



US Army Corps
of Engineers.

DRAFT FINDING OF NO SIGNIFICANT IMPACT AND ENVIRONMENTAL ASSESSMENT

Open-Water Site Selection for Dredged Material
Upper Ohio Navigation Project

Emsworth, Dashields, and Montgomery
Locks and Dams, Pennsylvania



Image of Montgomery Locks and Dam on the Ohio River

September 2023

U.S. Army Corps of Engineers
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**DRAFT FINDING OF NO SIGNIFICANT IMPACT
OPEN-WATER SITE SELECTION FOR DREDGED MATERIAL
EMSWORTH, DASHIELDS AND MONTGOMERY LOCKS AND DAMS
OHIO RIVER, PENNSYLVANIA**

The U.S. Army Corps of Engineers (USACE) has assessed the environmental impacts of the subject project in accordance with the National Environmental Policy Act of 1969 and has determined a Finding of No Significant Impact (FONSI). The attached environmental assessment (EA) was drafted by the USACE and addresses the proposed establishment of open-water placement sites for excess dredged material resulting from the rehabilitation of the Emsworth, Dashields and Montgomery Locks and Dams as part of the Upper Ohio Navigation (UON) Project.

PURPOSE

The purpose of the attached EA is to provide sufficient information on the potential effects of the proposed action to determine if it constitutes a major federal action significantly affecting the quality of the human environment, thereby necessitating the development of an environmental impact statement (EIS). This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, the Council on Environmental Quality (CEQ) implementing regulations (40 CFR 1500-1508), and 33 CFR 230.

The anticipated environmental and socio-economic impacts that may result from the open-water placement of dredged material are assessed in the EA. This EA includes a discussion of the need for the action, the affected environment (existing conditions), a description of the proposed action and alternatives considered (including the “No Action” alternative), anticipated environmental impacts that may result from the proposed action, and other related environmental compliance requirements, including a list of the agencies, interested groups, and individuals consulted.

BACKGROUND

The UON Project addresses lock condition and capacity issues at the Emsworth, Dashields, and Montgomery Locks and Dams on the Ohio River in Pennsylvania. The project is located at Emsworth, Dashields, and Montgomery Locks and Dams near Pittsburgh, Pennsylvania. A final feasibility report (FR) and integrated EIS for the UON Project was completed by the USACE, Pittsburgh District in 2014 and updated in 2016 (FR/EIS). The FR/EIS recommended replacement of each auxiliary lock with construction of one new lock chamber (110 feet wide by 600 feet long) at each facility riverward of the existing main lock chamber. This new lock chamber will serve as the main lock chamber at each facility. The FR/EIS considered placing all excess dredged material from the construction of the lock replacement projects into commercially available, permitted landfills. However, further evaluation of the project

recommended investigating alternative uses of the dredged material. The proposed open-water placement of this dredged material is one of the alternatives.

The proposed action being evaluated in this EA addresses the establishment of open-water placement sites in the Ohio River for excess dredged material from the rehabilitation of the Emsworth, Dashields and Montgomery Locks and Dams as part of the UON project. Excess dredged material that meets the contaminant determination Clean Water Act (CWA) Section 404(b)(1) Guidelines for open-water placement would be placed within the designated sites located upstream and/or downstream of each of the three locks and dams. Any dredged material that does not meet these guidelines would be transported and placed in a commercially available, properly permitted landfill. Overall, an estimated 2,000,000 cubic yards of sand, gravel, bedrock, and concrete rubble may be generated during construction of the UON Project.

ALTERNATIVES CONSIDERED

The FR/EIS for the UON Project considered placing all excess dredged material generated during the construction of the lock replacement structures into commercially available, properly permitted landfills. This alternative thus serves as the “No Action” alternative for the purposes of the Environmental Assessment. Further evaluation after the preparation of the FR/EIS recommended considering alternative uses of the dredged material as a potential environmental benefit and cost savings measure since landfill placement would be extremely expensive, and adequate landfill capacity to accept all the material in the project vicinity is uncertain. The No Action alternative is not recommended as it would result in significantly greater costs and fewer environmental benefits than the proposed project.

A total of four project alternatives were evaluated, including the “No Action” alternative. The Ohio River Islands National Wildlife Refuge (ORINWR) restoration project was one alternative for the placement of dredged material generated from the UON Project. However, the ORINWR restoration project alternative was screened out during the alternatives analysis because of the long timeline for construction of the UON Project did not align with the ORINWR Project schedule, in addition to logistical and cost issues.

Another alternative was considered that included the reclamation of abandoned surface coal mines located less than 15 miles from the UON Project in Moon Township, Pennsylvania. The abandoned mines are situated on property owned by Allegheny County and is leased/operated by the Allegheny County Airport Authority, which contains the entire Pittsburgh International Airport (PIA) facility. The mine reclamation alternative was also screened out during the alternatives analysis due to several logistical, real estate, and cost issues which are outlined in the EA.

An assessment of the potential effects of the project alternatives is presented in the EA, while a summary assessment of the potential effects of the “No Action” and preferred alternative (recommended plan) is listed in the table below:

Public Interest Factor	No Action Alternative	Preferred Alternative
<i>Physical and Natural Environmental Considerations</i>		
Air Quality	Minor adverse (temporary and short-term caused by equipment emissions)	Minor adverse (temporary and short-term caused by equipment emissions)
Water Quality	Minor adverse (temporary)	Minor adverse (temporary)
Climate	No effect	No effect
Greenhouse Gases and Climate Change	No effect	No effect
Wetlands	No effect	No effect
Sediment and Substrate	Minor adverse (long-term)	Minor adverse (temporary)
Plankton and Benthos	Minor adverse (long-term)	Short term: minor adverse Long term: minor beneficial
Fisheries	Minor adverse (long-term)	Short term: minor adverse Long term: minor beneficial
Wildlife	Minor adverse (temporary)	Minor adverse (temporary)
Aquatic Vegetation	No effect	No effect
Federally Listed Threatened and Endangered Species	No effect	No effect
Wild and Scenic Rivers	No effect	No effect
Traffic and Transportation	Minor adverse (temporary)	Minor adverse (temporary)
<i>Socio-Economic Environmental Considerations</i>		
EO 12898 Environmental Justice	No effect	No effect
EO 13045 Protection of Children	No effect	No effect
Adjacent Land Use and Development	Minor adverse (long-term)	No effect
Recreation, Scenic, Noise and Aesthetics	Minor adverse (temporary)	Minor adverse (temporary)
Hazardous, Toxic and Radioactive Waste	No effect	No effect
Cultural Resources	No effect	No effect
Health and Safety	Minor adverse (temporary)	Minor adverse (temporary)

Note: Impacts were assessed as major adverse, minor adverse, resource unaffected (no effect), resource unaffected through mitigation, minor beneficial, or major beneficial impacts. Additionally, impacts could be temporary, permanent, or not applicable.

CONSULTATION AND COMPLIANCE WITH OTHER LAWS AND REGULATIONS

Pursuant to Section 7 of the Endangered Species Act of 1973, as amended, the USACE has determined that the recommended plan will likely have no effect on federally listed species or designated critical habitat. In a letter dated March 21, 2023, the U.S. Fish and Wildlife Service indicated that the proposed project would result in no adverse effect to any federally designated threatened or endangered species (Appendix D).

There are no listed historic properties or properties determined as being eligible for listing in the National Register of Historic Places that would be affected by this project. Given the results of the literature review and field survey, the USACE has determined that the proposed project would have no effect on historic properties and no further cultural resource investigation is recommended prior to implementation of the proposed project. The Pennsylvania State Historic Preservation Office (PASHPO) concurred with this assessment in a summary letter received on March 28, 2023, that states: “Based on the information received and available in our files, in our opinion, the proposed project should have No Effect on archaeological resources” (Appendix C).

Pursuant to the Clean Water Act of 1972, as amended, a Clean Water Act Section 404(b)(1) Evaluation will be drafted prior to the placement of dredged material at any of the proposed sites. This evaluation will be completed during each project’s pre-construction engineering and design phase following the release of a Section 404(a) public notice and consideration of all applicable comments related to this proposed discharge.

A water quality certification pursuant to Section 401 of the Clean Water Act will be obtained from the Pennsylvania Department of Environmental Protection (PADEP) prior to the placement of dredged material at any of the proposed sites.

All applicable environmental laws have been considered and coordination with appropriate agencies and officials has been completed.

All applicable laws, executive orders, regulations, state requirements, and local government plans were considered in the evaluation of alternatives. Based on this EA, the reviews by other federal, state, and local agencies, tribes, input of the public, and the review by my staff, it is my determination that the recommended plan would not cause significant adverse effects on the quality of the human environment. Therefore, preparation of an EIS is not required. Those who may have information that may alter this assessment and lead to a reversal of this decision should notify me within 30 days. If no comments that would alter this finding are received within the 30-day review period, this FONSI will be signed and filed with the project documentation.

Date

Nicholas O. Melin
Colonel, Corps of Engineers
District Commander

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**DRAFT ENVIRONMENTAL ASSESSMENT
OPEN-WATER SITE SELECTION FOR DREDGED MATERIAL
EMSWORTH, DASHIELDS AND MONTGOMERY LOCKS AND DAMS
OHIO RIVER, PENNSYLVANIA**

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1 PURPOSE AND AUTHORITY

1.1 INTRODUCTION & PURPOSE

The purpose of this environmental assessment (EA) is to assess the anticipated environmental and socio-economic impacts that may result from the placement of excess dredged material generated from the rehabilitation of the Emsworth, Dashields and Montgomery Locks and Dams into select open-water placement sites in the Ohio River. It evaluates the potential effects of the proposed action to determine if it constitutes a major federal action which could significantly affect the quality of the human environment, thereby necessitating the development of an environmental impact statement (EIS). This EA was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, the Council on Environmental Quality (CEQ) implementing regulations (40 CFR Parts 1500-1508), and 33 CFR Part 230.

This EA includes a discussion of the need for the action, the affected environment (existing conditions), a description of the proposed action and alternatives that were considered (including the “No Action” alternative), anticipated environmental impacts that may result from the proposed action, and other related environmental compliance requirements, including a list of the agencies, interested groups, and individuals consulted.

1.2 AUTHORITY

The basic authority for the Upper Ohio Navigation (UON) Study is contained in the resolution adopted by the Committee on Public Works of the United States Senate on May 16, 1955:

“Resolved by the Committee on Public Works of the United States Senate, that the Board of Engineers for Rivers and Harbors created under Section 3 of the River and Harbor Act, approved June 13, 1902, be, and is hereby requested to review the reports on the Ohio River published in House Document No. 306, Seventy fourth Congress, First Session, House Committee on Flood Control Document No. 1, Seventy-fifth Congress, First Session, and related reports, with a view to determining whether any modifications in the present comprehensive plan for flood control and other purposes in the Ohio River basin is advisable at this time.”

Further authority was provided through a resolution adopted by the U.S. House of Representatives Committee on Public Works and Transportation on March 11, 1982:

“Resolved by the Committee on Public Works and Transportation of the House of Representatives, United States, that the Board of Engineers for Rivers and Harbors established by the Section 3 of the River and Harbor Act approved June 13, 1902, is hereby requested to review the reports on the Ohio River published as House Document No. 492, 60th Congress, First Session, and House Document No. 306, Seventy-fourth Congress, First Session, and other pertinent reports with a view to determine whether any modification in the authorized plan for modern barge navigation and other purposes on the Ohio River is advisable at this time with particular emphasis on need for improvement or replacement of Emsworth Locks and Dam, Ohio

River Mile 6.1; Dashiels Locks and Dam, Ohio River Mile 13.3; Montgomery Island Locks and Dam, Ohio River Mile 31.7; and other locations where obsolete or inadequate facilities impede the orderly flow of commerce.”

Additional general study authority is contained in Public Law 91-611, Section 216, 1970:

“The Secretary of the Army, acting through the Chief of Engineers, is authorized to review the operation of projects the construction of which has been completed and which were constructed by the Corps of Engineers in the interest of navigation, flood control, water supply, and related purposes, when found advisable due to significantly changed physical or economic conditions, and to report thereon to Congress with recommendations on the advisability of modifying the structures or their operation, and for improving the quality of the environment in the overall public interest.”

2 PROJECT HISTORY

The Upper Ohio Navigation (UON) Project addresses lock condition and capacity issues at the Emsworth, Dashiels, and Montgomery (collectively EDM) Locks and Dams on the Ohio River in Pennsylvania. The project is located at Emsworth [river mile (RM) 6.2], Dashiels (RM 13.3), and Montgomery (RM 31.7) Locks and Dams near Pittsburgh, Pennsylvania (Figure 1). A Feasibility Report and Environmental Impact Statement (FR/EIS) for the UON Project was completed by the USACE, Pittsburgh District in 2014 and updated in 2016. The FR/EIS recommended replacement of each auxiliary lock with construction of one new lock chamber (110 feet wide by 600 feet long) at each facility riverward of the existing main lock chamber. This new lock chamber will serve as the main lock chamber at each facility.



Figure 1: Location map for Montgomery, Emsworth and Dashields Locks and Dams.

The EDM facilities form the head (or beginning) of the Ohio River Navigation System which was originally conceived as a series of low-head movable dams based on the innovative 1875 design of Lock and Dam No. 1 in Pittsburgh (Figure 2). When the last of the original series was finished in 1929, the Emsworth and Dashields projects had already replaced the oldest facilities at the head of the river. The EDM facilities retained the 1875 standard lock chamber size but introduced the system's first non-navigable dams and the first (smaller) auxiliary lock chambers. The last of the original facilities have been replaced by the new Olmsted Locks and Dam, located near Olmsted, Illinois (RM 964.4). This leaves the EDM locations as the oldest facilities remaining to be addressed in the Ohio River modernization program.

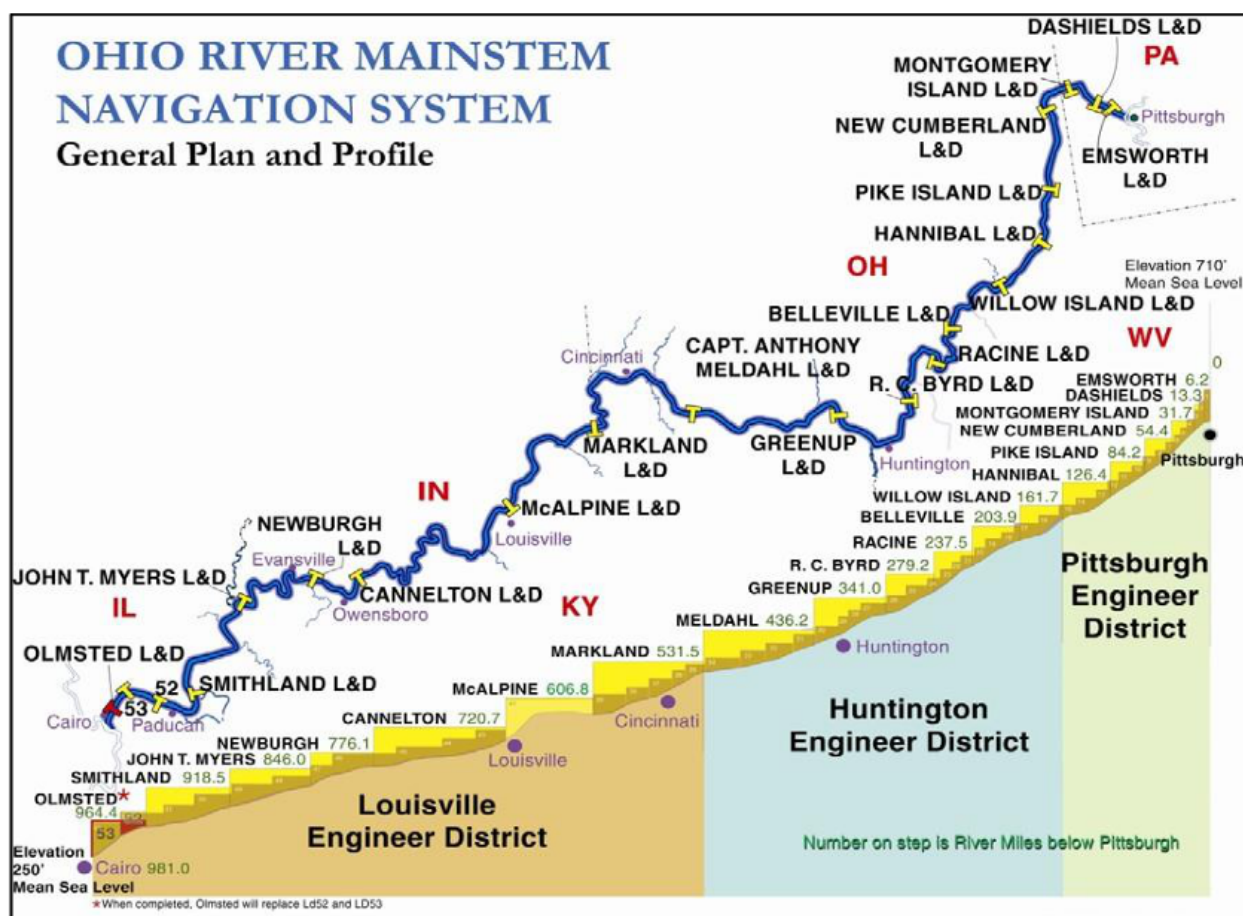


Figure 2: Ohio River Navigation System.

The EDM facilities were nearing the end of their originally estimated 50-year economic life in the 1970s when the USACE Pittsburgh District first recommended their replacement. The USACE was approved to complete major rehabilitations of the EDM Locks and Dams in the 1980s to extend their useful life another approximately 20 years, allowing additional time to obtain replacement authorization. During this period, the USACE Great Lakes and Ohio River Division completed the Ohio River Mainstem System Study (ORMSS). The ORMSS recommended completion of an Upper Ohio River feasibility study to define a recommended EDM replacement project, which was accomplished by the 2016 FR/EIS.

The EDM projects allow producers and consumers to move large quantities of cargo into and through the Pittsburgh area at relatively low cost without worsening congestion and environmental impacts related to land-based transportation modes. Coal and aggregate (e.g., stone, sand, and gravel) firms are primary producers, while electric utilities and steel mills are the primary consumers of commodities that move through EDM. Coal accounts for 63 percent of EDM traffic and 59 percent of system traffic. Aggregates account for 18 percent of EDM traffic and are comprised of lime/limestone which is used in electric generating plants' pollution control units and also as building materials for construction. Collectively, coal and aggregates

account for 81 percent of EDM traffic and 75 percent of system traffic.

The EDM projects also benefit water supply and recreational needs. There are dozens of facilities along the banks of the Upper Ohio River comprised of terminals and fleeting areas to accommodate commercial navigation, docks, boat ramps and marinas for recreation boating, water intake structures for industry, and outfalls that serve numerous communities in the Upper Ohio River area.

3 BACKGROUND & STUDY AREA

The Ohio River is 981 miles long and borders six states in the eastern region of the United States. The Ohio River flows southwesterly to its confluence with the Mississippi River in Cairo, Illinois. The river basin stretches across an approximate 203,000 square mile area, including parts of an additional eight states (Figure 3). Numerous tributaries feed the Ohio River, including the Allegheny, Monongahela, Kanawha, Wabash, Green, Cumberland, and Tennessee Rivers. Approximately ten percent of the U.S. population resides in the basin, equating to more than 30 million people, five million of which rely on the river as a source of drinking water (ORSANCO, 2022).

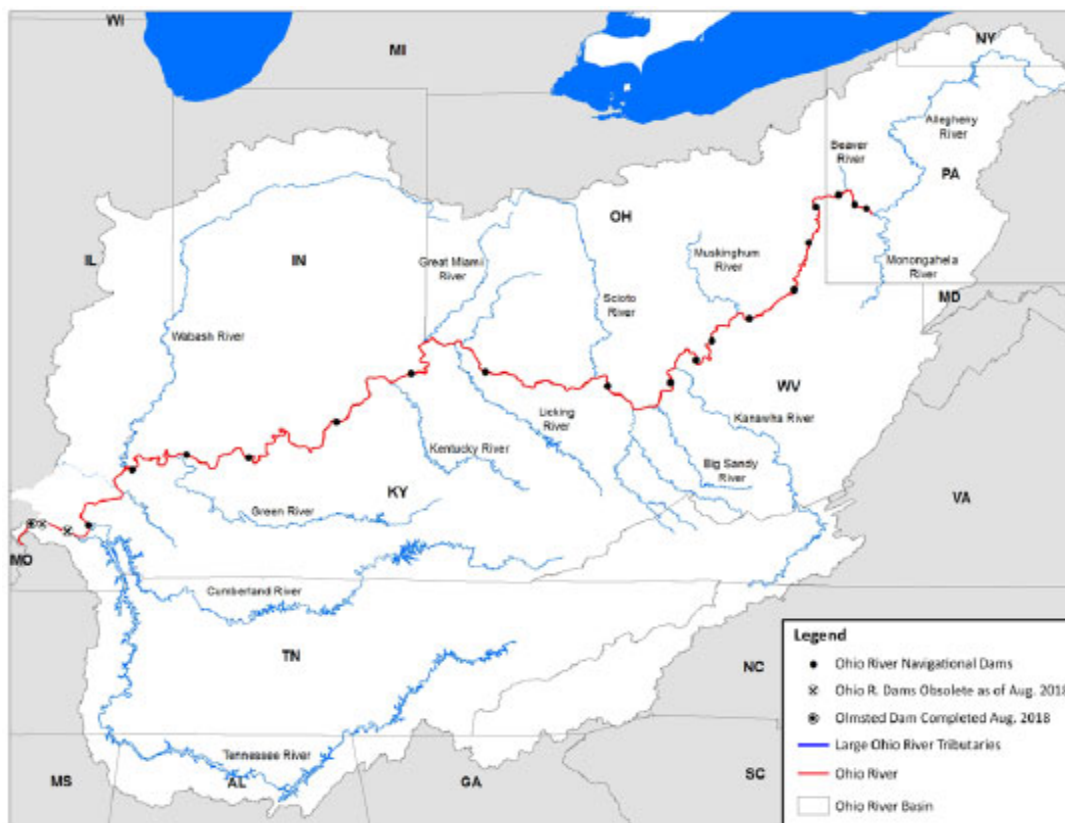


Figure 3: The Ohio River basin (Source: ORSANCO, 2022).

Historically, the USACE navigation facilities were viewed as beneficial to the problems typical on the Upper Ohio River. They provided much needed reservoirs of water that helped meet the significant water consumption demands of municipal and industrial facilities and diluted the early pollution problems before treatment methods were implemented. Emsworth, Dashields, and Montgomery dams are excellent flow aerators that provide significant quantities of oxygen to offset the high biological and chemical oxygen demands in the upper river. However, with general improvements in regional water quality, focus shifted to the limitations of the navigation facilities. Pools of deeper water created by the dams have less ecological diversity than free-flowing rivers, and dams are now generally perceived as barriers to fish movement.

The Upper Ohio River is highly modified from a natural, unregulated river system due to the presence of the navigation features and historic effects of intensive industrial and municipal development. These man-made features have led to degraded ecosystem functions and values of both water and sediment quality, reduced riparian and riverine habitat diversity, and reduced diversity of riverine flora and fauna.

The study area of this EA includes the open-water sites within the navigation pools controlled or influenced by the EDM navigation locks and dams on the Ohio River in Pennsylvania. This area includes the Ohio River from the New Cumberland Pool at approximately RM 35 upstream to the Emsworth Pool at approximately RM 3. The study area also extends laterally from the river corridor and riparian areas to the adjacent floodplain for considering impacts of the proposed action.

3.1 Emsworth Locks and Dams

The Emsworth Locks and Dams consist of two locks and two dams (main channel and backchannel) situated at Neville Island in Allegheny County, Pennsylvania (Figure 4). This facility replaced the 1885 Davis Island Lock and Dam (the first Ohio River mainstem navigation project) and the 1906 Ohio River Lock and Dam 2. The original 1922 Emsworth Dams were fixed-crest structures. These dams were replaced in 1938 with new vertical-lift gated dams that provided a higher and more stable pool at Pittsburgh and permitted the removal of Allegheny Locks and Dam 1 and Monongahela Locks and Dam 1.

The Emsworth Locks are dual, adjacent, parallel chambers located on the right bank of the river's main channel at RM 6.2. The main chamber occupies the landward position and has dimensions of 110 feet by 600 feet. The riverward auxiliary chamber has dimensions of 56 feet by 360 feet. The original Emsworth Locks and Dams was the first of the second-generation facilities whose design marked a significant departure from the original (1885-1929) single lock and movable wicket dam facilities. The concrete fixed crest dams signaled an end to open river navigation on the upper river. The two-lock configuration was a direct consequence of the fixed crest dam, providing for the first time on the Ohio River an auxiliary lock to maintain navigation in place of open river conditions when the larger main chamber was closed for maintenance. The Emsworth Dams are non-navigable, gated dams of the vertical-lift type.



Figure 4: Emsworth Locks and Main Channel Dam.

3.2 Dashields Locks and Dam

The Dashields Locks and Dam consists of an uncontrolled overflow fixed-crest dam and dual locks situated in Allegheny County, Pennsylvania (Figure 5). It was constructed from 1927 to 1929 to replace the original Lock and Dam No. 3 at Osborne. The overall length of the existing fixed crest dam is 1,585 feet from the face of the river wall to the face of the abutment wall on the right bank, and the crest elevation is 692.0. The vertical lift between the lower pool at elevation 682.0 and upper pool at elevation 692.0 is 10 feet. The Dashields Locks are dual, adjacent, parallel chambers located on the left bank of the river at RM 13.3. The main lock chamber occupies the landward position with a dimension of 110 feet wide by 600 feet in length. The adjacent smaller chamber occupies the riverward position with a dimension of 56 feet wide by 360 feet in length. The Dashields project retains its original dam and locks configuration and is the only Ohio River navigation facility that has a fixed crest dam.



Figure 5: Dashiels Locks and Dam

3.3 Montgomery Locks and Dam

The Montgomery Locks and Dam project, consisting of a controlled spillway dam and dual locks, are situated in Beaver County, Pennsylvania (Figure 6). The existing dam is comprised of a controlled spillway consisting of 10 vertical-lift, gated sections. The overall length of the dam, from the face of the river wall to the face of the abutment wall is approximately 1,378 feet, including the fixed-crest weirs and gated spillways. The vertical lift between the lower pool at elevation 664.5 and the upper pool at elevation 682.0 is 17.5 feet. Two of the original vertical-lift dam gates (No. 4 and 8) were destroyed in a 2006 tow boat accident and have been replaced with new gates designed to modern standards.

The Montgomery Locks are dual, adjacent, parallel chambers located on the left bank of the river at RM 31.7. The main lock chamber occupies the landward position with dimensions of 110 feet wide by 600 feet in length. The adjacent smaller chamber occupies the riverward position with clear dimensions of 56 feet wide by 360 feet in length. After the lock was placed into service, the upper guide and guard walls were extended by approximately 500 feet to provide better approach conditions. Montgomery Dam is one of only two vertical lift-gate dams on the Ohio River (the other being the Emsworth Dams). It retains 8 of the 10 original gates and all of the original operating equipment.

Apart from minor modifications to the piers in the 1980s and the two replacement gates, the dam retains its original configuration and appearance. The locks also retain their original 1934 configuration but were slightly modified in the 1980s rehabilitation that included addition of new

operating buildings. The Montgomery Dam was the first gated dam built on the Ohio River.



Figure 6: Montgomery Locks and Dam.

4 NEED FOR ACTION

The EDM facilities were constructed in the 1920s-1930s and are among the oldest navigation facilities of the Ohio River Navigation System. Their present reliability is seriously compromised by deteriorated structural concrete and antiquated operating systems. A failure of a critical component of these facilities could cost the Federal Government up to \$200 million and result in closure of one or both locks for up to three years. The risk of component failure is high and will only increase with time. The structural condition of the Montgomery Locks is the most critical in the three EDM Locks and Dams and rehabilitation of this facility will be addressed first.

The rehabilitation of the EDM Locks and Dams will potentially generate millions of cubic yards of excess dredged material. The action described in this EA is the open-water placement of this excess dredged material. The placement of the dredged material into the open-water placement sites is more cost effective and provides more environmental benefits than the selected alternative in the FR/EIS which was the placement of all the material into a landfill (the No Action alternative in this document). The construction of the overall UON Project will be phased, requiring a plan for handling dredged material from the Montgomery Locks first, with Emsworth and Dashields to follow. However, NEPA compliance for the selection of the open-

water placement sites for all three facilities will be documented within this EA.

5 PROPOSED ACTION AND ALTERNATIVES CONSIDERED

5.1 PROPOSED ACTION

The proposed project being evaluated in this EA addresses the establishment of open-water placement sites for excess dredged material from the rehabilitation of the EDM Locks and Dams as part of the UON Project, as well as for potential placement of dredged material from future maintenance dredging operations on the Ohio River navigation system. Dredged material that meets contaminant determination Clean Water Act (CWA) Section 404(b)(1) Guidelines for open-water placement after appropriate sampling, testing and analysis would be placed within the designated sites located upstream and/or downstream of each of the three locks and dams. Any dredged material that does not meet these guidelines would be transported and placed in a commercially available, properly permitted landfill. In support of the improvements to the EDM facilities, the USACE is developing a plan for the placement of dredged material from the three project areas within deep open-water areas of the Upper Ohio River. Overall, an estimated 2,000,000 cubic yards of sand, gravel, bedrock, and concrete rubble may be generated during construction of the UON Project.

For any USACE civil works project, federal regulations require USACE to select the least cost, environmentally acceptable dredged material management alternative that is engineeringly feasible (USACE 1988a). This is commonly referred to as the “Federal Standard.” “Environmentally acceptable” within this definition means compliance with NEPA and Clean Water Act Section 404(b)(1) Guidelines (if there is a discharge of dredged material into Waters of the United States). The USACE is responsible for determining compliance with the CWA Section 404(b)(1) Guidelines and for complying with NEPA. When the discharge of dredged material is determined to meet CWA Section 404(b)(1) Guidelines, which includes compliance with applicable state water quality standards (WQSS), open-water placement is often the least costly alternative which meets the Federal Standard.

The proposed placement sites for the excess material were primarily screened and selected based on water depth. Areas of the Ohio River greater than 30 feet below normal dam pool were targeted. These areas have previously been dredged by commercial aggregate-producing companies and are unnaturally deep relative to adjacent, more natural areas in the river. Coordination with state resource agencies thus far has indicated that such areas tend to exhibit anoxic (low dissolved oxygen) conditions that are not supportive of aquatic biota, particularly freshwater mussels. A comprehensive review of available resources also indicates that the alternative placement sites selected avoid any underwater utility crossings, water intakes or other infrastructure, mineral leases for sand and gravel mining, as well as any documented shipwrecks, historic properties, and other potential archaeological resources. Excess material that is dredged from the locks and dams would be placed in these deep pockets in the river which would lessen

the channel depth at these sites, providing improved benthic aquatic habitat over time. The pool elevation at each of the locks and dams would not be altered due to the placement of dredged material as the material would simply be relocated within the Ohio River system. The potential sites where the dredged material would be placed at each of the three project areas are detailed below and are summarized in Table 1.

