

**DEPARTMENT OF NATURAL RESOURCES
RECORD OF DECISION**

**In the Matter of the Determination of the
Need for an Environmental Impact
Statement for the Lower Pool 2 Channel
Management Study: Boulanger Bend to
Lock and Dam 2 Maintenance Project in
Washington and Dakota Counties,
Minnesota**

**FINDINGS OF FACT,
CONCLUSIONS AND ORDER**

FINDINGS OF FACT

1. The U.S. Army Corps of Engineers (USACE) proposes to construct two new channel training structures in Lower Pool 2 of the Mississippi River between Boulanger Bend and Lock and Dam 2 to maintain the congressionally-authorized channel width. The project would be located between River Miles 816 and 821, between the City of Cottage Grove (Washington County) and Nininger Township (Dakota County), Minnesota. The proposed project would be 1.8 miles above Lock and Dam 2 at Hastings, Minnesota.
2. The main feature of the proposed project is the excavation of a channel approximately 12 feet deep, 330 feet wide, and 8,000 feet long through the area known as Boulanger Slough. Approximately 300,000 cubic yards of dredged material would be removed from Boulanger Slough.
3. In addition to the channel excavation, the project proposal includes construction of several additional features, including islands, submerged weirs, a rock spur, and several wing dams that would modify and manage the hydraulic functioning of the area. The Boulanger Island Extension would extend approximately 3,500 feet from Boulanger Island upstream towards the head of the new channel cut. The purpose of this island would be to reduce break-out flows from the channel and thereby keep a higher velocity in the upper end of the proposed excavated channel. The Island D Extension would extend approximately 1,100 feet from Island D towards the northeast. The purpose of this island would be to provide a point to anchor the submerged weirs on the western side of the abandoned channel. The islands would be constructed primarily from sand. The island crests would be at an elevation of 688.8 (1912 datum), about two feet above Low Control Pool water surface (686.7 feet (1912 datum)). The Rock Spur is a rock dike that would rise 1.6 feet above low control pool elevation (LCP+1.6=688.3ft (1912 datum)). The Rock Spur's primary function would be to improve the alignment of flow into the new channel as well as increase the percentage of flow entering the new channel cut. Two submerged rock sills would be placed across the old navigation channel, below the inlet to the new channel. The submerged rock sills would tie into the Island D extension on the left bank and the Boulanger Island extension on the right bank.
4. The Department of Natural Resources (DNR) prepared an environmental assessment worksheet (EAW) for the proposed project according to Minnesota Administrative Rules (Minn. R.)

4410.1400 and 4410.1500 (2017). The document was prepared as a mandatory EAW pursuant to Minnesota Rules, part 4410.4300, Subpart 27A. Wetlands and Public Waters (2017). As allowed by Minnesota Rules, part 4410.1300 (2017), the Environmental Assessment (EA) that had been prepared for the project by the USACE was circulated in place of the EAW form. The EA also was appended by a document, Appendix I, which identified how the EA addressed each of the environmental effects identified in the EAW form.

5. The EAW was filed with the Minnesota Environmental Quality Board (EQB) and a notice of its availability was published in the EQB Monitor on June 26, 2017. A copy of the EAW was sent to all persons on the EQB Distribution List and to those persons known by the DNR to be interested in the proposed project. A news release announcing the availability of the EAW was distributed statewide. Copies of the EAW were also made available for public review and inspection at the Minneapolis Central Library, the Washington County Public Library in Cottage Grove, the Dakota County Public Library at Hastings, the DNR Library (500 Lafayette Road, St. Paul), and the DNR Central Region Office (1200 Warner Road, St. Paul). The EAW was also made available to the public via posting on the DNR's website.
6. Pursuant to Minn. R. 4410.1600 (2016), the 30-day EAW public review and comment period began June 26, 2017 and ended at 4:30 p.m. on July 26, 2017. The public was provided the opportunity to submit written comments to the DNR by the U.S. Postal Service, facsimile, or email.
7. The EAW is incorporated by reference into this Record of Decision on the determination of need for an environmental impact statement (EIS).
8. During the 30-day public review and comment period, the DNR received written correspondence from the individuals and agencies listed below. The comment letters are included in the Record of Decision in Attachment A. Discussion on comments received and DNR responses are provided in Finding of Fact No. 9.
 1. Email address Dw744@aol.com
 2. Email address walleebrooks@aol.com
 3. National Park Service, U.S. Department of the Interior (received as a copy of comments directed to the USACE during the EA public comment period)
 4. PAS Associates, Ltd
 5. Minnesota Pollution Control Agency (no comments)
9. Each comment is summarized below with DNR's response following each comment.

Comment 1: The commenter questions the Proposer's ability and authorization to conduct property takings as part of project development. The commenter further expresses frustration regarding this stated practice. (*Dw744@aol.com*)

Response: This comment did not address the accuracy or completeness of the material contained in the EAW, potential impacts that may warrant further investigation before the project is commenced, or the need for an EIS for the project as required by Minn. R. 4410.1600. Therefore these comments are not receiving a specific response. Copies of all comments will be provided

to the project proposer and to permitting and/or approval entities and/or authorities for their consideration as part of the permitting, approval, and/or implementation processes.

