



Spirit Lake
Great Lakes Legacy Act
Project Update
November 10, 2022

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Program Office

Why is the Spirit Lake GLLA project being done?

Partnerships

This project is critical to the St. Louis River Area of Concern and is a driver for several beneficial use impairments.

This is a voluntary project between U.S. EPA's Great Lakes National Program Office and U. S. Steel under the Great Lakes Legacy Act.

Federal, State, Local and Tribal partnerships are making this project possible.

Remediation

Former operations at the U. S. Steel Duluth Works created impacts to sediments in the St. Louis River, as well as adjacent wetlands and upland areas. Other sources upstream of the site also caused impacts in the Spirit Lake area.

The GLLA project is only focusing on areas of the site that are identified in the remediation figures. This includes some areas on land, but a majority of the project takes place in Spirit Lake, adjacent to the former steel plant.

Restoration

Significant habitat restoration and enhancement is made possible because of this project.

Completing this cleanup increases recreational opportunities for the nearby community and improves access to the St. Louis River waterfront in this area.



Spirit Lake Project Team

- U.S. EPA Great Lakes National Program Office
- U. S. Steel
- Minnesota Pollution Control Agency
- Minnesota Department of Natural Resources
- Fond du Lac Band of Lake Superior Chippewa
- City of Duluth
- Lake Superior Mississippi Railroad
- Illinois-Indiana Sea Grant