5.1.1 Emsworth Locks and Dams

The potential placement sites for the Emsworth Locks and Dams were determined by the depth of the river channel. In this area of the river, two pockets greater than 30 feet in depth were identified as potentially suitable placement areas, both upstream of the locks and dams (Figure 7). The first placement site is located approximately 2.0 miles upstream from Emsworth Locks and Dams between RMs 3.7 and 4.2 and covers an area of 7.2 acres. The second placement site covers an area of 5.3 acres and is located 3.1 miles upstream from Emsworth Locks and Dams between RMs 2.9 and 3.1 (Table).

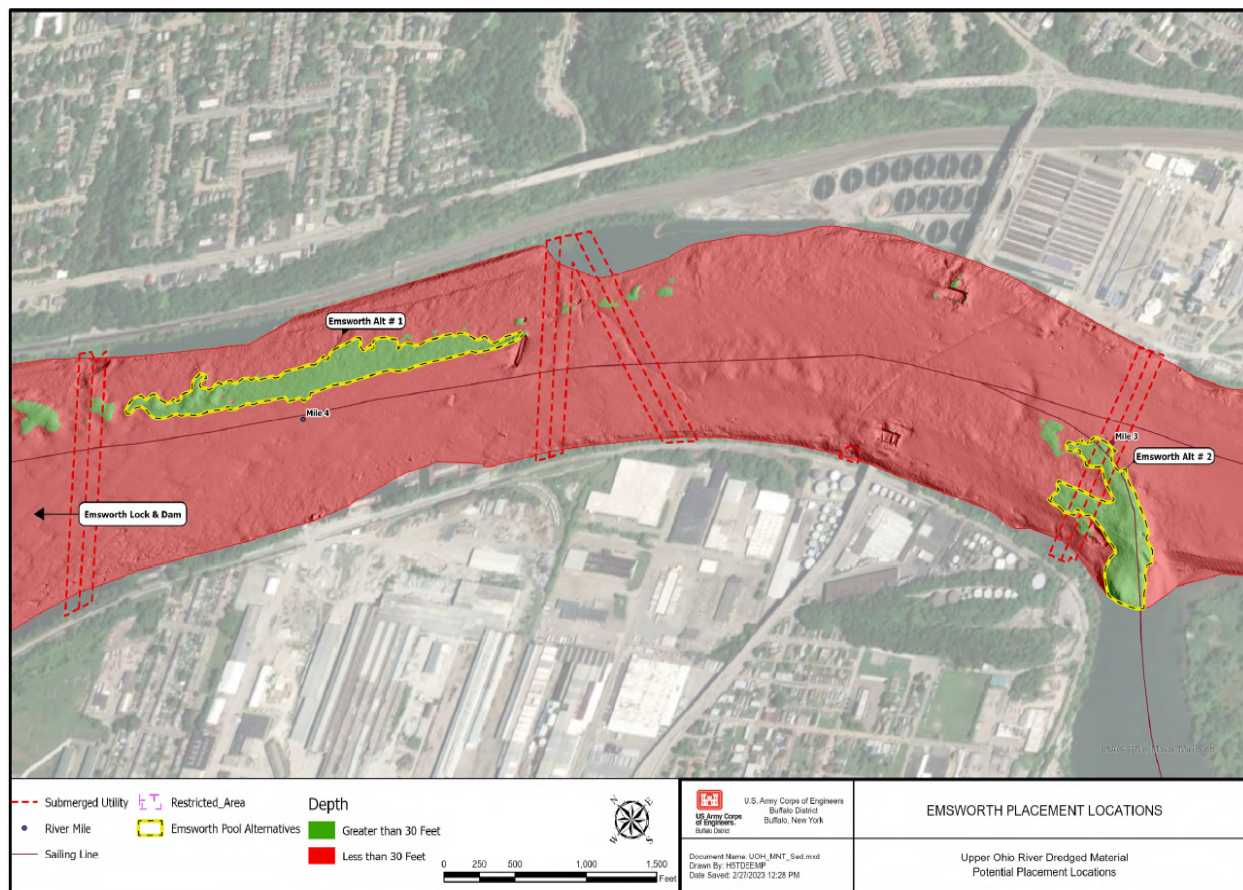


Figure 7: Emsworth Locks and Dams placement sites.

5.1.2 Dashields Locks and Dam

Three placement sites were identified near the Dashields Locks and Dam. In this portion of the river, there are no areas greater than 30 feet in depth (Figure 8). Therefore, these potential placement sites are in the deepest sections of the river near this project area at depths at least 25 feet deep. These sites are still unnaturally deep compared to adjacent areas within the river and would benefit from being filled to more natural levels. The first potential placement site covers an area of 29.7 acres and is located approximately 1.2 miles upstream from Dashields Locks and Dam between RMs 11.9 and 12.6. The second potential placement site is located 0.6 miles downstream from Dashields Locks and Dam between RMs 13.9 and 14.1 and covers an area of 3.8 acres in size. The third potential placement site covers an area of 6.0 acres and is located 1.1 miles downstream from Dashields Locks and Dam between RMs 14.3 and 14.4 (Table 1).

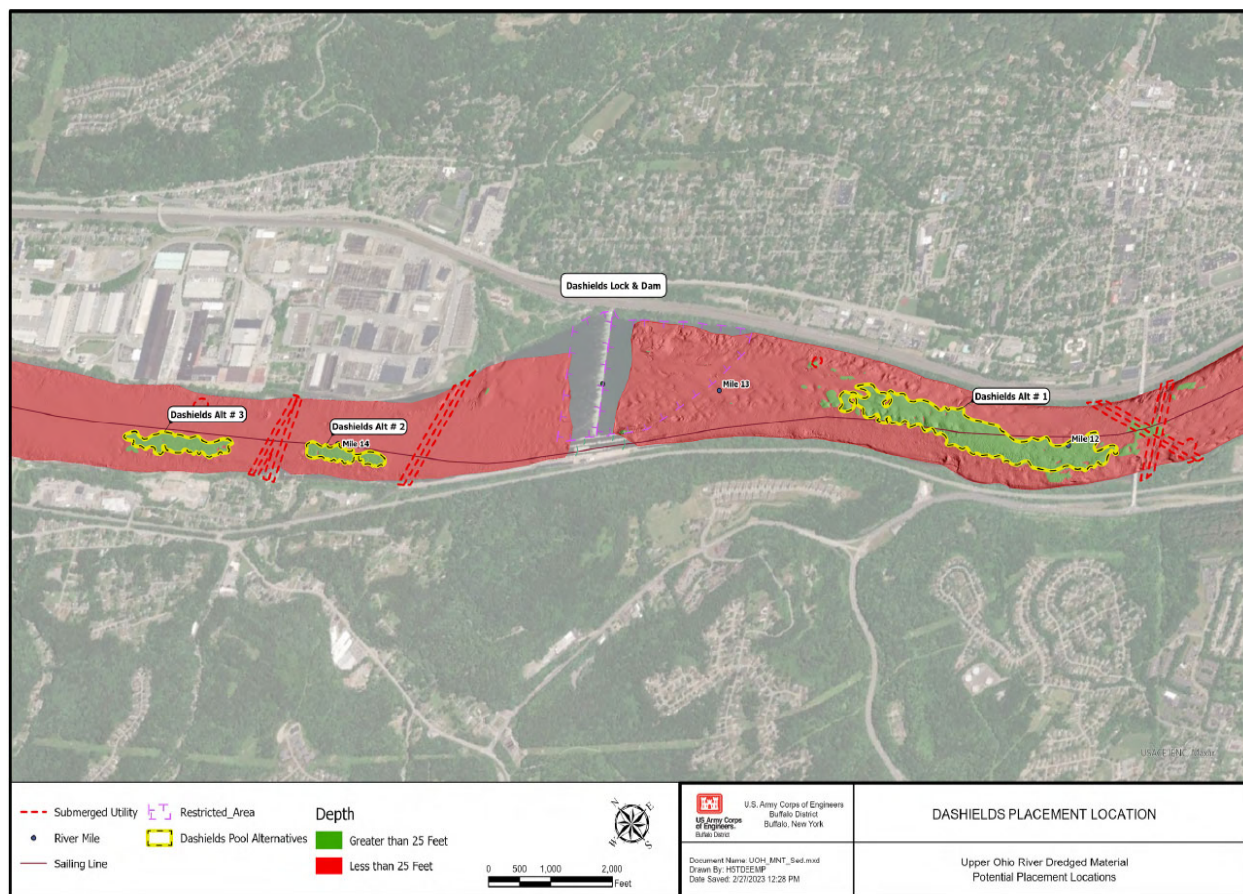


Figure 8: Dashields Locks and Dam placement sites.

5.1.3 Montgomery Locks and Dam

This portion of the Ohio River contains many deep pockets. Most of the channel is over 30 feet deep, with some areas reaching more than 45 feet deep. Two potential placement sites have been identified upstream of the Montgomery Locks and Dam (Figure 9). The first placement site is located 0.3 miles upstream of the Montgomery Locks and Dam between RMs 30.9 and 31.3. This placement site covers an area 46.5 acres. The second placement site covers an area of 60.3

acres and is located 1.8 miles upstream of the Montgomery Locks and Dam between RMs 29.6 and 30.3 (Table 1).

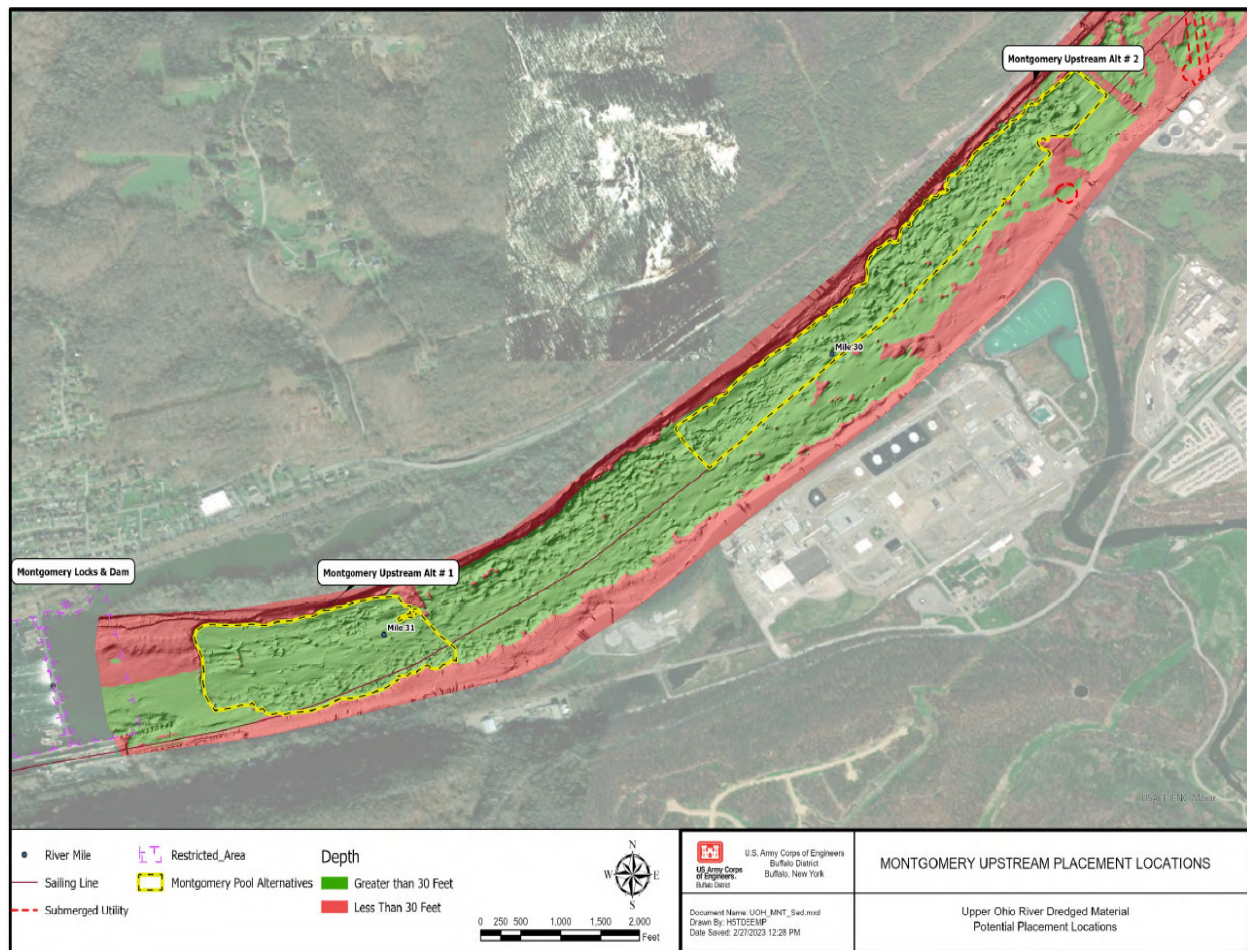


Figure 9: Montgomery Locks and Dam upstream placement sites.

In addition to the two upstream Montgomery Locks and Dam placement sites, two downstream placement sites were identified within the New Cumberland Pool (Figure 10). The first placement site in the New Cumberland Pool is located 0.4 miles downstream of Montgomery Locks and Dam between RM 31.9 and 32.8. This location covers an area of 24.0 acres. The second placement site is located approximately 2.3 miles downstream of Montgomery Locks and Dam between RMs 33.7 and 34.2. This placement location covers an area of 38.2 acres (Table 1).

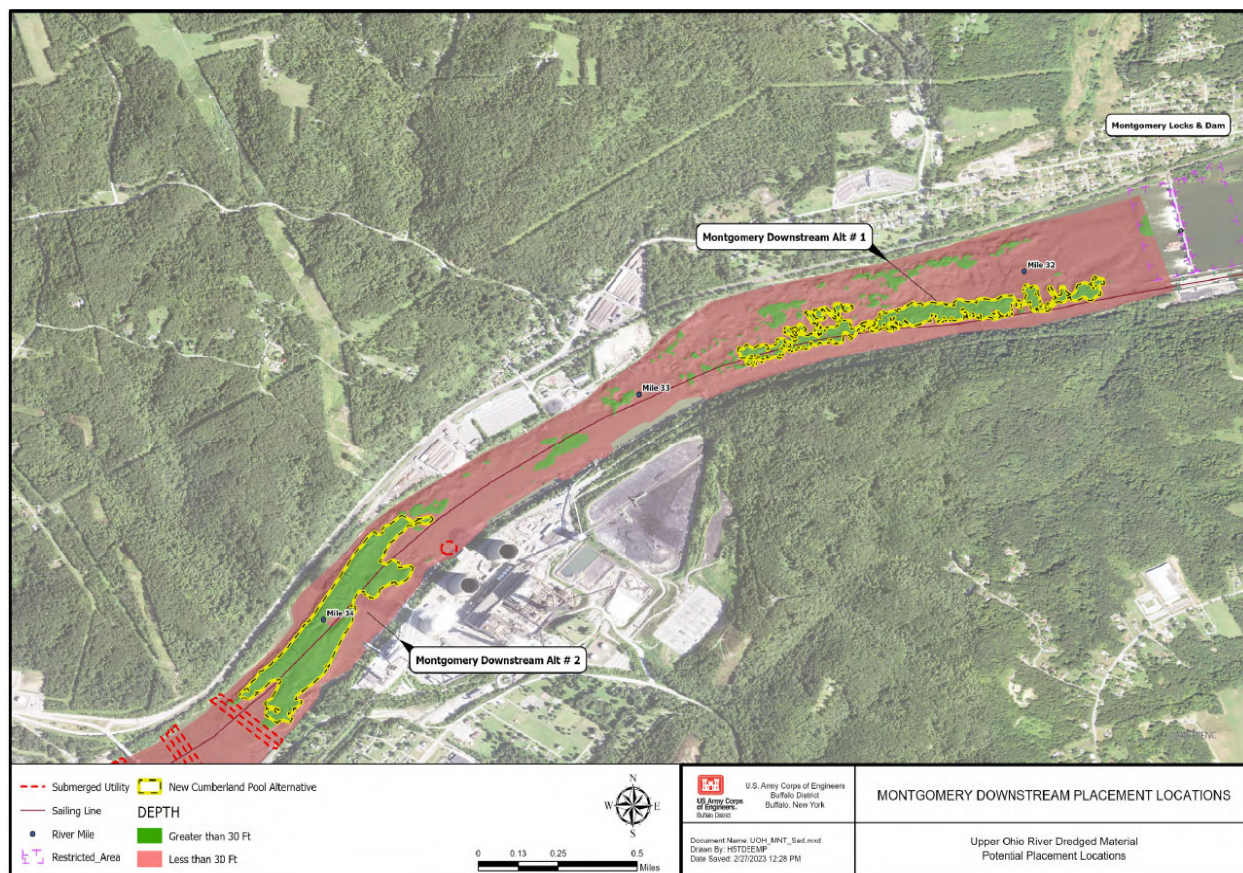


Figure 10: Montgomery Locks and Dam downstream placement sites.

Table 1: Open-water placement location summary table.

	Emsworth Locks and Dam		Dashields Locks and Dam			Montgomery Upstream Locks and Dam		Montgomery Downstream Locks and Dam	
	Site 1	Site 2	Site 1	Site 2	Site 3	Site 1	Site 2	Site 1	Site 2
Size of Placement Area (acres)	7.2	5.3	29.7	3.8	6.0	46.5	60.3	24.0	38.2
Approximate Location (RM)	3.7 - 4.2	2.9 - 3.1	11.9 - 12.6	13.9 - 14.1	14.3 - 14.4	30.9 - 31.3	29.6 - 30.3	31.9 - 32.8	33.7 - 34.2
Dam Pool	Emsworth		Dashields	Montgomery		Montgomery		New Cumberland	

5.2 ALTERNATIVES TO THE PROPOSED ACTION

The following alternatives and their associated impacts were considered for this project:

5.2.1 No Action

A No Action Alternative (without project conditions) serves as a baseline for comparison for other alternatives. The FR/EIS for the UON Project considered placing all excess dredged material generated during the construction of the lock replacement structures into commercially available, properly permitted landfills. This alternative thus serves as the “No Action” alternative for the purposes of this EA. Further evaluation after the preparation of the FR/EIS recommended considering alternative uses of the dredged material as a potential environmental benefit and cost savings measure since landfill placement would be extremely expensive, and adequate landfill capacity to accept all the material in the project vicinity is uncertain. The No Action alternative is not recommended as it would result in significantly greater costs and fewer environmental benefits than the proposed project.

5.2.2 Ohio River Islands National Refuge Restoration (ORINWR)

The ORINWR Restoration Project was considered as an alternative for placement of dredged material generated from the UON Project.

At least 214 islands have been historically documented in the Ohio River. Many of the islands contain communities of native plants and animals that are endemic to the Ohio River. Islands contain a diverse variety of habitat, including bottomland or riparian forest, shallow nearshore habitat, and deep-water habitat. The diversity in habitat type makes islands very attractive to birds, mammals, fish, and mussels, among other species. Islands serve as important spawning, nesting, feeding, foraging, and resting habitats (USFWS, 2017).

Since the construction of the Ohio River Navigation System, artificial control of water depth and interrupted sediment transport has impacted the riverine islands. To maintain a minimum channel depth of nine feet, the navigation system keeps the Ohio River at a constant flood stage compared to historic seasonally shallow depths. Constant submergence and saturation of the island foundation increases the island sediment’s susceptibility to erosion. This increased risk of erosion combined with increased exposure to wakes from boat traffic has caused many islands to erode over time (USFWS, 2020). At least 31 islands in the Ohio River have completely eroded away since the turn of the century (USACE LRD, 2000).

Established in 1990, the ORINWR consists of 22 islands and four mainland tracts across 362 miles of the Upper Ohio River. The U.S. Fish and Wildlife Service (USFWS) owns and manages the ORINWR. The ORINWR Restoration Project is a partnership between USACE and USFWS to restore vital island habitat in the Ohio River through the placement of suitable dredged material within the refuge boundaries at Fish Creek and Captina Islands. Specific

objectives of this project were developed in coordination with USFWS and include:

- Expansion of island footprint through the placement of dredged material to estimated historic boundaries.
- Construction of ring dike(s) to provide long-term stability with erosion protection.
- Construction of mussel habitat to ensure no net loss resulting from the placement of dredged material at the islands.

The ORINWR Restoration project area includes Captina Island (Figure 11) and Fish Creek (Figure 12) Islands located in Marshall County, West Virginia. All construction activities would have been conducted entirely within the boundary of the ORINWR property. Limited survey (e.g., geospatial, mussel, etc.) and mussel relocation activities would have been conducted within the ORINWR property boundaries. These activities may also need to be conducted beyond the boundaries of ORINWR property to encompass required buffer distances.

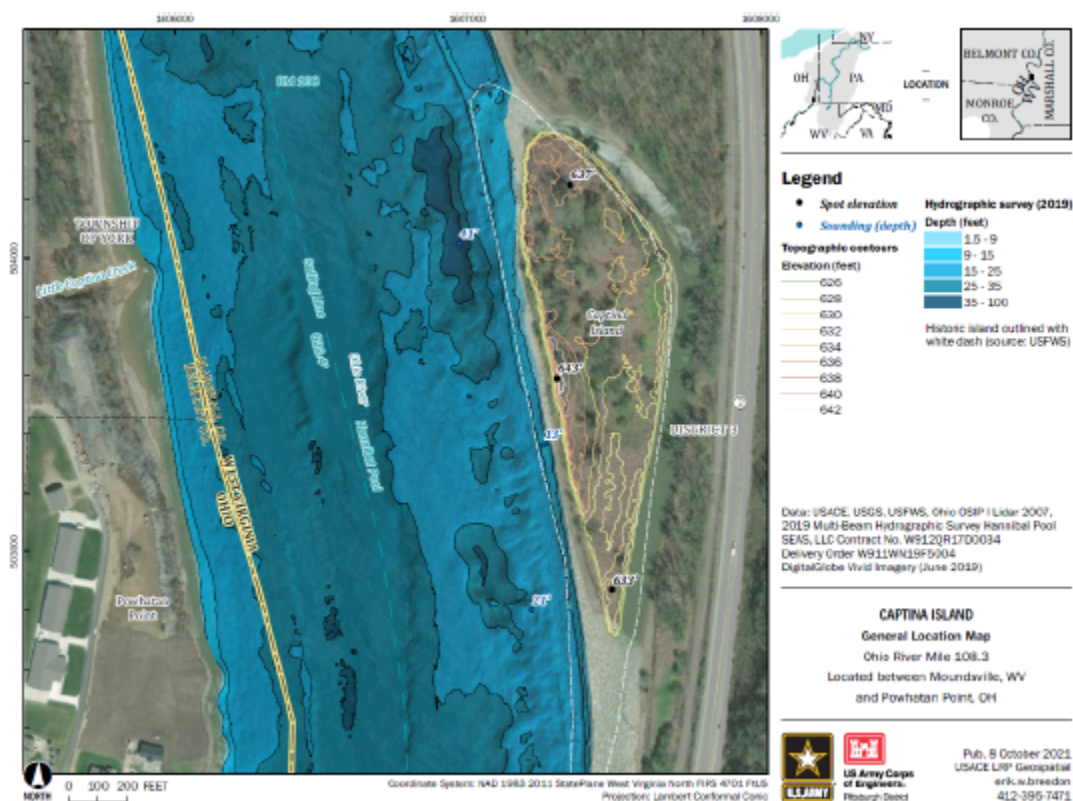


Figure 11: Captina Island ORINWR Restoration project area.

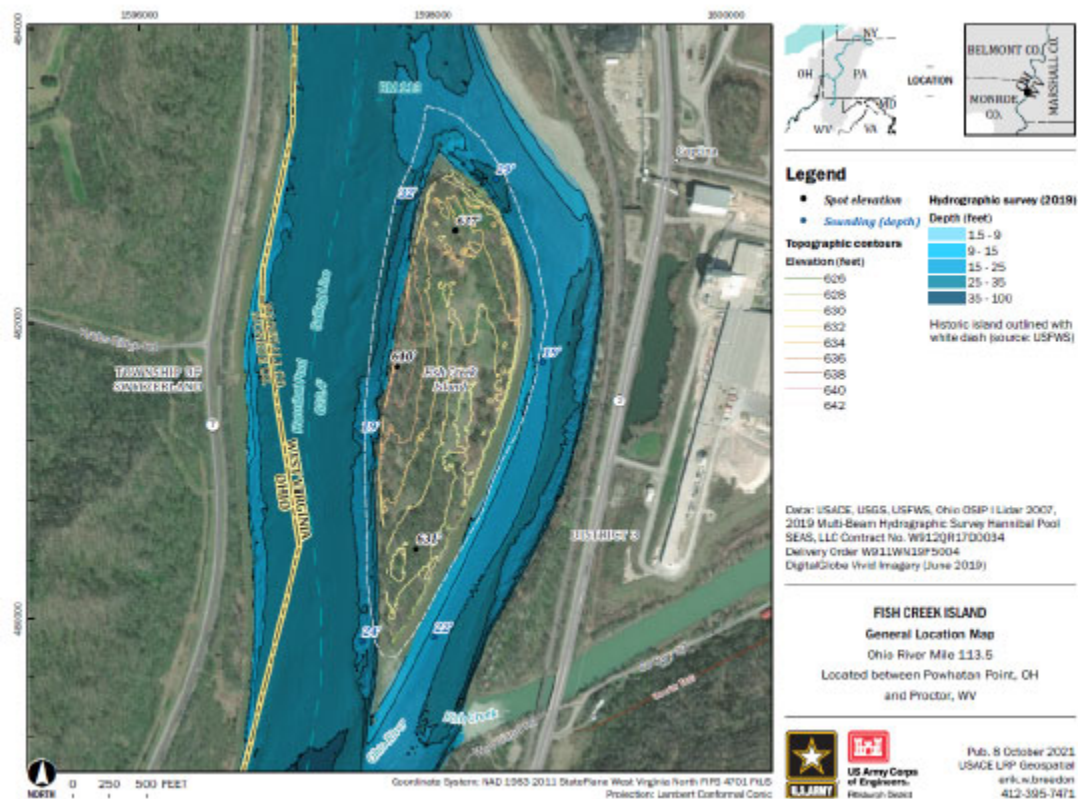


Figure 12: Fish Creek Island ORINWR Restoration project area.

To conduct work on refuge property, the USACE and USFWS would have to implement additional environmental requirements to ensure protection of wildlife, specifically mussel species, throughout construction. These requirements include: Endangered Species Act Section 7 consultation, mussel survey and relocation, and analysis of potential contaminants in dredged material. Conceptual fill capacities at Captina and Fish Creek Islands are presented in Table 2 below.

Table 2: Conceptual capacities at Captina and Fish Islands.

Location	Conceptual Fill Capacity (CY)
Captina Island	300k – 400k
Fish Creek Island	900k – 1.0M
TOTAL	1.2M – 1.4M

The ORINWR Restoration project alternative is not considered viable due to the extensive timeline for construction of the UON Project. In addition, excessive cost was another reason for screening. The islands were planned to include a ring dike of larger rock, filled with the dredged material to rebuild the historic island configuration. This would have included substantial design costs, as well as material purchases to build the ring, topsoil purchase and placement, and re-vegetation once the topography was restored. Lastly, the islands are over 75 river miles away

from the nearest project area, so the dredge cycle time and distance from the UON construction sites to the islands would have resulted in high transportation costs. For these reasons, this alternative was not considered further.

5.2.3 Abandoned Mine Land Reclamation

The USACE also evaluated an alternative that included reclamation of abandoned surface coal mines located less than 15 miles from the UON Project in Moon Township, Pennsylvania. The property with the abandoned mines is owned by Allegheny County and is leased/operated by the Allegheny County Airport Authority and contains the entire Pittsburgh International Airport (PIA) facility. The abandoned coal mines date back to the early 1900s and consist of approximately 8,800 acres of unreclaimed legacy surface coal mine pits and spoil piles. The site is currently heavily vegetated with brush and mature trees. The USACE was informed of the abandoned mine site by the Pennsylvania Department of Environmental Protection, Bureau of Abandoned Mine Reclamation.

In October 2021, USACE staff conducted a limited site visit with PIA environmental personnel. The site visit focused on one pit approximately 25 acres in size and with a calculated capacity of approximately 900,000 cubic yards.

This alternative would require real estate and environmental approvals that cannot be completed in advance of construction of the new river chamber at Montgomery. In addition, this alternative had significant logistical and cost issues due to the need to dewater all the material and then haul it by truck to the site. There is very limited space available at each of the dam sites, so the addition of a large dewatering/material handling area presents a major logistical and cost challenge. Additionally, there were concerns regarding real estate at the reclamation site and the size of the reclamation area was also limiting (i.e., 900,000 cubic yards available versus 2,000,000 cubic yards dredged). Additional issues for this option included the impacts of tree removal (and possible endangered species impacts/consultation), contaminated lands, wetland impacts, and associated permitting needs/mitigation. Therefore, the mine reclamation alternative was screened out during the alternatives analysis.

6 EXISTING CONDITIONS AND IMPACTS

To characterize the affected environment of the proposed open-water placement sites and to assess the potential environmental impacts of the proposed action, information has been obtained from existing data and literature and through coordination with federal, state, and local agencies. The assessment of environmental and socioeconomic effects of the proposed action was based on an evaluation of the impacts that are anticipated to result from the placement of excess dredged material. The anticipated effects of the proposed project and associated activities were determined from project documentation, agency coordination, analysis of construction activities necessary to implement the project, and foreseeable effects of the proposed project.

This section evaluates the existing conditions and potential impacts associated with only the No Action and the Preferred Action Alternatives. This is because the ORINWR and Abandoned Mine Land Reclamation Alternatives have already been screened out from consideration as explained in Section 5.2.

For some environmental considerations, the no action as well as the proposed action would result in no effect to the environmental resource under consideration and would reflect a continuation of existing conditions. This is described where appropriate. A summary of the anticipated effects that would be expected to result from the no action and preferred alternative is provided in Table 3. The *Project Area* referenced in the following sections refers to the Ohio River, and/or land adjacent to the Ohio River, surrounding the Emsworth Locks and Dams open-water placement sites (approximately RM 3) downstream to the Montgomery Locks and Dam open-water placement sites (approximately RM 35).

