

UPPER MISSISSIPPI RIVER, NAVIGATION AND ECOSYSTEM SUSTAINABILITY PROGRAM (NESP)

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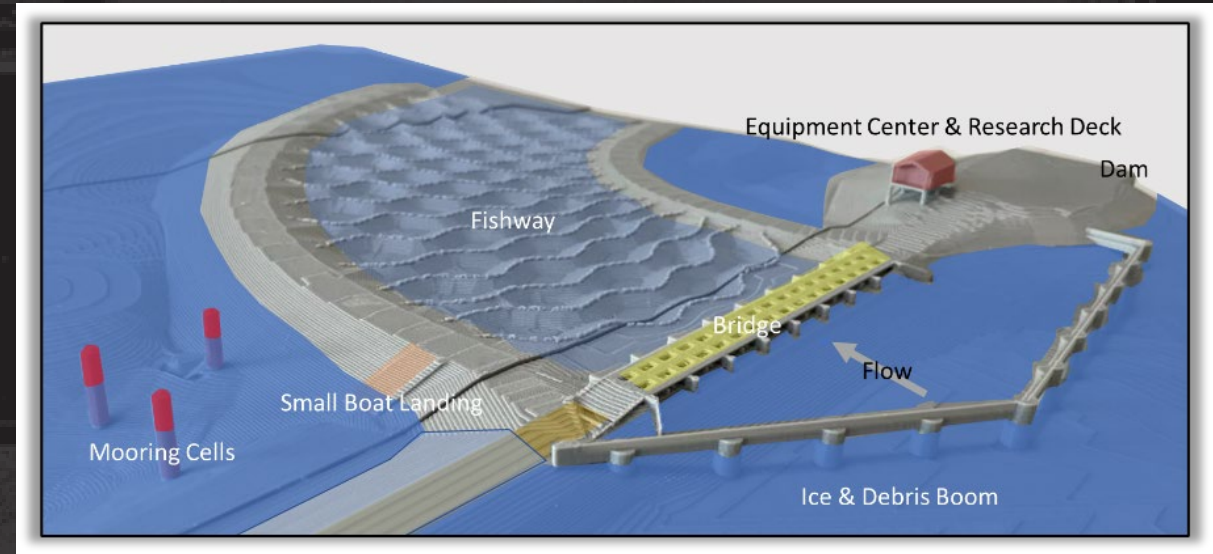
<https://www.mvr.usace.army.mil/Rock-Island-District/Programs/NESP/>



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WHAT IS THE NAVIGATION AND ECOSYSTEM SUSTAINABILITY PROGRAM (NESP)?

The Navigation and Ecosystem Sustainability Program (NESP) is a long-term, dual-purpose program that integrates navigation improvements and ecosystem restoration together to provide Upper Mississippi River System, once in a generation-type, positive impacts.

The primary goals of the program are to:

- Increase the capacity and improve the reliability of the inland navigation system;
- While restoring, protecting, and enhancing the environment.