Comment 2: The commenter questions the surface water and potential habitat impacts to connected waters downstream of Hastings. (*walleyebrooks@aol.com*)

Response: Based on the hydraulic and hydrologic modeling included in the EA (Appendix D), the proposed project is anticipated to reduce sediment displacement throughout the project area, including the Nininger Bluff to Lock and Dam 2 area, which ends at Hastings. No adverse impacts to surface water or wildlife habitat outside of the project area were identified via the EA. Impacts to surface waters and wildlife habitat during construction of the proposed project are anticipated to be temporary and limited and are not anticipated to extend downstream of the Hastings area.

Comment 3: The commenter provided clarifications to include references to the Mississippi National River and Recreation Area in Sections 1.2 and 2.4 of the EA as resources within the proposed project area. (*National Park Service*)

Response: The USACE concurred with the commenter in its response to this comment and has updated the EA record to include this reference.

Comment 4: The commenter expresses concerns that a significantly larger quantity of dredged material would require disposal under the preferred alternative due to widening of the channel. The commenter states its interest in reviewing the USACE's 2017 Pool 2 Dredged Material Management Plan (DMMP) when it becomes available. (*National Park Service*)

Response: The comment is acknowledged. The USACE has agreed in its response to this commenter to coordinate with the commenter as the Plan becomes available. In an average year, 72,000-75,000 CY are dredged from the Lower Pool 2. Upon widening the channel, per the proposed project, a one-time additional 300,000-325,000 CY of dredging would occur. However, following the proposed project completion, the annual average dredging amount is expected to return to 75,000 CY or less material.

Comment 5: The commenter expresses concerns regarding the impacts to mussel populations in the area, especially those species of State conservation concern. The commenter supports the Mussel Mitigation Plan and requests notification prior to the relocation of mussels, as well as to be informed regarding the results of the mussel survey and relocation effort. (*National Park Service*)

Response: The comment is acknowledged. Potential environmental effects to mussels were addressed in Item No. 13 and EA Section 6.2. The USACE has agreed in its response to this commenter to coordinate with the commenter as the mussel relocation plan is implemented.

Comment 5: The commenter asserts that disposal of the dredged material under the Dredged Material Management Plan (DMMP) is a phased and connected action that should be considered when evaluating the environmental effects of the proposed project. (*PAS Associates Ltd*)

Response: Disposal of dredged material for this project would be consistent with the current existing and approved management plan, which was evaluated in a 1997 EIS. However, the forthcoming DMMP was reviewed as a possible phased and/or connected action and was found to meet the definition of a phased action per Minn. Rules 4410.0200, Subpart 60. Since the DMMP is in an initial stage of development, an EAW will be conducted once the DMMP is more fully developed and potential environmental effects can be adequately addressed. The DMMP will also require an EA under NEPA.

Comment 6: The commenter indicates that the lack of a jurisdictional determination for the mine pit, referred to as “the lake” by the commenter, is critical information that is missing from the EA and EAW. (*PAS Associates Ltd*)

Response: A jurisdictional determination will be conducted as part of the DMMP in the forthcoming EA and EAW. The existing 15-acre portion of the mine pit that is currently utilized for dredge material disposal was reviewed in the 1997 EIS was decided at that time to be a mine pit, which had originated decades earlier from mined farmland, so no jurisdictional determination was conducted at that time. The mine pit has further expanded to the current footprint.

Comment 7: The commenter is concerned about long-term development opportunities and the environmental effects that may result from long-term projects on Grey Cloud Island. (*PAS Associates Ltd*)

Response: Existing land use and the proposed project’s compatibility with future planned uses are addressed in EA Section 6.1.5. Land use on Grey Cloud Island has been dominated by active aggregate mining as well as previously mined and re-claimed areas. The USACE has utilized portions of the island for dredged material placement, as well as Upper and Lower Boulanger Islands for temporary placement of dredged material. Placement of sand from the channel onto Lower Grey Cloud Island is in keeping with the current approved Reclamation Plan associated with the aggregate mine’s permit. In addition, in the recently published Mississippi River Corridor Critical Area District Map, Lower Grey Cloud Island is designated as a Rural & Open Space District (CA-ROS). Filling in portions of the existing gravel pit with sand, placing top soil and plantings of native grasses and trees is in keeping with this designation. Existing comprehensive plans for both Dakota County and Washington County were reviewed for compatibility as part of the proposed project, and no incompatibilities were found regarding the long-term development plans for Grey Cloud Island. Boulanger

Comment 8: The commenter is concerned about the usage of the 56-acre site for disposal of dredged material. (*PAS Associates Ltd*)

Response: There is no 56-acre site that is being considered as part of the project. The estimated 15-acre area that has been used for sediment disposal is consistent with the 1997 EIS for the disposal of dredge material.

Based upon the information contained in the EAW, the DNR has identified the following topics of potential environmental effects associated with the proposed project:

- a. Surface Waters
- b. Water Quality
- c. Wildlife and Habitat
- d. Air
- e. Noise
- f. Visual Effects
- g. Cumulative Potential Effects

Each of these environmental effects is discussed in more detail below.

a. Surface Waters

This topic was addressed in the EAW under Items 11a and 11b, and in the EA Section 2.2.1.3: Hydrology & Hydraulics; and EA Section 2.2.8: Water quality.

