading have been incorporated into the proposed activity; and that this activity would benefit Crains Island by providing restoration and enhancement to the area as part of the Upper Mississippi River Restoration Program (UMRR) Habitat Rehabilitation and Enhancement Project (HREP). The overall structure and function of Crains Island will be restored as well as measures to increase floodplain forest community diversity constructed, restored function of flowing side channels and increased emergent wetland habitat. Comments received during the 401 Water Quality Certification public notice period will be evaluated before a final decision is made by the Agency.