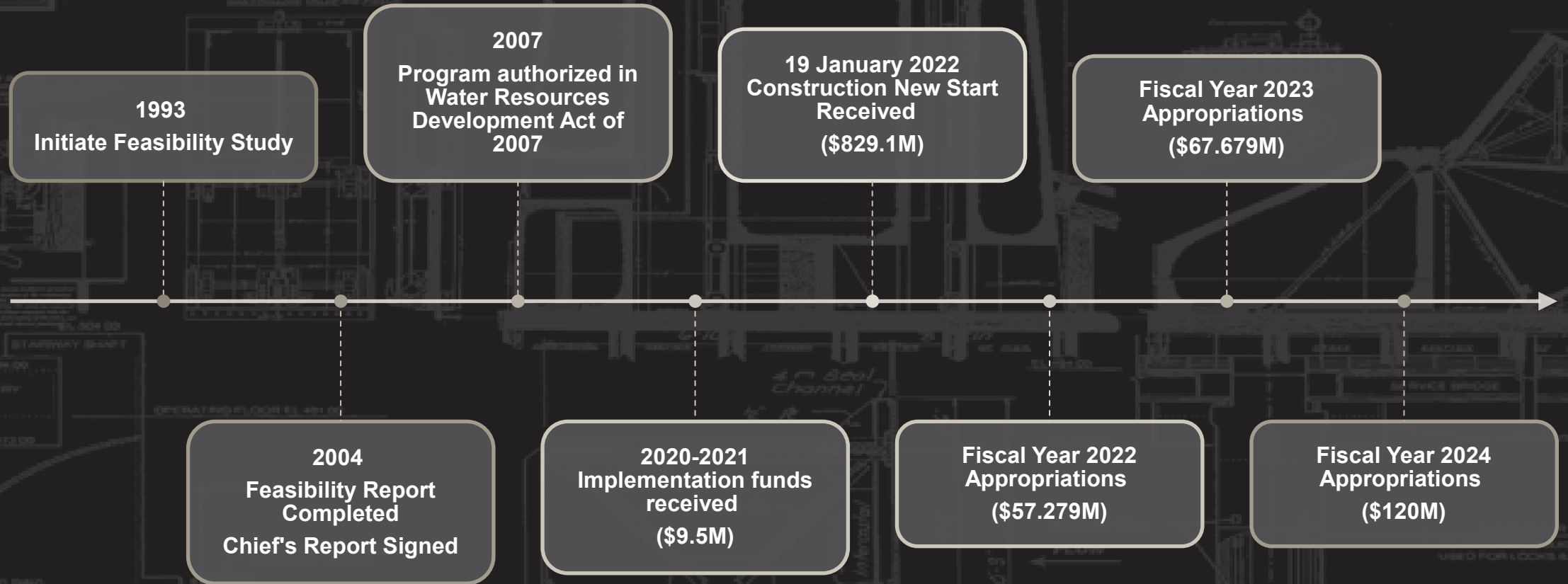
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NESP PLANNING STUDY TO IMPLEMENTATION TIMELINE



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NESP INTEGRATES NAVIGATION IMPROVEMENTS WITH ENVIRONMENTAL RESTORATION

NAVIGATION ACTIVITIES

- 7 total - New 1200' locks at Locks 20-25 on the Mississippi River and Peoria and LaGrange Locks on the Illinois Waterway.
- Mooring cells at 7 locations on both the Mississippi River and Illinois Waterway.
- Switchboats at Locks 20-25 during construction of those locks to aid in navigation.
- Systemic and site-specific mitigation to offset the 1200' lock ecosystem effects.

ECOSYSTEM ACTIVITIES

- Fish passage structures at Locks 4, 8, 22, and 26 along with advancement of design for fish passage at Lock 19 all on the Mississippi River.
- Dam point control (for water level management) at Locks 16 and 25 on the Mississippi River.
- 225 total - Ecosystem Restoration measures including:
 - Island building, floodplain restoration, backwater restoration, side channel restoration, wing dam and dike modification, and island and shoreline protection.
- Plus - Forest Management, Cultural Mitigation & Adaptive Management Activities



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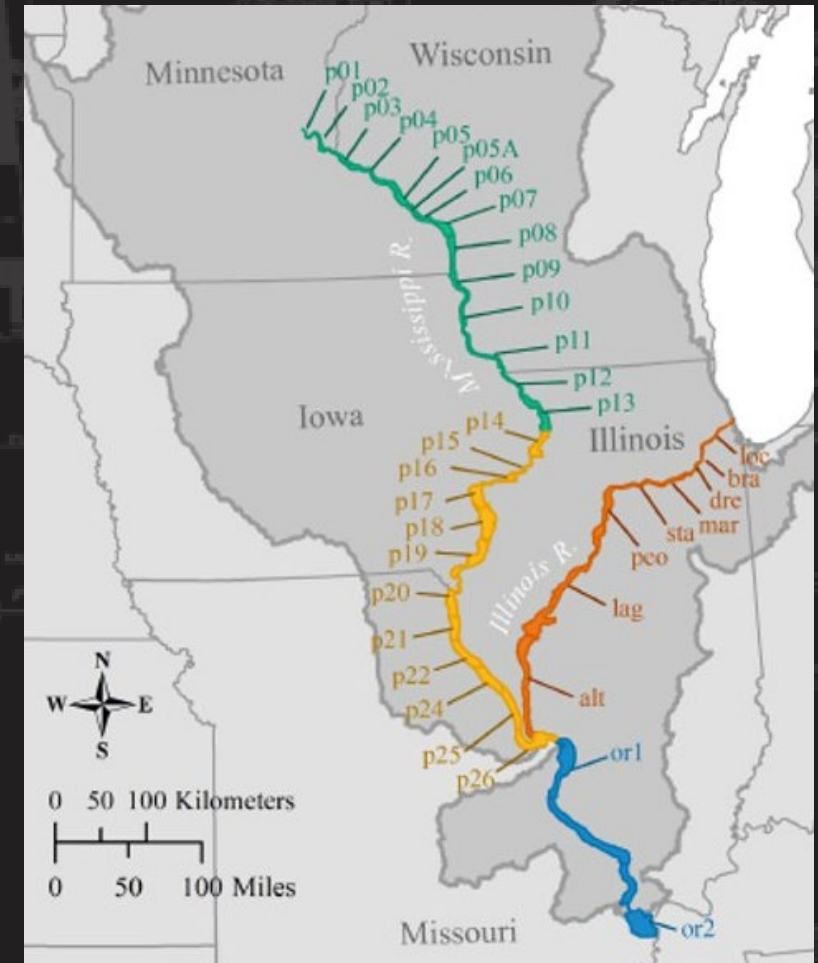
WHAT IS INCLUDED IN THE ECOSYSTEM RESTORATION COMPONENT OF NESP?