Agencies, interest groups, and the general public that have been contacted during preparation of this EA are listed in Section 8.0. A Scoping Information Packet was distributed to these individuals on March 29, 2023, and this EA has been made available for a 30-day public/agency review. Comments received to date are included in Appendix A.

Table 3: Public interest factors.

Public Interest Factor	No Action Alternative	Preferred Alternative
<i>Physical and Natural Environmental Considerations</i>		
Air Quality	Minor adverse (temporary and short-term caused by equipment emissions)	Minor adverse (temporary and short-term caused by equipment emissions)
Water Quality	Minor adverse (temporary)	Minor adverse (temporary)
Climate	No effect	No effect
Greenhouse Gases and Climate Change	No effect	No effect
Wetlands	No effect	No effect
Sediment and Substrate	Minor adverse (long-term)	Minor adverse (temporary)
Plankton and Benthos	Minor adverse (long-term)	Short term: minor adverse Long term: minor beneficial
Fisheries	Minor adverse (long-term)	Short term: minor adverse Long term: minor beneficial
Wildlife	Minor adverse (temporary)	Minor adverse (temporary)

Public Interest Factor	No Action Alternative	Preferred Alternative
Aquatic Vegetation	No effect	No effect
Federally Listed Threatened and Endangered Species	No effect	No effect
Wild and Scenic Rivers	No effect	No effect
Traffic and Transportation	Minor adverse (temporary)	Minor adverse (temporary)
<i>Socio-Economic Environmental Considerations</i>		
EO 12898 Environmental Justice	No effect	No effect
EO 13045 Protection of Children	No effect	No effect
Adjacent Land Use and Development	Minor adverse (long-term)	No effect
Recreation, Scenic, Noise and Aesthetics	Minor adverse (temporary)	Minor adverse (temporary)
Hazardous, Toxic and Radioactive Waste	No effect	No effect
Cultural Resources	No effect	No effect
Health and Safety	Minor adverse (temporary)	Minor adverse (temporary)

Note: Impacts were assessed as major adverse, minor adverse, resource unaffected (no effect), resource unaffected through mitigation, minor beneficial, or major beneficial impacts. Additionally, impacts could be temporary, permanent, or not applicable.

6.1 PHYSICAL/NATURAL ENVIRONMENT

6.1.1 Air Quality

Existing Conditions

Project Area

Air quality refers to ambient or outdoor air that is safe to breathe by all members of the general population, including young children, elderly citizens, and other at-risk individuals such as asthmatics. The U.S. Environmental Protection Agency (USEPA) has developed maximum allowable concentrations of pollutant discharges into the air, referred to as National Ambient Air Quality Standards (NAAQS). Monitoring parameters include ozone (O₃), particulate matter (PM) 2.5 particulates, PM-10 particulates, sulfur dioxide (SO₂), carbon monoxide (CO), lead, and nitrogen dioxide (NO₂). Each state has developed ambient air quality pollution control standards that may either be the same, or more restrictive, than the USEPA standards.

Areas failing to meet one or more of the NAAQS are identified as being in non-attainment. Non-attainment areas may be individual communities or multi-county regions, depending on the type and extent of the pollution problem. Non-attainment areas typically cross state lines wherever

population centers are located near such borders.

Table 4 shows the counties in the study area that are currently designated as being in non-attainment status. The Emsworth and Dashields Locks and Dams open-water placement sites are located in Allegheny County, while the Montgomery Locks and Dam open-water placement sites are located in Beaver County (USEPA Green Book, 2023).

Table 4: Air quality non-attainment counties in study area

County	Pollutant	Area Name	Years in Non-Attainment
Allegheny	8-Hour O ₃ (2008)	Pittsburgh-Beaver Valley, PA	2012-2023
Allegheny	PM-2.5 (1997)	Liberty-Clairton, PA	2005-2023
Allegheny	PM-2.5 (2006)	Liberty-Clairton, PA	2009-2023
Allegheny	PM-2.5 (2012)	Allegheny County, PA	2015-2023
Allegheny	SO ₂ (2010)	Allegheny, PA	2013-2023
Beaver	8-Hour O ₃ (2008)	Pittsburgh-Beaver Valley, PA	2012-2023
Beaver	Lead (2008)	Lower Beaver Valley, PA	2010-2023
Beaver	SO ₂ (2010)	Beaver, PA	2013-2023

No Action Alternative - This alternative would involve the transportation and placement of excess dredged material into a permitted landfill. This alternative would be expected to result in minor, short-term adverse effects to air quality due to emissions generated from the transportation of the excess dredged material. The transportation of the material to a landfill would be at a greater distance than the open-water sites and would involve a significant amount of additional equipment (i.e., dump trucks, dozers, graders, and/or excavators) to mechanically off-load the scows or barges and then transport the material via trucks. The transportation and placement of the dredged material to a landfill would result in an increased output of air emissions (i.e., suspended particulates, nitrogen dioxide, carbon monoxide, lead) into the local atmosphere. However, even with the greater transportation distance, air quality impacts in this regard would be minor, adverse and short-term.

Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

Implementation of the proposed action would also be expected to result in minor, short-term

adverse effects to air quality due to emissions from the dredged material offloading equipment. The placement of the dredged material would result in an increased output of air emissions (i.e., suspended particulates, nitrogen dioxide, carbon monoxide, lead) into the local atmosphere. Emissions would be expected to be within the standard range for a project of this type. Air quality impacts in this regard would be minor, adverse and short-term. The contractor would be required under federal and state law to ensure the equipment is maintained and emissions do not exceed ambient air quality standards. No long-term adverse impacts to air quality at the project sites are expected. In addition, the emissions associated with the open-water placement would be substantially less than what would normally be generated through transporting the dredged material to a landfill.

6.1.2 Water Quality

Existing Conditions

Project Area

The Ohio River is comprised of a series of pools connected by high-lift locks and dams installed for navigational purposes. These dams maintain a minimum river depth and regulate flow, but also affect water quality and aquatic communities of the river. High-lift dams have resulted in a deeper, slower moving river than existed prior to their construction (Ohio River Valley Water Sanitation Commission, 2022). The USACE Pittsburgh District's first comprehensive water quality study of the Upper Ohio River dams was undertaken in 1974. The results of this study indicated that the navigation dams significantly influence the dissolved oxygen concentrations of the river. At flow levels of 10,000 cubic feet per second, Emsworth Main Channel Dam contributed 65,000 pounds of oxygen per day, Dashields Dam added 30,000 pounds per day, and Montgomery Dam, 97,000 pounds per day. The influence of Montgomery is clearly visible for more than 15 miles downstream. Its reaeration capability is particularly valuable in drawing from low dissolved oxygen concentration stratum in the Montgomery Pool, largely derived from the Beaver River, and causing it to be supersaturated by discharge across the step weirs below the dam gates (USACE, 1975). The oxygen provided by gate discharges at Emsworth, and overflow of the fixed Dashields Dam, are critical to assimilation of the oxygen demand from the Allegheny County Sanitary Authority sewage treatment plant discharge at RM 3 above Emsworth, as well as other sources (USACE, 2016) (Figure 13).

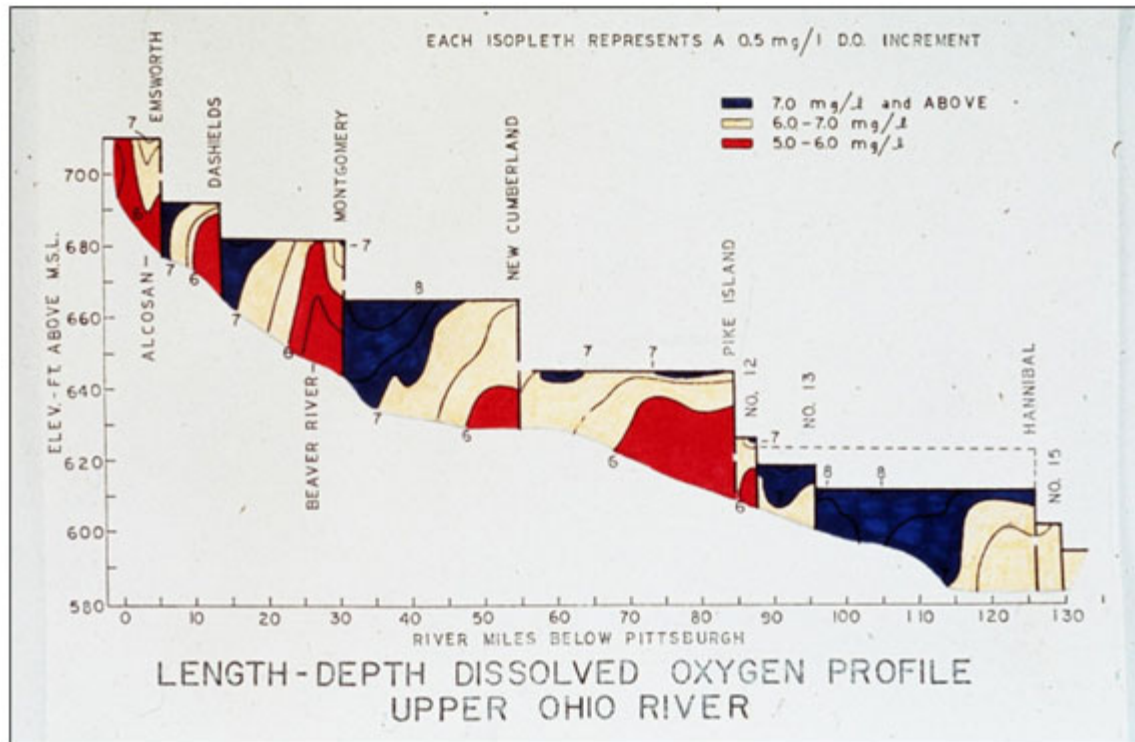


Figure 13: Upper Ohio River Dissolved Oxygen Profile (Source: USACE, 2016).

Water quality is defined as the “integration of physical, chemical, and certain biological parameters of the aquatic environment and their evaluation in relation to human health and aquatic ecological resources” (USACE, 2016). The Ohio River Valley Water Sanitation Commission (ORSANCO) was established in 1948 with the signing of the Ohio River Valley Water Sanitation Compact by governors from eight member states. The objective of ORSANCO is to control and abate pollution in the Ohio River Basin. To accomplish this goal, ORSANCO operates programs to improve water quality such as setting wastewater discharge standards, performing biological assessments, monitoring for the chemical and physical properties of the waterways, and conducting special surveys and studies (USACE, 2016).

The ORSANCO represents an agreement and commitment among the member states. It is a function of the Commission to support and coordinate efforts by the states to fulfill their obligations under the Ohio River Valley Water Sanitation Compact. The ORSANCO works with the member states to develop and carry out monitoring and assessment programs to determine the degree to which the desired uses are met and then develops strategies to address interstate pollution issues. Additionally, the physical, chemical, and biological water quality standards implemented by each member state must meet those criteria developed by ORSANCO. Another responsibility of ORSANCO is to provide information to federal, state, and local governmental agencies, elected officials, water purveyors, interested parties, and the public on water quality conditions in the Ohio River and the lower reaches of its tributaries. This responsibility has led to the availability of vast amounts of data concerning the physical, chemical, and biological

water quality conditions within the Ohio River Basin.

Every two years, ORSANCO completes an assessment of Ohio River designated uses in cooperation with the Ohio River 305(b) Coordinators Work Group composed of representatives from each of the mainstem states. This biennial assessment reports the conditions of Ohio River water quality and the ability to which the river supports each of its four designated uses: aquatic life, public water supply, contact recreation, and fish consumption. Three classifications are used in ORSANCO's assessments to describe the attainment of Ohio River designated uses: fully supporting (good water quality), partially supporting (fair water quality), and not supporting (poor water quality). To determine the status of these designated uses ORSANCO employs a "weight of evidence" (WOE) approach. This approach involves using professional judgment to resolve conflicting information and arrive at the most accurate assessment, using the most relevant data and information available. The latest report covers the period from 2016 to 2020 (ORSANCO, 2022).

Emsworth, Dashields, Montgomery and New Cumberland Pools

According the ORSANCO 2022 Water Quality Assessment report, the entire 981 miles of the Ohio River is designated as impaired for the fish consumption use, caused by PCBs and dioxin. While there are a number of water column criteria exceedances for total mercury and fish tissue criteria exceedances for methylmercury, the consumption-weighted pool averages were all below the fish tissue criterion, therefore no impairment is indicated for the fish consumption use based on mercury. Approximately two-thirds of the river, or 629.9 miles, is designated as impaired for contact recreation caused by *E. coli* or fecal coliform bacteria. The entire river is fully supporting the public water supply use. While several water utilities did have maximum containment level (MCL) violations, they were more related to water treatment issues than to source water quality. While there are indications of aquatic life use impairments for certain segments of the Ohio River based on water quality criteria exceedances for total iron, both biological indicators show the entire river is fully supporting its aquatic life use designation. Therefore, using the WOE approach, the entire Ohio River is assessed in this report as fully supporting the aquatic life use. The two open-water placement sites for Emsworth Locks and Dams are located between RMs 2.9 and 4.2, the three open-water placement sites for Dashields Locks and Dam are located between RMs 11.9 and 14.4, and the four open-water placement sites (two upstream and two downstream) for Montgomery Locks and Dam are located between RMs 29.6 and 34.2 (Section 5.1). Table 5 summarizes the impaired RMs in the portion of the Ohio River on which this EA is focused.

Table 5: Summary of impaired PA river miles for the four uses: aquatic life, contact recreation, public water supply,

and fish consumption uses (Source: ORSANCO, 2022)

State	River Mile	Aquatic Life Use Impairment	Contact Recreation Use Impairment (RMs)	Public Water Supply Use Impairment	Fish Consumption Use Impairment (RMs)
PA	0.0-40.2	0.0	40.2	0.0	40.2

In addition, recent ORSANCO biological studies were conducted within the Emsworth, Dashields, Montgomery and New Cumberland pools in 2018, 2021, 2015, and 2017, respectively. These studies collected data on fish, macroinvertebrates, habitat, water quality (i.e., temperature, dissolved oxygen, conductivity, and pH) and flow. The ORSANCO's Biological Water Quality Subcommittee deemed the water quality in the Emsworth, Dashields, Montgomery, and New Cumberland pools as meeting the aquatic life-use designations in their respective survey year (i.e., containing healthy fish and macroinvertebrate communities).

No Action Alternative - This alternative would involve the transportation and placement of the excess dredged material into a permitted landfill. There would be no placement of dredged material into the Ohio River. Therefore, there would be negligible project-related impacts or potential for degradation of the water quality due to the excavation of material at the project locations in the Ohio River.

Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

The open-water placement of dredged material would result in no long-term, significant water quality-related adverse impacts. All adverse impacts in this regard would be minor, very localized, and short-term. In general, impacts would include a temporary generation of turbidity, minor releases of sediment contaminants, and variations of dissolved oxygen levels in the water column at the open-water placement sites. Other short-term impacts on water quality would include the possibility of accidental spills of fuel, oil, and/or grease into the water as well as turbidity during and immediately following sediment offloading operations. Such impacts, if they occur, would be expected to be short-term and relatively low magnitude. The contractor performing the work would be required to prepare a spill prevention plan.

As previously mentioned, any dredged material that does not meet Clean Water Act Section 404(b)(1) Guidelines for open-water placement would be transported and placed in a commercially available, properly permitted landfill. Standard elutriate test (SET) data demonstrated that the release of contaminants from the dredged material to the water column during open-water placement would comply with applicable state water quality standards (WQSs) and be protective of aquatic life.

6.1.3 Climate

Existing Condition

Project Area

Studies recently published by the Pennsylvania Department of Environmental Protection (e.g., Pennsylvania Climate Impacts Assessment Report 2021) indicate that by mid-century, projected climate change for Pennsylvania is very likely to be warmer and wetter. There is an expected increase in average annual precipitation, extreme precipitation events, and occasional drought. According to the Climate Impacts Assessment Report, Pennsylvania is projected to see higher average temperatures over the course of the next several decades. Across Pennsylvania, annual average temperatures are projected to increase by about 5.9 degrees Fahrenheit by mid-century and 9.4 degrees Fahrenheit by the end-of-century. In addition, the frequency of extreme heat events is projected to become more severe and occur more often (PADEP, 2021).

Increases in the frequency of severe weather events, in which heavier than normal precipitation is experienced, should increase the number and severity of flash floods along smaller streams. This would likely have impacts on soil and nutrient runoff, increases in rates of soil erosion and translate into infrastructure concerns for state and local government regarding stormwater management (i.e., culvert, road and bridge sizing/construction, combined sewer overflows, etc.). There may be an increased utilization and reliance on irrigation systems for residential, commercial, and agricultural purposes. Industry and power generation are consumptive users of water for process needs and cooling. The Commonwealth can expect increased periods of demand for water resources at times when the supply is constrained relating to resource allocation and/or limitation issues (USACE, 2016).

No Action Alternative - There would be no adverse effect to climate as a result of the no action alternative.

Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

The proposed action would result in no adverse effects to climate. Additional discussion is provided below in Section 6.1.4 Greenhouse Gases and Climate Change.

6.1.4 Greenhouse Gases and Climate Change

Existing Conditions

Project Area

Greenhouse gases (GHGs) are components of the atmosphere that trap heat relatively near the surface of the earth and therefore may contribute to the greenhouse effect and climate change.

Most GHGs occur naturally in the atmosphere but increases in the concentration can result from human activities such as burning fossil fuels that add carbon dioxide (CO₂), methane, nitrous oxides, and other greenhouse (or heat-trapping) gases to the atmosphere. As this occurs, it is difficult to reliably predict increases or decreases in regional rainfall (Intergovernmental Panel on Climate Change (IPCC), 2007; USEPA 2012c).

On September 22, 2009, the USEPA issued a final rule for mandatory GHG reporting from large emissions sources in the United States. The purpose of the rule is to collect comprehensive and accurate data on CO₂ and other GHG emissions that can be used to inform future policy decisions. In general, the threshold for reporting is 25,000 metric tons or more of CO₂ equivalent year. For 2012, over 8,000 facilities and suppliers reported to the greenhouse gas reporting program. Among these reporters, 7,809 facilities in nine industry sectors reported direct emissions to the atmosphere, with emissions totaling 3.13 billion metric tons CO₂ equivalent, or about half of total U.S. greenhouse gas emissions. GHGs are not currently regulated under the Clean Air Act.

Carbon dioxide is the primary greenhouse gas emitted from human activities, primarily through the combustion of fossil fuels. Greenhouse gases absorb reflected energy from the sun and may contribute to the warming of Earth's atmosphere. Trees can reduce the amount of CO₂ in the atmosphere by sequestering the gas during photosynthesis and return oxygen to the atmosphere as a by-product.

In 2019, Governor Tom Wolf issued an executive order that established a Pennsylvania climate goal of a 26 percent reduction in net GHG emissions statewide by 2025 and an 80 percent reduction by 2050 (Pennsylvania Climate Action Plan, 2021). The 2021 Pennsylvania Climate Action Plan indicates that emissions in Pennsylvania have declined since 2005 in most sectors. In 2017, the three largest sources of emissions in Pennsylvania were electricity generation (29 percent), transportation (24 percent) and industrial fuel use (18 percent). Figure 14 illustrates Pennsylvania's GHG emissions by sector.

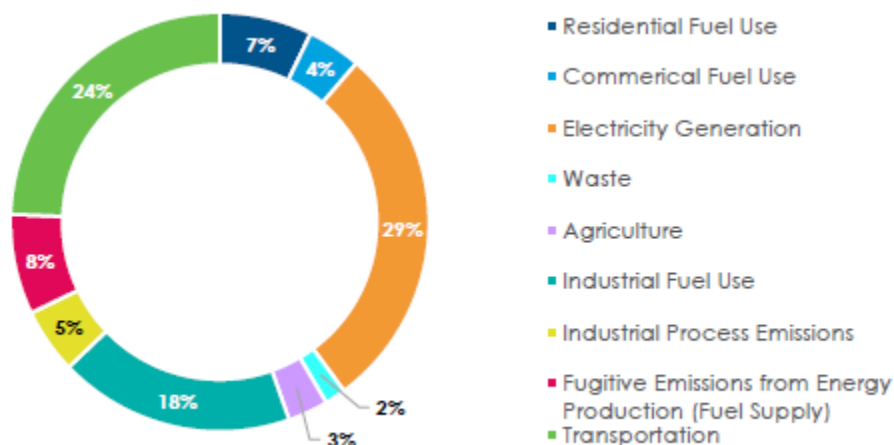


Figure 14: Pennsylvania 2017 GHG emissions by sector (Source: Pennsylvania Climate Action Plan, 2021).

No Action Alternative - The no action alternative would involve the transportation and placement of excess dredged material into a permitted landfill. The transportation and placement of the dredged material to a landfill would result in an increased output of air emissions (i.e., suspended particulates, nitrogen dioxide, carbon monoxide, lead) into the local atmosphere. Therefore, this alternative would result in an increase of greenhouse gas emissions generated from the handling and transportation of the dredged material. The transportation of the material to a landfill would be at a greater distance than the open-water placement sites and would involve additional equipment (i.e., dump trucks, dozers, graders, and/or excavators) to mechanically off-load the scows or barges and then transport the material via trucks. However, even with the greater transportation distance, there is not expected to be any significant long-term impact to greenhouse gases or climate change.

Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

Implementation of the proposed action would be expected to result in no long-term adverse effects to GHGs or climate change. Short-term emissions are expected during the placement of dredged material due to the operation of equipment (e.g., dredger, tug). Implementation of the proposed action is not expected to result in substantial GHG emissions as they are expected to be within the standard range for a project of this type.

6.1.5 Wetlands

Existing Conditions

Project Area

Wetlands are defined as areas inundated by surface or groundwater at a frequency and duration to support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and other similar areas. Wetlands have numerous benefits such as reducing flood risk, improving water quality, providing essential habitat for fish and wildlife, and supporting recreational activities. A large proportion of the wetlands found along the Upper Ohio River were modified following the advent of the modern lock and dam system. The increase in water elevation resulted in the creation of embayments throughout this area. Embayments occur at the mouths of tributary streams as a result of the increased navigation pool elevation. These embayments provide a majority of the wetland and shallow water habitat in the floodplain of the Upper Ohio River. A review of the National Wetlands Inventory (NWI) database was conducted for each of the open-water placement sites. As illustrated in the figures below, all the open-water placement sites are located in riverine habitat and avoid any wetland areas.

Emsworth Locks and Dams Open-Water Placement Sites

The map generated from the USFWS NWI database indicates no wetlands at the open-water placement sites. The nearest wetland was a freshwater pond on Davis Island (Figure 15). The approximate location of the Emsworth open-water placement sites are outlined in grey on the map.

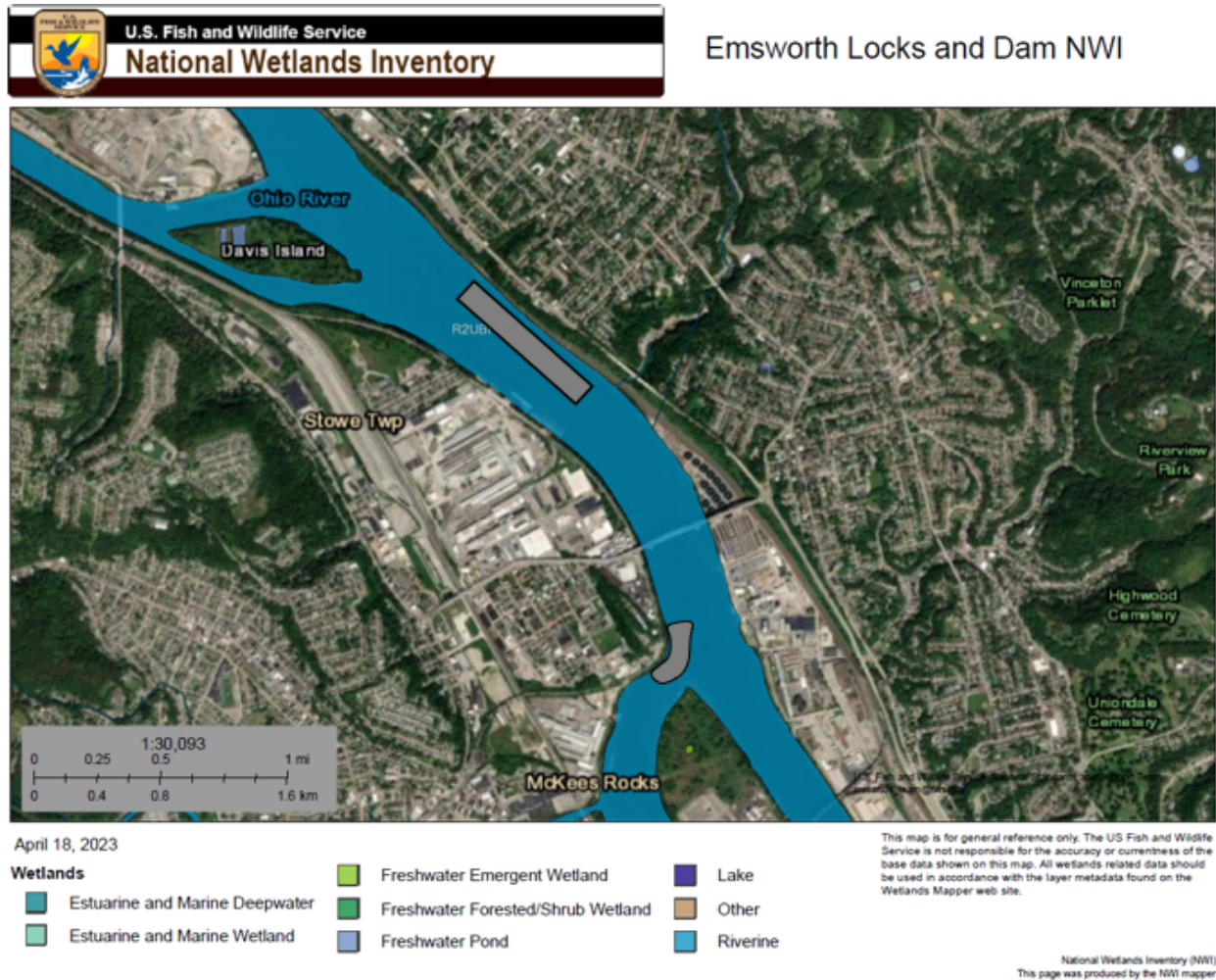


Figure 15: NWI map for Emsworth Locks and Dam open-water placement areas (Source: USFWS NWI).

Dashiels Locks and Dam Open-Water Placement Sites

The map generated from the USFWS NWI database indicates no wetlands at the Dashiels Locks and Dam open-water placement sites. There were a few freshwater forested/shrub wetlands, freshwater emergent wetlands, and freshwater ponds in the upland areas surrounding the open-water placement sites. None of these wetlands would be impacted by the placement of dredged material (Figure 16). The approximate location of the Dashiels open-water placement sites are outlined in grey on the map.

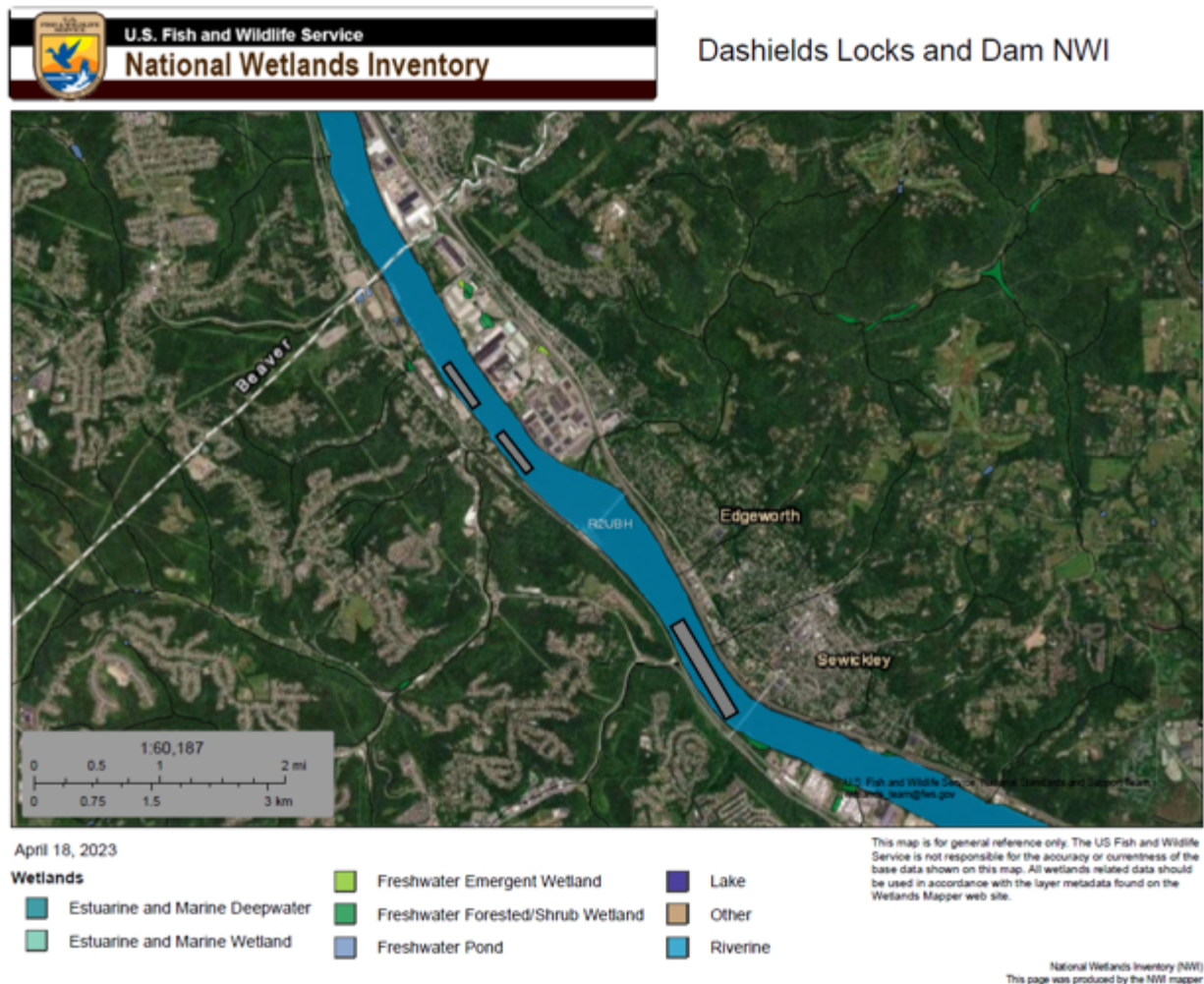


Figure 16: NWI for Dashields Locks and Dams open-water placement areas (Source: USFWS NWI)

Montgomery Locks and Dam Open-Water Placement Sites

The map generated from the USFWS NWI database indicates no wetlands are located at the Montgomery Locks and Dam open-water placement sites. Freshwater emergent wetlands and freshwater forested/shrub wetlands are located along Racoon Creek. Freshwater emergent wetlands are also located within the Montgomery embayment. These wetlands would not be impacted by the placement of dredged material (Figure 17). The approximate location of the Montgomery open-water placement sites (upstream and downstream) are outlined in grey on the map.

