



# 2022 St. Louis River Area of Concern Celebration of Progress



**November 10, 2022**

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Melissa Sjolund (MNDNR) and Matt Steiger (WDNR)





Photo Credit: WDNR

- ✓ Celebrating 2022 work progress
- ✓ Planning for 2023 work
- ✓ Preparing for eventual delisting



Photo Credit: WDNR

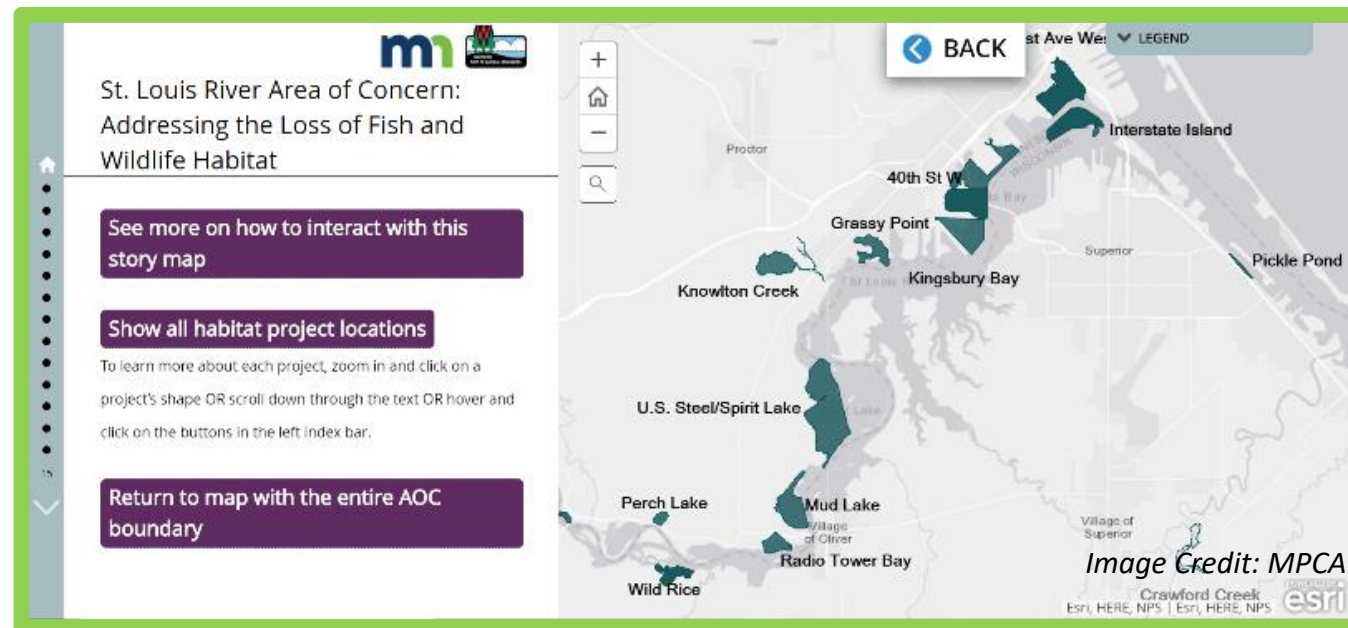


Photo Credits: MPCA



- MNDNR, MPCA, WDNR and SLRA web sites
- SLRA's social media posts & River Voice e-newsletter
- Minnesota and Wisconsin GovDelivery notices
- Story Maps for habitat restoration and contaminated sediment remediation projects:

- ✓ Status
- ✓ Goals
- ✓ History
- ✓ SLRAOC Features
- ✓ Revitalization Features

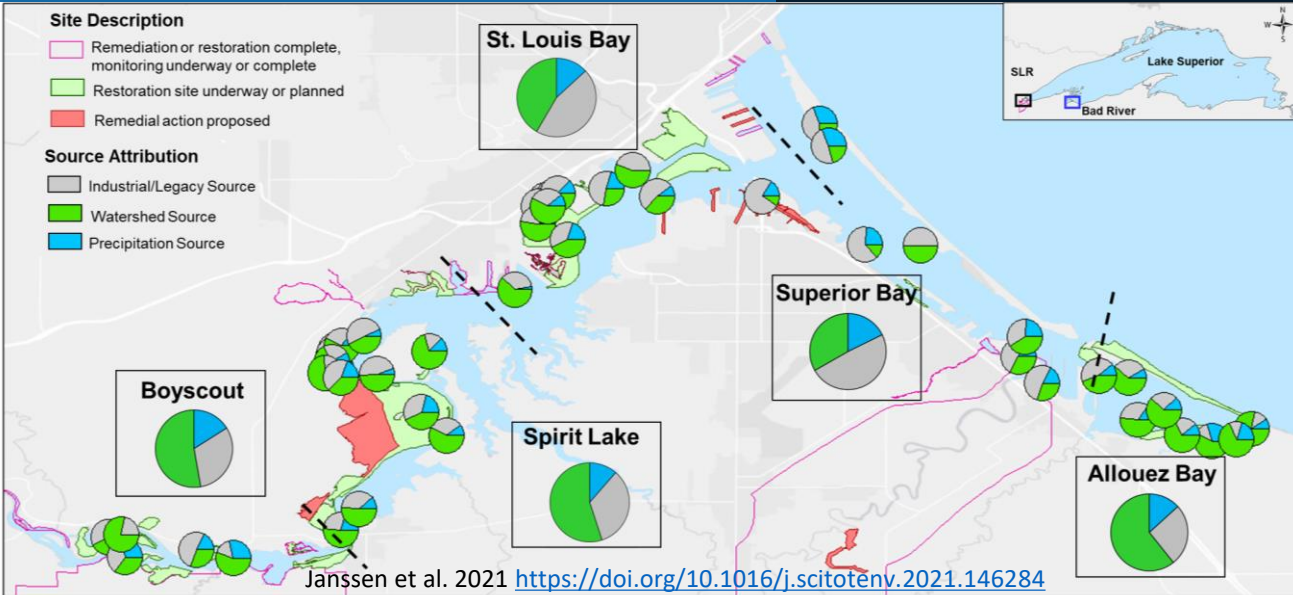


- ✓ Cost
- ✓ Funding Sources
- ✓ Partners
- ✓ Contact

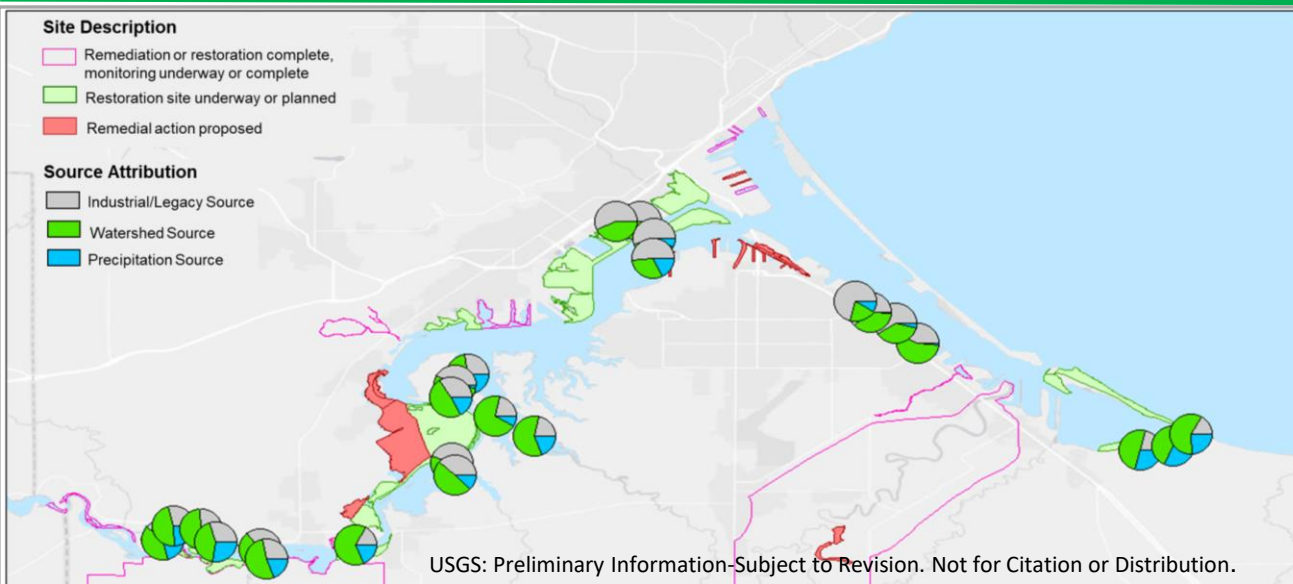
- **1W1P** – One Watershed One Plan
- **BUI** – Beneficial Use Impairment
- **cy** – cubic yards
- **EPA-GLNPO** – Environmental Protection Agency, Great Lakes National Program Office
- **FdL** – Fond du Lac Band of Lake Superior Chippewa
- **GLRI FA4** – Great Lakes Restoration Initiative, Focus Area 4
- **K** – thousand
- **LS LAMP** – Lake Superior Lakewide Action and Management Plan
- **MNDNR** – MN Department of Natural Resources
- **MPCA** – MN Pollution Control Agency
- **NRDA** – Natural Resources Damages Assessment
- **NRMPP** – Natural Resources Management Program Plan
- **OHF** – Outdoor Heritage Fund
- **PCB** – polychlorinated biphenyl
- **SLRA** – St. Louis River Alliance
- **SLRAOC** – St. Louis River Area of Concern
- **SLRNWT** – St. Louis River National Water Trail
- **SLRRI** – St. Louis River Restoration Initiative
- **TMDL** – Total Maximum Daily Load
- **TSCA** – Toxic Substance Control Act
- **WDNR** – WI Department of Natural Resources

# St. Louis River Area of Concern

## Celebrating Progress (BUI 1) Mercury research – led by USGS



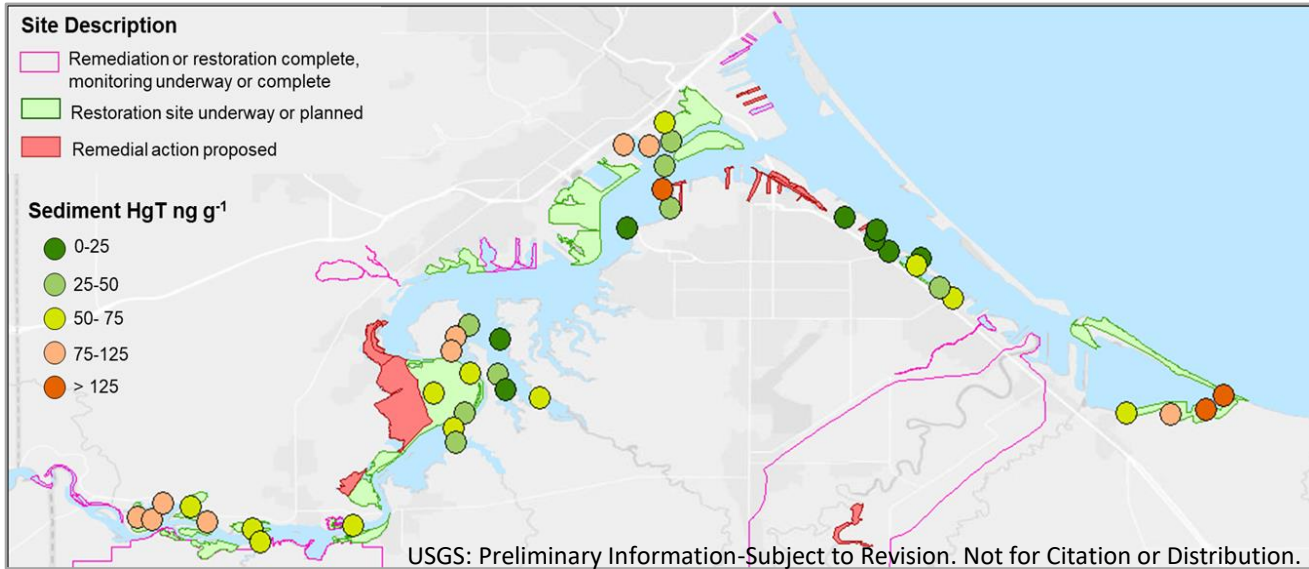
2017 Main Channel Sediment Mercury Sources: a mix of industrial, watershed, & precipitation sources, with industrial contribution predominant in lower St. Louis Bay & Superior Bay.



2021 Unassessed & Nearshore Areas Sediment Mercury Sources: confirms watershed sources predominate in nearshore sediments, with some precipitation contribution. Industrial sources remain prominent in lower St. Louis Bay & Superior Bay.