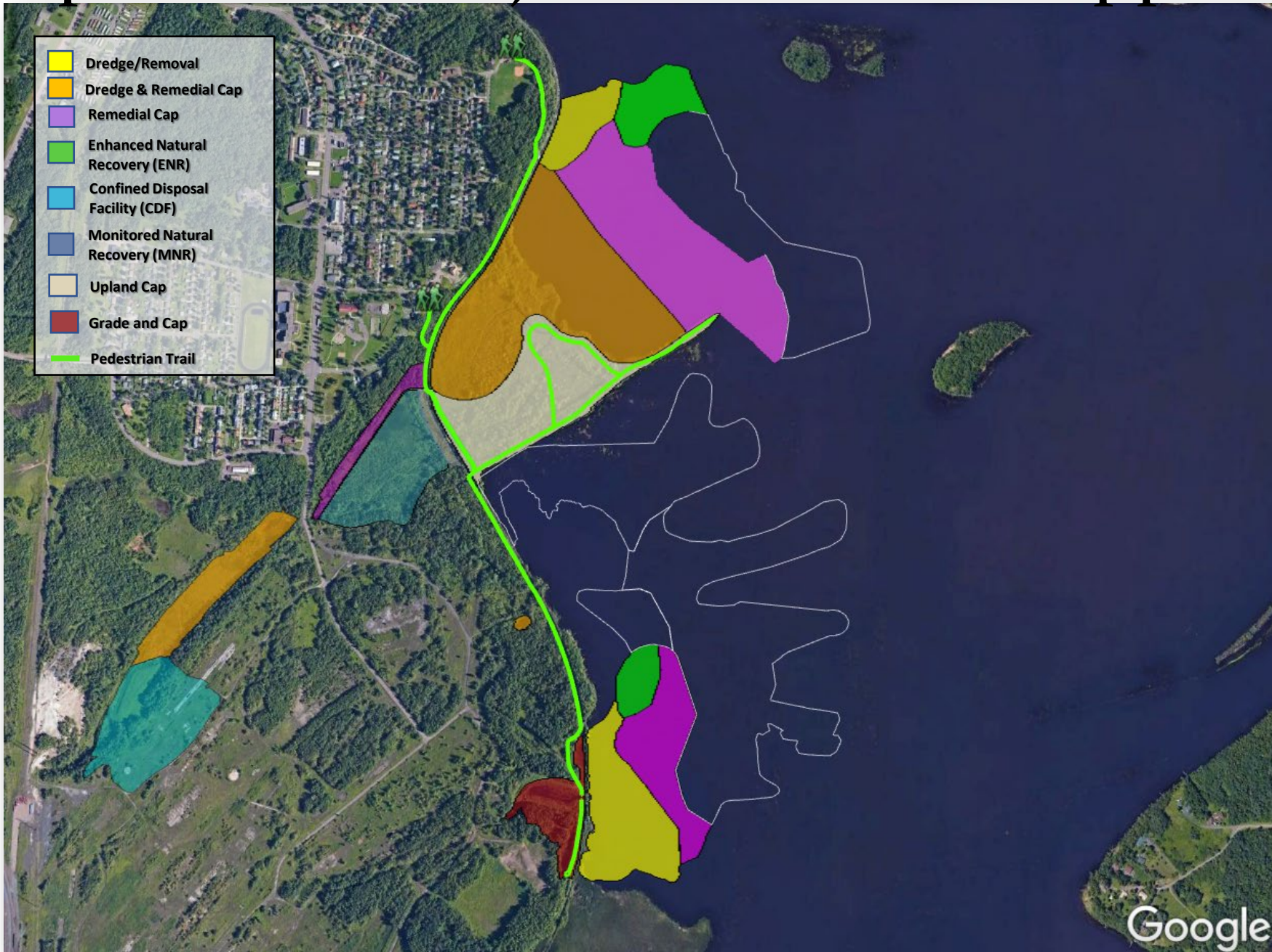


Spirit Lake Great Lakes Legacy Act Project Agreement

Spirit Lake GLLA Project Agreement - Total Costs					
Phase		USS Est. Budget	USEPA Est. Budget	Overall	Required NFS Match
RI/FS/RD		\$ 10,000,000	\$ 11,500,000	\$ 21,500,000	35%
TOTAL RA		\$ 84,150,000	\$ 80,850,000	\$ 165,000,000	51%
TOTAL PROJECT		\$ 94,150,000	\$ 92,350,000	\$ 186,500,000	

- U. S. Steel is the nonfederal sponsor (NFS) for this project. EPA and U. S. Steel have a voluntary Great Lakes Legacy Act Project Agreement in place for remedial activities at the Spirit Lake site.
- The total cost for remediation in the GLLA Project Agreement between U. S. Steel and EPA is \$165M. Additional costs are also included for Remedial Investigation (RI), Feasibility Study (FS) and Remedial Design (RD). The overall combined project cost is \$186.5M.

Spirit Lake Project – Remedial Approach



- ✓ 1.3 million cubic yards remediated. Dredge/removal of 460,000 cubic yards and capping of 850,000 cubic yards within the estuary and Unnamed Creek
- ✓ ~100 acres capping within the estuary and Unnamed Creek
- ✓ Enhanced Natural Recovery (placement of a thin layer of clean sand) has been completed for the project across 12 acres.
- Two on-site CDFs: create two on-site Confined Disposal Facilities (CDFs) for dredged/excavated materials
- 138 acres aquatic restoration: Habitat Restoration as required by applicable permits.
- MNR: Monitored Natural Recover (MNR)

What is the approach to remediating the GLLA project areas?

Dig it up, put it in a CDF

Mass removal of impacted materials (dredging and excavation), which is then placed into 2 on-site confined disposal facilities (CDFs). CDFs will have an encapsulating protective cap over the top after filled and finished.

Put a protective cap over it

Protective caps/remedial caps are placed over large areas of the project. These caps are designed to limit the mobility and availability of contaminants that may remain. A bioactive zone of clean sand is on top of the cap to help enhance recolonization and restoration of native plants and biota.

Combinations of dredging and capping are used in several areas.

Thin layer cover over lower-level surface impacts. Enhanced Natural Recovery (ENR) will be used in some areas with lower-level surface impacts. EMNR consists of a thin layer cover of clean sand, which accelerates recovery of the abiotic system.