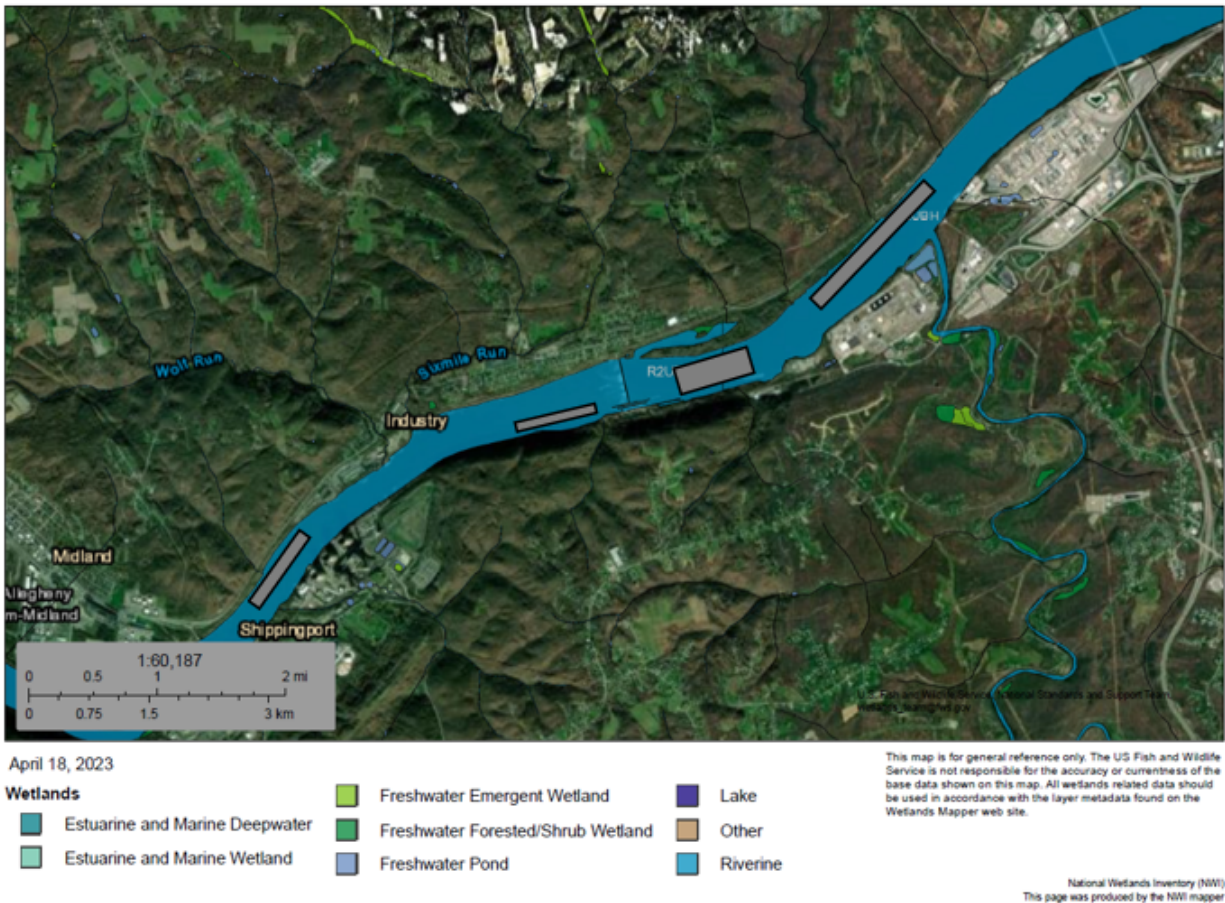


Figure 17: NWI map of Montgomery Locks and Dam open-water placement areas (Source: USFWS NWI)

No Action Alternative - The transportation and placement of the excess dredged material would not be expected to result in any adverse impacts to wetlands.

Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

Impacts to wetlands would not occur as the placement of dredged material would occur in select open-water placement sites in the Ohio River. This would not affect water levels on the Ohio River, or the hydrology associated with any of the NWI wetlands.

6.1.6 Sediment and Substrate

Existing Conditions

Project Area

The substrate of the Upper Ohio River is a mixture of the substrate types found in the Allegheny and Monongahela rivers. The south-flowing Allegheny River drains both glaciated and non-glaciated portions of the Appalachian Plateau Physiographic Province. Generally, the substrates of the Allegheny River are composed of glacial till and gravel. The north-flowing Monongahela River flows through primarily softer, sedimentary geology. The substrates that develop from this parent material typically dissociate to sands and other fine substrate materials. Substrates of the Upper Ohio River are, therefore, composed of a mixture of the material carried in the two contributing rivers (USACE, 2016).

The alluvium that makes up the river bottom consists primarily of exposed fluvioglacial medium to coarse-grained sand and gravel (glacial outwash) of the Pleistocene age (Carlston, 1962). This material is often targeted by commercial sand and gravel dredging operations within the river. Based on the alluvium borings within the project area, surficial deposits of finer grained sediments of more recent age are limited and only occasionally encountered within depositional areas of the river.

The substrate types of the upper Ohio River were qualitatively characterized during sampling events as part of the data collection effort associated with the ORSANCO Biological Pool Studies. Percent substrate compositions were characterized at 15 sample points within each pool. The substrate data for each pool was then averaged. Table 6 summarizes the data presented in the ORSANCO Biological studies.

Emsworth Pool

The biological study in 2018 by the Ohio River Valley Water Sanitation Commission sampled 15 locations within the Emsworth Pool (Table 6). The substrate at these 15 sample locations consisted of sand (28.6 percent), gravel (22.3 percent), fine material (16.4 percent), cobble (16.9 percent), and boulder (9.6 percent) (ORSANCO, 2018).

Dashields Pool

The biological study of the Dashields Pool in 2021 revealed the substrate at 15 sample locations within the pool consisted of sand (28.5 percent), gravel (26.7 percent), fines (18.2 percent), cobble (15.5 percent) and boulder (5.6 percent) (ORSANCO, 2021).

Montgomery Pool

The biological study of the Montgomery Pool in 2015 revealed the substrate at 15 sample locations within the pool consisted of sand (32.9 percent), fines (29.8 percent), gravel (19.4 percent), cobble (12.0 percent) and boulder (5.0 percent) (ORSANCO, 2015).

New Cumberland

The biological study of the New Cumberland Pool in 2017 revealed the substrate at 15 sample locations within the pool consisted of fines (26.9 percent), gravel (23.4 percent), sand (23.0 percent), cobble (14.6 percent) and boulder (7.2 percent) (ORSANCO, 2017).

Table 6: Substrate types observed in the upper Ohio River pools.

Pool	Substrate Type (Percent)					
	Boulder	Cobble	Gravel	Sand	Fines	Other
Emsworth	9.6	16.9	22.3	28.6	16.4	6.2
Dashields	5.6	15.5	26.7	28.5	18.2	5.5
Montgomery	5.0	12.0	19.4	32.9	29.8	0.9
New Cumberland	7.2	14.6	23.4	23.0	26.9	4.9

No Action Alternative - Under this alternative, two million cubic yards of dredged material would be removed from the three project areas and permanently relocated to an upland landfill area. This would remove this native material from the Ohio River system, where it can no longer provide habitat and natural sediment transport functions. This effect would be long-term, minor adverse.

Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

Testing and evaluation of alluvium, rock, and water was conducted in November 2022 to evaluate dredged material quality within the project area at the Montgomery Locks and Dam. The alluvium and underlying rock at the proposed placement area was sampled, tested and evaluated to reach a contaminant determination per CWA Section 404(b)(1) Guidelines (40 CFR 230.11[d]) regarding the placement of dredged material within the Ohio River. Sediment samples have recently been collected from the Emsworth project area and are being analyzed for contaminant determination. The Dashields open-water placement sites will be collected at a later date, closer to when the rehabilitation is to occur.

Comparisons of bulk sediment contaminant concentrations between the dredged alluvium and alluvium from reference sites are considered to identify potential contaminants of concern in the dredged material. As part of this effort, reference sites upstream and downstream of the project area that are representative of conditions within and adjacent to the proposed alluvium placement areas were characterized for comparison. Additionally, any contaminant bioavailability within the aquatic environment is considered based on analysis of total organic carbon (TOC), acid volatile sulfide and simultaneously extracted metals (AVS/SEM), and sediment elutriate testing.

Twenty-three locations were sampled across the Montgomery project area, providing broad spatial coverage, and characterizing the different bathymetric features that were present (Figure 18 and 19). Sample intervals corresponded with horizons between coarse-grained alluvium (sands and gravels) and fine-grained alluvium (silty or clayey sediment) if present. In total, 72 individual alluvium samples were collected for laboratory analysis. Sample intervals consisted of material of similar grain sizes, which were homogenized within a stainless-steel bowl with a stainless-steel spoon, before being transferred to laboratory provided containers. Sample containers were labeled, placed on ice in a cooler, and shipped to the laboratory using standard chain of custody procedures. Non-disposable sample equipment that contacted samples were decontaminated between each sample location.

The results from the sediment evaluation of Ohio River alluvium within the Montgomery Locks and Dam project area and reference areas indicates that open-water placement of the vast majority of alluvium dredged from the project area would not be expected to cause unacceptable, adverse, contaminant-related impacts. Therefore, open-water placement of this dredged alluvium would meet the contaminant determination portion of the CWA Section 404(b)(1) Guidelines (40 CFR 230.11[d]). More than 97 percent of the total samples and 99 percent of the alluvium sampled had a grain size distribution that was greater than 90 percent sand and gravel. On average, the sampled alluvium within the project area was 95 percent sand and gravel. Therefore, no adverse effects are anticipated to the quality of sediment at each of the open-water placement sites. No concerns have been expressed by resource agencies regarding obtaining the state water quality certification.

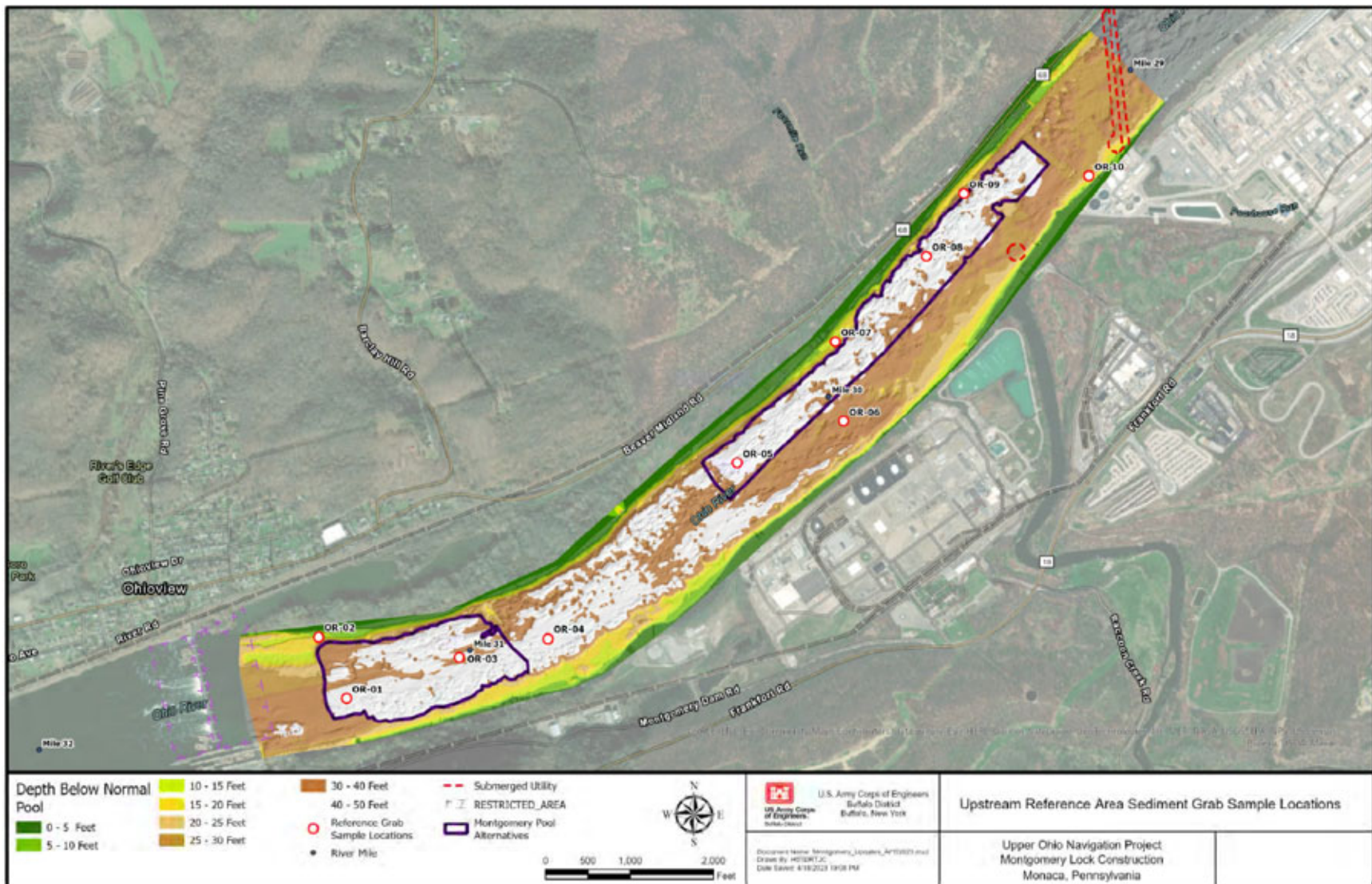
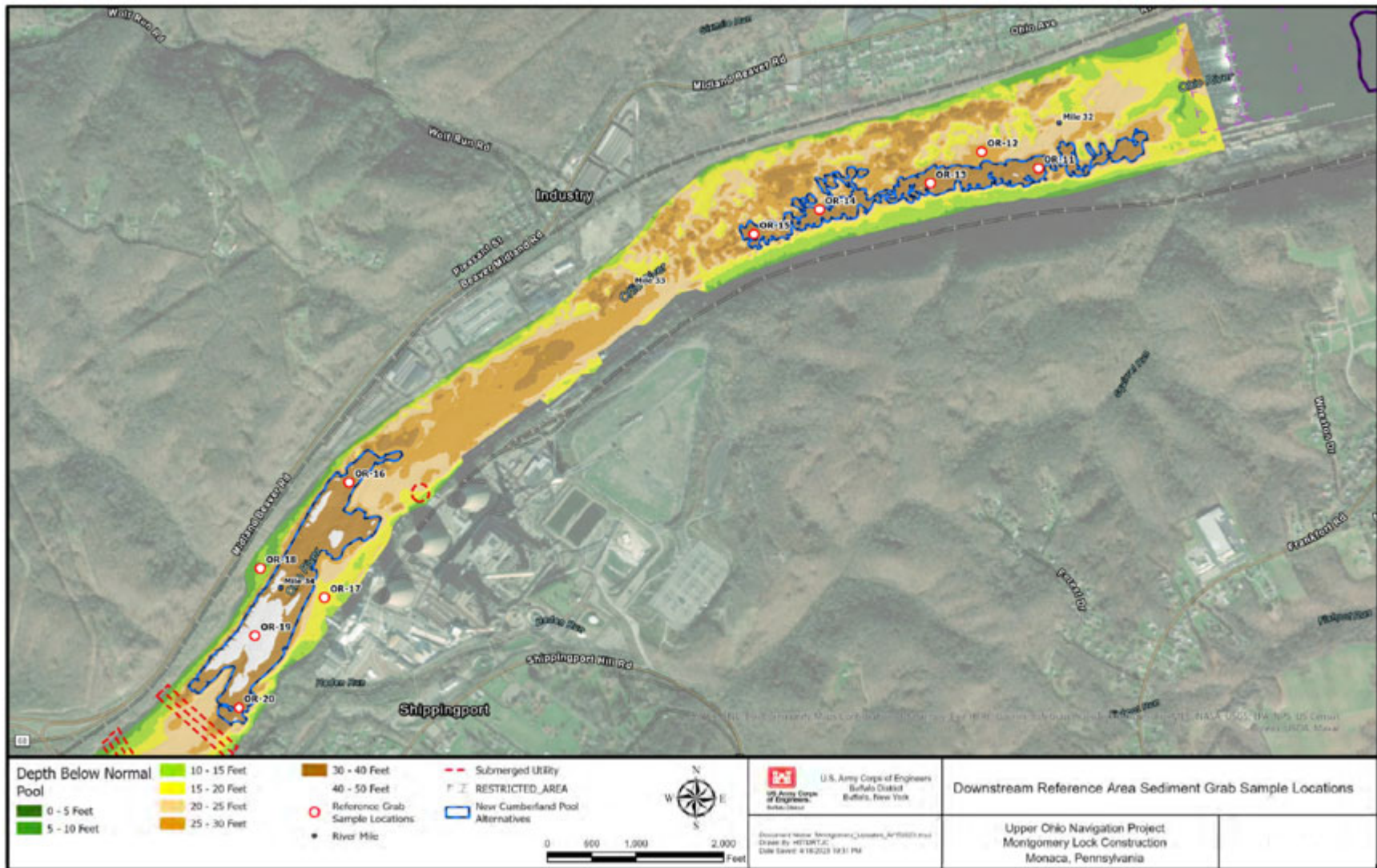


Figure 18: Montgomery upstream sediment sample sites.



6.1.7 Plankton and Benthos

Existing Conditions

Project Area

6.1.7.1 Plankton

Plankton may consist of floating or weakly swimming plant and animal life in the water column, that are often microscopic in size which contribute to the food chain in the ecosystem. Algae (phytoplankton) form a basis of the food chain and are a foundational component of the Ohio River ecosystem through which energy is transferred. Algae require sunlight and nutrients like phosphorus and nitrogen for growth and serve as a food source for zooplankton and bottom-dwelling organisms such as amphipods (tiny freshwater shrimp or “scuds”). Algae in running waters may occur as attached forms on all types of solid objects including macrophytes and as films on mud and silt surfaces. Algae also occur in free floating or planktonic forms. Ohio River researchers have confirmed that phytoplankton communities are very important in the Ohio River. Monitoring has, to a large degree, been motivated by a history of water supply taste and odor problems and public health concerns.

The percentage of phytoplankton organisms capable of producing taste and odor problems and the percentage of organisms which were blue-green algae were less in the upper river than in the middle or lower portions of the river. Conversely, the percentage of diatoms was highest in the upper river. The percentage of organisms generally considered to be tolerant of pollution was lowest in the lower river. Factors which might contribute to these spatial trends are the increasing size and lower relief of the river as it flows along its 981-mile-long course, the longer navigation pools towards lower portions of the river, and warmer water temperatures in the more southerly lower reaches of the river. Seasonal patterns apparent in the ORSANCO data show that phytoplankton is least abundant during the higher flow and colder winter months (ORMSS, 2006).

6.1.7.2 Macroinvertebrates

In addition to their intrinsic values and importance as food for fish and other forms of aquatic life and often non-aquatic life, benthic macroinvertebrate communities are also highly responsive indices of water quality. Macroinvertebrate quality evaluations are based on the principle that invertebrate communities of non-degraded streams are composed of many different types of organisms, including pollution intolerant taxa such as mayflies, stoneflies, and caddisflies (e.g., Ephemeroptera, Plecoptera, and Trichoptera, or EPT organisms). The invertebrate communities of polluted streams, on the other hand, are dominated by a small number of pollution tolerant taxa such as sludge worms and bloodworms (e.g., Annelida and Chironomidae, or AC organisms). Between the extremes are numerous organisms with intermediate tolerances (ORMSS, 2006).

Invertebrate community condition score and metrics for 2002 ORSANCO data were plotted against 1967 condition scores. The results clearly demonstrate that dramatic improvements have occurred along the previous severely impaired upper reach of the Ohio River since 1967, but less so or not at all along the moderately to slightly impaired middle part of the river. Results for the upper and middle river, compared to the higher condition scores for the lower river, suggest that there is still considerable room for improvements along the upper and middle reaches of the Ohio River.

Recent macroinvertebrates surveys were completed as part of the data collection effort associated with the ORSANCO Biological Pool Studies. The macroinvertebrates were collected in the fall from artificial substrate samplers placed in the water in late summer. Table 7 summarizes the dominant macroinvertebrate groups that were collected during the ORSANCO Biological Studies.

Emsworth Pool

The biological study in 2018 by the Ohio River Valley Water Sanitation Commission collected macroinvertebrates from the Emsworth Pool. The dominant macro groups consisted of caddisflies (34.2 percent), scuds (17.7 percent), midges (14.7 percent), mayflies (14.5 percent), and mussels (4.2 percent). Notable macroinvertebrate collections from the Emsworth Pool included large numbers of several tolerant species such as scuds, caddisflies and midges as well as low numbers of rarely observed intolerant species such as midges and snails. Overall, the Emsworth Pool macro assemblage was assessed to be in “good” condition (ORSANCO, 2018).

Dashields Pool

The biological study of the Dashields Pool in 2021 revealed the dominant macro groups consisted of mayflies (19.4 percent), midges (13.9 percent), scuds (13.6 percent), snails (8.4 percent) and mussels (7.9 percent). Notable macroinvertebrate collections from the Emsworth Pool included large numbers of aquatic worms (*Oligochaeta sp.*), two species of common burrowing mayflies (*Hexagenia limbata* and *Stenacron sp.*), and the highly tolerant caddisfly. Of the 2021 macroinvertebrate assessments, the most species diversity was observed in the Dashields Pool. Overall, the Dashields Pool macro assemblage was assessed to be in “fair” condition (ORSANCO, 2021).

Montgomery Pool

The biological study of the Montgomery Pool in 2015 revealed the dominant macro groups within the pool consisted of midges (55.3 percent), scuds (13.3 percent), mussels (9.4 percent), caddisflies (3.3 percent) and snails (3.3 percent). Notable macroinvertebrate collections from the Montgomery Pool included dusky ancyliid (*Laevapex fuscus*) a species of limpet commonly found in lakes, and invasive non-native predatory scud (*Echinogammarus ischnus*), and an

abundance of highly tolerant midge larvae (*Dicrotendipes sp.*). Overall, the Montgomery Pool macro assemblage was assessed to be in “fair” condition (ORSANCO, 2015).

New Cumberland

The biological study of the New Cumberland Pool in 2017 revealed the dominant macro groups within the pool consisted of mussels (40.6 percent), midges (25.4 percent), mayflies (7.3 percent), snails (5.5 percent) and scuds (5.3 percent). Notable macroinvertebrate collections from the New Cumberland Pool included a high percentage of invasive mussels (*Dreissena polymorpha*) and pollution intolerant mayflies (*Stenacron sp.*). The New Cumberland Pool macro assemblage was assessed to be in “fair” condition (ORSANCO, 2017).

Table 7: Dominant macroinvertebrate groups observed in the upper Ohio River pools.

Pool	Dominant Macroinvertebrate Group (Percent)					
	Caddisflies	Scuds	Midges	Mayflies	Mussels	Snails
Emsworth	34.2	17.7	14.7	14.5	4.2	-
Dashiels	-	13.6	13.7	19.4	7.9	8.4
Montgomery	3.3	13.3	55.3	-	9.4	3.3
New Cumberland	-	5.3	25.4	7.3	40.6	5.5

6.1.7.3 Freshwater Mussels

Industrialization and urbanization of the Upper Ohio River corridor has resulted in negative impacts on the mussel populations of the river. With the creation of ORSANCO and the passage of the Clean Water Act, the subsequent improvement to the water quality conditions of the upper Ohio River began to allow the opportunity for mussel re-colonization of the river. The Endangered Species Act of 1973 (ESA) provided additional protection for listed mussel species.

Freshwater mussels feed on organic particles, algae, and minute plants and animals, which they siphon out of the water. Because of their limited mobility, adult mussels are subject to a variety of environmental factors that can restrict their distribution and reproductive success. The availability of suitable fish hosts to ensure dispersal of juvenile mussels and completion of their life cycle is critical to their reproductive success. The limited mobility of mussels and their relatively long-life spans make mussel populations good environmental indicators.

The Ohio River was once home to 127 of the 297 freshwater mussel species native to North America. Since then, 11 species have gone extinct, and 46 others are classified as endangered or a species of concern (Ohio River Foundation, 2023). A mussel survey was conducted in the summer of 2008 at the Emsworth, Dashiels, Montgomery and New Cumberland pools. Thirty-five non-random sampling points were investigated for this qualitative screening-level survey between RM 0-35 in the Ohio River. As a result of the survey, 110 live mussels representing six species were collected. Of the species collected during this survey, the most dominant species

included the pink heelsplitter (*Potamilus alatus*), the mapleleaf (*Quadrula quadrula*), and the threehorn wartyback (*Obliquaria reflexa*), with the pink heelsplitter being the most dominant (USACE, 2016). Mussels were also collected during the ORSANCO macroinvertebrate sampling events. Table 7 shows the percentage of mussels collected at each pool in the project area.

No Action Alternative - Under this alternative, two million cubic yards of dredged material would be removed from the three project areas and permanently relocated to an upland landfill area. This would remove this native material from the Ohio River system, where it can no longer provide habitat for plankton and benthos and natural sediment transport functions. This effect would be long-term, minor adverse.

Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

The placement of dredged material at the open-water placement sites may impact resident plankton, macroinvertebrates, and mussels in the area through smothering, which would result in the temporary localized loss of benthic organisms. However, these sites were selected as they are unnaturally deep and tend to exhibit anoxic conditions that are not supportive of aquatic biota, particularly freshwater mussels. By raising the bottom elevation of the Ohio River in these artificially deep pockets, the placement of dredged material may actually provide ecosystem benefits to mussels and other benthic organisms as these pockets would be filled to a depth that would provide better conditions that could lead to an expanded range for colonization that previously could not occur due to the environmentally limiting factors associated with being too deep and anoxic.

6.1.8 Fisheries

Existing Conditions

Project Area

Rapid growth of the human population in the upper Ohio River Basin during the first half of the 20th century led to larger inputs of domestic sewage, industrial effluents, and acid mine drainage. The combined effects of these pollutants led to a depleted fish fauna dominated by tolerant species. By 1950, the abundance of intolerant species such as lampreys, sturgeons, paddlefish, bigeye chub, muskellunge, sauger, and blue sucker were greatly reduced, while tolerant species such as the gizzard shad, emerald shiner, freshwater drum, bullhead catfish, and introduced common carp had increased in abundance within the Upper Ohio and Lower Allegheny Rivers. Conditions within the Monongahela River were even worse than the other two rivers. In 1948, fish had almost entirely disappeared from the Monongahela River due to acid mine drainage, steel mill effluent, and other pollutants.

In the last half of the 20th century, actions of ORSANCO and implementation of the Clean Water Act of 1972 and its amendments led to considerable progress in the subsequent recovery of many fish species in the Ohio River. Table 8 compares the ten most abundant fishes collected in the Ohio River for two different time periods and collection methods. Emerald shiner, gizzard shad, and freshwater drum are the three most abundant species on both lists. Species that occur on the 1991-2001 list that did not appear on the earlier list include sauger, bluegill, temperate basses, and silver chub. Absent from the more recent list are the pollution-tolerant common carp and bullheads, as well as skipjack herring and white crappie (USACE, 2016).

Table 8: Ten most abundant Ohio River fish species (*Source: USACE, 2016*).

Rank	Lock Chambers (1957-1980)	Electrofishing (1991-2001)
1	Emerald shiner	Gizzard shad
2	Gizzard shad	Emerald shiner
3	Freshwater drum	Freshwater drum
4	Mimic shiner	Sauger
5	Channel catfish	Mimic shiner
6	Common carp	Bluegill
7	Bullheads (all species)	Channel catfish
8	Skipjack herring	Morone spp. (temperate basses)
9	White crappie	Threadfin shad
10	Threadfin shad	Silver chub

A primary goal of ORSANCO programs is to work with state agencies to develop a set of pollution control standards for the Ohio River. Monitoring programs were established to develop and refine these standards. The ORSANCO biological program uses fish studies to establish biological criteria for the Ohio River. These biological criteria are ultimately used to provide insight into the overall health of the river ecosystem (ORSANCO, 2018).

Recent ORSANCO biological studies were conducted within the Emsworth, Dashields, Montgomery and New Cumberland pools in 2018, 2021, 2015, and 2017, respectively. These studies collected data on fish, macroinvertebrates, habitat, water quality (i.e., temperature, dissolved oxygen, conductivity, and pH) and flow, and other Ohio River Fish Index (ORFI) metrics at 15 sites throughout each of the pools. A random, probability-based survey design was used to select sampling site locations within each Ohio River navigational pools.

The ORFI is a method of measuring the health of fish communities in the Ohio River. A pool is assessed to be in full support of its aquatic life-use designation (i.e., possessing intact biological communities) if both the modified ORFI and unmodified ORMI scores are greater than or equal to 20.0 (i.e., a biological rating of fair, good, very good, or excellent). The surveys were conducted at night between July 1st and October 31st when water levels were within two feet of “normal flat pool.” The fish were collected by electrofishing using an 18-foot aluminum johnboat equipped with a generator and an electrofishing unit. The biological and environmental

data collected from the 15 sites were used to assess the biological condition of the pool.

In addition, each pool was evaluated to determine if it meets its aquatic life designation. These ORSANCO studies provide a general overview of the current overall water quality and fish characterization of the upper Ohio River. The results of these surveys are summarized below.

Emsworth Pool

Emsworth is the uppermost pool on the Ohio River mainstem and has a surface area of approximately 2,880 acres. The shorelines of the pool are highly modified with the immediate land adjacent to the pool consisting of residential and industrial development. During the 2018 electrofishing survey, a total of 2,158 individuals and 41 species were collected. Minnows were the dominant fish family, accounting for 65.5 percent of individuals collected. Sunfishes and bass were also commonly found in the pool accounting for 13.7 percent of the total individuals collected. Notable catches include muskellunge (*Esox masquinongy*) and northern pike (*Esox lucius*) as well as the longhead darter (*Percina macrocephala*), which was not found in previous surveys of the Emsworth Pool. One Pennsylvania state-listed endangered species, the river shiner (*Notropis blennioides*), was collected during the 2018 survey. The Emsworth pool was assessed in “fair” condition in 2018, which was the same condition rating assessed in 2012, dropping one condition rating from the 2007 assessment. The primary factor in the decline of the biological condition rating was due to fewer observed silver chub and mooneye (*Hiodon tergisus*) compared to previous surveys. Overall, the results of this study indicate the Emsworth Pool is in healthy condition (ORSANCO, 2018).