The principal problems addressed by all Navigation and Ecosystem Sustainability Program (NESP) ecosystem projects are the adverse changes to ecosystem structure, function, and dynamic processes that have occurred over many years from many causes, but especially since initiation of the operation and maintenance of the existing Nine-Foot Channel Navigation Project.

Table EX-1. UMRS ecosystem restoration measures.

- | | |
|---------------------------------|--------------------------------------|
| • Island Building | • Water Level Management – Backwater |
| • Island Protection | • Backwater Restoration (Dredging) |
| • Shoreline Protection | • Side Channel Restoration |
| • Fish Passage | • Wing Dam/Dike Alteration |
| • Floodplain Restoration | • Improve Topographic Diversity |
| • Water Level Management – Pool | • Dam Point Control |

While the principal problems are universal, individual projects will be based on project-specific problem statements based on the unique physical and ecological resource conditions in the study area.*



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NESP ECOSYSTEM RESTORATION FEATURES

Table EX-1. UMRS ecosystem restoration measures.

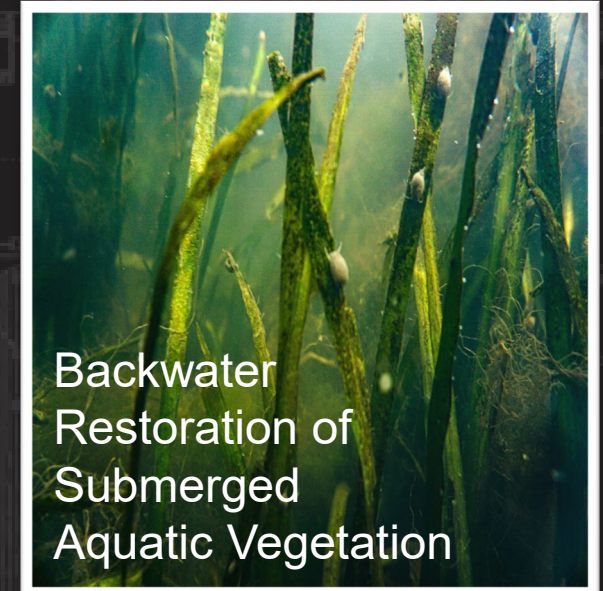
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NESP ECOSYSTEM RESTORATION FEATURES