Restore and enhance native habitat

Habitat restoration is taking place over a large portion of the projects footprint where activities are occurring. The target for these restoration efforts was to create a mosaic of different types of habitat that provide a broad range of ecological functions – from upland native plants to emergent marshes to deep water habitats.

Monitor the site

Conducting long-term monitoring, including Enhanced Monitored Natural Recovery (EMNR) and Monitored Natural Recovery (MNR).

Progress To-Date

- ✓ Remediated Unnamed Creek corridor
- ✓ Dredged Wire Mill Delta
- ✓ Dredged North Dredge Area
- ✓ Winter excavation of Shallow Sheltered Bay (SSB)
- ✓ Dredged Unnamed Creek Delta/SSB
- ✓ Dredged/excavated material placed in CDFs
- ✓ Capped Wire Mill Delta
- ✓ Capped Unnamed Creek Offshore
- ✓ Capped Shallow Sheltered Bay
- ✓ Capped Delta Upland
- ✓ ENR placement near Unnamed Creek Offshore and Wire Mill Delta
- ✓ Dredged and capped Unnamed Pond
- ✓ Graded and capped Wire Mill Pond

Upcoming 2023:

- Pedestrian Trail work
- Topsoil closure of CDFs
- Habitat restoration (2023)

Let's look through the progression of each phase of work!



PHASE 1: Unnamed Creek Corridor

2020

Work began in October 2020. The progression of activities generally goes from the upper most parts of the site, downstream into the estuary.



PHASE 2: Hydraulic Dredging

2020

2021



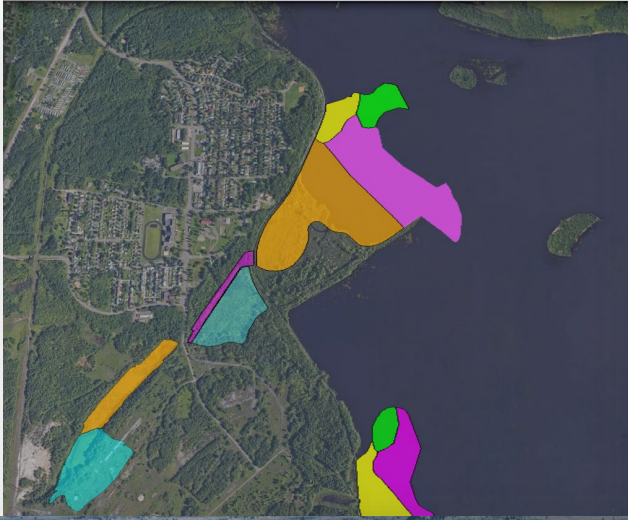
PHASE: Winter Work

2020 2021 Winter

View from the Upland Confined Disposal Facility (CDF) southwest to the Weir Pond and upstream Unnamed Creek.



PHASE 3: In-Water Work



Turbidity curtains are installed in the Wire Mill Delta to prepare for placement of clean capping material.

May 2, 2022

PHASE 3: Upland, Shorelines, CDFs

2020 2021 Winter 2022



PHASE 3: Recreational Features/Trails



- Creating a waterfront trail through the site is key to enhancing recreational opportunities along the St. Louis River waterfront.
- The new recreational features and opportunities are exciting, but please be patient just a little longer.
- These areas have sensitive habitat that is still being established. Stay out of these new areas while they are growing.
- Work will still be taking place in 2023.
- The trails will NOT be open until mid-late summer 2023 at the earliest.

Long-term monitoring



- The Great Lakes Legacy Act requires that the nonfederal sponsor (U. S. Steel) remain responsible for the long-term monitoring and maintenance of the site after completion.
- U. S. Steel, EPA GLNPO, Region 5 Superfund, MPCA, and MNDNR will collaborate on creating an appropriate long-term monitoring plan for the GLLA project.
- Work under other programs (State or Federal) will still take their appropriate steps under their own authorities after the GLLA project is complete. Those discussions and approaches are not being discussed at this meeting.

