

APPENDIX A
CLEAN WATER ACT
SECTION 404(b)(1) EVALUATION



REPLY TO
ATTENTION OF:

CEMVR-PM-AR

**DEPARTMENT OF THE ARMY
ROCK ISLAND DISTRICT, CORPS OF ENGINEERS
CLOCK TOWER BUILDING - P.O. BOX 2004
ROCK ISLAND, ILLINOIS 61204-2004**

**CLEAN WATER ACT
SECTION 404(b)(1) EVALUATION**

**UPPER MISSISSIPPI RIVER SYSTEM
ENVIRONMENTAL MANAGEMENT PROGRAM
HABITAT REHABILITATION AND ENHANCEMENT PROJECT**

**PLEASANT CREEK WILDLIFE AREA
POOL 13, MISSISSIPPI RIVER MILES 548.7 THROUGH 552.8
JACKSON COUNTY, IOWA**

NOVEMBER 2000

ENVIRONMENTAL ASSESSMENT
UPPER MISSISSIPPI RIVER SYSTEM
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SECTION 1 - PROJECT DESCRIPTION

LOCATION

The Pleasant Creek Wildlife Area is a 2,350-acre unit of bottomland forest intermixed with small lakes and sloughs. The unit is located on the Iowa side of the Mississippi River (River Miles 548.7-552.8) in Jackson County, Iowa. The project site (see plate 1, Appendix B) lies within the Upper Mississippi River National Wildlife and Fish Refuge (Refuge) and the U.S. Fish and Wildlife Service has proposed the planning for this project.

GENERAL DESCRIPTION

By definition and Federal regulatory jurisdiction, the site is classified as wetland or as "waters of the United States" and is therefore subject to evaluation and regulation under Section 404 of the Clean Water Act.

The Pleasant Creek HREP includes construction of a closure dike and pump station to create a moist soil management unit (MSMU), placement of rock shoreline protection on the bankline at approximate Mississippi River Mile 551.0, and the construction of a steel trash rack located in Harris Slough. The proposed improvements would benefit both game and nongame fish and wildlife and would enhance overall habitat diversity. A more detailed description of project features and expected benefits is provided in the main text of the Environmental Assessment (EA), of which this evaluation is an appendix.

AUTHORITY AND PURPOSE

Authority for the proposed project is provided by the 1985 Supplemental Appropriations Act (Public Law 99-88) and Section 2203 of the Water Resources Development Act of 1986 (Public Law 99-62).

The purpose of this project, under Section 1103, is "to ensure the coordinated development and enhancement of the Upper Mississippi River (UMR)." The project is the result of planning efforts by the State of Illinois, the U.S. Fish and Wildlife Service, and the U.S. Army Corps of Engineers.

DESCRIPTION OF DREDGED AND FILL MATERIAL

The project will include the placement of riprap bank protection along a 1,500-foot section of shoreline on the Mississippi River, River Mile 551.2, and may extend up to 50 feet into the river. Fill material for shoreline protection will consist of approximately 9,600 tons of riprap and 5,000 tons of bedding stone. All riprap and bedding stone will be inert and uncontaminated rock obtained from an approved source. Rock of up to 400-pound size will be used for the bankline stabilization. The soil required to repair the shore erosion will be acquired from within the previously disturbed agricultural field. There may be a minor amount of slope re-dressing prior to rock placement. Additionally, a minor amount (not to exceed 2 feet in depth) of soil may be excavated at the top of the existing levee in order to tie in the rock protection.

The MSMU will consist of a closure dike constructed to form an enclosed area to be seasonally flooded with 18 inches of water. Possible impacts could result from borrowing of material for the dike, clearing and grubbing of trees, installing a well, and installing electrical service to the well. The closure dike will be created by placement of borrow material from within the interior of the area. The interior excavations will be configured to create additional shallow wetland habitat, totaling approximately 40 acres. Borrow material will be placed to achieve a uniform dimension of a 7:1 slope and a 10-foot top width. Water level control will be improved by the creation of a closure dike and a well/pump station. Approximately 25,000 cubic yards of borrow material, from within the existing cropfield, will be used to construct the dike. Because these construction materials originate from the project site and will be placed on the project site, contaminant and detailed sediment analyses were not conducted.