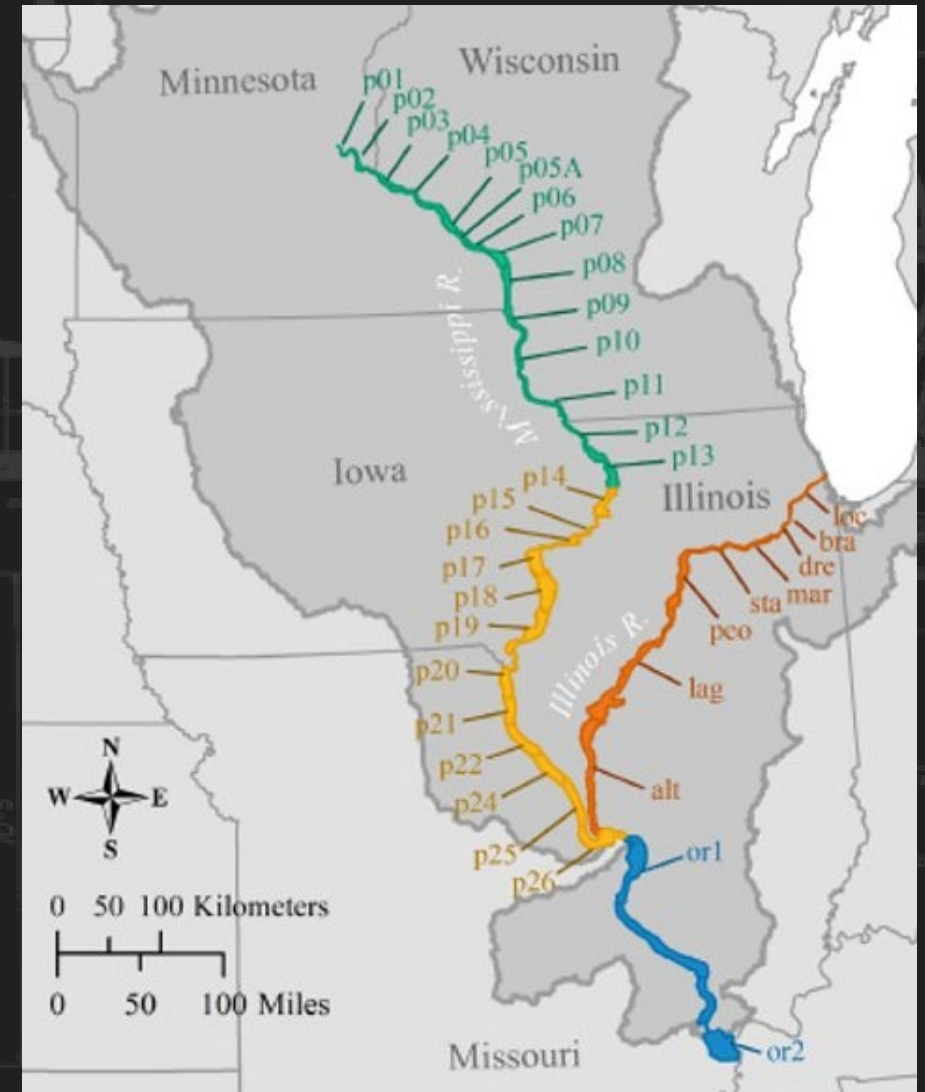
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NESP ECOSYSTEM RESTORATION PLANNING CHALLENGES

How do we identify, design, and construct:

- ~225 restoration projects
- Across five states
- Covering hundreds of river miles
- Meeting system objectives
- Meeting site-specific needs
- Avoiding impacts to navigation
- Incorporating modern scientific knowledge
- Considering public perspectives & community needs
- In partnership w/ a diverse set of stakeholders and interest groups
- While managing financial limitations