Dashields Pool

The Dashields Pool is downstream of Emsworth Locks and Dams and has a surface area of approximately 1,216 acres. The Dashields Pool is 7.1 miles long with an average depth of 14 feet deep. The pool lies within an area that is heavily influenced by industry with a large amount of barge activity. In addition, Dashields Pool is unique because there are no major tributaries emptying into the pool. This could restrict the pool’s ability to harbor a healthy fish assemblage as tributaries serve as refugia, spawning, and nursery areas for many Ohio River fishes. The most recent ORSANCO survey of Dashields Pool was in 2021. The fish population of Dashields Pool was determined to be in “good” condition, which has improved since prior survey efforts in 2008. The overall fish abundance has grown over the past three assessments. The resurgence of pollution intolerant species has also been observed, with a relative abundance of 52.1 percent of the total population, in the 2021 survey. During the 2021 electrofishing survey, a total of 3,693 individuals and 37 species were collected. Minnows were the dominant fish family, accounting for 62.9 percent of individuals collected. Suckers were also commonly found in the pool accounting for 19.4 percent of the total individuals collected. Notable catches include the longhead darter and streamline chubs (*Erimystax disimilis*) both of which require habitat with clean, coarse substrate. Overall, the results of this study indicate the Dashields Pool is in healthy condition (ORSANCO, 2021).

Montgomery Pool

Montgomery Pool is downstream of Dashields Pool and has a surface area of approximately 3,008 acres. The pool lies entirely within the state of Pennsylvania and the surrounding area is describes as an urban extension of Pittsburgh. This results in high volumes of industry, barge activity, and recreational boaters. Most of the pool's shorelines are modified with rocks and/or metal walls to slow shoreline erosion. Fallen timber remains the most abundant aquatic habitat (ORSANCO, 2015).

At the 15 sampling locations in the Montgomery Pool, a majority of the locations had mixed substrates, with some coarser habitats and sand flats also sampled. The invasive submerged aquatic plant hydrilla (*Hydrilla verticillata*) covered small patches of 1/3 of the survey sites. Forty fish species and two hybrids were collected and were represented by a very evenly distributed community. The most dominant species was the channel shiner (*Notropis wickliffi*) comprising just over 14 percent (323 collected) of all individuals. The minnows and carp family overall accounted for 30 percent of the total catch. The silver redhorse was the 3rd most abundant species and combined with 10 other sucker species to make up an additional 27 percent. A notable amount of trout-perch (*Percopsis omiscomaycus*) were collected as crews collected more individuals in this survey than ORSANCO has ever recorded in 3,400 sampling events since 1957. Additionally, 26 Pennsylvania state-threatened mooneye were collected. There were 2,260 individuals along with 42 different species collected indicate a diverse population. For the second survey, the pool was determined to be in "good" condition, almost exactly matching the same level of biological integrity as the 2010 survey (ORSANCO, 2015).

New Cumberland Pool (Downstream of Montgomery Locks and Dam)

The New Cumberland Pool is approximately 23 miles long extending from the Montgomery Locks and Dam downstream to the New Cumberland Locks and Dam. The New Cumberland Pool receives water from two tributaries Little Beaver Creek and Yellow Creek. The pool flows within the state of Pennsylvania for the upper nine miles and is bordered by the states of Ohio and West Virginia for the remaining 13.7 miles. During the 2017 electrofishing survey, a total of 6,071 individuals and 40 species were collected. Minnows were the dominant fish family, accounting for 46.7 percent of individuals collected. Sunfishes and bass were also commonly found in the pool accounting for 22.2 percent of the total individuals collected followed by suckers at 15.2 percent. At the species level, the most abundant species was the channel shiner with 845 individuals collected. Notable catches include the numerous channel shiners, the Ohio threatened channel darter (*Percina copelandi*) and species of special concern river redhorse (*Moxostoma carinatum*). The invasive eastern banded killifish (*Fundulus diaphanous diaphanous*) was also found likely due to the increase in invasive vegetation. Since first noted after the first assessment cycle, abundant aquatic vegetation, primarily hydrilla, is the primary environmental factor observed that could account for lower metric performance. Great river species observations continue to decline. Fewer intolerant species, greater numbers of observed

piscivores and an improved average sucker score contributed to the elevated average modified ORFI score in 2017. The New Cumberland Pool was assessed to be in “fair” condition (ORSANCO, 2017).

No Action Alternative - Under this alternative, two million cubic yards of dredged material would be removed from the three project areas and permanently relocated to an upland landfill area. This would remove this native material from the Ohio River system, where it can no longer provide foraging habitat for fisheries and natural sediment transport functions. This effect would be long-term, minor adverse.

Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

The proposed project involves the placement of dredged material into the Ohio River which may result in localized and temporary adverse impact on the fisheries at the project location. Disruption and disturbance by equipment during the dredged material placement operations would result in a short-term avoidance of the project area by fishes. No significant fish habitat would be impacted. As previously mentioned, the dredged material would be placed in unnatural, deep pockets in the Ohio River that may currently exhibit anoxic conditions. In addition, the dredged material that would be placed in the open-water placement sites would primarily consist of sand and gravels and would need to meet the CWA Section 404(b)(1) Guidelines.

The contractor would be required to restrict the construction activities within the boundaries of the proposed work area and minimize the spillage of materials outside of the work area. The contractor would further be required to implement all applicable best management practices to minimize erosion, accidental spills of fuel, oil, and/or grease, and take appropriate actions in the event of a release, including any steps required to comply with Section 402 of the Clean Water Act.

The impact from the placement of dredged material on fish habitat would be minor, direct, intermittent, short-term and localized, and result in no population-level responses. The dredged material would be placed in unnaturally deep areas in the Ohio River, which would raise the bottom elevation of the river, and in turn, potentially create a more suitable environment for fishes and other species such as mussels.

6.1.9 Wildlife

Existing Conditions

Project Area

6.1.9.1 Migratory Birds

The Ohio River is a significant water area for numerous migratory waterfowl and shorebirds. Ospreys (*Pandion haliaetus*) are not currently known to breed in western Pennsylvania; however, they are likely to be observed as spring and fall migrants through the project area. The USFWS reported numerous waterfowl observed along the Pennsylvania reach of the Ohio River during January 1983. Among the species observed were American black duck (*Anas rubripes*), mallard (*Anas platyrhynchos*), common goldeneye (*Bucephala clangula*), common merganser (*Mergus merganser*), and scaup (*Aythya spp.*).

The bottomland hardwood forested floodplains along the Upper Ohio River Valley are commonly utilized by cavity-nesting migratory bird species such as wood ducks (*Aix sponsa*), great horned owl (*Bubo virginianus*), eastern bluebird (*Sialia sialis*), goldeneye, and merganser. The forest structure in habitats of floodplains along the Upper Ohio Valley provides the proper canopy and insect life required to support migratory songbirds like the warbling vireo (*Vireo gilvus*), northern oriole (*Icterus parisorum*), Carolina wren (*Thryothorus ludovicianus*), wood thrush (*Hylocichla mustelina*), and numerous warblers.

The following game bird and raptor species have been reported from the Pittsburgh vicinity and surrounding areas: wild turkey (*Meleagris gallopavo*), American woodcock (*Scolopax minor*), Canada goose (*Branta canadensis*), barred owl (*Strix varia*), eastern screech owl (*Otus asio*), northern harrier (*Circus cyaneus*), sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*Accipiter cooperii*), northern goshawk (*Accipiter gentiles*), red-tailed hawk (*Buteo jamaicensis*), and American kestrel (*Falco sparverius*) (USACE, 2016).

6.1.9.2 Mammals

The upland mesophytic forested areas along the Upper Ohio River Valley are commonly utilized by a wide variety of mammals, such as white-tailed deer (*Odocoileus virginianus*), eastern cottontail rabbit (*Sylvilagus floridanus*), raccoon (*Procyon lotor*), gray fox (*Urocyon cinereoargenteus*), red fox (*Vulpes vulpes*), and eastern gray squirrel (*Sciurus carolinensis*). Bottomland hardwood forests along the floodplains of the Ohio River in this region provide good habitat for furbearers such as the muskrat (*Ondatra zibethicus*), mink (*Mustela vison*), and beaver (*Castor canadensis*), as well as cavity-nesting species such as the eastern fox squirrel (*Sciurus niger*) and raccoon. Understory areas within bottomland hardwood forests provide habitat for northern short-tailed shrew (*Blarina brevicauda*), Norway rats (*Rattus norvegicus*), and white-tailed deer.

Other mammals likely to utilize various habitats of the Upper Ohio River include the eastern chipmunk (*Tamias striatus*), star-nosed mole (*Condylura cristata*), deer mouse (*Peromyscus maniculatus*), white-footed mouse (*Peromyscus leucopus*), opossum (*Didelphis virginiana*), masked shrew (*Sorex cinereus*), striped skunk (*Mephitis mephitis*), meadow vole (*Microtus pennsylvanicus*), long-tailed weasel (*Mustela frenata*), and woodchuck (*Marmota monax*). Bats

which forage along riparian areas and over waterways of the Upper Ohio River include the big brown bat (*Eptesicus fuscus*), hoary bat (*Lasiurus cinereus*), Indiana bat (*Myotis sodalis*), red bat (*Lasiurus borealis*), little brown bat (*M. lucifugus*), eastern small-footed bat (*M. leibii*), and eastern pipistrelle (*Pipistrellus subflavus*).

6.1.9.3 Reptiles and Amphibians

The habitat types along the corridors of the Ohio River in Pennsylvania are likely to support reptiles such as the northern fence lizard (*Sceloporus undulatus hyacinthinus*), copperhead (*Agkistrodon contortrix*), black racer (*Coluber constrictor*), five-lined skink (*Eumeces fasciatus*), black rat snake (*Elaphe obsoleta*), eastern garter snake (*Thamnophis sirtalis sirtalis*), eastern hognose snake (*Heterodon platirhinos*), eastern milk snake (*Lampropeltis triangulum triangulum*), and many others. The embayments found along the Upper Ohio River also support map turtles (*Graptemys geographica*).

In addition, aquatic habitat types in and along the corridors of the Ohio River in Pennsylvania are likely to support the following amphibian species: American bullfrog (*Rana catesbeiana*), gray tree frog (*Hyla versicolor*), green frog (*Rana clamitans*), pickerel frog (*Rana palustris*), wood frog (*Rana sylvatica*), hellbender (*Cryptobranchus alleganiensis*), red-spotted newt (*Notophthalmus viridescens viridescens*), northern spring peeper (*Pseudacris crucifer crucifer*), four-toed salamander (*Hemidactylium scutatum*), and many others. Embayments of the Upper Ohio River also support northern leopard frogs (*Rana pipiens*) (USACE, 2016).

No Action Alternative - The no action alternative would involve the transportation and placement of the excess dredged material into a permitted landfill. This may result in minor adverse impacts to wildlife. Wildlife would likely avoid the area around the landfill where the excess material is placed. These impacts would be short-term as wildlife would be expected to return to the area once all of the offloading activities are complete.

Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

Disruption and disturbance by the dredged material offloading activities would result in the short-term avoidance of the project area by birds, mammals and other species. However, no significant wildlife habitat would be impacted as the proposed project would place dredged material into deep pockets of the Ohio River. The contractor would be required to restrict the construction activities within the boundaries of the proposed work area and minimize the spillage of materials outside of the work area.

6.1.10 Aquatic Vegetation

Existing Conditions

Project Area

A survey along the Monongahela River, Allegheny River and Upper Ohio River was conducted in 1975 to examine the aquatic macrophyte community where commercial navigation is maintained (Koryak, 1978). This survey found that the section of the Upper Ohio River between Pittsburgh, Pennsylvania and New Martinsville, West Virginia, emergent aquatic vegetation was found to be scarce along the mainstem of the Ohio River. This is consistent with the existing conditions of the proposed open-water placement sites. All of these sites are unnaturally deep with very little to no aquatic vegetation present.

No Action Alternative - The no action alternative would result in no impact to aquatic vegetation as no excess dredged material would be placed into the Ohio River.

Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

The placement of dredged material at the open-water placement sites would likely have no impact to aquatic vegetation due the unnaturally deep conditions at each of the open-water placement sites.

6.1.11 Federally Listed Threatened and Endangered Species

Existing Conditions

Project Area

The Ohio River is inhabited by multiple federally listed endangered mussel species, including the clubshell (*Pleurobema clava*), northern riffleshell (*Epioblasma torulosa rangiana*), rayed bean (*Villosa fabalis*), fanshell (*Cyprogenia stegaria*), orange-foot pimpleback (*Plethobasis cooperianus*), pink mucket (*Lampsilis abrupta*), ring-pink (*Obovaria retusa*), rough pigtoe (*Pleurobema plenum*), snuffbox (*Epioblasma triquetra*), and sheepnose (*Plethobasus cyphus*). The Ohio River is also within the range of the federally listed threatened mussel species, the rabbitsfoot (*Quadrula cylindrica cylindrica*).

The following listed mussel species are believed to or known to occur in Pennsylvania, the rayed bean, clubshell, sheepnose, northern riffleshell, and rabbitsfoot. The pink mucket, fanshell and orange-foot pimpleback are found in Ohio River navigation pools downstream of the study area and are considered extirpated from Pennsylvania. The USACE Pittsburgh District's screening-level mussel survey undertaken in the study area in 2008 located no listed individuals (USACE, 2016). Following project authorization and at an appropriate time in advance of the initiation of construction, USACE will consult with the USFWS and Pennsylvania natural resource protection

agencies on the need for and scope of site-specific mussel surveys to assess their future status in the proposed areas of disturbance.

Review of the USFWS Information for Planning and Consultation (IPaC) online database indicates that proposed open-water placement sites at each of the EDM open-water placement areas is within the range of the endangered Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), rayed bean. Winter cave habitat (hibernaculum) has been documented in Beaver County. Summer habitat occurs throughout Pennsylvania in forested or wooded areas near water. Its distribution is strongly correlated with major rivers such as the Ohio River.

Certain bird species are protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The USFWS IPaC database indicates that the following listed birds are of particular concern, either because they occur on the USFWS Birds of Conservation Concern list or warrant special attention due to the project location. This review was conducted for each of the open-water placement sites.

Emsworth Locks and Dams Open-Water Placement Sites

The following bird species were located using the USFWS IPaC tool for the Emsworth Locks and Dams open-water placement sites: Bald Eagle (*Haliaeetus leucocephalus*), black-billed cuckoo (*Coccyzus erythrophthalmus*), black-capped chickadee (*Poecile atricapillus praticus*), Canada warbler (*Cardellina canadensis*), cerulean warbler (*Dendroica cerulea*), chimney swift (*Chaetura pelagica*), eastern whip-poor-will (*Antrostomus vociferus*), Kentucky warbler (*Oporornis formosus*), prairie warbler (*Dendroica discolor*), red-headed woodpecker (*Melanerpes erythrocephalus*), rusty blackbird (*Euphagus carolinus*) and wood thrush (*Hylocichla mustelina*).

Dashields Locks and Dam Open-Water Placement Sites

For the Dashields Locks and Dam open-water placement sites, the following species were indicated: bald eagle, black-billed cuckoo, black-capped chickadee, bobolink, Canada warbler, cerulean warbler, chimney swift, golden-winged warbler (*Vermivora chrysoptera*), Henslow's sparrow (*Ammodramus henslowii*), Kentucky warbler, red-headed woodpecker, rusty blackbird and wood thrush.

Montgomery Locks and Dam Open-Water Placement Sites

At the Montgomery Locks and Dam open-water placement sites, the following species were indicated: bald eagle, black-billed cuckoo, black-capped chickadee, bobolink (*Dolichonyx oryzivorus*), Canada warbler, cerulean warbler, chimney swift, Kentucky warbler, red-headed woodpecker, rusty blackbird and wood thrush.

No Action Alternative - The no action alternative would involve the transportation and

placement of the excess dredged material into a permitted landfill. Noise generated by the vehicles transporting and offloading the dredged material may result in a temporary and localized avoidance of the landfill by bird species. The placement of dredged material does not include the removal of any trees or other habitat; therefore, the placement of the dredged material would not have a long-term adverse effect to bird species.

Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

Coordination regarding threatened and endangered species with the USFWS and PADEP was initiated through the NEPA public scoping process and was continued through a request for comments on this EA (Appendix D).

Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags = three inches diameter at breast height that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves and abandoned mines. As suitable habitat does not exist within the dredged material placement area at the Ohio River project location and tree removal would not be required to initiate dredged material placement operations, there would be no disturbance to potential Indiana bat and long-eared bat habitat as a result of the project.

Noise generated by the operation equipment may result in a temporary and localized avoidance of the project area by bird species. The placement of dredged material does not include the removal of any trees or other habitat; therefore, the placement of the dredged material would not have a long-term adverse effect to bird species.

Comments were received by PADEP regarding the potential impacts to state-listed threatened and endangered species or species of special concern (Appendix A). Project information has been submitted to the Pennsylvania Natural Heritage Program webpage for any impacts to state-listed threatened and endangered species or species of concern. A Pennsylvania Natural Diversity Inventory (PNDI) receipt was generated for each of the locks and dams proposed dredged material placement sites (Emsworth PNDI-777277, Dashields PNDI-774534,

Montgomery PNDI-767471 & 767472). Two endangered species, the rock skullcap (*Scutellaria saxatilis*) and the pistolgrip (*Tritogonia verrucosa*), were identified in the area surrounding the Emsworth and Dashields open-water placement sites. The rock skullcap is a small perennial herb most commonly found in hillsides. There would be no anticipated impact to this species due to the dredged material placement sites being located entirely in the Ohio River. The pistolgrip is a freshwater mussel most commonly found in larger rivers with gravel substrates. As previously mentioned in Section 6.1.7.3, the placement of dredged material at the open-water placement sites may impact any mussels in the area through smothering, which would result in the temporary localized loss of benthic organisms. However, by raising the bottom elevation of the Ohio River in these artificially deep pockets, the placement of dredged material may actually provide ecosystem benefits to mussels and other benthic organisms due to these pockets being filled to a depth that would provide better conditions that could lead to an expanded range for colonization that previously could not occur due to the environmentally limiting factors associated with being too deep and anoxic. The Montgomery PNDI receipt indicated the endangered bigmouth buffalo, warmouth, longear sunfish and ghost shiner may inhabit the Ohio River around the proposed placement sites. As stated in Section 6.1.8, the proposed project may result in localized and temporary adverse impacts on the fisheries at the project location. Disruption and disturbance by equipment during the dredged material placement operations would result in a short-term avoidance of the project area by fishes. However, the impact from the placement of dredged material on fish habitat would be minor, direct, intermittent, short-term and localized, and result in no population-level responses. The dredged material would be placed in unnaturally deep areas in the Ohio River, which would raise the bottom elevation of the river, and in turn, potentially create a more suitable environment for fishes and other species such as mussels. In addition, no significant fish habitat would be impacted.

6.1.12 Wild and Scenic Rivers

Existing Conditions

Project Area

The Nationwide Rivers Inventory is a list of more than 3,200 free-flowing river segments that are believed to possess one or more “outstanding remarkable” natural or cultural value features judged to be of more than local or regional importance. The segments of the Ohio River in which the open-water placement sites are located, are not included in the Nationwide Rivers Inventory. The closest segment of the Ohio River designated as wild and scenic is downstream of Montgomery Locks and Dam from the OH/PA state line to Wellsville. This segment of the Ohio River was used extensively in the 19th century by settlers and early explorers and was listed in 1982 due to considerable historic and archeologic values (Nationwide Rivers Inventory, 2023).

No Action Alternative - The no action alternative will have no impacts to wild and scenic rivers as this segment of the Ohio River is not included in the Nationwide Rivers Inventory.

Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

The segments of the Ohio River in which the open-water placement sites are located are not included in the Nationwide Rivers Inventory. Therefore, the project would not impact any National Wild and Scenic River segments.

6.1.13 Traffic and Transportation

Existing Conditions

Project Area

Transportation is the movement of goods and people along the Upper Ohio River and its associated facilities. Traffic is defined as the amount of activity found within the transportation system. The Ohio River Navigation System consists of the Ohio River mainstem and navigable portions of eight tributaries. The mainstem serves as a collector of system traffic for distribution points within and outside the Ohio River Basin.

The Ohio River is important for the nation's inland waterway system, providing for commercial navigation in the eastern third of the country. Commercial navigation is important to the region's economy because river transport is an economical method of transporting raw materials and bulk goods. Shipping costs for raw materials average 0.97 cents per ton mile by barge compared with 2.53 cents per ton mile by rail or 5.35 cents per ton mile by truck. Since the 1970s, coal has accounted for over 50 percent of the tonnage of commodities shipped on the Ohio River mainstem each year. Coal transport historically has been most prevalent on the upper portion of the Ohio River. The primary markets for coal shipments are domestic electric utility plants. Coal traffic also moves to coal blending facilities, industrial facilities, and coking facilities. Significant amounts of crushed limestone, sand and gravel, and building stone are also shipped on the Ohio River, accounting for approximately 18 percent of traffic at mainstem locks in 2003. These construction materials typically are extracted as close as possible to their market areas; therefore, aggregate traffic on the Ohio River is frequently short-haul and may be entirely within one pool.

The total commodity traffic of the EDM locks and dams to the Ohio River mainstem for the period 1970 to 2000 is shown in Table 9. During this 30-year period, the uppermost projects experienced the lowest growth rates of all the Ohio River projects.

Table 9: Historic traffic demand, EDM & Ohio River mainstem (millions of tons 1970-2000) (Source: USACE, 2016).

Project	Year				Annual % Growth	
	1970	1980	1990	2000	1970-2000	1990-2000
Emsworth	19.6	20.0	21.8	21.9	0.4	0.1
Dashields	20.2	21.0	23.2	22.4	0.3	-0.4
Montgomery	17.4	20.4	25.0	25.2	1.2	0.1
Ohio River Mainstem	126.8	160.7	225.7	236.5	2.1	0.6

Industries are not the only users of the river as the locks are open to any boat. Almost 30,000 recreational boats locked through the Pittsburgh District's locks in 2012, taking advantage of the improving water quality. Numerous excursion boats also use the locks as they cruise the rivers entertaining and educating area residents and tourists. These are only a small percentage of those who benefit from the USACE navigation structures. Many people use the navigation pools as a lake for pleasure boating without using a lock. Water sports are increasing in popularity and the water quality of the rivers has improved. In many areas, gamefish are reappearing in the rivers and providing sport for large numbers of fishermen.

No Action Alternative - Dredges barges and scows would be on the Ohio River during the excavation, dewatering and offloading required to remove the dredged material and load the trucks for transportation to the landfill. This effect would be minor, short-term adverse. The contractor would be required to have proper navigation markings and signage in the project area to warn other vessels on the river. Additionally, the dozens of trucks hauling the excess dredged material to a permitted landfill would increase traffic on the roads, resulting in minor impacts to traffic in route to and from the landfill. Impacts are expected to be minor, and short-term adverse.

Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

Placement of the excess dredged material may impact transportation in the short term during the construction at each of the open-water placement sites. The concentration of heavy equipment in the placement area, as well as its movement back and forth to the locks and dams, could potentially pose a navigation hazard. The barges used to place the dredged material would need to be avoided by other marine traffic on the river. The contractor would be required to have proper navigation marking and signage in the project area while excavating and placing the dredged material to warn other vessels on the river. Impacts are expected to be minor, and short-term adverse. No long-term adverse impacts are expected to transportation on the river due to the dredged material being placed in unnaturally deep pockets of the Ohio River which would not affect pool elevations nor otherwise restrict navigation.

6.2 SOCIO-ECONOMIC ENVIRONMENT

6.2.1 Executive Order 12898 Environmental Justice

Existing Conditions

Project Area

Pursuant to Executive Order 12898, federal agencies are to make the achievement of environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations, low-income populations, and Indian tribes and allowing all portions of the population a meaningful opportunity to participate in the development of, compliance with, and enforcement of federal laws, regulations, and policies affecting human health or the environment regardless of race, color, national origin, or income.

The Council on Environmental Quality (CEQ) *Environmental Justice Guidance Under the National Environmental Policy Act* defines a minority as, “individual(s) who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic.” The CEQ defines a minority population to occur, “where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.” The CEQ environmental justice guidance goes on to say that “a minority population also exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above-stated thresholds” (Council on Environmental Quality, 1997).

According to the CEQ, “low-income populations in an affected area should be identified with the annual statistical poverty thresholds from the Bureau of the Census’ Current Population Reports, Series P-60 on Income and Poverty. In identifying low-income populations, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect.”

Site-specific assessments for each lock and dam are provided below:

Emsworth & Dashields Locks and Dams

Emsworth and Dashields Locks and Dams are located in Allegheny County, Pennsylvania. Based on population estimates for 2022 from the U.S. Census Bureau for Allegheny County, the minority race makeup of the county was 13.5 percent African American, 4.4 percent Asian, 2.5 percent two or more races, 2.4 percent Hispanic or Latino and 0.2 percent American Indian and

Alaska Native for an aggregate total of 23 percent minority races comprising the population of Allegheny County (U.S. Census Bureau, 2023). Based on this data, the minority population of Allegheny County does not exceed 50 percent. Review of the 2022 population estimates for the State of Pennsylvania indicated that the aggregate minority population was 27.3 percent. Therefore, the project area does not include a minority population as defined by the CEQ.

The U.S. Census Bureau measures poverty by following the Office of Management and Budget's (OMB) Statistical Policy Directive 14, the Census Bureau uses “a set of money income thresholds that vary by family size and composition to determine who is in poverty. If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty. The official poverty thresholds do not vary geographically, but they are updated for inflation using Consumer Price Index (CPI-U).” The median household income from 2017-2021 in Allegheny County was \$66,659, with 11.3 percent of the county in poverty.

Montgomery Locks and Dam

Montgomery Locks and Dam is located in Beaver County, Pennsylvania. Based on population estimates for 2022 from the U.S. Census Bureau for Beaver County, the minority race makeup of the county was 6.6 percent African American, 2.5 percent two or more races, 2.0 percent Hispanic or Latino, 0.6 percent Asian, and 0.2 percent American Indian and Alaska Native for an aggregate total of 11.9 percent of minority races (U.S. Census Bureau, 2023). Based on this data, the minority population of the Beaver County does not exceed 50 percent.

The median household income from 2017-2021 in Beaver County was \$62,152, with 11.1 percent of the county in poverty. Compared to the percentage of people in poverty in the State of Pennsylvania (12.1 percent), the percentage of poverty in Beaver County is slightly less (1.0 percent).

No Action Alternative - The no action alternative would result in no impacts to environmental justice since all of the excess dredged material would be transported and placed into a permitted landfill.

Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

A desktop review using the Climate Economic Justice Screening Tool (CEJST) was used to determine if the open-water placement sites were located in areas that are overburdened and underserved. The tool identifies disadvantaged census tracts across all 50 states. The tool uses datasets as indicators of burdens which are then organized into different categories. A community is highlighted as disadvantaged on the CEJST map if it is in a census tract that is “(1) at or above the threshold for one or more environmental, climate, or other burdens, and (2) at or above the threshold for an associated socioeconomic burden” (CEJST, 2023). The CEJST map

revealed the Montgomery and Dashields open-water placement sites are not within any disadvantaged communities. The Emsworth open-water placement sites are however located in a tract that is considered disadvantaged. The low-income threshold was met, as this tract was in the 79th percentile of “people in households where income is less than or equal to twice the federal poverty level (not including students enrolled in higher education)” (CEJST, 2023). However, given the project type, scope, and location, the proposed action would be not expected to result in any disproportionate effects from the proposed activity on low-income or minority populations and are expected to result in no effect to environmental justice. The proposed open-water placement activities near the three dams are new federal actions, but they will all be within the existing Ohio River Navigation System. Furthermore, these actions will not result in any short- or long-term adverse impacts related to environmental justice.

6.2.2 Executive Order 13045 Protection of Children

Existing Conditions

Executive Order 13045 requires that “consistent with the agency's mission, each federal agency:

- (1) shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and
- (2) shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.”

This executive order defines “environmental health risks and safety risks” as risks to health or safety that are attributable to products or substances that the child is likely to come in contact with or ingest (such as the air we breathe, the food we eat, the water we drink or use for recreation, the soil we live on, and the products we use or are exposed to).

According to the U.S. Census Bureau, for 2022 population estimates, it was estimated that approximately 18.8 percent of Allegheny County were children under the age of 18, while 19.4 percent of Beaver County’s population was under the age of 18 (U.S. Census Bureau, 2023).

No Action and Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

Given the project type, scope, and location, the no action and proposed action are not expected to result in any environmental health or safety risks that may disproportionately affect children.

6.2.3 Adjacent Land Use and Development

Existing Conditions

Project Area

Land use changes occur as a result of population increases or decreases in localized areas. Economic development and infrastructure projects can lead to direct changes in land use as well as associated changes in population density. Most of the land along the Ohio River in Pennsylvania is highly modified by industry, transportation, and municipal development, leaving few large expanses of open land or forest adjacent to the river. A majority of these lands do contain thin strips of forested riparian corridors parallel to the river as well as some forested wetlands, embayments, and uplands. The dominant vegetation type in the upland areas of the Upper Ohio River Valley is mixed mesophytic forest. There are a total of about 15 to 20 dominant tree species within this vegetation type, including tulip popular (*Liriodendron tulipifera*), silver maple (*Acer saccharinum*), sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), American basswood (*Tilia americana*), various oaks (*Quercus spp.*), hickories (*Carya spp.*) and willows (*Salix spp.*). The lower canopy is dominated by sassafras (*Sassafras albidum*), dogwood (*Cornus spp.*), eastern hophornbeam (*Ostrya virginiana*), eastern redbud (*Cercis canadensis*), sourwood (*Oxydendrum arboreum*), magnolia (*Magnolia spp.*), and serviceberry (*Amelanchier spp.*). Shrubs and herbs are abundant and diverse, and include witch-hazel (*Hamamelis virginiana*), pawpaw (*Asimina triloba*), black haw (*Viburnum spp.*), elderberry (*Sambucus canadensis*), wild grape (*Vitis rotundifolia*), and greenbrier (*Smilax spp.*) (USACE, 2016).