A trash rack will be constructed to prevent debris from entering outlet structures #2 and #5 along Harris Slough. It will be constructed from hot-rolled steel H piles designated as "HP8X36." It is estimated that 9 piles on 18-inch centers will be needed. The piles will be placed in Harris Slough on a 5-foot radius from the outlet of the CMPs. All piles will be driven to an approximate depth of 15 feet below the slough bottom. The piles will extend to an elevation of 594.7 feet, which is approximately 7 feet above normal water surface elevation. The piles will be driven using a crane-mounted pile hammer. The crane will be stationed on the existing levee. The total length per pile will be approximately 25 feet.

DESCRIPTION OF PROPOSED PLACEMENT SITES

The proposed rock placement site is adjacent to the main channel border habitat. The site is open water, unconfined, along the bankline. Rock would be placed along 1,500 linear feet of bankline. Timing and duration of the construction are expected to occur in the fall of 2000.

The pump station will require the construction of a concrete pad, as well as construction of inlet and discharge pipes.

Approximately 3 acres of bottomland trees will be cleared to accommodate placement and necessary shaping of material for the closure dike. The forested area to be impacted consists primarily of silver maple, willow, and some cottonwood.

DESCRIPTION OF PLACEMENT METHOD

Placement of rock material for bankline protection typically involves the use of deck-mounted cranes and/or derricks, deck barges, endloaders, quarter boats, and tender craft. Materials are dumped to alignment and spread to profile. Large-grade stone is placed by crane or derrick.

Shoreline work may potentially involve clearing of flood debris or young cottonwood and silver maple by endloaders and/or bulldozers.

Placement of borrow material for the closure dike will be by endloaders, bulldozers, or other earth-moving equipment used to grade and shape the material to the desired height and width.

The pump station will require the construction of a concrete pad, as well as construction of inlet and discharge pipes.

SECTION 2 - FACTUAL DETERMINATIONS

PHYSICAL SUBSTRATE DETERMINATIONS

The elevation and slope of the rock placement site will change as indicated on plate EA-4 of Appendix B. The actual increase varies across the river bottom cross section, depending on depth. Undercutting of the bank often causes tons of sediment and toppled trees to enter the river. Placement of bank line protection along the shore should prevent degradation and ensure integrity of the shoreline.

Material placed for shoreline protection will be quarried limestone, up to 400 pounds in size. Movement of material off site will be negligible due to the large-sized rock used for construction.

Material placement should not significantly affect benthic inhabitants. Existing benthos populations along the shoreline are expected to be minimal due to the degraded and unstable condition of the banks. The newly deposited rock will provide a stable, permanent substrate that should increase benthos populations following construction.

Floral and faunal communities within Harris Slough will be temporarily disturbed due to construction but will likely reestablish themselves shortly after construction of the trash rack is completed.

Actions Taken to Minimize Impacts

Construction of the closure dike will require removal of terrestrial vegetation from within the project footprint and will be scheduled to avoid impacting threatened and endangered species. Terrestrial impacts will be short term, and the proposed action will ultimately provide a more diverse aquatic substrate than presently exists.

WATER CIRCULATION, FLUCTUATION, AND SALINITY DETERMINATIONS

Water

Typically, analysis of sand and rock substrates, such as those found in the immediate project area, reveals little evidence of pollutants due to the limited surface area of sand-size particles and the lack of strong chemical bonding of contaminants to sand grains.

Any contaminants in sandy materials would be those typically contained or transported by normal fluvial processes and as such would be common constituents of the Upper Mississippi River System. Any activity that would disturb the existing substrate would therefore not be anticipated to alter water chemistry in the water column.

Clarity and turbidity of the river varies with seasonal flow. Placement sites and methods have been selected to minimize impacts to clarity, color, odor, taste, dissolved gas levels, nutrients, and biochemical oxygen demand in the riverine environment. Discharge of rock will stabilize finer substrate materials; terrestrial placement of rock shoreline protection will minimize water quality impacts.