The proposed project would take place in Lower Navigation Pool 2 of the Mississippi River (Public Water Inventory: “U.S. Lock & Dam #2 Pool 19-5 P”). This waterbody is listed by the MPCA as having an approved Total Maximum Daily Load (TMDL) Plan for Mercury in Fish Tissue; Mercury in Water Column, and Additional Impairments of Polychlorinated biphenyl (PCB) in Fish Tissue, Perfluorooctanesulfonic acid (PFOS) in Fish Tissue, and Turbidity. The area is part of the Mississippi National River and Recreation Area (MNRRA). The project area has not been designated as a wild or scenic river in this segment under the Federal Wild and Scenic Rivers Act. The Lower St. Croix River, designated as a recreational river segment under the Federal Wild and Scenic Rivers Act, flows into the Mississippi River 6.5 river miles downstream of the project area, beyond Lock and Dam No. 2. There are no Minnesota-designated Wildlife Lakes in Dakota or Washington Counties, no state-designated trout lakes or streams are in the project vicinity, and no calcareous fens identified in project vicinity.

Other water resources in the project area (shown on EAW Exhibits 3 and 4) include several unnamed streams, several named features of the Mississippi River (e.g., Spring Lake, Grey Cloud Slough, etc.), and several wetlands. The St. Croix River flows into the Mississippi River approximately 6.5 miles downstream of the project area, and approximately 3.5 river miles downstream of the proposed staging area at Lock and Dam 2.

b. Water Quality

This topic was addressed in the EAW under Items 11b, and Item 13 and EA Section 6.2.8.

The proposed project would have temporary and minor adverse effects on water quality from the disruption and displacement of sediments during project construction, both during the dredging of the channel and the construction of project features. The proposed project would also have periodic minor adverse effects on water quality associated with maintenance dredging events that would be similar to the minor adverse effects associated with existing dredging events.

Dredging re-suspends bottom sediments, increasing turbidity. These increases in turbidity are generally local and short term. Anticipated impacts on water quality are generally related to the type of equipment used to complete a dredging job. Hydraulic dredging equipment tends to have less impact on water quality at the dredge cut site than mechanical equipment. Conversely, mechanical dredging equipment tends to have less impact on water quality at the placement site because there is no carriage water to manage either on- or off-site. Both methods of dredging can be conducted using best management practices to minimize effects to water quality, resulting in negligible impacts to water quality.

Other impacts to surface waters are not anticipated because no wastewater is associated with the project; no stormwater is associated with the project because it is to be constructed within a waterbody; the project would not require a water appropriation and no wetlands are known to exist in the project area.

Water Quality due to Sediment

The proposed project would have temporary and minor adverse effects within the project footprint and adjacent areas of suspended sediment and surficial sediment from the disruption and displacement of sediments during project construction, both during the dredging of the channel and the construction of the proposed project features. The widening of the channel would also expose more sediment to disruption, but this material only showed slight Sediment Quality Target (SQT) Level I exceedances. However, the 2015 testing of the substrate within the proposed training structure footprints showed several parameters with SQT Level II and MPCA's Soil Reference Value (SRV) Recreational/Residential exceedances in these areas (as fully detailed in Appendix H of the EA). Following construction of the proposed project, these sediments would be capped to prevent their further movement. Through coordination with the MPCA, Best Management Practices would be employed during construction that could also reduce disturbance.

c. Wildlife and Habitat

This topic was addressed in the EAW under Item No. 13 and EA Section 6.2.

The Upper Mississippi River provides habitat for a wide diversity of fish and wildlife. The combination of aquatic area, floodplain forest, and terrestrial communities near the proposed project provide habitat for fish, mussels, and other aquatic invertebrates, amphibians, and mammals.

The 200-foot wide main navigation channel conveys the majority of river discharge. Typically, flows within the main channel move at a higher velocity than border areas or secondary channels, resulting in shifting substrates and absence of vegetation. Main channel border areas lie between the main navigation channel and the riverbank (i.e., island shorelines) and may harbor river training structures, submerged logs and riprap that provide habitat for a variety of biota. Secondary channels (including Boulanger and Nininger sloughs) carry less flow than the main channel, and typically have characteristics such as clearly defined shorelines or inundated natural bank lines. Secondary channels offer variable habitats depending on flow, water depth, substrate, submerged structures, light penetration, wind, and water quality.

Boulanger Slough ranges between 6 – 20 feet deep, and is dominated by a hard-packed clay substrate with scattered woody debris. Boulanger Slough is situated in the lower portion of Pool 2, in an area that is laterally connected across the entire floodplain because of impoundment. Habitat in impounded areas is variable and influenced by water depth, substrate, wind, submerged structures, light penetration, water quality, flow, etc. The impounded area that separates Boulanger Slough from the current main channel generally ranges from 4-6 feet deep, with a hard clay substrate overlain by a flocculent layer of silt and interspersed by woody debris. The flocculent silt is often suspended by current flowing through the area and by wind-driven waves. Contiguous backwater floodplain lakes (i.e., Spring Lake) are hydraulically connected to the main channel and offer a wide variety of plant and animal habitat.