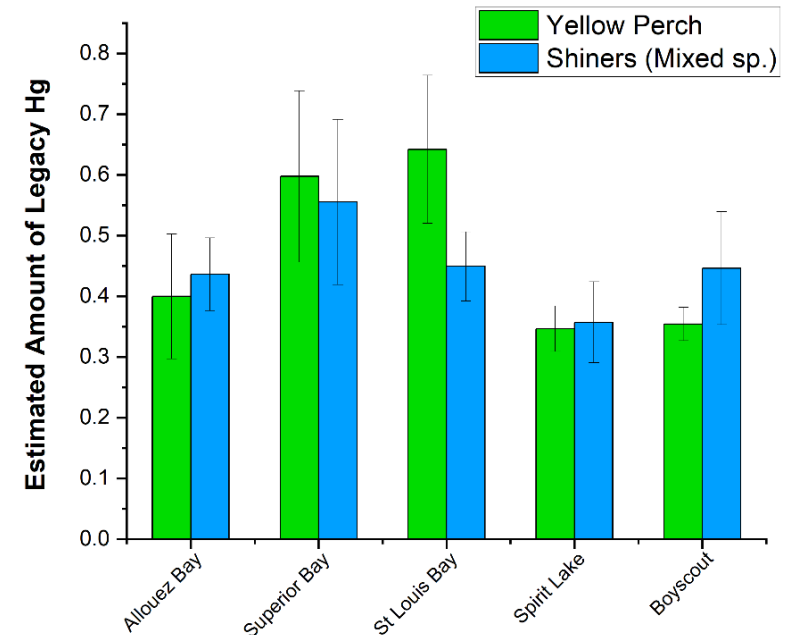
# St. Louis River Area of Concern

## Celebrating Progress (BUI 1) Mercury research – led by USGS



2021 Sediment HgT Concentrations: sampling in representative habitats & previously unassessed areas shows mercury concentrations to be *extremely low* in sediments of most regions. Nearshore areas have low total mercury & methylmercury, as compared to areas selected for remediation.

The estimates of methylmercury in fish tissue show the source is predominantly from non-legacy sources, with the exception of fish living in the lower St. Louis Bay and Superior Bay.



- Goal: systematically determine if PCBs in sediment contribute to PCBs in fish by investigating potential hot spots in Spirit Lake, St. Louis Bay, & Superior Bay (based on existing sediment data)
- How: measure PCB levels in Yellow Perch tissue to check for potential hotspots
- Why Yellow Perch? their home range is small (10 ha, about the size of 12 football fields)
- Yellow Perch Results: (still waiting on new sediment results):
  - PCB concentrations in Yellow Perch – generally low
  - The selected remedial project sites are addressing the major PCB problems; no new major problem areas identified
  - In some small, constricted areas, fish PCBs were modestly elevated (*remember that not all remedial projects are finished yet*)



## Degraded Fish and Wildlife Populations (BUI 2)

### Removal Process



- Complete MAs & meet Targets
- BUI leads draft removal pkg, then TT input
- SLRAOC Leadership Team review and input



- Present package for 30-day public review
- Develop responses to public comments



- Finalize removal package, respond to comments
- Submit package to EPA-GLNPO for review & concurrence

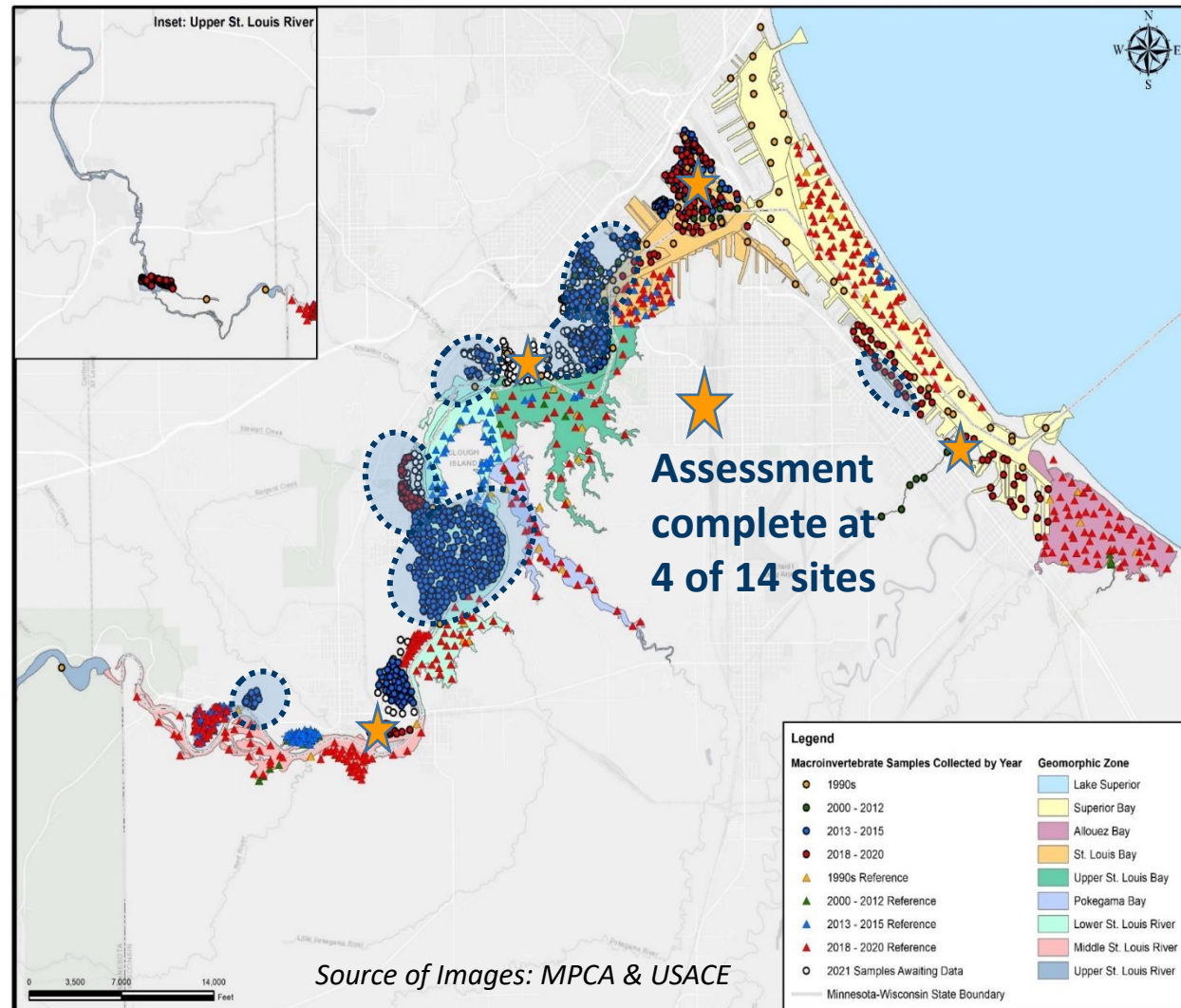
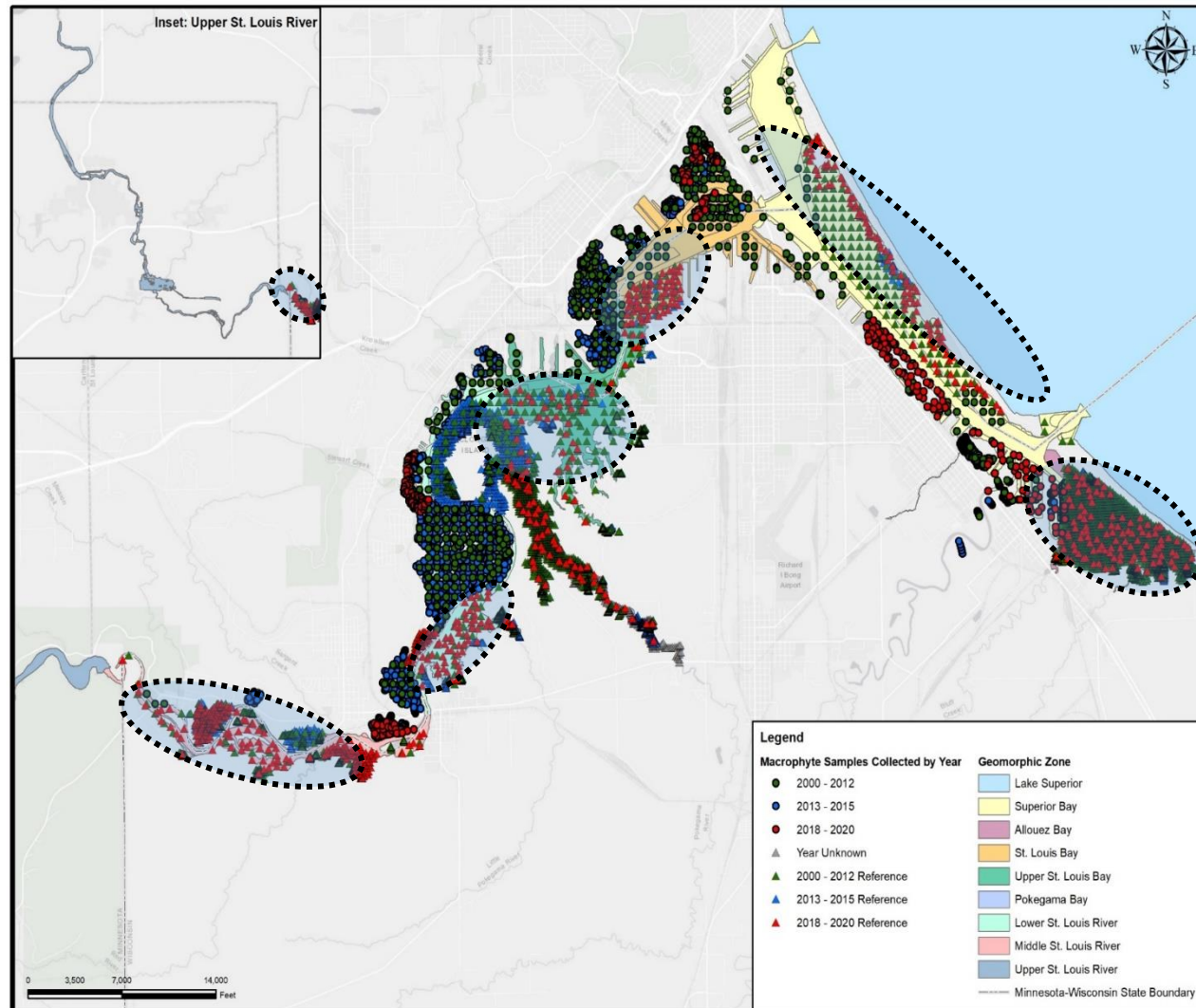