Non-riverine originated components such as rock fill, capstone, concrete, and steel which may be placed temporarily or permanently during construction will be physically stable and chemically non-contaminating.

Current Patterns and Circulation

Placement of rock shoreline protection at identified sites on the shoreline will not significantly affect currents and flow. There would not be any noticeable alteration in current patterns upstream or downstream of the project. Changes in aquatic resources are difficult to predict, but there may be a trend toward a less erosive type of aquatic environment. Main channel velocities will not be affected by the proposed action.

Normal Water Level Fluctuations

No effects on normal seasonal river stages are anticipated to result from the proposed construction activities.

Salinity Gradients

The proposed action will take place in a freshwater river system. Therefore, no consideration of salinity gradients is warranted for these actions.

Actions Taken to Minimize Impacts

The use of chemically stable materials and physical stabilization of materials by design are actions intended to reduce impacts to the riverine system.

The use of borrow material, from within the proposed moist soil unit, was intended to minimize impacts to aquatic and terrestrial ecosystems.

SUSPENDED PARTICULATE/TURBIDITY DETERMINATIONS

Rock placement along the bank line will decrease the suspended particulates now originating from the shoreline erosion. All other completed structures will have negligible effects on turbidity and suspended particulates.

Effects on Chemical and Physical Properties of Water Column

The proposed action is not expected to affect light penetration, dissolved oxygen levels, toxic metals and organics, pathogens, or aesthetics.

Effects on Biota

Adverse effects to biota, including primary producers (e.g., zooplankton and phytoplankton), suspension/filter feeders, and sight feeders, are expected to be short-term. Invertebrate populations of mayflies, caddisflies, stoneflies, and other aquatic insects will likely increase on the additional rock substrate provided.

Actions Taken to Minimize Impacts

Impacts are expected to be minimized by placement site selection, placement methods, and the use of chemically non-contaminating and physically stable materials for project construction.

The use of borrow material from within the project site and the stabilization of existing dike via rock placement are both intended to minimize impacts to aquatic and terrestrial ecosystems.

CONTAMINANT DETERMINATIONS

Rock fill material will be clean, uncontaminated stone from an approved source.

Specific contaminant analysis was not conducted, as fill material will be used from within the project area. Any contaminants introduced in the Pleasant Creek Wildlife Area or adjacent river systems are not expected to differ from those ordinarily found in these systems.

Possible introduction of equipment or construction-related contaminants would be controlled by adherence to runoff monitoring plans during construction activity. No toxic materials would be introduced to the area as a result of construction activities.

AQUATIC ECOSYSTEM AND ORGANISM DETERMINATIONS

Because the likelihood of contamination by pollutants is generally low for projects involving rock placement, impacts to the aquatic ecosystem are anticipated to be negligible.

Effects on plankton are anticipated to be minimal. Negative effects on benthos will be limited to elimination of those organisms currently inhabiting the immediate placement sites. The placement of rock fill should provide interstitial spaces for invertebrate production and limited vertebrate spawning potential.

Effects on nekton will be limited to displacement and temporary disruption of foraging patterns. Because the proposed activities are generally conducted in low-flow (hence, non-spawning seasons), impacts to spawning species should be negligible. Fish populations will benefit from shoreline protection and closing dam construction. Riprap, through invertebrate colonization, will provide an excellent food source and possible spawning sites.

Effects on the aquatic food web are expected to be beneficial overall by increasing production at the lower trophic levels.

Effects on special aquatic sites should be negligible in the project area; no sanctuaries or refuges will be adversely affected by the proposed action. No wetlands or mudflats, vegetated shallows, coral reefs, or riffle and pool complexes will be adversely affected by the proposed action.

Threatened and endangered species use of, or existence in, the project area is discussed in the Environmental Assessment. No significant impacts or effects to endangered species are anticipated to result from this action.

Other wildlife, such as the river otter, muskrat, and beaver that may move through and around the project area, should only be affected to the extent of temporary travel disruption. No food chain or critical habitat requirements will be affected by the proposed actions.