Federal Protected Species

The U.S. Fish and Wildlife Service's "Information for Planning and Conservation (IPaC) website was consulted on November 3, 2016 to determine if any proposed, candidate, threatened, or endangered species occurred within the project area. The results indicated that a total of four Federally-listed endangered species and two Federally-listed threatened species may occur in the vicinity of the proposed project. Three species listed as endangered are freshwater mussels: the Higgins eye pearl mussel (*Lampsilis higginsii*), sheepsnose (*Plethobasus cyphus*), and snuffbox (*Epioblasma triquetra*). The other species listed as endangered is an insect – the rusty-patched bumble bee (*Bombus affinus*). Species listed as threatened include one mammal - the northern long-eared bat (*Myotis septentrionalis*), and one flowering plant – the prairie bush-clover (*Lespedeza leptostachya*).

The proposed action would not affect any Federally-listed threatened or endangered species. Mussel surveys conducted in and around the project area (as described in EA Section 6.2.4) recovered no Federally-listed species. Surveys that were conducted nearby for unrelated purposes were also reviewed, including surveys conducted by the Minnesota DNR and Ecological Specialists, Inc. There has been one recent collection (2010) of a single, live individual Federally-listed endangered Higgins eye pearl mussel approximately one-tenth of a mile upstream from the proposed project, located off of the main channel behind a small rock island. However, it is unlikely that the species occurs within the area that would be disturbed by the project given the marginal habitat conditions identified during the surveys. Higgins' eye are typically associated with dense, high-quality mussel beds. Substrate conditions in the project area are less than ideal for the Higgins eye, consisting of a loose, 'mucky' mixture of silt, clay, and sand, but with pockets of homogenous sand and hardpan clay. Furthermore, it is highly unlikely that any other species of Federally-listed endangered mussels inhabit the project area. The snuffbox was recently re-introduced in upper Pool 2, but has not otherwise been recently collected in Pool 2. The sheepsnose is not known to be extant in Pool 2 of the Upper Mississippi River.

The rusty patched bumble bee occupies grasslands and tallgrass prairies of the Upper Midwest and Northeast. This bumble bee needs areas that provide food (nectar and pollen from flowers), nesting sites (underground and abandoned rodent cavities or clumps of grasses above ground), and overwintering sites for hibernating queens (undisturbed soil) (USFWS 2016).

Suitable habitat for the northern long-eared bat is variable depending on the season and the life stage of the individual. In the summer, these bats often roost under the bark of tree species such as maples and ashes within diverse mixed-age and mixed-species tree stands, commonly close to wetlands. In the winter, the northern long-eared bat hibernates in caves and abandoned mines. During periods of migration and foraging, these bats tend to use the 'edge habitat' where a transition between two types of vegetation occurs (Wisconsin DNR 2013b).

Suitable habitat for the prairie bush clover includes well-drained soils in prairies of the Midwest.

The northern long-eared bat, prairie bush clover, and rusty patched bumblebee are largely terrestrial species, not closely associated with the riverine environment. No habitat suitable for these species, as described in EA Section 2.2.5, would be disturbed by the proposed project.

If any upland disturbance is proposed as part of the dredged material placement, this determination will be reviewed prior to construction.

State Protected Species

A licensed review of the DNR Natural Heritage Information System (NHIS) database and the Statewide Mussel Survey was conducted in December 2016 by the proposer to obtain the records of any known state endangered or threatened species, as well as species of special conservation concern, native plant communities, and other natural features documented within one mile of the proposed project. A number of species that are listed by the State Minnesota as endangered or threatened have been historically documented in the vicinity of the project area.

The twelve historically-documented mussel species identified by the NHIS database were compared with the results of recent mussel survey efforts in Lower Pool 2 to determine which species have recent records of occurrence. Of the twelve historically-recorded mussel species, four have not been found live within Lower Pool 2 in thirty-five or more years: the mucket (*Actinonaias ligamentina*), elephant ear (*Elliptio crassidens*), spike (*Elliptio dilatata*), and ebonyshell (*Fusconaia ebena*). Two of these species – the mucket and spike – have been reintroduced in Upper Pool 2, but there has been no evidence of recruitment within Lower Pool 2. Therefore, it is assumed that these species do not currently occur in the proposed project area. The remaining eight species have been recently collected within Lower Pool 2, three of which were found in the surveys conducted specifically for the proposed project: the pistolgrip (*Tritogonia verrucosa*) listed in Minnesota as endangered, and the butterfly (*Ellipsaria lineolata*), and wartyback (*Quadrula nodulata*), both listed in Minnesota as Threatened. There are five other State-listed mussel species that were not collected during the mussel surveys conducted in the project footprint, but that have been previously found live in other areas of Lower Pool 2. These are the Higgins' eye (*Lampsilis higginsii*), which is listed as endangered both federally and by Minnesota, the washboard (*Megaloniais nervosa*) and the Rock pocketbook (*Arcidens confragosus*), which are listed as endangered in Minnesota, and the monkeyface (*Quadrula metanevra*) and the fawnsfoot (*Truncilla donaciformis*), which are both listed as threatened in Minnesota. It is possible that individuals of these species occur within the project area; but based on their absence in the project surveys, it is not likely that the project area includes significant portions of their populations. Therefore, the proposed project would have a minor effect on these species or their state status. The black sandshell (*Ligumia recta*), listed as a species of special concern in Minnesota, and the hickorynut (*Obovaria olivaria*), listed in Minnesota as a 'watchlist' species were also identified by the NHIS database to occur within one-mile of the proposed project area.