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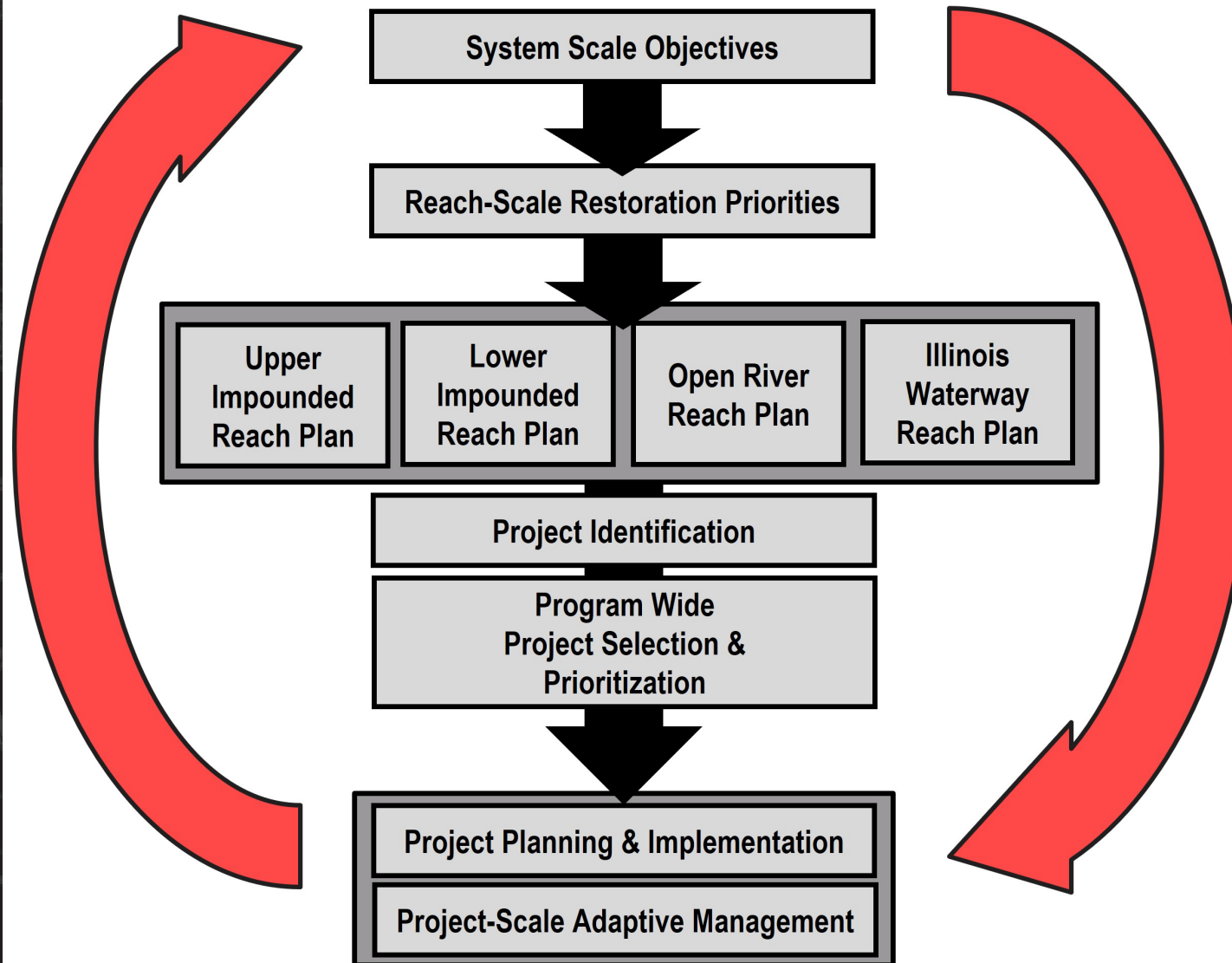


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SYSTEMIC ADAPTIVE MANAGEMENT OVERVIEW

The foundation of NESP ecosystem project planning is a tiered system-scale adaptive management approach