Along the floodplains of the Ohio River in this region, bottomland hardwood forests are the natural climax community. Much of this habitat type has been eliminated by industrial, residential, and agricultural development. The remaining riparian area is often less than a few hundred feet in width. This habitat type has the classic four layered plant structure. Dominant tree species in the overstory include silver maple, American sycamore, eastern cottonwood (*Populus deltoids*), black willow (*Salix nigra*), slippery elm (*Ulmus rubra*), and boxelder (*Acer negundo*). Dominant species in the lower canopy include hackberry (*Celtis occidentalis*), black locust (*Robinia pseudoacacia*), American elm (*Ulmus Americana*), green ash (*Fraxinus pennsylvanica*), pawpaw, and black walnut (*Juglans nigra*). Shrubs include spice bush (*Lindera benzoin*), and Virginia creeper (*Parthenocissus quinquefolia*).

Much of the river shoreline in Pennsylvania consists of numerous industrial, commercial and residential developments. Due to these land disturbances various invasive and non-native plant species have replaced native species of the original mesophytic forest along the riparian areas of the Ohio River. Such non-native and invasive plant species found along the Ohio River in Pennsylvania now include Northern catalpa trees (*Catalpa speciosa*), tree-of-heaven (*Ailanthus altissima*), multiflora rose (*Rosa multiflora*), purple loosestrife (*Lythrum salicaria*), Japanese knotweed (*Fallopia japonica*), mile-a-minute vine (*Polygonum perfoliatum*), garlic mustard (*Alliaria petiolata*), reed canary-grass (*Phalaris arundinacea*), Russian olive (*Elaeagnus angustifolia*), Japanese honeysuckle (*Lonicera japonica*), and others.

No Action Alternative - There would be minimal change of land use as a result of the no action

alternative. All of the excess dredged material would be placed into a permitted landfill, therefore the land use at this location would not change. However, the volume of material required to be placed may fill existing landfill capacity and necessitate the creation of additional landfill areas in the future. Impacts are expected to be minor, long-term adverse.

Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

The proposed action would result in no change in land use but would support the continued operation of the three locks and dams through the efficient management of the dredged material. All dredged material would be placed in the open-water sites. No trees would need to be cut for the proposed action. In addition, there are no public facilities or services located within or otherwise associated with the proposed open-water placement areas.

6.2.4 Recreation, Scenic, Noise and Aesthetics

Existing Conditions

Project Area

The Ohio River provides a variety of both river-based and shoreline recreational activity. Such activities have contributed to the demand for and continuing development and maintenance of a spectrum of recreation-related facilities including boat launching ramps, riverfront parks, trail and greenway corridors, marinas and mooring facilities (ORMSS, 2006). River-based recreational activities include, but are not limited to, fishing, pleasure boating, water-skiing, and swimming. Pleasure boating includes the use of privately owned or rented motorboats, personal watercraft, and non-powered watercraft (canoes, kayaks, sail boats) as well as sightseeing, dining, and related activities aboard commercial watercraft. Waterfront settings also provide opportunities for various types of land-based recreation. Within the study area, in addition to a trail network, the riverfront setting has proven a popular location for parks, sports stadiums, museums, and a major hotel/shopping complex. Additionally, the upper Ohio River and its riparian environments provide a setting for a broad range of shore-oriented activities that include hiking, biking, fishing, festivals, regattas, and fireworks displays (USACE, 2016). The primary source of noise is generated by motorized vehicles such as ships, boats, trains, automobiles, and trucks in the project area.

No Action Alternative - The no action alternative would result in a short-term increase in local noise levels from the dozens of trucks hauling the excess dredged material to the permitted landfill. Noise generated would not exceed ambient noise levels nor would it be expected to affect any sensitive noise receptors (e.g., schools, hospitals). The no action alternative would result in no effects to aesthetics or recreation at the landfill.

Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

The placement of dredged material would result in a short-term increase in local noise levels. Noise generated would not exceed ambient noise levels in nor would it be expected to affect any sensitive noise receptors (e.g., schools, hospitals). The proposed action would result in no long-term effect to recreation at the project location, however, during the placement of dredged material, boaters and fishermen would need to avoid the barges placing the material.

The proposed action would result in no adverse effect to scenic resources or aesthetics at the open-water placement sites as the dredged material would be placed in deep pockets in the Ohio River and would not be seen from the surface.

6.2.5 Hazardous, Toxic and Radioactive Waste

Existing Conditions

Project Area

The proposed placement sites for the dredged material are entirely in the Ohio River. There are no known hazardous or toxic wastes existing at any of the proposed open-water placement sites.

No Action Alternative - The no action alternative will have no production or impact to Hazardous, Toxic and Radioactive Waste (HTRW) since all of the dredged material would be transported and placed into a permitted landfill.

Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

Project coordination was initiated with agencies and interests including the USEPA via the scoping process and continued with the request for comments on this EA. No comments have been received in this regard. The placement of dredged material will not impact Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) designated sites or sites that are part of the National Priorities List (NPL). Assessment of the project site has not identified any areas of concern with potential to encounter hazardous, toxic, or radiological waste. In addition, since April 1988, with publication of the USACE maintenance dredging and disposal regulations at 33 CFR 335-338, the USACE has asserted that dredged material is not a hazardous waste and should not be regulated under the Resource Conservation and Recovery Act (RCRA) (Federal Register Vol 53, No. 80, April 28, 1988, pages 14903 and 14910). The USEPA excluded dredged material as a hazardous waste on November 30, 1998, providing the dredged material is regulated under either the CWA or MPRSA (Federal Register Vol 63, No. 229, November 30, 1998) (40 CFR Part 261.4).

6.2.6 Cultural Resources

Existing Conditions

Project Area

In broad terms, “cultural resources” include historic buildings and structures, historic districts, archaeological sites, Native American traditional places, and traditional ways of life. Cultural resources also include “historic properties,” which, as defined by the National Historic Preservation Act (NHPA), include any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places (NRHP) (36 CFR 800.16).

Cultural resources along the Ohio River are rich and varied, reflecting human occupation and significant events in the Ohio Valley over many centuries. In both prehistoric and historic times, human settlements developed along the Ohio River and its tributaries because the floodplains offered rich soils and the river offered food, water and opportunities for trade. Both the prehistoric and historic cultural resources of the Ohio River point to the central role of the river in sustaining permanent settlements. Later, the Ohio River and its tributaries were used in relation to early industries, river transportation, and trade routes (ORMSS, 2006).

Cultural resources within the study area represent human behaviors and occupations over many centuries, including both pre-contact and historic period uses. People are believed to have been present in and continually used the study area since at least 14,000 BP (Before Present). Previously identified cultural resources demonstrate the central role of the Ohio River as a transportation artery and resource extraction area during both the pre-contact and historic periods.

6.2.6.1 Direct Area of Potential Effect

Potential effects to historic resources are evaluated based on an undertaking’s defined area of potential effect (APE). The APE is defined as the geographic area within which an undertaking may directly or indirectly result in changes to the character or use of historic properties if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking (36 CFR 800.16). The APE for direct impacts is limited to the footprint of the proposed project area(s). For each of the open-water placement sites, the direct APE has been defined to the boundaries of each proposed open-water placement area. Please reference Figure 7, Figure 8, Figure 9, and Figure 10 for the direct APE for the placement of excess dredged material from Emsworth, Dashields and Montgomery Locks and Dams.

6.2.6.2 Indirect Area of Potential Effect

The APE for indirect impacts (e.g., visual or auditory effects) extends beyond the proposed open-water placement site footprints to encompass buildings and structures, etc. adjacent to the proposed project. Since historic properties may also be subject to visual and/or other potential indirect effects, the APE has been delineated to also include those areas within the viewshed of each open-water placement site.

Emsworth Open-Water Placement Sites Indirect APE

The indirect APE for the Emsworth open-water placement sites is within the Ohio River corridor. The indirect APE for each of the placement sites was limited to the river due to trees, buildings, and other structures along the shoreline of the river blocking the view of the placement sites. For the Emsworth placement sites, the indirect APE upstream and downstream of the open-water placement sites was limited by islands and bends in the river channel that would block the view of the dredged material placement (Figure 20). The approximate location of the Emsworth open-water placement sites are outlined in grey on the map.

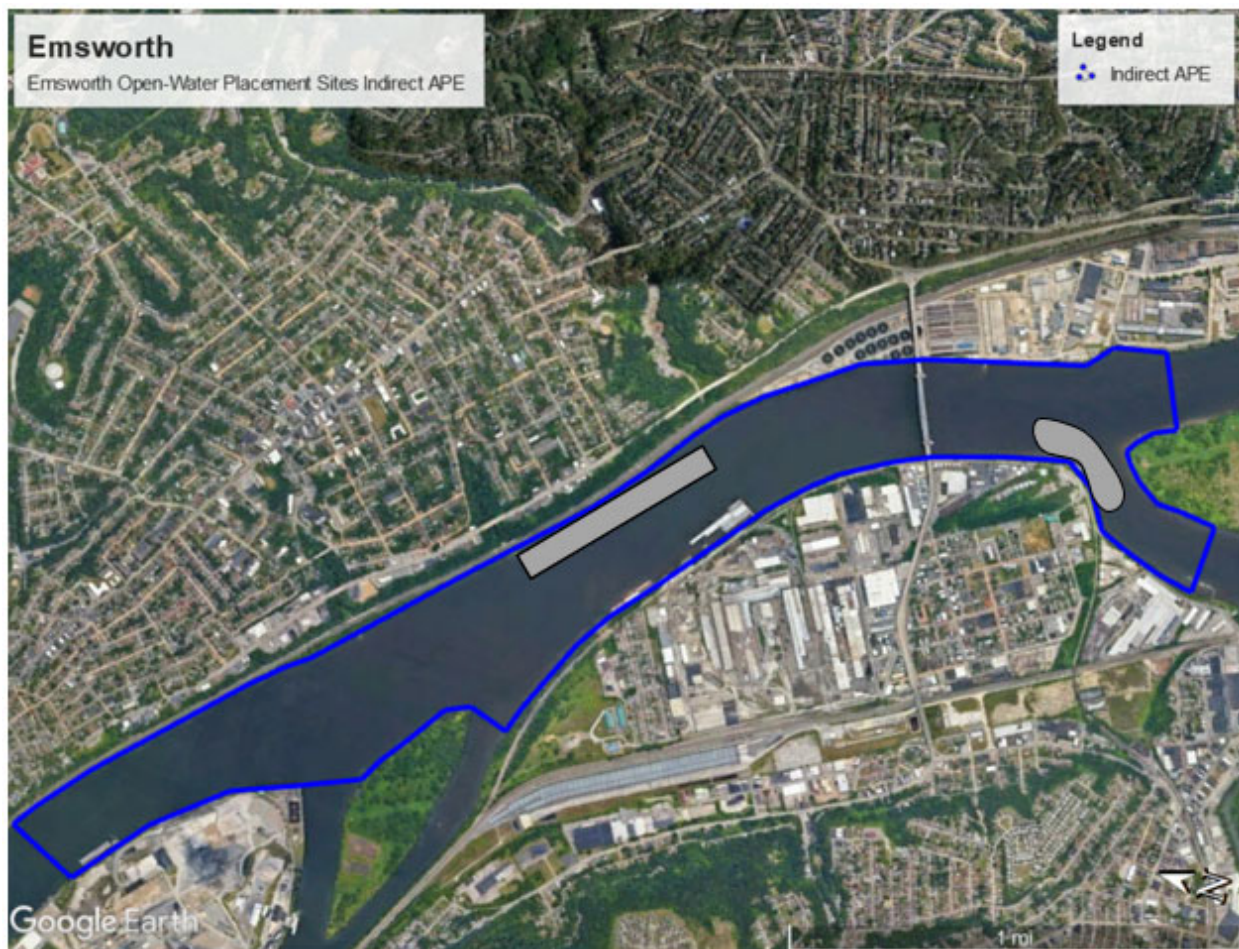


Figure 20: Emsworth open-water placement sites indirect APE.

Dashields Open-Water Placement Sites Indirect APE

The indirect APE for the Dashields was also limited to the river channel due to trees, buildings, and other structures along the shoreline of the river. The river channel upstream and downstream of the Dashields placement sites was relatively straight, resulting in a larger indirect APE (Figure 21). The approximate location of the Dashields open-water placement sites are outlined in grey on the map.

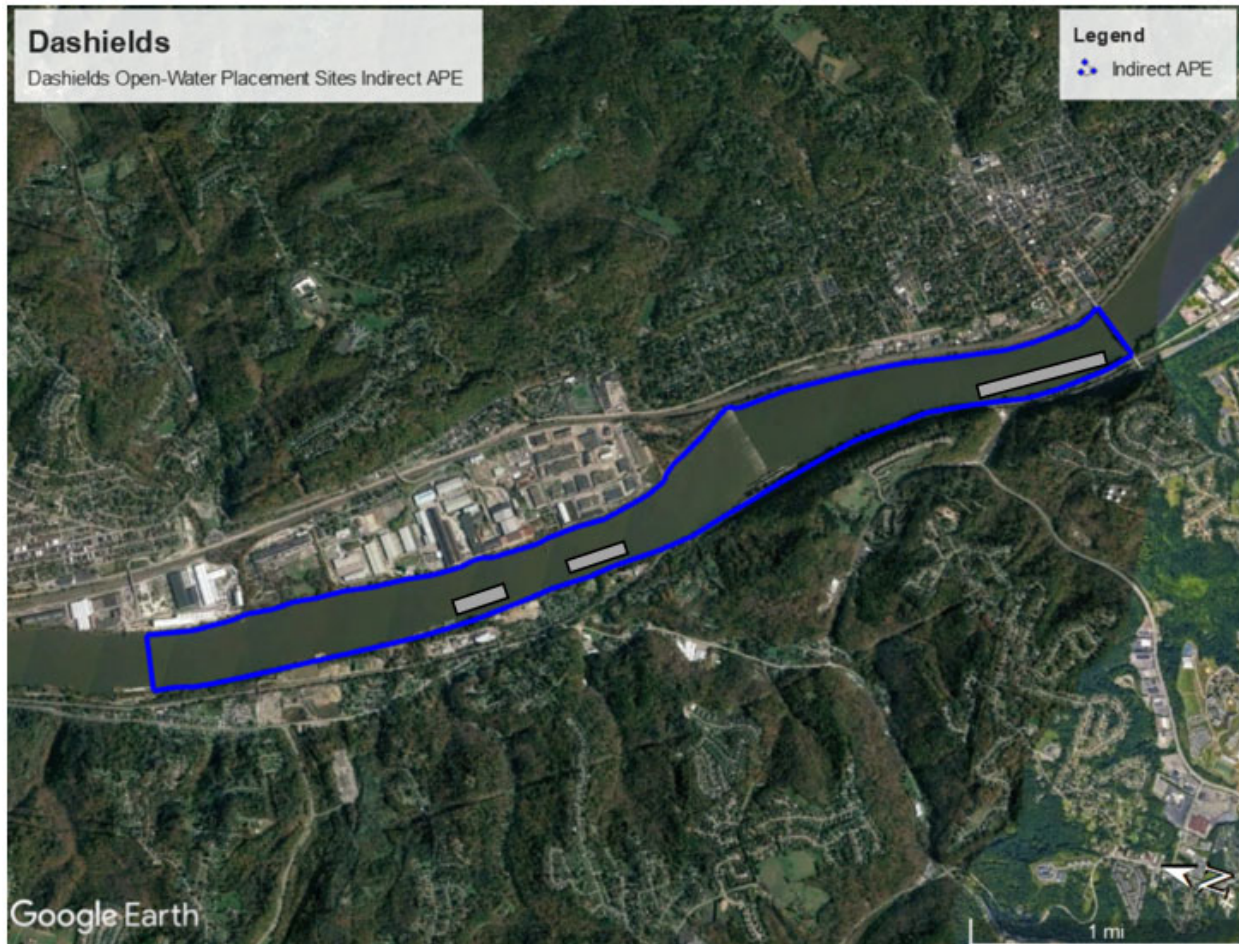


Figure 21: Dashields open-water placements sites indirect APE.

Montgomery Upstream Open-Water Placement Sites Indirect APE

The indirect APE for the Montgomery open-water placement sites was determined for the two upstream sites and two downstream sites. The Montgomery upstream APE was also limited to the river due to trees, buildings and other structures along the shoreline of the river. The Montgomery Locks was the indirect APE boundary downstream of the placement sites, while the Beaver Valley Expressway (Route 376) was the upstream limits of the APE (Figure 22). The approximate location of the Montgomery open-water placement sites are outlined in grey on the

map.

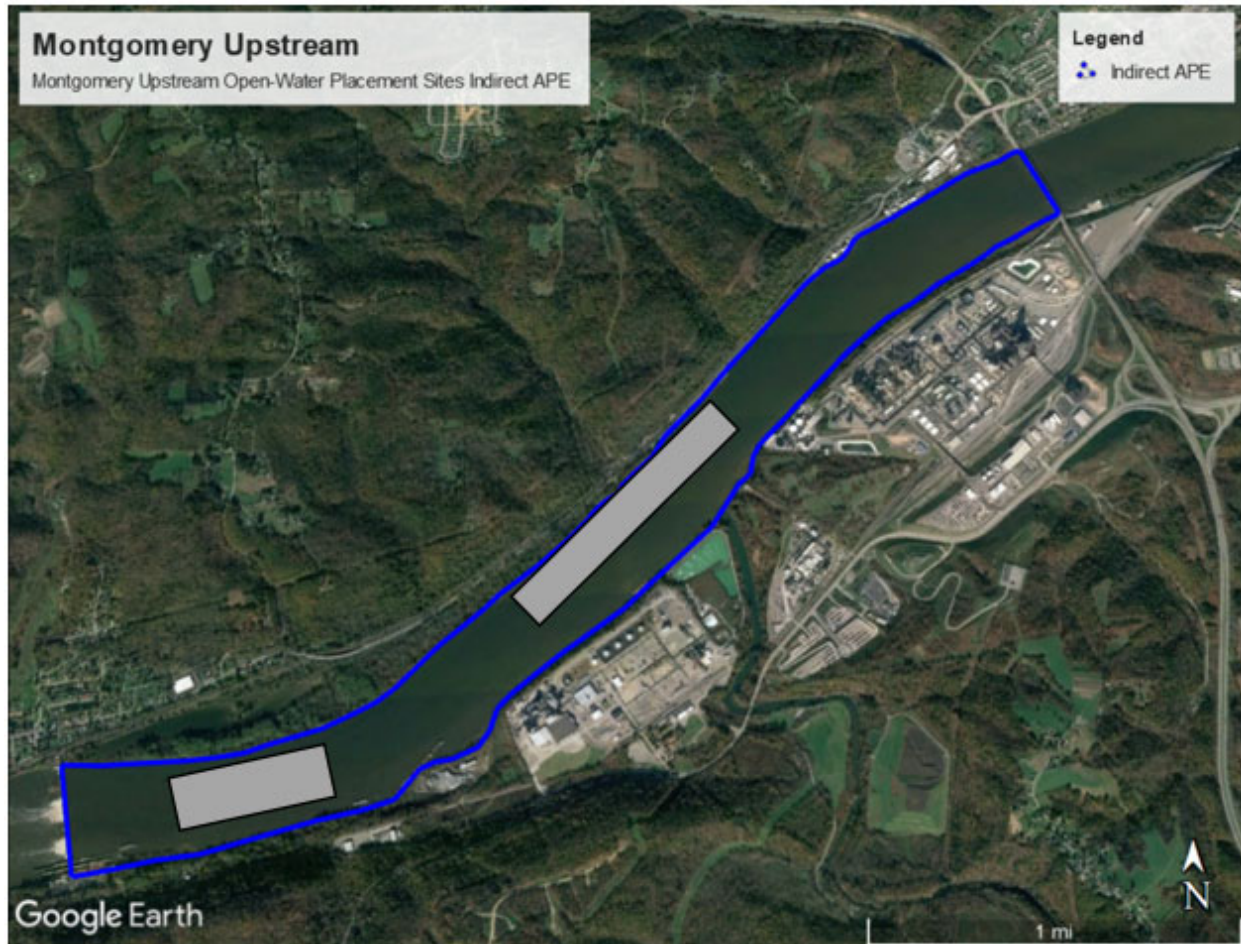


Figure 22: Montgomery upstream open-water placement sites indirect APE.

Montgomery Downstream Open-Water Placement Sites Indirect APE

The indirect APE for the Montgomery open-water placement sites for the two downstream sites was also limited by the Montgomery Locks upstream of the placement sites and limited by Route 168 overpass downstream of the open-water placement sites (Figure 23).

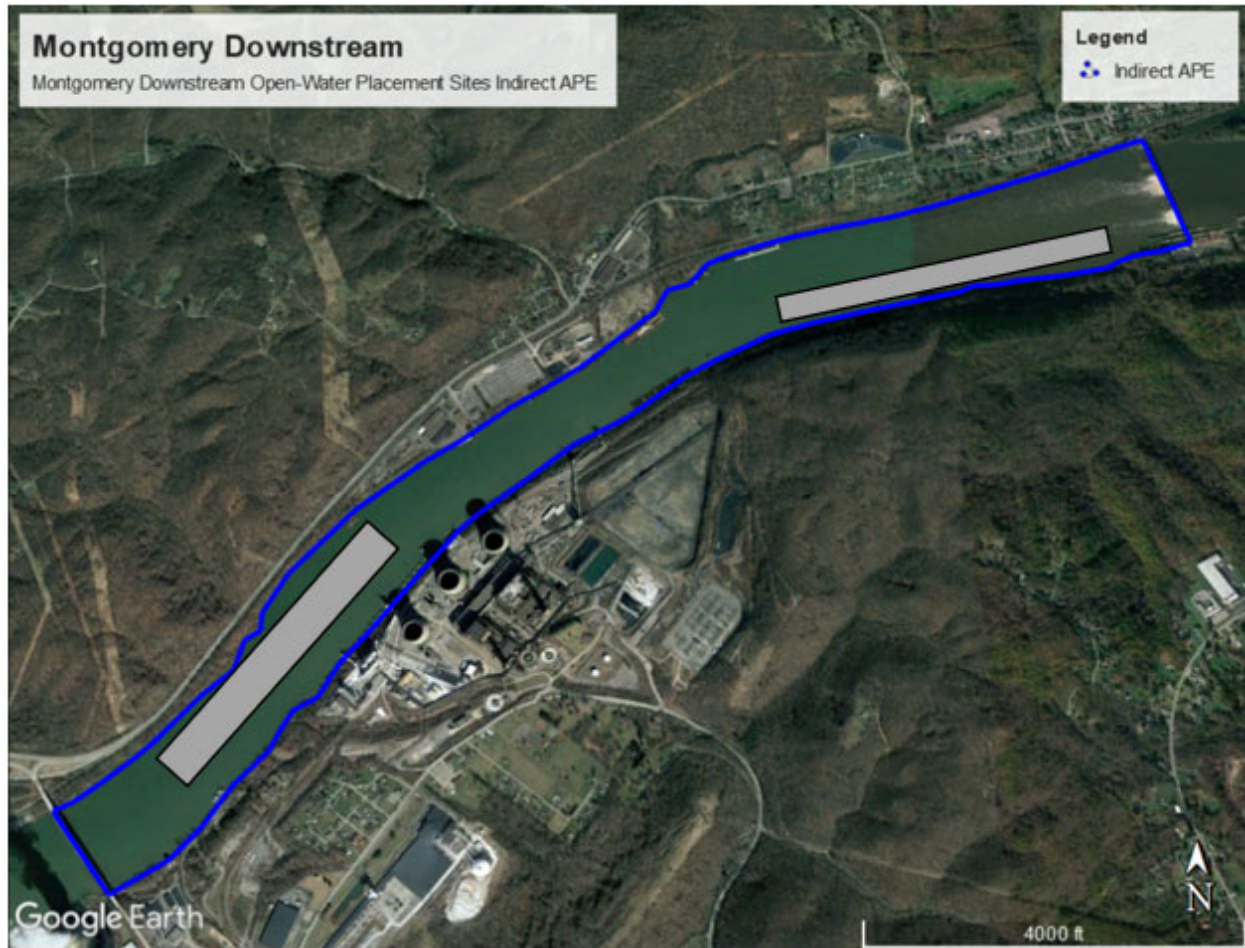


Figure 23: Montgomery downstream open-water placement sites indirect APE.

No Action Alternative - The no action alternative would have no impacts to cultural resources since all of the excess dredged material would be placed into a permitted landfill.

Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

A review of Pennsylvania’s Historic & Archaeological Resource Exchange (PA-SHARE) online mapping database was conducted for each open-water placement site. No cultural resources were identified within the project area. This comprehensive review of available resources also indicated that the alternative placement sites selected will avoid underwater utility crossings, water intakes or other infrastructure, mineral leases for sand and gravel mining, as well as any documented shipwrecks and other potential archaeological resources. A project submission was created for the open-water placement areas in the PA-SHARE database. The project submission was closed on March 28, 2023 with a “no effect” determination from PA-SHARE’s reviewers (Appendix C).

Consultation with the Pennsylvania State Historic Preservation Office (PASHPO), state resource agencies, and tribal interests was initiated via the NEPA public scoping process on March 29, 2023, and continued through a request for comments on this EA. No comments pertaining to cultural resources have been received.

6.2.7 Health and Safety

Existing Conditions

Project Area

Health and safety concerns are related to issues of worker health and safety, commercial and recreational boater safety, and general population health. Health and safety impacts can occur during construction site activities at the locks and dams, boating accidents, spills, and operational practices associated with commercial navigation, spills or related impacts from other sources, and recreational boating accidents.

Industrial activities located on or conducted in proximity to the river pose a public health risk from pollution point sources, production and disposal of hazardous wastes, and spills of potentially hazardous or polluting materials associated with the transfer, storage, and use of the materials. Past industrial activities have contributed to the creation of contaminated sites and landfills that pose ongoing threats to groundwater, surface water, and public health. When raw materials, products, and wastes are transported by barge, rail, or truck, these materials are subject to spillage while in transit, especially when they arrive at material transfer points. Contamination from industrial sites, landfills, and underground storage tanks is decreasing in the study area. Although, much contamination has been eliminated due to industrial and similar type facilities have shut down, regulations have tightened, making significant pollution less common. Additionally, old brownfield sites are being redeveloped into cleaner, more environmentally friendly areas, correcting past mistakes from pollution that have affected public health.

According to the United States Coast Guard (USCG) and the Pennsylvania Fish and Boat Commission, only 5 to 10 percent of actual boating accidents are reported. However, trends indicate that both accident and fatality numbers are decreasing in the study area. These decreases could be related to a decrease in the number of registered boats, which should mean a decrease in the number of boats on the waterways, thus, creating fewer opportunities for unsafe boating. According to the USCG, new laws and regulations have also contributed to making boating safer, helping decrease the number of boating accidents and fatalities (USACE, 2016).

No Action Alternative - The no action alternative could have short-term minor adverse impacts to safety due to congestion on the roads caused by the trucks hauling the excess dredged material. No long-term impacts would result from this alternative.

Proposed Action Alternative

Emsworth, Dashields, Montgomery Open-Water Placement of Dredged Material

The concentration of heavy equipment in the project area during the dredged material offloading operations, and movement of equipment between the placement areas and locks, could potentially pose a navigation hazard. However, standard USACE contract specifications require the maintenance of a safe, restricted work area during these periods. The contractor is required to prepare a detailed job hazard analysis of each major phase of work, including all anticipated hazards and specific actions which would be taken to prevent personal injury. The contractor is required to comply with Occupational Safety and Health Administration Standards. The human health impacts associated with this alternative would be indiscernible.

6.3 SUMMARY

The proposed action being evaluated addresses the establishment of open-water placement sites for excess dredged material from the rehabilitation of the Emsworth, Dashields and Montgomery Locks and Dams. Only excess dredged material that has been determined to meet the contaminant determination CWA Section 404(b)(1) Guidelines for open-water placement would be placed within the designated sites located upstream and/or downstream of each of the three locks and dams. Any dredged material that does not meet these guidelines would be transported and placed in a commercially available, properly permitted landfill.

In support of the stated improvements to the EDM facilities, the USACE would place up to approximately 2,000,000 cubic yards of dredged material from the three project areas within select deep water areas of the upper Ohio River over the life of the project.

This EA has been completed to assess the anticipated environmental and socioeconomic effects that may result from the placement of dredged material into open-water sites in the Ohio River, in accordance with all environmental protection statutes, and executive orders. Based on the analysis contained herein, the placement of dredged material would not result in any significant negative impacts to the physical/natural environment or the socio-economic environment in the project area. This alternative is anticipated to be acceptable to the public, stakeholders, local, state, and federal agencies. A copy of this document will be made available for review. Those who may have information that may alter this assessment and lead to a reversal of this decision should notify me within 30 days. If no comments that would alter this finding are received within the 30-day review period, the FONSI will be signed and filed with the project documentation.

7 COMPLIANCE WITH ENVIRONMENTAL PROTECTION REQUIREMENTS

To characterize the affected environment of the project area and assess the environmental impacts of the proposed action, information has been obtained from existing literature and through coordination with federal, state, and local agencies. Agencies, interest groups, and the general public that have been contacted during this process are listed in Section 8.0. A Scoping Information Packet was distributed to these individuals on March 29th, 2023. Comments received regarding the NEPA Scoping Information Packet are included in Appendix A. The following is a list of the applicable, relevant, and appropriate federal statutes, executive orders and memorandum that were considered for the proposed project.

7.1 Abandoned Shipwreck Act of 1987 (43 USC 2101 – 2106); Archaeological and Historical Preservation Act of 1979 (16 USC 470 *et seq.*); National Historic Preservation Act of 1966 (54 USC 300101 *et seq.*); Executive Order 11593 (Protection and Enhancement of the Cultural Environment), May 13, 1971 - The proposed project's impact on cultural resources has been evaluated by USACE in accordance with ER 1105-2-50 and 36 CFR 800. Tribes, local governments, and state resource agencies, etc. were notified by mail of the opportunity to review and provide comments on the NEPA scoping package, which was available on the USACE Pittsburgh District website from March 29, 2023, through April 29, 2023 (Section 8).

Given the results of the literature review and field survey, the USACE has determined that the proposed project would have no effect on historic properties and no further cultural resource investigation is recommended prior to implementation of the proposed project. The PASHPO concurred with this assessment in a summary letter received on March 28, 2023, that states "Based on the information received and available in our files, in our opinion, the proposed project should have No Effect on archaeological resources."

7.2 American Indian Religious Freedom Act (42 USC 1996); Native American Graves Protection and Repatriation Act (25 USC 3001 *et seq.*) - Coordination with multiple Tribal nations with expressed interest in the project area was initiated via the scoping process. No sacred sites or objects were identified through Tribal coordination. Therefore, it is not expected that any adverse effect would be incurred to religious rights as a result of the proposed project. No Native American grave sites or other sensitive sites are expected to be affected by the current project. This EA has been submitted to all Tribal nations who have expressed interest in project area for final review and comment on this determination. No further comments have been received.