A mussel survey was conducted for the proposed project in July 2015 and included both qualitative and quantitative sampling of the project area. The survey is summarized below and full discussion of these methods and results of the mussel survey are included in Appendix G of the EA. Mussel surveys were conducted in and around the study area to quantify the mussel resources within the project footprint, including in and around the footprints of the channel training structures that would be constructed under the proposed plan. Another survey focused on the area that would be disturbed by the proposed Boulanger Slough Channel project. Timed searches were conducted in the current main navigation channel and main navigation channel border areas. Several searches were also conducted in Lower Spring Lake, although no currently proposed project features would extend into that area.

Within the proposed training structure footprints, about half of the mussel species known to be living in the pool were present. Density was relatively low ($3.34/m^2 \pm 1.01$) compared to high-quality mussel areas in Pool 2 as reported previously. Davis (2007) reported native mussel density about three times greater, $9.02/m^2 \pm 1.29$ in Upper Pool 2 at Hidden Falls County Park. Similarly, adjacent to Lower Grey Cloud Island in Pool 2 (River Mile 822 to 820), which is across the navigation channel from the study area, Kelner and Davis (2002) reported average mussel density of $9.8/m^2 \pm 0.8$. Conversely, the current study area appears to support a slightly

more abundant mussel community than the other areas surveyed as a part of the Lower Pool 2 Channel Management Study. In the nearby Boulanger Slough area, average native mussel densities were 2.41 ± 0.6 mussels/m² (Kelner 2012), and in the main channel, main channel border, and Nininger Slough areas surveyed by the DNR, average mussel densities were 1.03 mussels/ mussels/m² (Davis 2012).

The wartyback was found during quantitative sampling for the proposed project throughout the two structure footprints at a relative abundance of nearly 9%. Based on the sampled density, it is estimated that approximately $1,340 \pm 890$ wartyback are present per acre within the project area, and therefore approximately $5,340 \pm 3,560$ are estimated to exist within the footprint of the proposed channel control structures. Although the wartyback is rare throughout the state, including other locations within the Upper Mississippi River, the species has healthy populations in Pool 2. Two individuals of the state-endangered pistolgrip, one individual of the state-threatened butterfly, and eight individuals of the state-special concern black sandshell were found in qualitative timed-searches. A population estimate cannot be calculated based on survey data for these species because they were only found in qualitative searches. It is reasonable to assume that a small number of individuals of each of these species exists within the project footprint. Studies of the mussel community in Pool 2 reflect the good health of the wartyback species in the area.

The effects on individuals of these species are discussed in EA Section 6.2.4 and below in *Aquatic Species – Potential Effects*. Effects to these species would be minor due to the mussel relocation mitigation and monitoring plan that has been incorporated into the proposed project (EA Appendix G: Mussel Relocation Plan and Mussel Survey Results).

The paddlefish (*Polydon spathula*) is a large and long-lived planktivorous fish species that has been historically observed in Pool 2. Paddlefish are listed as Threatened in Minnesota and Wisconsin. It is not known if paddlefish use the project area, and surveys for paddlefish were not conducted because the rarity of the fish makes it extremely difficult to detect their presence using standardized sampling methods (Schmidt 2004). However, if any paddlefish are present in the project area, the project would not be likely to directly impact them since fish present in the construction areas would be expected to vacate when the area is disturbed. Following project construction, effects to paddlefish are expected to be minimal. During the majority of the year, studies have associated paddlefish with deeper water (usually >3m) and generally low current velocities (Zigler et al. 2003). During spawning, paddlefish use gravel substrates or hard surfaces with enough current to keep eggs free of silt (Jennings & Zigler 2000). Neither of these habitats are present within the project footprint, so effects are anticipated to be minor and limited.

Kitten-tails (*Besseyia bullii*), listed in Minnesota as Threatened, is an upland perennial herb that primarily inhabits oak savanna communities, and less frequently, other dry prairies woodlands. Many of Minnesota's populations of kitten-tails occur on the bluffs and terraces of the Mississippi River valley. No suitable habitat for kitten-tails is located within the proposed project footprint, so no adverse effects are anticipated.

The loggerhead shrike (*Lanius ludovicianus*), listed in Minnesota as Endangered, generally inhabits upland grassland and agricultural areas, and is not strongly associated with riverine habitats. Therefore, the proposed project would not have any effect on loggerhead shrike.

Seven additional species listed by Minnesota as "Species of Special Concern" and on the "watchlist" have been documented near the project area. This includes two fish: the American

eel (*Anguilla rostrata*) and pirate perch (*Aphredoderus sayanus*); three terrestrial vascular plants: American ginseng (*Panax quinquefolius*), Laurentian bladder fern (*Cystopteris laurentiana*), and long-bearded hawkweed (*Hieracium longipilum*); one bird: the peregrine falcon (*Falco peregrinus*); and one reptile: western foxsnake (*Pantherophis ramspotti*). The fish, snake, and bird are mobile species and would be expected to avoid the project area during construction. Wild ginseng favors deep shade in dense deciduous forests, and no such habitat would be disturbed by the proposed project. The Laurentian bladder fern is found on wet limestone cliffs, which is also a habitat type that would not be disturbed by the proposed project. Long-bearded hawkweed is found on high-quality dry prairies. The proposed project would not adversely affect habitat for any of these species.