PROPOSED PLACEMENT SITE DETERMINATIONS

Mixing Zone Determinations

The fill material is inert and will not mix with the water. The lack of fine particulates typically contained in rock fill and main channel sand indicates negligible chemical or turbidity effects resulting from this action.

Determination of Compliance with Applicable Water Quality Standards

Due to the nature of the fill material, all discharges are anticipated to be in compliance with the respective state water quality standards.

Potential Effects on Human-Use Characteristics

The proposed action should have no effect on municipal or private water supplies. Recreational or commercial fisheries may experience a slight benefit from the proposed action. Water-related recreation will not be affected. Aesthetics are generally negatively affected by this type of construction activity. The exposed rock will eventually weather and blend in with the adjacent shoreline.

DETERMINATION OF CUMULATIVE EFFECTS ON THE AQUATIC ECOSYSTEM

Placement of rock would benefit aquatic resources by adding diversity to the substrate in this reach of the river. This diversity should provide crevices and interstices in which certain aquatic organisms can feed and reproduce. Temporary turbidity impacts may occur on and off site but would be short-term in duration. No cumulative negative impacts are expected to result from this action. Beneficial impacts, due to the creation of a moist soil unit, are anticipated for fish and wildlife. Long-term productivity would be enhanced by the proposed action. For these reasons, shoreline protection, construction of the trash rack and moist soil unit will have a cumulative positive effect on the aquatic ecosystem.

DETERMINATION OF SECONDARY EFFECTS ON THE AQUATIC ECOSYSTEM

Any negative impacts resulting from the proposed construction are expected to remain localized and short-term in nature. Re-suspension of existing substrate material during project construction would not contribute to any significant impacts to the aquatic ecosystem.

**SECTION 3 - FINDINGS OF COMPLIANCE WITH
THE RESTRICTIONS ON DISCHARGE**

**PLEASANT CREEK WILDLIFE AREA
POOL 13, MISSISSIPPI RIVER MILES 548.7 THROUGH 552.8
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1. No significant adaptations of the 404(b)(1) guidelines were made relative to this evaluation.
2. Alternatives that were considered for the proposed action were as follows:
 - ◆ No Federal Action. No Federal action in this instance means no change in land cover or current management practices.
 - ◆ Several alignment alternatives that include variations in water control and mast tree planting components.
 - ◆ Shoreline protection along the existing levee.
 - ◆ Trash rack construction.

Preferred Alternative. Construct closure dike (encompassing approximately 50 acres) to create a moist soil unit with water source, trash rack in Harris Slough, and placement of riprap bank protection on the bankline along River Mile 551.2 of the Mississippi River.

Management Measures Considered but Not Selected. Several management measures were considered for construction but not selected based on engineering feasibility, environmental impacts, cost, and/or inability to meet the goals and objectives of the Corps and the U.S. Fish and Wildlife Service. These measures included several different alignment alternatives for the closure dike, planting mast-producing trees, and creating the moist soil unit with or without a water source.

3. Permits, certification, or waiver of certification under Section 404 of the Clean Water Act will be obtained before construction begins. The project will be in compliance with water quality standards of Iowa as applicable.
4. The project is not anticipated to introduce toxic substances into nearby waters or result in appreciable increases in existing levels of toxic materials.
5. No significant impact to state or federally listed threatened or endangered species will result from the proposed action.
6. The project is situated along an inland freshwater river system. No marine sanctuaries are involved or would be affected by the proposed action.
7. No municipal or private water supplies will be affected by the proposed action, and no degradation of waters of the United States is anticipated to result from the proposed action. While Pleasant Creek Wildlife Area can be classified as an important refuge site, environmental improvements resulting from the proposed action would outweigh short-term construction impacts and offset some of the habitat degradation caused by uncontrolled flooding and shoreline erosion. No long-term adverse effects to the river ecosystem are expected to result from this action.

8. The materials used for construction will be chemically and physically stable and noncontaminating.

9. No other practical alternatives have been identified. The proposed action is in compliance with Section 404(b)(1) of the Clean Water Act, as amended. The proposed action will not significantly impact water quality and will improve the integrity of an authorized navigation system.

Date

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