7.3 Clean Air Act, as Amended, (42 USC 7401 – 7671g) - Project coordination was initiated with the USEPA via the NEPA scoping process. No comments were received from USEPA. The proposed project location is not a non-compliance area with respect to any NAAQS (Section 6.1.1). The proposed project is not expected to violate any air quality standards. Minimal

emissions are expected during construction activities. Therefore, the proposed project is in compliance with this Act.

7.4 Clean Water Act, as Amended (Federal Water Pollution Control Act Amendments of 1972); (33 USC 1251 et seq.) - Compliance with the CWA associated with open-water placement of dredged material would take place in a phased approach concurrent with the expected construction of each of the EDM Locks and Dams, starting with Montgomery. Sampling will be conducted on the material from each area prior to the placement of dredged material into any of the designated placement areas. The quality of the material will be evaluated using the current sediment data in accordance with formal CWA Section 404(b)(1) Guidelines and formal guidance contained in the 1998 Evaluation of Dredged Material for Discharge into Waters of the U.S. - Testing Manual. The evaluation would specifically address potential contaminant-related risks to aquatic life associated with placing the dredged material at a designated open-water placement area. Based on this evaluation, only dredged material that has been determined to meet contaminant determination CWA Section 404(b)(1) Guidelines for open-water placement would be placed in the open-water areas. Any dredged material that does not meet these guidelines would be transported and placed in a commercially available, properly permitted landfill. Water quality and related information used in this evaluation will provide documentation to demonstrate that the recommended plan complies with this Act. A CWA Section 404(a) Public Notice will be circulated and an opportunity to request a public hearing will be afforded to all potentially affected parties. CWA Section 401 Water Quality Certification (WQC) would subsequently be requested from the Pennsylvania Department of Environmental Protection (PADEP), initially only for the open-water placement of dredged material associated with the construction of the Montgomery Locks and Dam, as this is the first structure scheduled for construction. Section 401 WQC for the open-water placement of dredged material associated with the construction of the Emsworth and Dashields Locks and Dams will be requested in the future as construction at those project areas proceeds.

7.5 Comprehensive Environmental Response, Compensation, and Liabilities Act (CERCLA), as Amended; (42 USC 9601-9675) - Project coordination was initiated with agencies and interests including the USEPA via the scoping process and continued with the request for comments on this EA. No comments have been received in this regard. The placement of dredged material will not impact CERCLA designated sites or sites that are part of the National Priorities List (NPL).

7.6 Endangered Species Act of 1973, as Amended; (16 USC 1531 et seq.) - In accordance with Section 7 of this Act, the USACE requested information from the USFWS in a letter dated December 21, 2022. The USACE completed PNDI and IPaC searches for the potential Montgomery placement areas (PNDI-774809, Project Code 2023-0025647 (Upstream), and Project Code 2023-0025650 (Downstream). These reviews identified the federally endangered Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), and rayed bean (*Villosa fabalis*) as species which may occur in the close vicinity of the proposed work. All work associated with the open-water placement would be conducted from the water and no

terrestrial disturbance is required. As such, open-water placement would not impact the Indiana bat or northern long-eared bat. The USACE will minimize potential impacts to the rayed bean by selectively placing clean dredged material in areas deemed unsuitable for mussel species. Through on-going coordination with the Pennsylvania Fish and Boat Commission, PADEP, and USFWS, the USACE has defined areas unsuitable for mussel species as those areas in the Ohio River that are 30+ feet deep. Minimal impacts to adjacent mussel populations may occur through turbidity during placement or minor movement of material after placement, though this effect is expected to be minor due to the coarse-grained nature of the material to be placed. Based on this proposal, the USACE has determined that the potential open-water placement of dredged material at the Montgomery Locks and Dam placement areas may impact, but is not likely to adversely impact, the rayed bean. Additional consultation will be completed for the Emsworth and Dashields placement areas at a later date. Concurrence from or further coordination with the USFWS has been requested in this above referenced letter.

7.7 Farmland Protection Policy Act (Subtitle I of Title XV of the Agriculture and Food Act of 1981), 7 USC 4201 et seq.; Executive Memorandum – Analysis of Prime and Unique Farmlands, CEQ Memorandum, August 30, 1976, January 4, 1979 - Coordination was initiated via the scoping process and continued with the request for comments on this EA. No comments were received in regard to this Act. Since the proposed action is not expected to adversely affect any prime and unique farmlands, the recommended action is in compliance with this Act.

7.8 Fish and Wildlife Coordination Act (Fish and Wildlife Conservation and Water Resource Developments-Coordination), (16 USC 661 et seq.) - The USACE collaborated with the USFWS and relevant state resource agencies to identify fish and wildlife concerns, identify relevant information on the study area, obtain their views concerning the significance of fish and wildlife resources and anticipated project impacts, and ensure that all applicable resources which need to be evaluated in the study are included. Full consideration has been given to their comments and recommendations resulting from this coordination.

7.9 Land and Water Conservation Fund Act of 1965; 16 USC 4601-4 et seq. - Project coordination was initiated with agencies and interests via the NEPA scoping process. No comments were received in this regard. No property that was acquired or developed with assistance from this fund is present in the project area, nor would any such property be affected by the proposed project.

7.10 National Environmental Policy Act of 1969, as amended; (42 USC 4321 – 4347) - Project coordination was initiated with agencies and interests via the scoping process. A scoping document was posted for a 30-calendar day comment period on March 29th, 2023. This EA/FONSI has been prepared in accordance with the Council on Environmental Quality's "Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act," 40 CFR 1500-1506. This EA will be circulated for public/agency review in accordance with the Act. All comments received will be addressed. With the signature of the attached FONSI, the project will be in full compliance with the Act.

7.11 Resource Conservation and Recovery Act of 1976, (42 USC 6901 et seq.) - Project coordination was initiated with agencies and interests including the USEPA via the scoping process and continued with the request for comments on this EA. No comments have been received in this regard. No hazardous waste would be used or generated during the dredged material placement, and no potentially hazardous waste sites have been identified that would be impacted by the project.

7.12 River and Harbor and Flood Control Act of 1970 (P.L. 91-611) - The USACE planning actions have fulfilled the requirements of the Act. All 17 points identified in Section 122 of the Act (P.L. 91-611) have been evaluated in this EA.

7.13 Watershed Protection and Flood Prevention Act, (16 USC 1001, et seq.) - Project coordination was conducted among numerous agencies and individuals with interest in watershed protection and flood prevention. No concerns were expressed in this regard. Given the nature and location of the undertaking, no significant impacts to watershed protection or flood prevention would be expected as a result of the currently proposed project.

7.14 Wild and Scenic Rivers Act, as amended; 16 USC 1271, et seq. - Not applicable. The proposed project is not located within a wild and scenic river.

7.15 Executive Order 11988, Flood Plain Management, May 24, 1977 - The proposed project is not located within a FEMA designated flood zone. The project was coordinated with FEMA through the NEPA scoping process. No comments were received in this regard. Therefore, the project was determined to be in compliance with this Order.

7.16 Executive Order 11990, Protection of Wetlands, May 24, 1977 - Not applicable. The proposed project would not result in any effects to wetlands.

7.17 Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, February 11, 1994 - Coordination was initiated with the USEPA via the NEPA scoping process. No comments regarding environmental justice were received. Given the nature of the undertaking, the currently proposed project would not generate any disproportionately high or adverse human health or environmental effects on predominantly low income or minority populations. Therefore, the proposed project is in compliance with the Order.

7.18 Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, January 11, 2001 - Coordination was initiated with the USFWS and the NYSDEC through the NEPA scoping process. No comments were received from USFWS or NYSDEC regarding the protection of migratory birds. Review of the USFWS IPaC database indicates that there are no migratory birds of conservation concern expected to occur within the project area. Therefore, no impacts to migratory birds are expected as a result of the project. Thus, it was determined that

the currently proposed project is in compliance with this Act.

7.19 Executive Order (EO) 13653 Preparing the U.S. for the Impacts of Climate Change - This Order directs federal agencies to pursue new strategies to improve the Nation's preparedness and resilience to climate change. In compliance with this Order, the goal of the USACE 2013 Climate Change Adaption Plan is to develop practical, nationally consistent, legally justifiable, and cost-effective climate change actions, both structural and non-structural, and reduce any vulnerabilities and improve the resilience of water resource infrastructure at risk from climate change threats. With regard to the proposed project, the USACE has considered climate research predictions of more frequent storm events and extreme high and low water levels and determined that this project would be able to withstand such conditions. Therefore, this project has taken into account predictions of climate change and is compliance with EO 13653.

8 AGENCIES / PUBLIC CONTACTED

Coordination - As outlined in Section 6.2.1 (Environmental Justice), the proposed Dashields and Montgomery Lock and Dam open water placement areas are not located in any climate or economically disadvantaged community. However, the Emsworth placement area is located in a tract that is considered disadvantaged due to the low-income threshold being met. For the Emsworth placement area, no additional outreach or coordination was completed as a result of this because the proposed placement is a component of an on-going federal navigation project on the Ohio River Navigation System. Additionally, all work will be limited to the Ohio River itself and will be below water depth, resulting in no effect on the adjacent community. Notification of the posting of this EA for public/agency review and comment has been sent to the following agencies and individuals.

Federal

- U.S. Fish and Wildlife Service
- U.S. Environmental Protection Agency
- U.S. Coast Guard

Tribal Nations

- Absentee-Shawnee Tribe of Indians of Oklahoma
- Delaware Nation of Oklahoma
- Delaware Tribe of Indians
- Eastern Shawnee Tribe of Oklahoma
- Oneida Indian Nation
- Oneida Tribe of Wisconsin
- Onondaga Nation

- Osage Nation
- Seneca-Cayuga Nation
- Seneca Nation of Indians
- Shawnee Tribe
- Tonawanda Seneca Nation
- Tuscarora Nation

State

- PA Department of Environmental Protection
- PA Department of Conservation and Natural Resources
- PA Fish and Boat Commission
- PA Game Commission
- PA State Historic Preservation Office

Regional/Local

- Allegheny County Conservation District
- Beaver County Conservation District
- Waterways Association of Pittsburgh

9 REFERENCES

- Carlston C.W. 1962. Character and History of the Upper Ohio River Valley. Contributions to General Geology. Geological Survey Bulletin 1141-1. United States Department of the Interior.
- Council on Environmental Quality (CEQ). 1997. Environmental Justice. *Guidance Under the National Environmental Policy Act*.
- CEQ. 2010. Memorandum for Heads of Federal Departments and Agencies on Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions. Available online at:
http://ceq.hss.doe.gov/nepa/regs/Consideration_of_Effects_of_GHG_Draft_NEPA_Guidance_FINAL_02182010.pdf. Council on Environmental Quality, Washington, DC.
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Appendix A

Comment and Response Summary

April 25, 2023

Mr. Ryan Gmerek
U.S. Army Corps of Engineers, Buffalo District
ATTN: Environmental Analysis – UON Project Open-Water Placement 1776 Niagara
Street
Buffalo, NY 14207 lrp.plan.enviro@usace.army.mil

Re: USACE Open-Water Site Selection for Dredged Material – NEPA
Scoping Document Comments

Dear Mr. Gmerek:

Thank you for the opportunity to provide comments, to assist the U.S. Army Corps of Engineers (Corps/USACE), with its effort to determine the scope of issues to be addressed, and for identifying the significant issues, related to a new component of the Upper Ohio Navigation (UON) Project, specifically, the establishment of open-water placement sites for dredged material, and to elicit any concerns from potentially affected parties.

Following are comments from the PA Department of Environmental Protection (Department/DEP), for your consideration:

1. While the subject scoping document mentions several social, economic and environmental categories that will be assessed, USACE should refer to DEP's Chapter 105 Environmental Assessment Form, which should be completed and submitted to DEP, for review and approval, along with a request for state water quality certification, for this new component of the UON Project. The Department's Chapter 105 Environmental Assessment Form and Instructions can be accessed from the following link: <http://www.depgreenport.state.pa.us/elibrary/GetDocument?docId=1419507&DocName=04%20ENVIRONMENTAL%20ASSESSMENT%20FORM%20COMPLETE%20PACKAGE.PDF%20%20%3Cspan%20style%3D%22color%3Agreen%3B%22%3E%3C%2Fspan%3E%20%3Cspan%20style%3D%22color%3Ablue%3B%22%3E%3C%2Fspan%3E> The scoping document indicates that the information to be gathered, by USACE, will be used to develop a supplemental Environmental Assessment (EA) for this action; however, the document also indicates that the impact assessment process would determine if an Environmental Impact Statement (EIS) is required, or if an EA and Finding of No Significant Impact (FONSI) is appropriate. If the EIS or EA that USACE develops, in accordance with the National Environmental Policy Act (NEPA), contains information that is requested in DEP's Chapter 105 Environmental Assessment Form, then USACE may provide specific cross references where the information that is requested by DEP's form can be found within the EIS or EA. Please make the cross references as specific as possible to facilitate DEP's review. Please provide, either directly or by cross reference, all of the information that is requested in DEP's Chapter 105 Environmental Assessment Form.

2. The Upper Ohio Navigation Study, Pennsylvania Final Feasibility Report and Integrated Environmental Impact Statement, Revised August 2016, stated that “For feasibility level planning, it was assumed that all disposal materials will be placed at a commercially available disposal facility that is properly permitted to accept the materials” (see page 4-139). It also indicated that, generally, disposal of dredged and excavated material will occur outside the one- percent-annual-chance floodplain (see page 3-22), but deferred “...planning for potential cost- saving disposal measures, i.e. a government provided disposal site or beneficial use projects, to a future time closer to initiation of actual construction” (see page 4-139), such as ecosystem restoration projects, in-river disposal (filling dredge holes), brownfields redevelopment, and using the material to fill in abandoned mines. DEP has previously mentioned that USACE should evaluate alternative locations and designs to open-water placement for dredged material, and the Corps’ EIS or EA document should include this detailed alternatives analysis.

3. If the Alternatives Analysis demonstrates that there’s no feasible alternative to open-water placement of the dredged materials, then the scoping document should indicate the placement locations and sources of the estimated 2,000,00 cubic yards of material that will be dredged from the three (3) project areas. The document also indicates that landfilling would be an option, but there was no information on available landfills able to accommodate the estimated quantity of material for disposal.

4. The Clean Water Act section, within the subject scoping document (see page 11), indicates that material to be considered for open-water placement will be evaluated in accordance with formal CWA Section 404(b)(1) Guidelines and formal guidance contained in the 1998 Evaluation of Dredged Material for Discharge into Waters of the U.S. - Testing Manual. The Department has previously commented that since the latter testing manual document is from 1998, the Corps should consider referring to DEP’s Management of Fill Policy to update the testing, to include new parameters of concern, etc. To determine the suitability of whether the tested material could be used in the project area, the applicant should refer to DEP’s Management of Fill Policy, for disposal in upland areas. A copy of this policy document was previously provided to USACE; however, this document is also available upon request. Regarding discharges of dredged or fill material within regulated waters of the Commonwealth, the Corps is also referred to Subchapter D, in the Department’s Chapter 105 rules and regulations, including Section 105.401(5), regarding the amount of percentage of the discharge that will consist of toxic material. The scoping document should also include information regarding when the testing of the material will take place.

5. The scoping document states “The construction of the overall UON project will be phased, requiring a plan for handling dredged material from the Montgomery Locks first, with Emsworth and Dashields to follow. Although construction would be phased, the NEPA analysis for the selection of the open-water placement locations for all three locks and dams will be completed in advance of any construction. Accordingly, collection of relevant environmental data for the Montgomery Locks and Dam would be the most detailed and complete since construction at that location would take place first, likely in 2024. Construction at the Emsworth and Dashields sites is not expected for at least another ten years. Therefore, while NEPA compliance for selection of the open-water placement locations for all three sites will be documented now within the same EA, Emsworth and Dashields will be assessed at a programmatic level because fewer details are currently available. Additional and more detailed analyses may be required for the Emsworth and Dashields locations in the future when more relevant data for them can be collected and assessed (e.g., sediment quality, species of concern)” (see page 4). Will location alternatives for the Emsworth and Dashields locations be re-evaluated when additional and more detailed analyses are conducted for these locations?

6. The scoping document also states that “The proposed placement locations for the excess material were primarily screened and selected based on water depth. Areas of the Ohio River greater than 30 feet below

normal dam pool were targeted” (see page 4), but then later states that no areas that meet this criteria were found near the Dashields locks and dam. The Corps’ EIS or EA document should fully describe, in detail, all the criteria that were used to identify placement locations, not just the primary selection criteria, and evaluate and discuss the selection of sites if no sites meeting the selection criteria are available.

7. Regarding potential impacts to mussel species, the UON Study (revised 2016) states on page 3-56 that “...at an appropriate time in advance of the initiation of construction, the District will consult with the Service and Pennsylvania natural resource protection agencies on the need for and scope of site-specific mussel surveys to assess their future status in the proposed areas of disturbance.” The Department and PA Fish & Boat Commission would welcome the opportunity to participate in this consultation. The Corps should consider to not select open-water placement sites that are too close to shore, and to avoid impacting mussels’ habitats.

8. The Endangered Species Act section, within the subject scoping document (see page 12), focuses primarily on federally listed species. Please note that consultation should also be initiated with appropriate state agencies, if the PNDI Receipt, from a check of the Pennsylvania Natural Diversity Inventory (PNDI), identifies any potential impacts to state-listed T&E species or species of special concern.

9. The Department is currently reviewing an amendment to two (2) permits that were issued to a company that conducts commercial dredging activities within areas that are potentially near, or potentially overlap with, the project areas in the subject scoping document. These amendments also include a request to extend the expiration dates of these permits. Accordingly, the Corps is encouraged to talk with the commercial dredger(s), to discuss any potential issues between the Corps proposed action and commercial dredging operations/locations.

If you have questions about these comments please contact **Joseph Snyder** at **412.442.4308** or jossnyder@pa.gov .

Sincerely,

Dana Drake

Dana Drake, P.E.
Environmental Program Manager Waterways &
Wetlands Program

cc: Marc Glowczewski, PE - USACOE- Pittsburgh District, *digital copy*
Sidney Freyermuth, PADEP *digital copy*
Joe Snyder, Waterways & Wetlands Program, *digital copy* Beth Farley,
Waterways & Wetlands Program, *digital copy* Fish & Boat, *digital copy*



Pennsylvania State Historic Preservation Office

PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

March 28, 2023

Ryan Gmerek USACE
1776 Niagara St
Buffalo PA 142070000

RE: ER Project # 2023PR01088.001, Emsworth, Dashields and Montgomery Locks and Dams - Open-water Site Selection for Dredged Material, Army Corps of Engineers, Industry Borough, Beaver County

Dear Ryan Gmerek:

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

10 Above Ground Resources

For questions concerning above ground resources, please contact Barbara Frederick at bafrederic@pa.gov.

11 Archaeological Resources

No Archaeological Concerns - Environmental Review - No Effect - Archaeological

Based on the information received and available in our files, in our opinion, the proposed project should have No Effect on archaeological resources. Our analysis indicates that archaeological resources are potentially located in this project area. Should the scope of the project be amended to include additional ground-disturbing activity and/or should you be made aware of historic property concerns, you will need to reinitiate consultation with our office using PA-SHARE.

For questions concerning archaeological resources, please contact Kristen Walczesky at kwalczesky@pa.gov.

Sincerely,

ER Project # 2023PR01088.001

Page 2 of 2

A handwritten signature in black ink, appearing to read "Emma Diehl". The signature is fluid and cursive, with a long horizontal stroke at the end.

Emma Diehl

Environmental Review Division Manager

Appendix B

NEPA Scoping



US Army Corps
of Engineers.

Open-Water Site Selection for Dredged Material Upper Ohio Navigation Project - Emsworth, Dashields, and Montgomery Locks and Dams, Pennsylvania

Scoping Information



Image of Montgomery Locks and Dam on the Ohio River

March 06, 2023

U.S. Army Corps of Engineers
Pittsburgh District
1000 Liberty Ave
Pittsburgh, PA 15222

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1. Introduction

Implementation of the National Environmental Policy Act (NEPA) requires that federal agencies initiate “an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to the proposed action.” The purpose of this scoping information is to disseminate information regarding a new component of the Upper Ohio Navigation (UON) Project, specifically, the establishment of open-water placement sites for dredged material, and to elicit any concerns from potentially affected parties. Information gathered will be used to develop a supplemental Environmental Assessment (EA) for this action.

The proposed action being evaluated in this scoping information and subsequent NEPA analysis addresses the establishment of open-water placement sites for excess dredged material from the rehabilitation of the Emsworth, Dashields and Montgomery Locks and Dams (collectively EDM) as part of the UON project. Excess dredged material that has been determined to meet the contaminant determination Clean Water Act (CWA) Section 404(b)(1) Guidelines for open-water placement would be placed within the designated sites located upstream and/or downstream of each of the three locks and dams. Any dredged material that does not meet these guidelines would be transported and placed in a landfill. Overall, an estimated 2,000,000 cubic yards of sand, gravel, bedrock, and concrete rubble may be generated during construction of the UON Project.

2. Background

The UON Project addresses lock condition and capacity issues at the EDM Locks and Dams on the Ohio River in Pennsylvania. The project is located at Emsworth [River Mile (RM) 6.2], Dashields (RM 13.3), and Montgomery (RM 31.7) Locks and Dams near Pittsburgh, Pennsylvania (Figure 1). A Feasibility Study and Environmental Impact Statement (FS/EIS) for the UON Project was completed by the U.S. Army Corps of Engineers, Pittsburgh District (USACE) in 2014 and updated in 2016. The FS/EIS recommended replacement of each auxiliary lock with construction of one new lock chamber (110 feet wide by 600 feet long) at each facility riverward of the existing main lock chamber. This new lock chamber will serve as the main lock chamber at each facility. The FS/EIS considered placing the excess dredged material into landfills, but further evaluation of the project recommended beneficial use of the dredged material as a cost savings measure. The proposed open-water placement of the dredged material is one of the beneficial use alternatives.

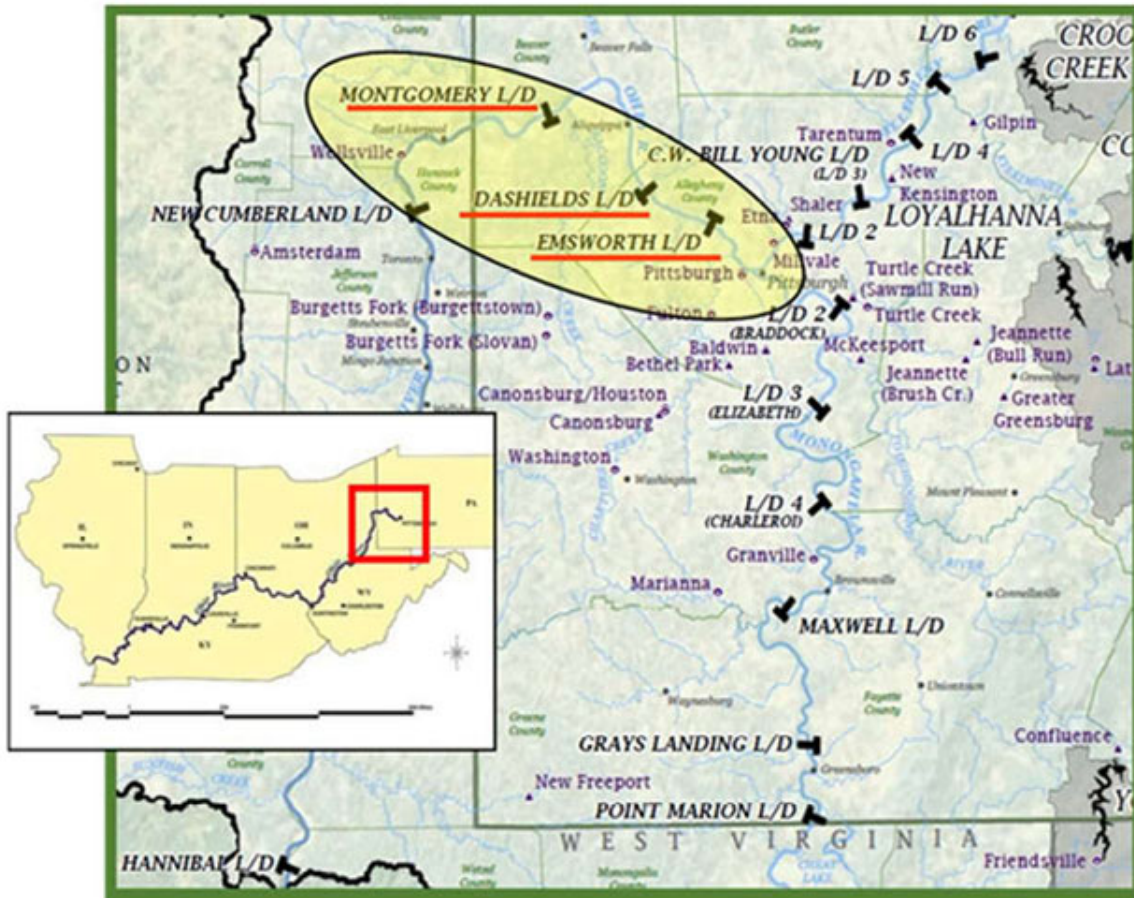


Figure 1: Location map for Montgomery, Emsworth and Dashiels Locks and Dams

The EDM facilities form the head (or beginning) of the Ohio River Navigation System which was originally conceived as a series of low-head movable dams based on the innovative 1875 design of Lock and Dam No. 1 in Pittsburgh (Figure 2). When the last of the original series was finished in 1929, the Emsworth and Dashiels projects had already replaced the oldest facilities at the head of the river. The EDM facilities retained the 1875 standard lock chamber size but introduced the system's first non-navigable dams and the first (smaller) auxiliary lock chambers. The last of the original facilities have been replaced by the new Olmsted Locks and Dam. This leaves the EDM locations as the oldest facilities remaining to be addressed in the Ohio River modernization program.

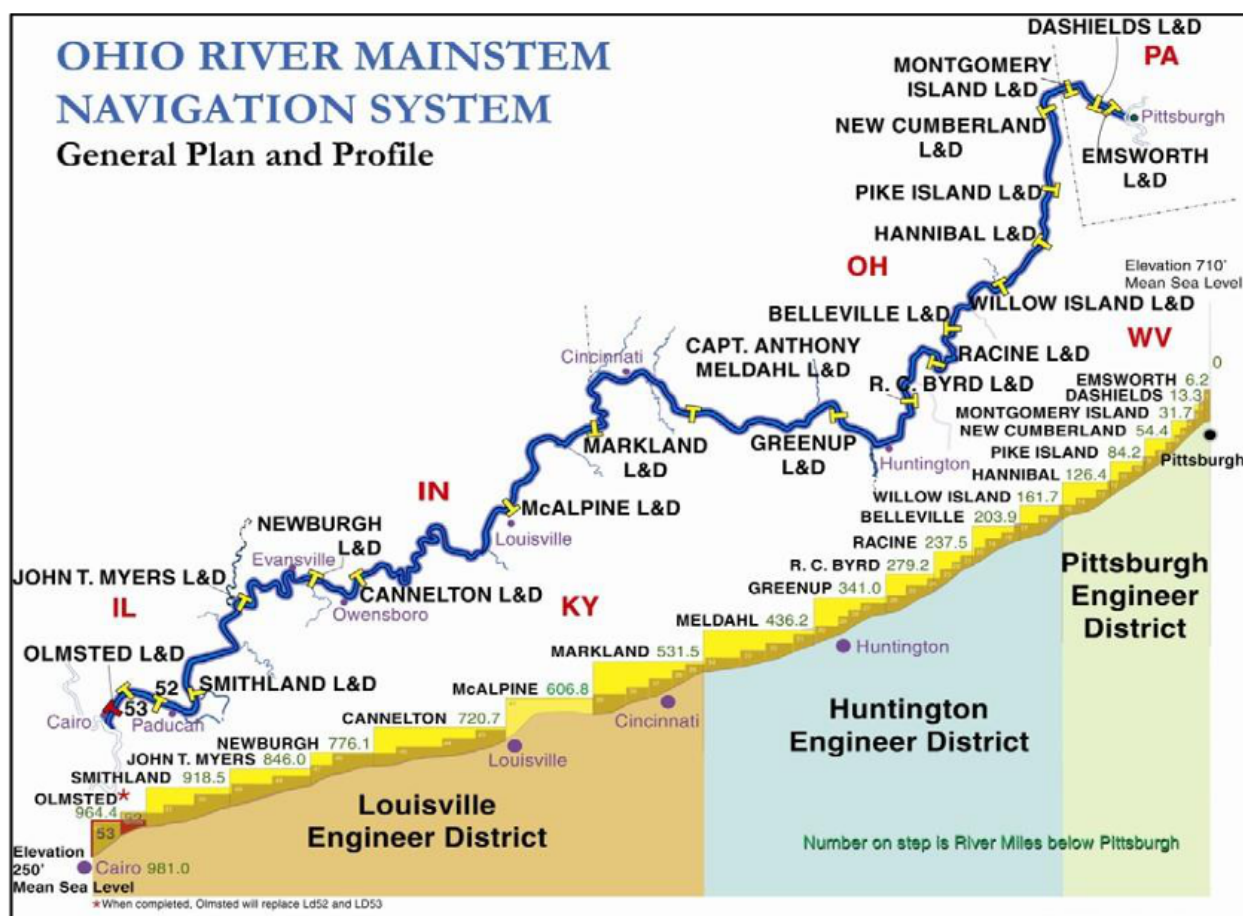


Figure 2: Ohio River Navigation System

The EDM facilities were nearing the end of their originally estimated 50-year economic life in the 1970s, when the USACE Pittsburgh District first recommended their replacement. The USACE was approved to complete major rehabilitations of EDM in the 1980s to extend their useful life another approximately 20 years, allowing additional time to obtain replacement authorization. During this period, the USACE Great Lakes and Ohio River Division conducted and completed the Ohio River Mainstem System Study (ORMSS). The ORMSS recommended completion of an Upper Ohio River Feasibility Study to define a recommended EDM replacement project. The 2016 FS/EIS is that study.

The EDM projects allow producers and consumers to move large quantities of cargo into and through the Pittsburgh area at relatively low cost without worsening congestion, safety, and environmental impacts related to land-based transportation. Coal and aggregate (e.g., stone, sand, and gravel) firms are primary producers while electric utilities and steel mills are the primary consumers of commodities that move through EDM. As of 2016, coal accounted for 63 percent of EDM traffic and 59 percent of system traffic. Aggregates accounted for 18 percent of EDM traffic and are comprised of lime/limestone used in electric generating plants pollution control units and building material used in construction. Collectively, coal and aggregates accounted for 81 percent of EDM traffic and 75 percent of system traffic. The EDM projects

also benefit water supply and recreational needs. There are dozens of facilities along the banks of the Upper Ohio River comprising terminals and fleeting areas to accommodate commercial navigation, docks, boat ramps and marinas for recreation boating, water intake structures for industry, and outfalls that serve numerous communities in the Upper Ohio River area.