Seven terrestrial plant communities were identified as existing within a mile of the project area. No habitat of these types would be impacted by the proposed project.

Aquatic Species – Potential Effects

To assess the changes in aquatic habitat that would occur under project conditions, geomorphological, hydrological, and biotic characteristics were used to delineate regions that provide similar habitat for aquatic organisms. Data used to determine the habitat types included bathymetry, stream velocity, wind fetch analysis, vegetation surveys, and professional on-site visual surveys. Once the aquatic areas were mapped, Geographic Information System (GIS) software was used to calculate the change in area between the existing and project conditions.

The project would decrease main channel border habitat (-13.7 acres), impounded aquatic habitat (-7.8 acres), and wing dam habitat (-3.6 acres), although historic wing dam habitat may be overestimated as it was mapped from historic data and many of the wing dams once present no longer exist. The project would increase main channel areas (+15.2 acres), revetment (+5 acres), and floodplain shallow aquatic habitat (+4.9 acres). These proposed changes in habitat would lead to different habitat types available for fish in the area. Overall, these changes would be expected to have an overall negative impact on the value of the habitat in Lower Pool 2. The habitat types that would be lost – main channel border, impounded aquatic, and wing dam habitats – are abundant elsewhere in Lower Pool 2 near the proposed project area. No special habitat characteristics or values have been identified in the proposed project footprint. The channel control structures may increase habitat diversity in Lower Pool 2 by reducing wind and wave action in the shallow area between Boulanger Slough and the current main navigation channel, which could serve to protect and stabilize the areas near them and promote aquatic vegetation growth.

The dredged material would be placed in the waterlogged mining pit created by recent aggregate mining on Lower Grey Cloud Island. The pit is a water-filled depression created by excavating in a previously upland area, and is therefore excluded from consideration as a Water of the United States for purposes of jurisdiction under the Clean Water Act. The pit has an estimated capacity of over 10 million cubic yards, so the estimated 300,000 cubic yards generated by the proposed project would not significantly change the nature of the existing mine pit. The pit is currently being used for placement of tailings (sand) generated by the ongoing adjacent mining operation. Filling the pit with sand is part of the existing and approved mining reclamation plan, and the addition of sand from the project would aid in restoring the mining pit. Therefore, the proposed sand placement would not have any negative effects on aquatic habitat.

The proposed project would have minor adverse effects on the biological productivity of macroinvertebrates including freshwater mussels. Any macroinvertebrates living within the

footprint of the project features (the dredge cuts and training structures) would be directly impacted during project construction.

Impacts to freshwater mussels from dredging would be minimal, as mussel surveys in the main channel and main channel border areas showed low-density, little diversity, and mostly common species. These results are to be expected because the same conditions that tend to precipitate channel maintenance problems, such as dynamic and shifting sediment, make these areas poor habitat for mussels. The mussel relocation effort planned in the footprint of the proposed training structures would reduce this adverse effect, but a small number of mussels would still be expected to be killed as a result of the proposed project.

Mussels within the footprints of the rock training structures would be buried and killed during project construction. Because mussel surveys of these footprints revealed moderate mussel density, and included several rare species, mitigation measures are being incorporated into the project to minimize the project's potential effects. Divers would be tasked with searching the footprints of the proposed training structures and collecting as many freshwater mussels as they can find. These mussels would be relocated to other nearby areas in order to augment the mussel communities. Past studies on mussel relocation efforts have shown that a high percentage of the mussels can be collected (90% or greater), and that survival rates following relocation are considered successful if average mortality remains below 15%. Appendix G of the EA describes the methodologies and protocols that would be used during the mussel relocation and following, in order to monitor survival rate and the relocation's success.

Mussels could also be impacted by indirect effects of the project. There are two primary potential impacts outside of the footprints: flow and deposition. Flow behind the structures is anticipated to be reduced, but not eliminated. The proposed project would be expected to change the habitat in the area slowly over time. Because of this change and potential associated use patterns by host fish, it is unknown how this might impact colonization by new mussels. However, this change would not be expected to negatively affect the mussels that currently exist in the area. Deposition rates will likely also change, but the largest changes in deposition predicted by the study's model were ~0.6 feet over the course of approximately 5 years (described further in Appendix D). Mussels would not be negatively impacted by that level of sediment deposition. Therefore, the USACE does not believe the project would cause measurable indirect effects to mussels, and does not propose to relocate these mussels. Nonetheless, the proposer would conduct surveys to monitor changes in the area would during the relocation effort pre-project and for 5-years post-project to verify that impacts have been absent or negligible. If, during ongoing monitoring, it is determined that the relocation efforts failed, the project proposer will further investigate in coordination with the DNR the potential remedies to the failure and loss of ecological function.

d. Air

This topic was addressed in the EAW under Item No. 16 and EA Sections 2.2.10 and 6.2.10.