# St. Louis River Area of Concern

## Celebrating Progress (BUI 4) Assess Benthic Recovery – led by MPCA

Define “Reference Condition;” gather post-construction data at remediation & restoration sites.



- ~43,000 cy contaminated sediment dredged/removed
  - ~70% taken to offsite landfill, so far
- 275 cy contaminated upland soils removed/disposed
- 26,000 cy clean cover placed on pond base
- Rip rap placed to protect bridge piers
- Shoppers Creek restored
- 60-foot causeway opening – connectivity & fish habitat



- Placed 238 tons of pelletized activated carbon
- Placed 5,403 tons of sand in higher flow areas
- Remediated ~55,000 cy contaminated sediment
- Installing new access road, boat launch, & ADA-compliant access for fishing pier & paddle sport launch



Photo Credits



MPCA

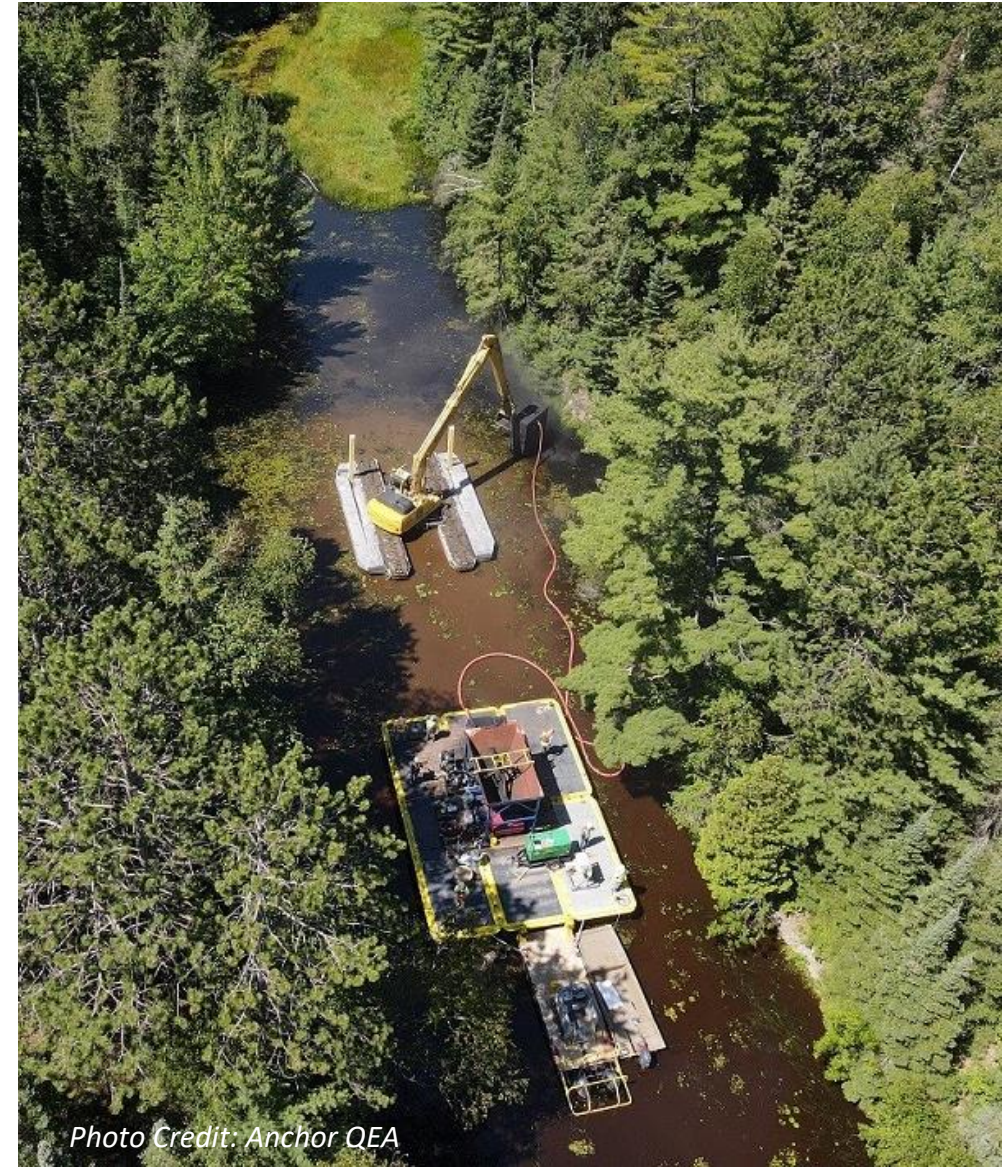


Photo Credit: Anchor QEA

- Debris removed & disposed at landfill
- Dewatering/water treatment system at Hallett Dock 7
- 487 cy TSCA soil & 282 cy TSCA sediment removed
- 455 cy non-TSCA soil & 21,834 cy of non-TSCA sediment removed
- 455 cy material disposed at offsite landfill, so far
- Investigating options for abandoned, in-water pipe



Photo Credits:



MPCA



Photo Credit: WDNR

## Howards Bay Remediation (complete 2021)

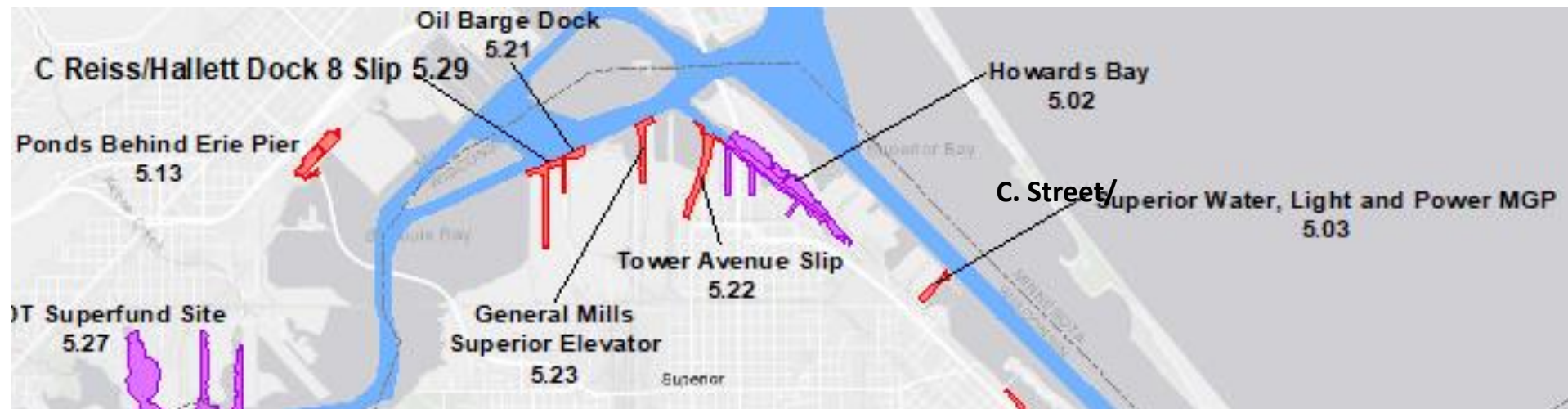
- Restoration and seeding of cap on closed landfill (2022)
- City of Superior led amenities to open public use (2023)
  - Walking trail, benches and open sided shelter

## Feasibility Studies Underway:

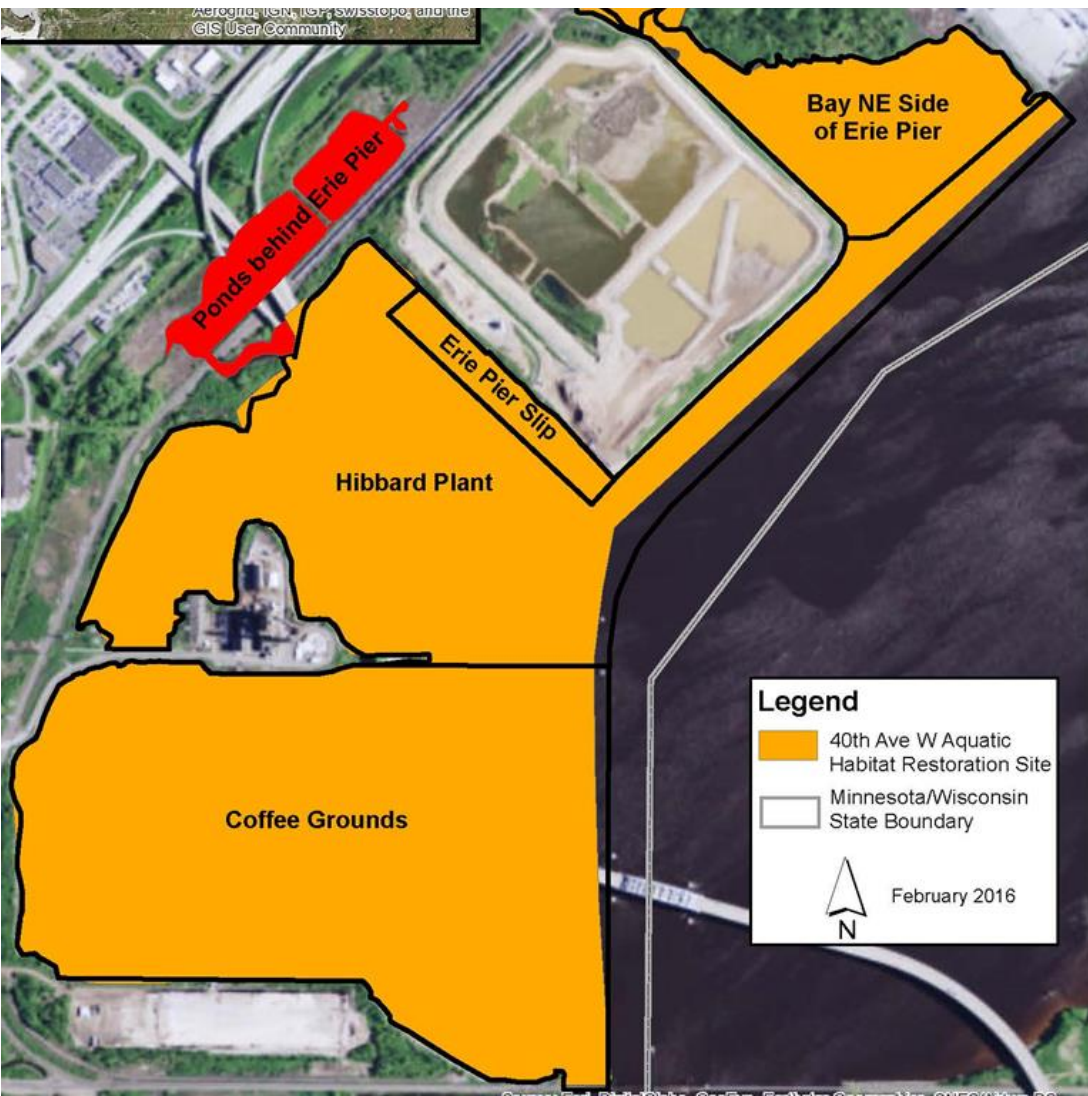
- Tower Ave Slip
- General Mills Slip
- Oil Barge Dock Slip