How are we providing information about the project?

• **Online Photo Gallery**

- EPA continues to update its website weekly to provide updates on the project.
- Photos, like the ones in this presentation, are posted to help the community and others safely see and understand all the work going on at the site.

• **Newsletters/Factsheets** are updated periodically and posted on the EPA website

• **Informational Kiosks** are located near the site (88th and Idaho) and MPCC to give specific updates on what is going on at the site.

• How are we doing? Please take the **survey!**

Website: www.epa.gov/great-lakes-aocs/spirit-lake-great-lakes-legacy-act-cleanup

A screenshot of the EPA website page titled "Spirit Lake Environmental Cleanup Continues Under GLRI". The page includes the EPA logo, contact information for the Community Involvement Coordinator and EPA Project Manager, a description of the cleanup project, and a section titled "Cleanup possible through GLRI" which lists five priorities: cleaning up Great Lakes Areas of Concern, preventing and controlling invasive species, reducing nutrient runoff, restoring habitat, and conducting education and outreach. It also mentions "2021 Work Activities" and includes two small photographs of cleanup work.

EPA
United States
Environmental Protection
Agency

Spirit Lake Environmental Cleanup Continues Under GLRI
Duluth, Minnesota December

U.S. Environmental Protection Agency and United States Steel Corporation have partnered to clean up contaminated sediment and soil in the Spirit Lake area of the St. Louis River in Duluth, Minnesota. This project is being conducted under the Great Lakes Legacy Act and is jointly funded by EPA and U. S. Steel.

The site is located in the St. Louis River Area of Concern and is south of the Morgan Park neighborhood in Duluth. The site has in-water cleanup areas which include Spirit Lake, Unnamed Creek, and Wire Mill Pond as well as onshore clean up areas (see map, page 2).

This project, which began in October 2020, will address impacts from former industrial activities in the Spirit Lake area. Chemicals of concern include polycyclic aromatic hydrocarbons, or PAHs, and associated heavy metals including lead, copper and zinc. This large environmental cleanup includes dredging, capping and monitoring sediment and will result in the creation of new open water and restored wetlands. The cleanup will support the eventual delisting of the St. Louis River AOC and will benefit people who live, work and recreate in and around the AOC and the broader ecological system.

2021 Work Activities
Hydraulic dredging activities began in the Wire Mill Delta in August 2021 and were completed in November 2021. A residual cover, consisting of a thin layer of clean sand, was placed over the remediated dredged sediment surface to support the reestablishment of native species. Hydraulic dredging also took place in the North Dredge Area in November 2021 and will resume in summer 2022. During hydraulic dredging, contaminated sediment and water is pumped through temporary pipes to the Upland confined disposal facility (CDF), where it is processed to remove debris and placed in Geotubes® to divert. The water is collected and treated on-site at the water treatment plant before being discharged back into Spirit Lake. The Geotubes® will be buried in place within the Upland CDF.

(Continued on reverse page)

A hydraulic cutting head is attached to the dredge equipment in preparation for in-water dredging activities.

Dredge material from the Wire Mill Delta is pumped into Geotubes® in the Upland CDF.

Cleanup possible through GLRI

The Great Lakes Restoration Initiative, or GLRI, was launched in November 2011 to accelerate efforts to protect and restore the Great Lakes. Sixteen federal partners work together on five priorities:

- Cleaning up Great Lakes Areas of Concern
- Preventing and controlling invasive species
- Reducing nutrient runoff that contributes to harmful nuisance algal blooms
- Restoring habitat to protect native species
- Conducting education and outreach for future restoration efforts.

GLRI's funds provide up to 65% of the cost of cleanup with a non-federal entity contributing the balance through a Great Lakes Legacy Act partnership - under which the Spirit Lake work is being done. GLRI partnerships have cleaned up 27 sites in six Great Lakes states and remediated 4.6 million cubic yards of contaminated sediment.



QUESTIONS