The proposed project is being assessed for air quality effects on several levels: compliance with the rules provided by the Federal Clean Air Act, analysis of greenhouse gas emissions and potential effects on climate change, and impacts to local receptors.

The 1990 Federal Clean Air Act Amendments directed the Environmental Protection Agency (EPA) to develop Federal conformity rules. Those rules are designed to ensure that Federal actions do not cause, or contribute to, air quality violations in areas that do not meet the

National Ambient Air Quality Standards (NAAQS). The EPA has developed NAAQS for six principal air quality pollutants: carbon monoxide, nitrogen dioxide, ozone, lead, particulate matter, and sulfur dioxide. The final rule dictates that a conformity review be performed when a Federal action generates air pollutants in a region that has been designated a non-attainment area for one or more of the six NAAQS criteria pollutants. Washington County is in “attainment” of the NAAQS for each of the criteria pollutants, so no conformity review is required. Dakota County is listed as a nonattainment region for Lead under the 2008 standard. However, because no lead would be emitted during the construction of or as a result of this project, the action would be exempt from the Federal conformity rules. Therefore, no conformity analysis is required for the proposed project.

The proposed project would be expected to produce greenhouse gasses during construction in the form of exhaust from various types of machinery used for dredging, material transport, and material placement. The proposed project would also have recurring minor adverse impacts on air quality from dredging events required for maintaining the navigation channel at approximately the same level as the existing conditions.

The Council on Environmental Quality (CEQ) released draft NEPA guidance for consideration of the effects of climate change and greenhouse gas emissions in February, 2010. The guidance proposed a level of 25,000 metric tons or more of Carbon Dioxide-equivalent greenhouse gas emissions annually as an indicator that detailed assessment of greenhouse gasses may be meaningful to decision makers and the public. Using estimates of fuel usage and production quantities for mechanical dredging, it is estimated that dredging and associated placement from the proposed project would result in a release of approximately 1,000 metric tons of CO₂-equivalent greenhouse gas emissions. Although it is more difficult to estimate the emissions related to the construction of the training structures, the level of effort is anticipated to be similar to that of the dredging, and would utilize similar construction equipment.

At a local scale, the nearest sensitive receptor is Spring Lake Regional Park, which is located on top of the bluff, a little over 1,000 feet south of the closest proposed training structure, the more upstream structure. Several residential properties lie to the east of the park, also on top of the bluff, and would be approximately 2,000 feet away from the tip of one of the proposed training structures. No other receptor sites have been identified within 2,000 feet of any proposed construction. During project construction, the project would have a temporary, minor, and localized adverse effect on air quality due to emissions produced by construction equipment. This would be short-lived and would end upon project completion. Construction activities are expected to produce very little dust because the materials to be handled would be either wet (dredged material) or larger materials that are not generally mobilized by wind (large rocks for training structure construction).

e. Noise

This topic was addressed in the EAW under Item No. 17 and in EA Sections 2.1 and 6.1.4.

The proposed alternative would have a temporary, minor adverse increase in noise in the proposed project vicinity. Construction would require heavy equipment to operate in the area, such as towboats, barges, dredges, excavators, and bulldozers. These machines would generate noise during construction. This effect would be minor and would end upon construction completion. No ongoing adverse effects are anticipated following project completion.

f. Visual Effects

This topic was addressed in the EAW under Item No. 15.

The proposed project would have a minor adverse effect on local aesthetics. The channel training structures would be constructed of rock riprap and would likely appear unnatural to the public. This aesthetic effect would mostly be limited to river users, but would also affect shoreline users in some areas. For example, users of the scenic overlook at Schaar's Bluff Vista at Spring Lake Regional Park would likely be able to see the structures. These structures would be apparent at most flow rates. More specifically, at discharges lower than the 50-percent annual exceedance probability flood (i.e., "2-year flood"), the channel control structures would be above the water surface and would be visible to those on the vista or by river users near the structures. When the Pool is at the lowest-controlled elevation, the top of the channel control structures would be approximately 0.8 feet (10 inches) inches above the water. At river discharges higher than the 50-percent annual exceedance probability, the structures would become submerged.

g. Cumulative Potential Effects

This topic was addressed in the EAW under Item No. 19 and it EA Section 6.4.

Anticipated environmental effects of the project include surface water effects, water quality effects, effects on aquatic wildlife, visual effects, and air effects. Additionally, short-term air and noise effects would be anticipated during project construction. All environmental effects would be expected to be limited to an area immediately surrounding the project site. Construction-related air and noise effects would be expected to be short-term, and would conclude at the completion of construction, which would occur no later than summer 2018. The timeframes of other environmental effects resulting from the project would be anticipated to occur for the life of the project, which the USACE estimated to be 40 years.

While the USACE included several ongoing management plans and potential future projects in its Cumulative Effects Analysis included in the EA, DNR is aware of only one project that meets the standard of "reasonably foreseeable future projects for which a basis of expectation has been laid," per Minnesota Rules 4410.0200 Subpart 11a. This project is the Proposed Nelson Mine Expansion, described in the EA in Section 6.4.2.