## Remedial Design:

- C. Reiss/Hallet Dock complete
- C. Street Slip/SWLP underway



2017/18: Shoals Constructed (300K CY)



2020: 6" layer of Kingsbury Bay bio-medium placed on the westernmost shoal & the southern 1/2 of the easternmost shoal (19K cy)

2022: 6" layer of "manufactured bio-medium" placed on other shoals (28K cyd)

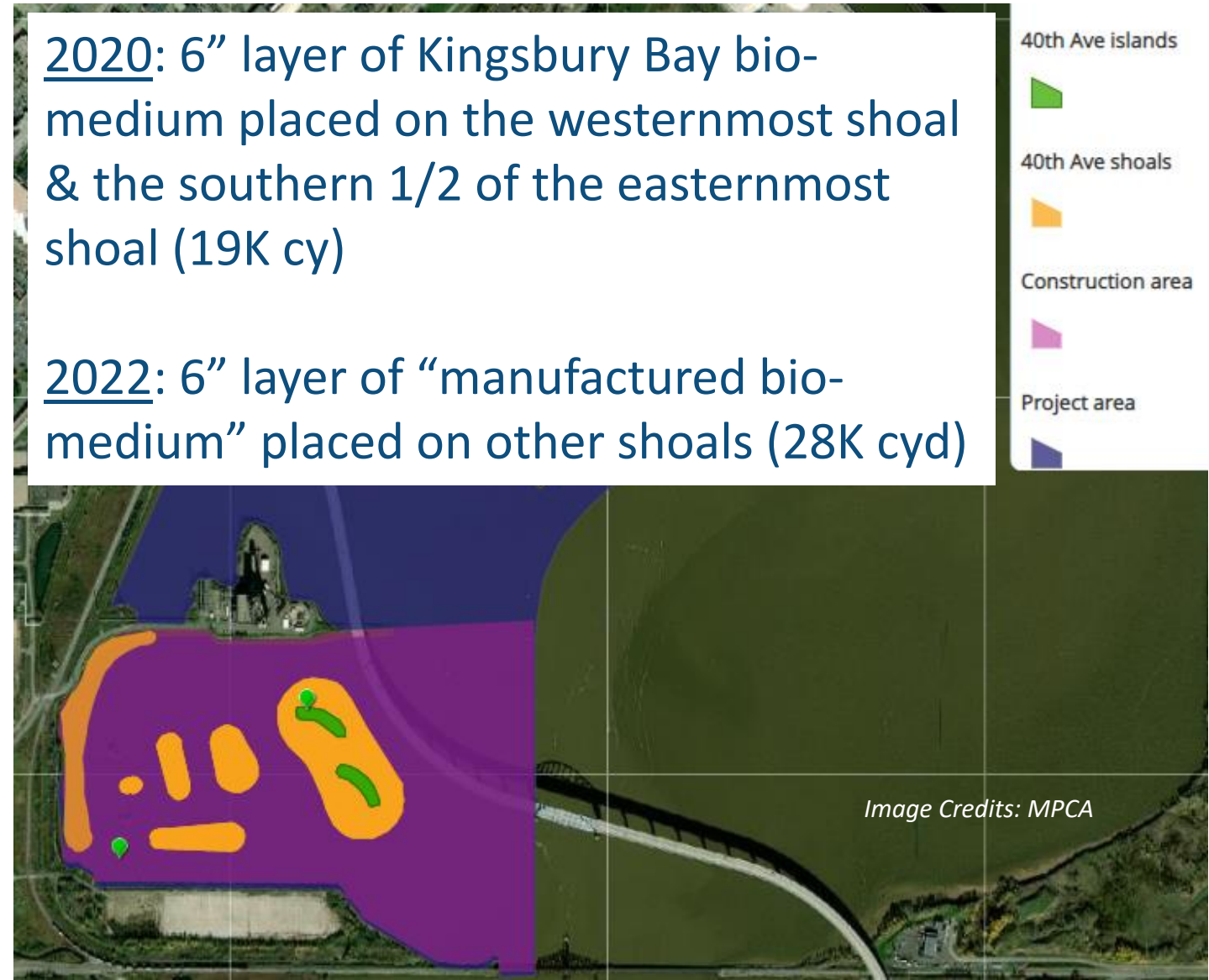
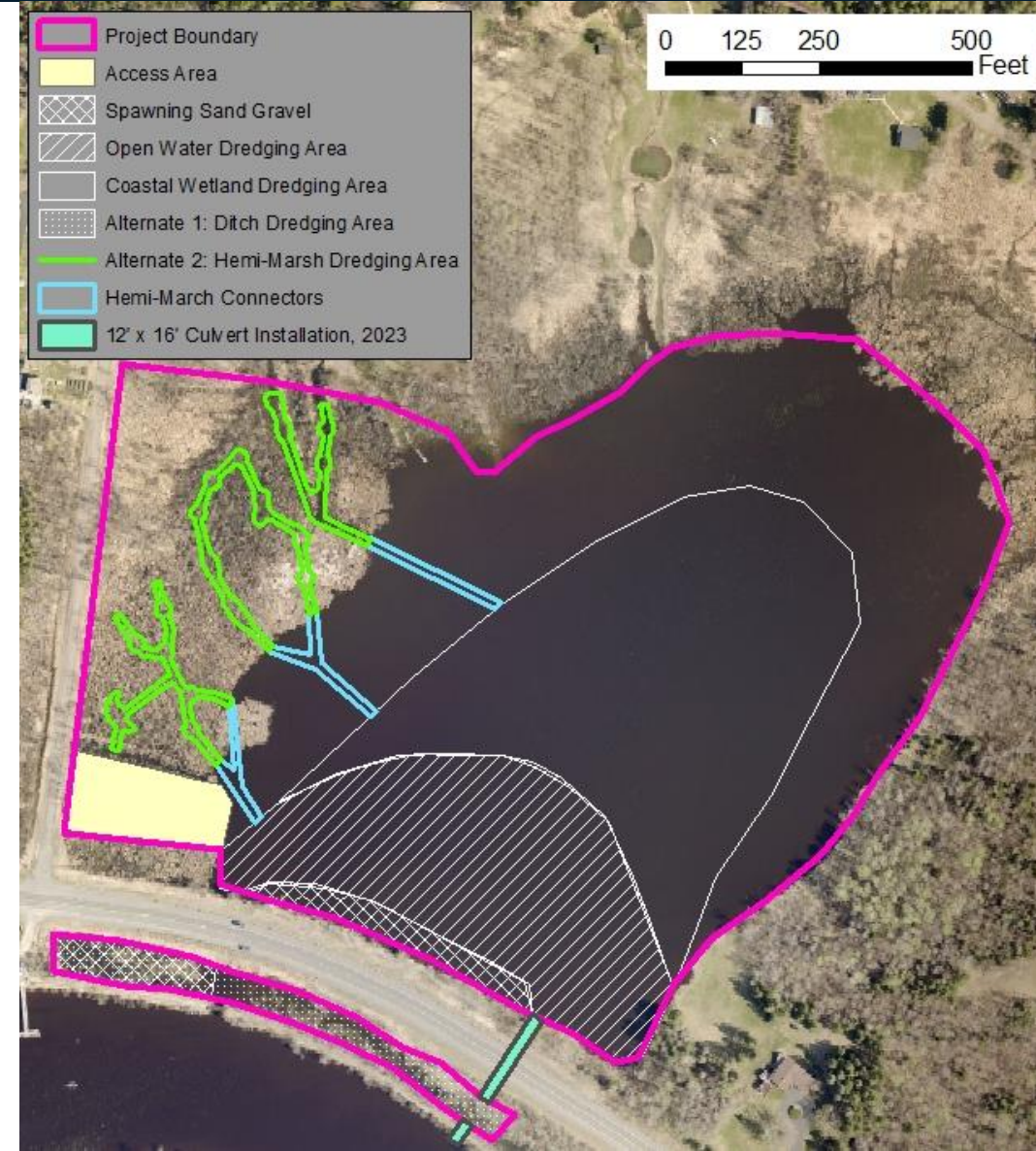