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SYSTEMIC ADAPTIVE MANAGEMENT PROCESS AND TOOLS

- Structured hierarchy for decisions

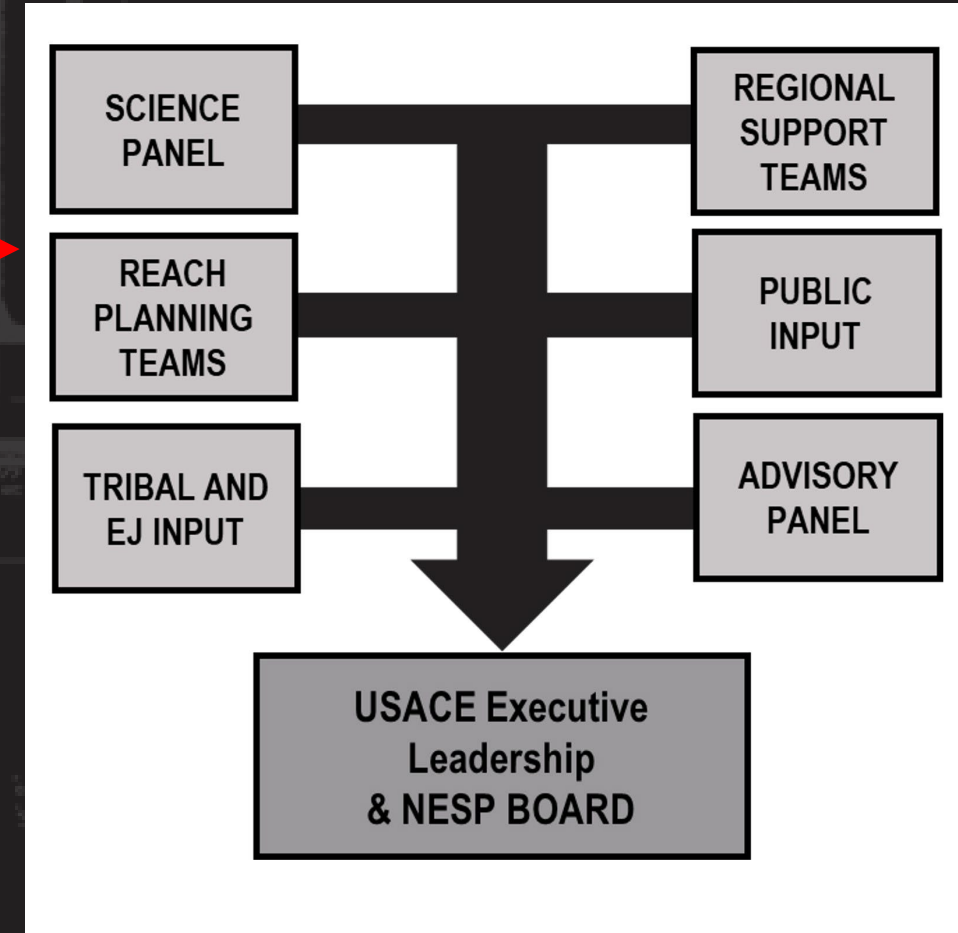
SYSTEM → **REACH** → **PROJECT**

- Structure hierarchy of teams
- Streamlined processes

18 month planning process w/ aided by specific tools

- Programmatic tools

Design toolkit, template documents, programmatic standards & systemic metrics



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NESP STREAMLINED PLANNING PROCESS

Current State:



Proposed Future State:



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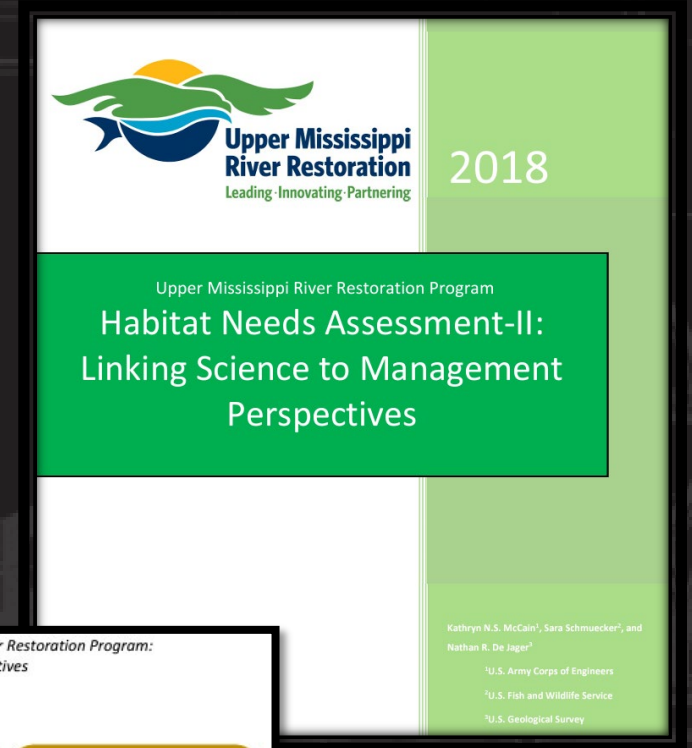


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NESP UTILIZING AVAILABLE SCIENCE WITHIN OUR ONE RIVER SYSTEM

Using 35 (plus) years of Mississippi River experience, knowledge, and expertise:

- Enables NESP to focus on Systemic Environmental Solutions informed by Science
- Builds upon lessons learned/successes to reduce risk and streamline implementation of NESP.
- Plus: Corps knowledge of the Mississippi River going back many years prior to implementation of large programmatic ecosystem restoration on the Upper Miss starting in the 1980s.
- Habitat Needs Assessment – twelve HNA-II Indicators as related to the three general themes of resilience.



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Habitat Needs Assessment-II link:

<https://usace.contentdm.oclc.org/utils/getfile/collection/p266001coll1/id/8323>

ENVIRONMENTAL DESIGN TOOLKIT

The Upper Mississippi River System has a **robust ecosystem restoration history**, with successful projects planned, designed, and constructed through a variety of programs. These ecosystem restoration projects were completed in coordination with numerous state, federal and non-profit resources agencies to meet ecosystem goals and objectives.