Short-term air and noise effects associated with the construction of the project are expected to have limited potential for cumulative effects due to the minor incremental increases of these effects during the project activities. Potential cumulative effects to surface waters, water quality, aquatic wildlife, visual and air effects from the project in combination with the other reasonably foreseeable future projects are discussed in Sections 6.4.2 and 6.4.3 of the EA under the following headings: Recreation, Aesthetic Values, Hydrology, Hydraulics and Sediment Transport, Mussels, and Water Quality.

10. The DNR requested and was granted by the Minnesota Environmental Quality Board (MEQB) a 15-day extension for making a decision on the need for an EIS for the proposed project, consistent with Minn. R. 4410.1700, subp. 2b.
11. The forthcoming Dredge Material Management Plan (DMMP) for Lower Pool 2 is currently in the initial stages of development. Per Minn. R. 4410.0200 Subpart 60, the DMMP meets the definition of Phased Action associated with the Boulanger Bend to Lock and Dam 2 Maintenance project, thus requiring assessment of potential environmental effects as a component of the project as a whole. Since it is not possible to adequately address this project

component, a new EAW will be required to be completed for the DMMP prior to utilization of disposal sites newly authorized by the DMMP.

12. The following permits and approvals are needed for the project:

Unit of Government	Type of Application	Status
DNR	Public Waters Permit #2017-2038	Pending
MPCA	401 Water Quality Certification	Waived
MPCA	State Disposal System Permit: Dredge Placement	Pending

CONCLUSIONS

1. The following standards and criteria are applied by the RGU to determine whether the proposed project has the potential for significant environmental effects and requires the preparation of an EIS.

In deciding whether a project has the potential for significant environmental effects, the following factors shall be considered:

- a. *type, extent, and reversibility of environmental effects;*
- b. *cumulative potential effects;*
- c. *extent to which the environmental effects are subject to mitigation by on-going regulatory authority; and*
- d. *the extent to which environmental effects can be anticipated and controlled as a result of other environmental studies undertaken by agencies or the project proposer, including other EISs.*

Minn. R. 4410.1700, subp. 6-7 (2016)

2. *Type, extent, and reversibility of environmental effects*

Based on the Findings of Fact above, the DNR concludes that the following potential environmental effects, as described in Finding of Fact No. 10, will be limited in extent, temporary, or reversible:

- Surface Waters
- Water Quality
- Air
- Noise
- Visual Effects
- Cumulative Potential Effects

3. *Cumulative potential effects.*

Based on the Finding of Fact above, the DNR concludes that the following cumulative potential effects do not have the potential to be significant environmental effects:

- Surface Waters
- Water Quality
- Noise
- Air
- Wildlife and Habitat

The proposed project’s contribution to cumulative potential effects to surface waters, water quality, noise, and air is limited when viewed in connection with other contributions. The project proposer has made efforts to minimize cumulative potential effects associated with potential effects to wildlife and habitat.

4. *Extent to which environmental effects are subject to mitigation by on-going public regulatory authority.*

The following environmental effects are subject to mitigation by DNR regulatory authority:

- Surface Waters
- Water Quality
- Wildlife and Habitat

The following environmental effects are subject to mitigation by MPCA regulatory authority:

- Surface Waters
- Water Quality
- Air
- Noise

5. *Extent to which environmental effects can be anticipated and controlled as a result of other environmental studies undertaken by public agencies or the project proposer, or other EISs.*

The Channel Maintenance Management Plan. St. Paul District U.S. Army Corps of Engineers. October 1995.

The following environmental studies assist in the anticipation and controlling of potential environmental effects:

Monitoring Freshwater Mussels in the Mississippi National River and Recreation Area. Mussel Monitoring Report. Mike Davis. Minnesota Department of Natural Resources. 2003.

Final Report: Mussel (Bivalvia: Unionidae) survey of the Mississippi National River and Recreation Area Corridor, 2000-01. Contract report to the National Park Service Mississippi National River and Recreation Area and the Great Lakes Network Inventory and Monitoring Program. Dan Kelner and Mike Davis. Minnesota Department of Natural Resources. 2002.

Definite Project Report and Environmental Assessment for Relocation Plan for the Endangered Higgins’ Eye Pearlymussel (*Lampsilis higginsii*). St. Paul District U.S. Army Corps of Engineers in cooperation with the Mussel Coordination Team. July 2002.

6. The DNR has fulfilled all the procedural requirements of law and rule applicable to determining the need for an environmental impact statement on the proposed Boulanger Bend to Lock and Dam 2 Project.
7. Based on considerations of the criteria and factors specified in Minn. R. 4410.170, subp. 6 and 7 (2017) to determine whether a project has the potential for significant environmental effects, and on the Findings and Record in this matter, the DNR determines that the proposed Boulanger Bend to Lock and Dam 2 Maintenance Project does not have the potential for significant environmental effects.

ORDER

Based on the above Findings of Fact and Conclusions:

The Minnesota Department of Natural Resources determines that an Environmental Impact Statement is not required for the Boulanger Bend to Lock and Dam 2 Maintenance Project in Washington and Dakota counties, Minnesota.

Any Findings that might properly be termed Conclusions and any Conclusions that might properly be termed Findings are hereby adopted as such.

Dated this 6th day of September, 2017.

**STATE OF MINNESOTA
DEPARTMENT OF NATURAL RESOURCES**



Barb Naramore
Assistant Commissioner