Image Credits: MPCA

- Phase 1 construction began in June
- Dredged ~60,000 cy clean sediment, with off-site beneficial use
- Constructed hemi-marsh habitat
- Constructed spawning habitat
- Initiated Phase 1 de-mobilization



Photo and image credit: MPCA



# St. Louis River Area of Concern

# Celebrating Progress (BUI 9) Mud Lake

- Data Collection Completed
  - Geotech, sediment, and wood waste – Meadows CMPG, Inc.
  - Bathymetry – Bay West
  - Vegetation – UWS/LSRI
- Hydrodynamic modeling underway
- Developing design alternatives



**2022 Sampling**



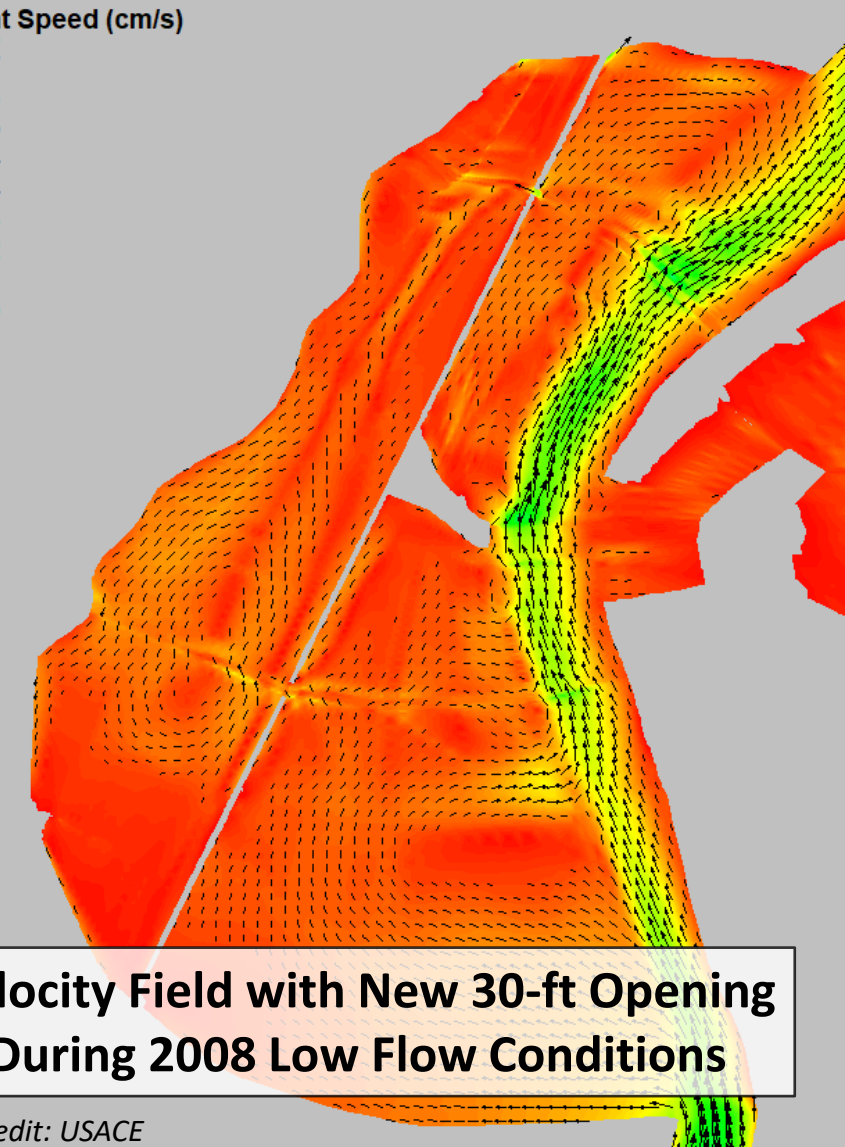
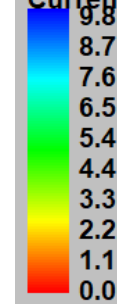
Image Credit: Google



Photo Credits: Meadows CMPG, Inc.

Jun 25, 2022 1:19:11 PM  
46.66076874N 92.2128422W  
321° NW  
2045-2025 Minnesota 39  
Duluth  
St. Louis County  
Minnesota

Current Speed (cm/s)



**Velocity Field with New 30-ft Opening  
During 2008 Low Flow Conditions**

Image Credit: USACE



Location	Pounds	Acres	Seed Rate (pounds/acre)	Seed Source
Allouez Bay	1,176	7.3	161.1	WDNR
Kingsbury Bay	500	2.5	200.0	SLRA
Landslide Bay	864	6.8	127.1	FdL
North Bay	557	4.06	137.2	FdL
North Duck Hunter Bay	1,304	13.42	97.2	FdL
Rask Bay	1,866	11.81	158.0	FdL
Walleye Alley	1,790	12.26	146.0	FdL
<b>TOTAL</b>	<b>8,057</b>	<b>58.15</b>		

- Substantial natural seed production in the SLR in 2022
- 37 goose exclosures installed (MN & WI)
- Goose roundup and removal implemented in WI