The structural condition of the Montgomery Locks is the most critical and this facility will be addressed first. The construction of the overall UON project will be phased, requiring a plan for handling dredged material from the Montgomery Locks first, with Emsworth and Dashields to follow. Although construction would be phased, the NEPA analysis for the selection of the open-water placement locations for all three locks and dams will be completed in advance of any construction. Accordingly, collection of relevant environmental data for the Montgomery Locks and Dam would be the most detailed and complete since construction at that location would take place first, likely in 2024. Construction at the Emsworth and Dashields sites is not expected for at least another ten years. Therefore, while NEPA compliance for selection of the open-water placement locations for all three sites will be documented now within the same EA, Emsworth and Dashields will be assessed at a programmatic level because fewer details are currently available. Additional and more detailed analyses may be required for the Emsworth and Dashields locations in the future when more relevant data for them can be collected and assessed (e.g., sediment quality, species of concern).

3. Need for Action & Scope of Review

In support of the stated improvements to the EDM facilities, the USACE is developing a plan for placement of approximately 2,000,000 cubic yards of dredged material from the three project areas within select deep water areas of the upper Ohio River. The purview of this scoping document is limited to the selection of these open-water placement areas for excess dredged material not used onsite during construction.

4. Proposed Action

The proposed action being evaluated in this scoping information and subsequent NEPA analysis addresses the placement of any excess (i.e., not used onsite) dredged material that may be generated during construction at each of the locks and dams. Only the dredged material that meets CWA Section 404(b)(1) Guidelines for open-water placement would be placed within the designated open-water placement sites located up and/or downstream of each of the three project areas. Dredged material and acid producing rock that are contaminated, and not suitable for open-water placement, would be transported and placed in a landfill.

The proposed placement locations for the excess material were primarily screened and selected based on water depth. Areas of the Ohio River greater than 30 feet below normal dam pool were targeted. These areas have previously been dredged by commercial aggregate-producing companies and are unnaturally deep relative to adjacent, more natural areas in the river. Coordination with state resource agencies thus far has indicated that such areas tend to exhibit

anoxic conditions that are not supportive of aquatic biota, particularly freshwater mussels. A comprehensive review of available resources also indicates that the alternative placement sites selected avoid any underwater utility crossings, water intakes or other infrastructure, mineral leases for sand and gravel mining, as well as any documented shipwrecks and other potential archaeological resources. Excess material that is dredged from the locks and dams would be placed in these deep pockets in the river which would lessen the channel depth at these locations, providing improved benthic aquatic habitat over time. The potential locations where the dredged material would be placed at each of the three project areas are detailed below and are summarized in Table.

4.1 Emsworth Locks and Dam

The potential placement locations for the Emsworth Locks and Dam were determined by the depth of the river channel. In this area of the river, two pockets greater than 30 feet in depth were identified as potentially suitable placement areas, both upstream of the locks and dam (Figure 7). The first alternative placement area is located approximately 2.0 miles upstream from Emsworth Locks and Dam between RMs 3.7 and 4.2 and covers an area of 7.2 acres. The second alternative covers an area of 5.3 acres and is located 3.1 miles upstream from Emsworth Locks and Dam between RMs 2.9 and 3.1 (Table).

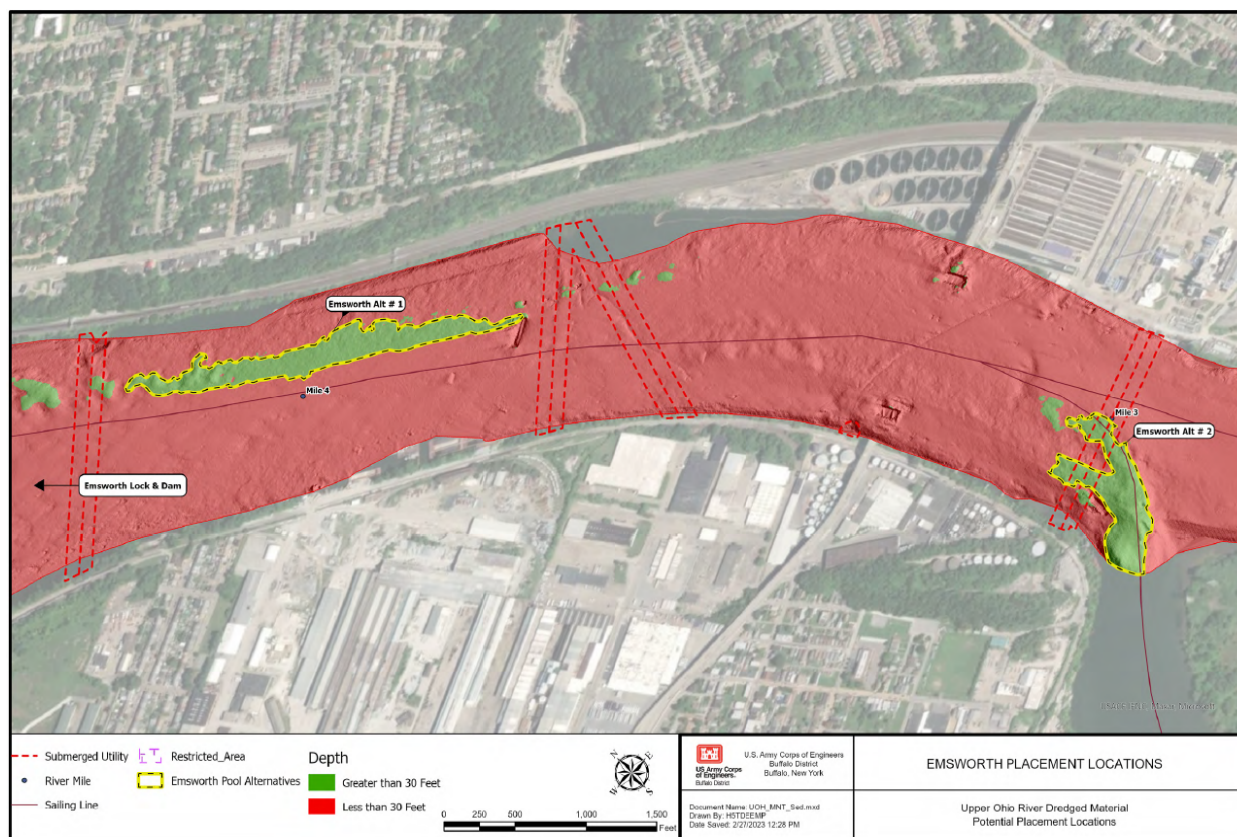


Figure 3: Emsworth Locks and Dam placement locations

4.2 Dashields Locks and Dam

Three alternative placement areas were identified near the Dashields Locks and Dam. In this portion of the river, there are no areas greater than 30 feet in depth (Figure 4). Therefore, these potential placement sites are in the deepest sections of the river near this project area at depths at least 25 feet deep. The first potential placement area covers an area of 29.7 acres and is located approximately 1.2 miles upstream from Dashields Locks and Dam between RMs 11.9 and 12.6. The second potential placement area is located 0.6 miles downstream from Dashields Locks and Dam between RMs 13.9 and 14.1 and covers an area of 3.8 acres in size. The third potential placement location covers an area of 6.0 acres and is located 1.1 miles downstream from Dashields Locks and Dam between RMs 14.3 and 14.4 (Table).

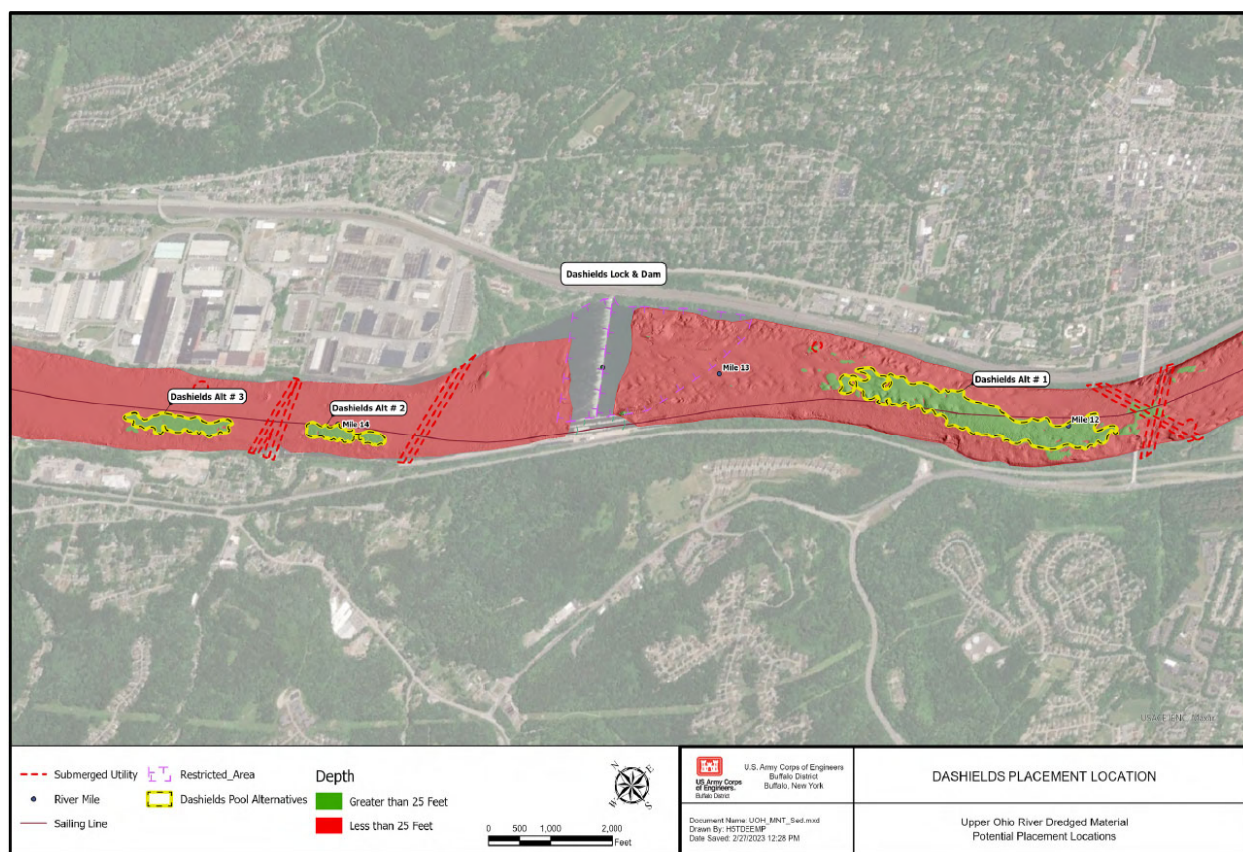


Figure 4: Dashields Locks and Dam placement locations

4.3 Montgomery Locks and Dam

This portion of the Ohio River contains many deep pockets. Most of the channel is over 30 feet deep, with some areas reaching more than 45 feet deep. Two potential alternative placement locations have been identified upstream of the Montgomery Locks and Dam (Figure 9). The first alternative is located 0.3 miles upstream of the Montgomery Locks and Dam between RMs 30.9 and 31.3. This placement site covers an area 46.5 acres. The second alternative covers an area of 60.3 acres and is located 1.8 miles upstream of the Montgomery Locks and Dam between

RMs 29.6 and 30.3 (Table).

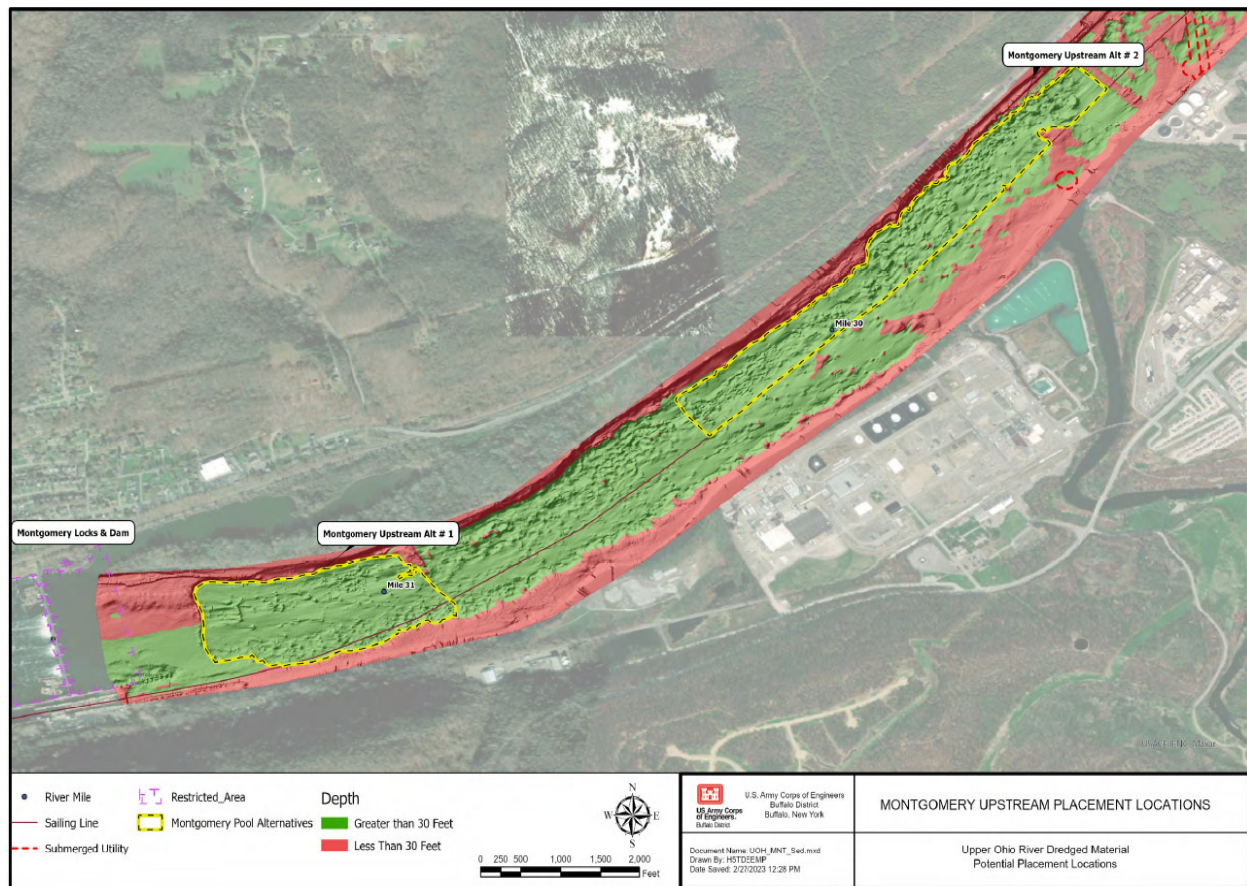


Figure 5: Montgomery Locks and Dam upstream placement locations

In addition to the two upstream Montgomery Locks and Dam placement locations, two downstream placement locations were identified within the New Cumberland Pool (Figure 10). The first alternative in the New Cumberland Pool is located 0.4 miles downstream of Montgomery Locks and Dam between RM 31.9 and 32.8. This location covers an area of 24.0 acres. The second alternative is located approximately 2.3 miles downstream of Montgomery Locks and Dam between RMs 33.7 and 34.2. This placement location covers an area of 38.2 acres (Table).

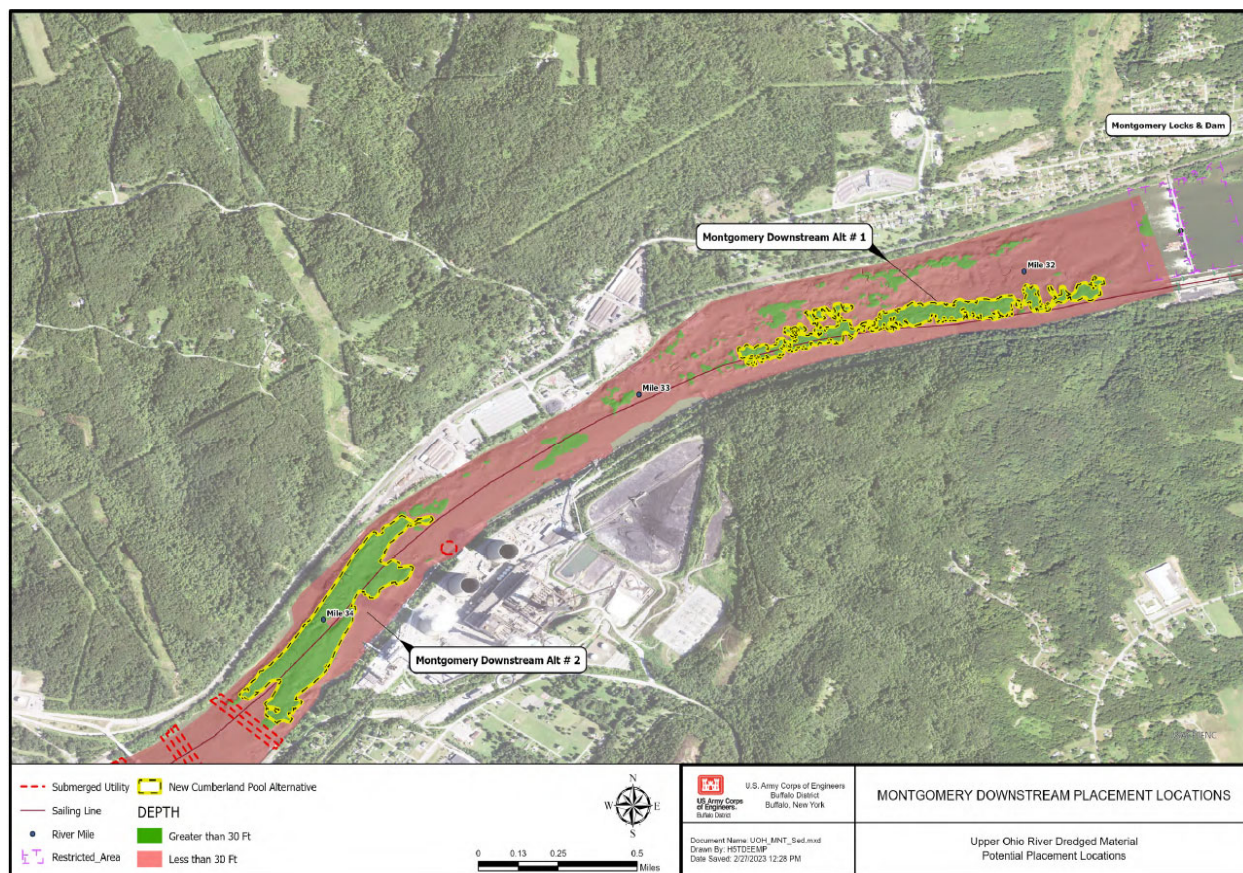


Figure 6: Montgomery Locks and Dam downstream placement locations

Table 1: Open-water placement summary table

	Emsworth Locks and Dam		Dashields Locks and Dam			Montgomery Upstream Locks and Dam		Montgomery Downstream Locks and Dam	
	Alt. 1	Alt. 2	Alt. 1	Alt. 2	Alt. 3	Alt. 1	Alt. 2	Alt. 1	Alt. 2
Size of Placement Area (acres)	7.2	5.3	29.7	3.8	6.0	46.5	60.3	24.0	38.2
Approximate Location (RM)	3.7 - 4.2	2.9 - 3.1	11.9 - 12.6	13.9 - 14.1	14.3 - 14.4	30.9 - 31.3	29.6 - 30.3	31.9 - 32.8	33.7 - 34.2
Dam Pool	Emsworth		Dashields	Montgomery		Montgomery		New Cumberland	

5. Environmental Impacts

The environmental effects of the UON Project have been previously evaluated and are documented in the Final Feasibility Report and Integrated Environmental Impact Statement, Upper Ohio Navigation Study, Pennsylvania (2014, Revised 2016). These documents, and supplemental documentation, have been submitted to the U.S. Environmental Protection Agency and copies are available for examination on the Pittsburgh District website. The environmental effects of the selection of open-water placement sites for dredged material from the EDM Locks and Dams will be evaluated in accordance with the CEQ's "Regulations for Implementing the Procedural Provisions of the NEPA of 1969" (40 CFR 1500-1508) and USACE Engineer Regulation 200-2-2 (Procedures for Implementing NEPA).

Future conditions with the no-action alternative and anticipated potential effects with the proposed action would be assessed for several social, economic, and environmental categories including:

- Biological Resources
- Recreation
- Cultural Resources
- Socioeconomics
- Transportation
- Geology & Soils
- Water Resources
- Solid Waste Management
- Contaminated Material
- Air Quality
- Noise
- Aesthetics
- Health and Safety
- Environmental Justice

6. Public Participation and Interagency Coordination

Throughout the scoping process, stakeholders and interested parties are invited to provide comments on the proposed action that would be evaluated as part of the review for the selection of open-water placement locations for dredged material from the EDM Locks and Dams on the Ohio River. An EA will be completed in 2023 to document the evaluation of the potential social, economic, and environmental benefits and potential adverse impacts that would result from the proposed action. In accordance with the NEPA, a draft EA will be released for public review and comment prior to its completion.

7. Compliance with Environmental Protection Statutes

a. National Environmental Policy Act (NEPA). The USACE will assess the potential environmental effects of the proposed action on the quality of the human environment. Using a systematic and interdisciplinary approach, an assessment will be made of the potential environmental impacts for the proposed action as judged by comparing the anticipated with and without-project conditions. The impact assessment process would determine if an Environmental Impact Statement is required, or if an EA and Finding of No Significant Impact (FONSI) is appropriate. This scoping information and solicitation of comments initiates this process. A second opportunity will be afforded to provide comments following the release of the draft EA, likely in the summer of 2023.

b. Clean Water Act. Compliance with the CWA associated with open-water placement of dredged material would take place in a phased approach concurrent with the expected construction of each of the EDM Locks and Dams. Sampling will be conducted on the material from each area prior to the placement of dredged material into any of the alternative placement areas. The quality of the material will be evaluated using the current sediment data in accordance with formal CWA Section 404(b)(1) Guidelines and formal guidance contained in the 1998 Evaluation of Dredged Material for Discharge into Waters of the U.S. - Testing Manual. The evaluation would specifically address potential contaminant-related risks to aquatic life associated with placing the dredged material at a designated open-water placement area. Based on this evaluation, only dredged material that has been determined to meet contaminant determination CWA Section 404(b)(1) Guidelines for open-water placement would be placed in the open-water areas. Any dredged material that does not meet these guidelines would be transported and placed in a landfill. Water quality and related information used in this evaluation will provide documentation to demonstrate that the recommended plan complies with this Act. A CWA Section 404(a) Public Notice will be circulated and an opportunity to request a public hearing will be afforded to all potentially affected parties. CWA Section 401 Water Quality Certification (WQC) would subsequently be requested from the Pennsylvania Department of Environmental Protection (PADEP), initially only for the open-water placement of dredged material associated with the construction of the Montgomery Locks and Dam, as this is the first structure scheduled for construction. Section 401 WQC for the open-water placement of dredged material associated with the construction of the Emsworth and Dashields Locks and Dams will be requested in the future as construction at those project areas proceeds.

c. National Historic Preservation Act. Under Section 106 of this Act, this scoping information initiates USACE consultation with the Advisory Council on Historic Preservation, the Pennsylvania Bureau for Historic Preservation, interested Indian nations, historic preservation organizations and others likely to have knowledge of, or concern with, historic properties that may be present within the Area of Potential Effect (APE). The APE for each potential placement area is limited to the footprint. Submission of project information in the Pennsylvania's Historic & Archaeological Resource Exchange (PA-SHARE) would additionally initiate consultation

with the Pennsylvania State Historic Preservation Office. The need for cultural resources surveys and further coordination with applicable parties will be evaluated as a follow-up to this initial consultation and based on any information received. Initial review of the study areas has determined that there are no properties listed, or likely eligible for listing, on the National Register of Historic Properties within the APEs for this project.

d. Endangered Species Act. In accordance with Section 7 of this Act, the USACE has requested information from the U.S. Fish and Wildlife Service (USFWS) in a letter dated December 21, 2022. The USACE completed Pennsylvania Natural Diversity Inventory (PNDI) and Information for Planning and Consultation (IPaC) searches for the potential Montgomery placement areas (PNDI-774809, Project Code 2023-0025647 (Upstream), and Project Code 2023-0025650 (Downstream). These reviews identified the federally endangered Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), and rayed bean (*Villosa fabalis*) as species which may occur in the close vicinity of the proposed work. All work associated with the open-water placement would be conducted from the water and no terrestrial disturbance is required. As such, open-water placement would not impact the Indiana bat or northern long-eared bat. The USACE will minimize potential impacts to the rayed bean by selectively placing clean dredged material in areas deemed unsuitable for mussel species. Through on-going coordination with the Pennsylvania Fish and Boat Commission (PFBC), PADEP, and USFWS, the USACE has defined areas unsuitable for mussel species as those areas in the Ohio River that are 30+ feet deep. Minimal impacts to adjacent mussel populations may occur through turbidity during placement or minor movement of material after placement, though this effect is expected to be minor due the coarse grained nature of the material to be placed. Based on this proposal, the USACE has determined that the potential open-water placement of dredged material at the Montgomery Locks and Dam placement areas may impact, but is not likely to adversely impact, the rayed bean. Additional consultation will be completed for the Emsworth and Dashiels placement areas at a later date. Concurrence from or further coordination with the USFWS has been requested in this above referenced letter.

e. Fish and Wildlife Coordination Act. The USACE is coordinating this study with the USFWS and relevant state resource agencies. The USACE will collaborate with the USFWS and relevant state resource agencies to identify fish and wildlife concerns, identify relevant information on the study area, obtain their views concerning the significance of fish and wildlife resources and anticipated project impacts, and ensure that all applicable resources which need to be evaluated in the study are included. Full consideration will be given to their comments and recommendations resulting from this coordination.

f. Other Coordination Requirements. In addition to the aforementioned federal statutes, the proposed project will also comply with other applicable and relevant federal laws, environmental protection statutes and executive orders, etc. Therefore, an additional intent of this scoping information is to disseminate pertinent project information to meet the coordination/consultation requirements required under their provisions.

8. Request for Comments

The purpose of the scoping process is to provide an opportunity for the public and governmental agencies to comment on and provide input to help identify issues related to the proposed project to be addressed in the EA. Another opportunity will be provided for the public and governmental agencies to review and comment on the draft EA, likely in the summer of 2023. If, after this evaluation, it is concluded that the proposed project would have no significant environmental impacts and an environmental impact statement is not required, the District Commander would sign a Finding of No Significant Impact (FONSI).

Interested parties are encouraged to contact USACE with their comments and recommendations regarding the selection of open-water dredged material placement locations for the EDM Locks and Dams on the Ohio River. Please review the study information and send your comments or recommendations in writing within 30 days to the following e-mail address:

lrp.plan.enviro@usace.army.mil

or via mail to:

U.S. Army Corps of Engineers, Buffalo District
ATTN: Environmental Analysis – UON Project Open-Water Placement
1776 Niagara Street
Buffalo, NY 14207

Appendix C

National Historic Preservation Act



Pennsylvania State Historic Preservation Office

PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

March 28, 2023

Ryan Gmerek USACE
1776 Niagara St
Buffalo PA 142070000

RE: ER Project # 2023PR01088.001, Emsworth, Dashields and Montgomery Locks and Dams - Open-water Site Selection for Dredged Material, Army Corps of Engineers, Industry Borough, Beaver County

Dear Ryan Gmerek:

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Above Ground Resources

For questions concerning above ground resources, please contact Barbara Frederick at bafrederic@pa.gov.

Archaeological Resources

No Archaeological Concerns - Environmental Review - No Effect - Archaeological

Based on the information received and available in our files, in our opinion, the proposed project should have No Effect on archaeological resources. Our analysis indicates that archaeological resources are potentially located in this project area. Should the scope of the project be amended to include additional ground-disturbing activity and/or should you be made aware of historic property concerns, you will need to reinitiate consultation with our office using PA-SHARE.

For questions concerning archaeological resources, please contact Kristen Walczesky at kwalczesky@pa.gov.

Sincerely,

Emma Diehl
Environmental Review Division Manager

Appendix D

Endangered Species Act

PNDI # 767471; 767472; 774809USFWS Project # 2023-0025650**U.S. FISH AND WILDLIFE SERVICE****110 Radnor Road,
Suite 101, State
College, PA 16801**

This responds to your inquiry about a PNDI Internet Database search that resulted in a potential conflict with a federally listed, proposed or candidate species.

PROJECT LOCATION INFORMATIONCounty: BeaverTownship: Industry; Potter; Raccoon; Shippingport**MISC INFORMATION**Date received by FWS: 3/21/2023☐ ACTIVE ☐ ARCHIVEUSFWS COMMENTS ☒ EMAILED ☐ MAILEDTo: Kristi DobraEmail: Kristi.S.Dobra@usace.army.milAffiliation: USACE**SPECIFIC PROJECT:** Upper Ohio Montgomery In-Water Placement**FISH AND WILDLIFE SERVICE COMMENT(s):**X ***NOT LIKELY TO ADVERSELY AFFECT***

The federally listed rayed bean; Indiana bat, northern long-eared bat occurs or may occur in or near the project area. However, based on our review of the information provided, including the project description and location (proposed location of dredging material placement does not contain habitat suitable to support rayed bean; most tree removal was completed (Nov 15 - April 5), ~0.25 ac of remain to be cut based on distance of known species locations and small area, take is not reasonably certain to occur), no adverse effects to this species are likely to occur. If there is any change in the location, scale, scope, layout or design of the project, further consultation or coordination with the Service will be necessary.

The above determination is valid for two years from the date of this letter. In addition, this response relates only to federally listed, proposed, and candidate species under our jurisdiction, based on an office review of the proposed project's location and anticipated impacts. No field inspection of the project area has been conducted by this office. *Please reference the above PNDI # and USFWS Project # in any future correspondence regarding this project.*

☐ This review was conducted by the ☐ biologist listed below. He/she can be contacted at 814-206-(Extension). ☐

Melinda Turner (x7449)
Richard Novak (x7477)☒ Nicole Ranalli (x7455)
Sze Wing Yu (x7461)Jennifer Kagel (x7451)
Pamela Shellenberger (x7459)