The toolkit includes:

- Key design elements to assist teams in efficiently identifying methods and measures to address ecosystem needs during the planning level of design.
- Provide a consistent format of design considerations, design details, and parametric cost development to support plan formulation and eventual selection of the Recommended Plan.



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NAVIGATION AND ECOSYSTEM SUSTAINABILITY PROGRAM (NESP)

ST. PAUL DISTRICT- ROCK ISLAND DISTRICT - ST. LOUIS DISTRICT

As of 28-Mar-24

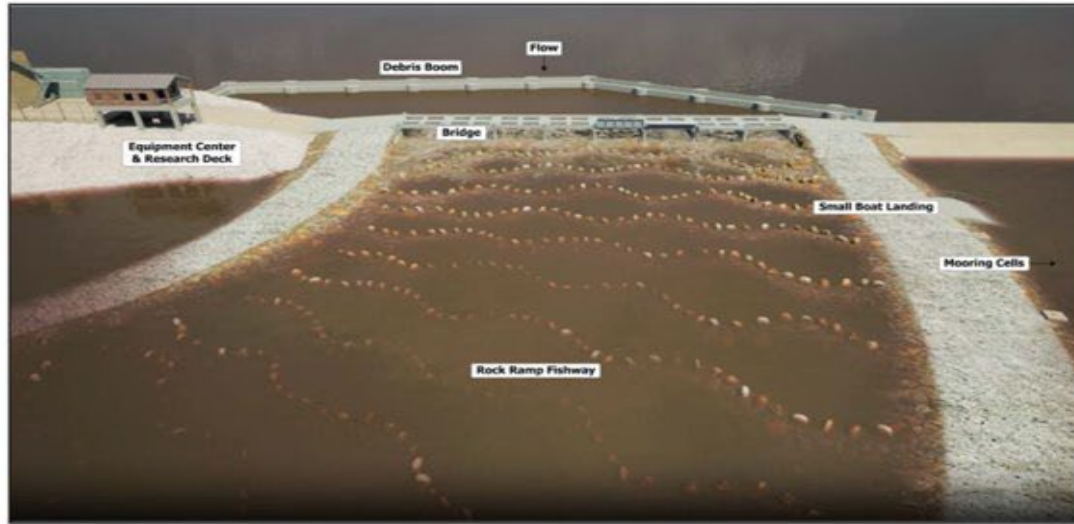
LOCK AND DAM 22 FISH PASSAGE

PROJECT SUMMARY

Lock and Dam 22 is located near Saverton, Missouri, on the Mississippi River, roughly 10 miles south of Hannibal, Missouri, at river mile 301.2. The fish passage structure will be constructed on the spillway portion of the dam, on the side furthest from the Illinois shoreline, and would extend downstream into the tailwater area.

The primary purpose of the Lock and Dam 22 Fish Passage Project is to increase fish access to upstream mainstream river and tributary habitats. Increased access to upriver habitat should result in an increase in the size and distribution of native migratory fish populations.

The secondary purpose is to monitor and adaptively manage this structure to optimize its effectiveness and inform design of subsequent fish passage projects.



DESIGN

- HQUSACE approved Final PIR June 2022
- Implementation Review Plan
- Final design received

CONSTRUCTION

- Base bid plus options contract structure

ADAPTIVE MANAGEMENT

- Pre-Construction Monitoring
- Construction Monitoring
- Post-Construction Monitoring
- Adaptive Management

MIGRATORY FISH SPECIES OF THE UPPER MISSISSIPPI RIVER



BI-PARTISAN INFRASTRUCTURE LAW (BIL) FUNDS: \$97,100,000, FY24 Congressionally Directed Spending: \$25.5M

OBJECTIVES

- 1** Provide habitat benefits for over 30 fish species
- 2** Restore natural connection between pools
- 3** Increase migration capabilities for native fish species
- 4** Provide spawning habitat for fish

Project Deliverables & Tasks:

- Mar 2024 – 100% Design Completion
- Jun 2024 – Construction Solicitation
- Sep 2024 – Construction Award
- Sep 2027 – Construction Complete

Monitoring Activities

- FY22-24 – Pre-Construction Monitoring
- FY25-27 – Construction Monitoring
- FY28-32 – Post-Construction Monitoring
- FY28-32 – Adaptive Management

Lock and Dam 22 Fish Passage Monitoring

- Inform Project Design and Construction
- Monitor Fish Movement through Lock 22 and Fishway
- Monitor Systemic Ecological Response by Migratory Fishes
- Monitor Physical Performance of the Fish Passage Improvement Features
- Monitor Effects of the Project on Structural Integrity, Navigation Operations, Water Quality

ESTIMATED COST >\$20M

PROJECT SCHEDULE



PROGRAM PARTNERS



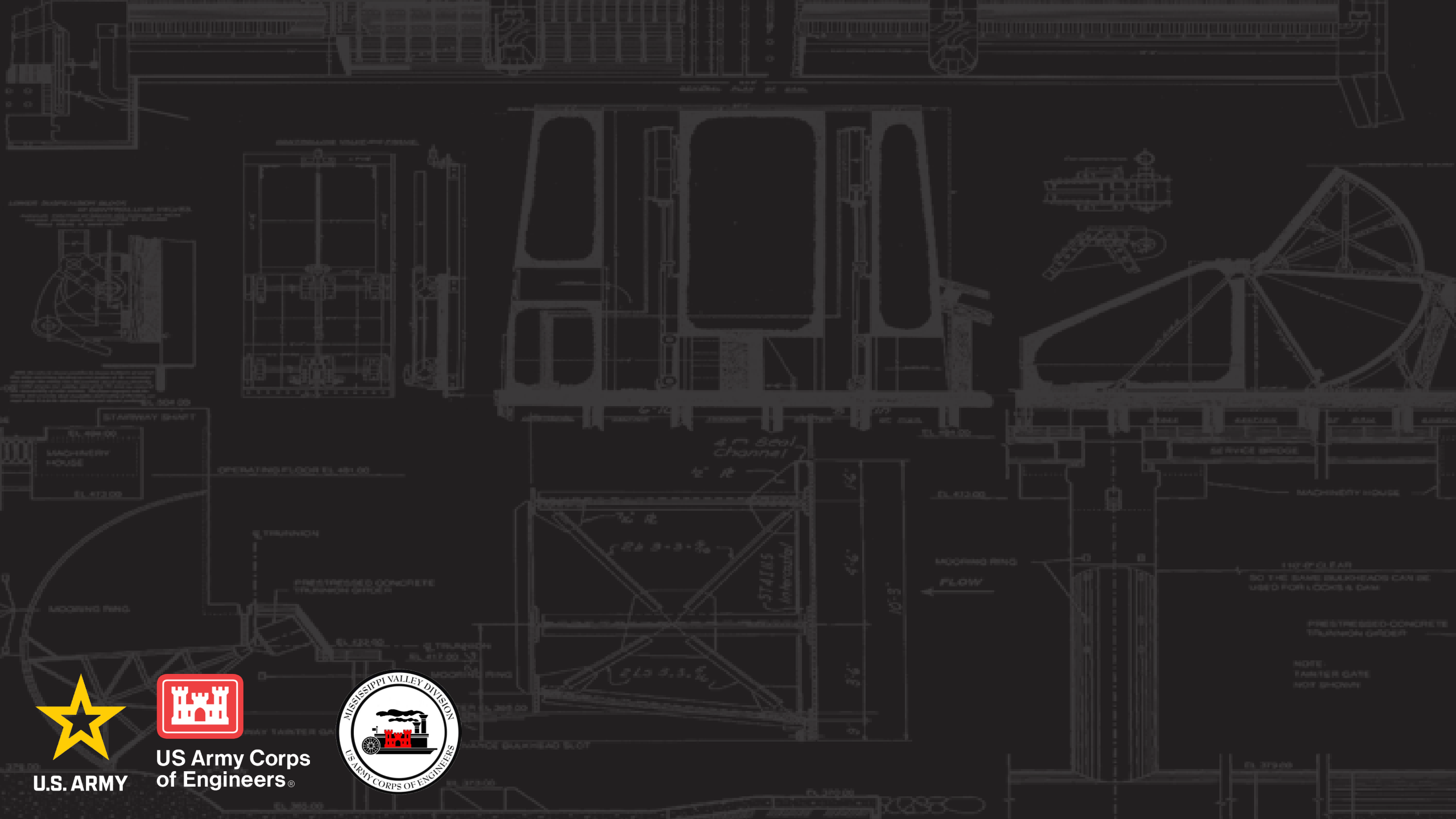
Q & A



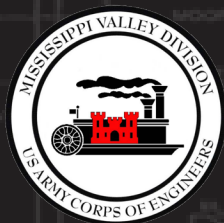
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