## Pickle Pond

- R2R Design and contracting complete
- Permits, agreements and land transfer

## Fish Passage- Little Balsam Ck; Gandy Dancer Trail

- Phase 2 Design ~75%
- State Building Commission Approval

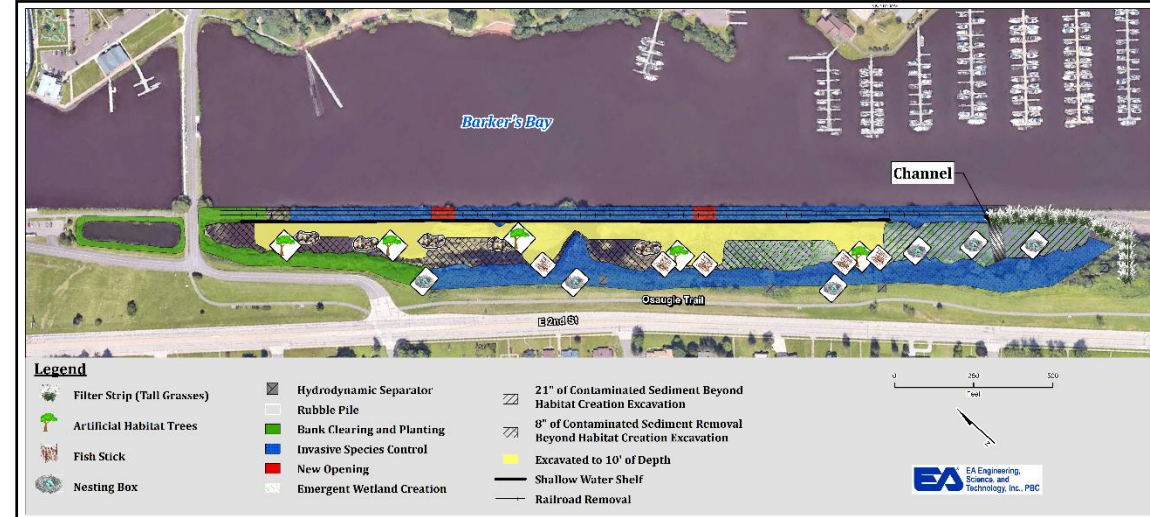
## Piping Plover Habitat Maintenance

- Debris, vegetation and nesting cobble work (SLRA)
- Planted 17,000 dune grass plugs (UW- Superior LSRI)



## Crawford Creek R2R

- Focused Feasibility Study underway



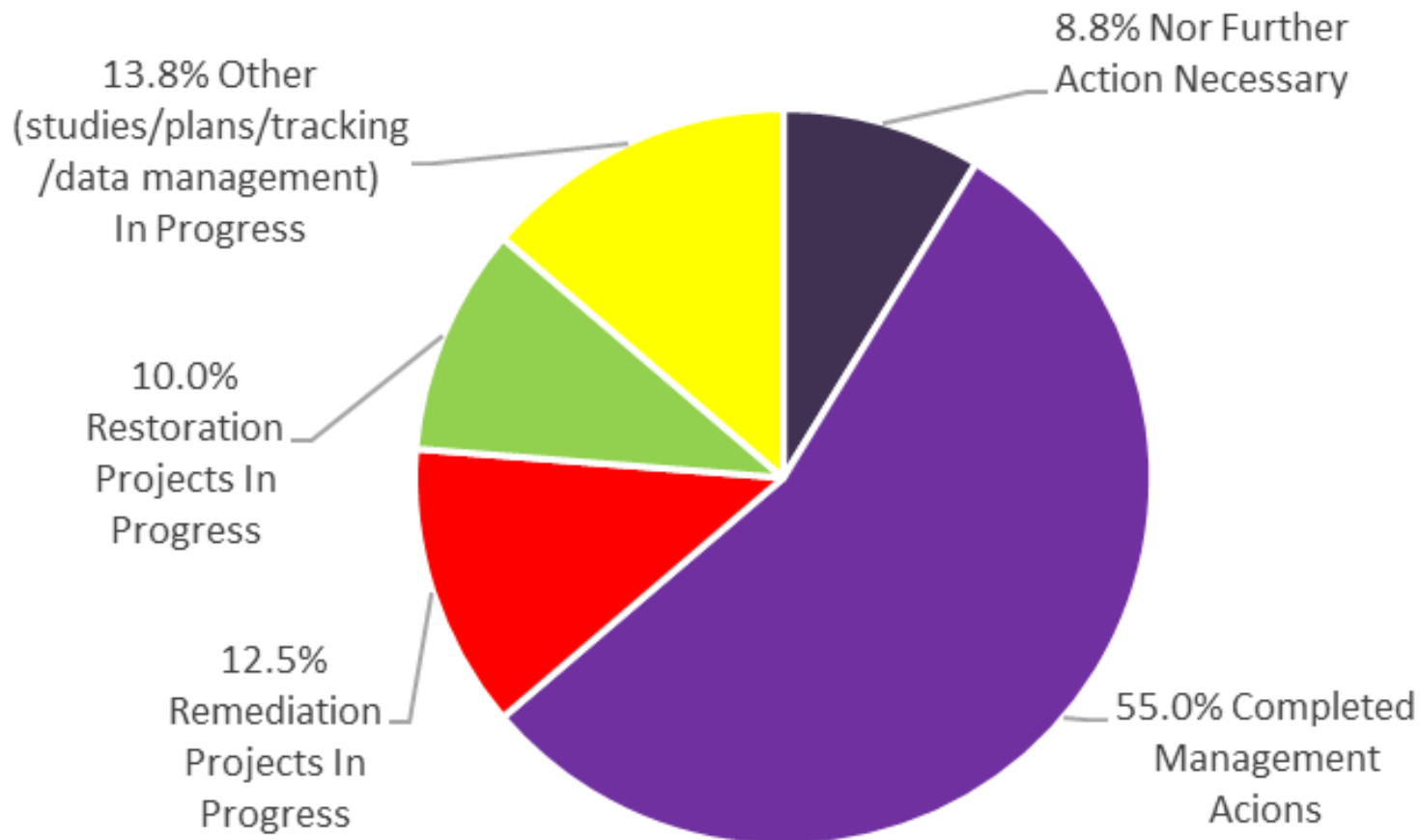
## Little Balsam Phase 1 Culvert: pre-culvert replacement



Photo Credits: WDNR

### Management Action Status (9/30/22)

**63.8% Complete**



7	No further action needed
44	Completed
10	Remediation projects in progress
8	Restoration projects in progress
11	Other in progress
0	Not started
<hr/>	
80	Total Management Actions

- Address abandoned sewer pipe
- Remove wetland sediments
- Remove contaminated sediments in WI
- Finish removing contaminated sediment in MN
- Place clean cover material over 38-acre site
- Place bio-medium to restore 8 acres of nearshore fish habitat
- Construct sandy kayak landing
- Restore boat launch and parking lots
- Restore upland vegetation
- Landfill ~100,000 cy of sediment
- De-mobilization & restoration of Hallett Dock 7

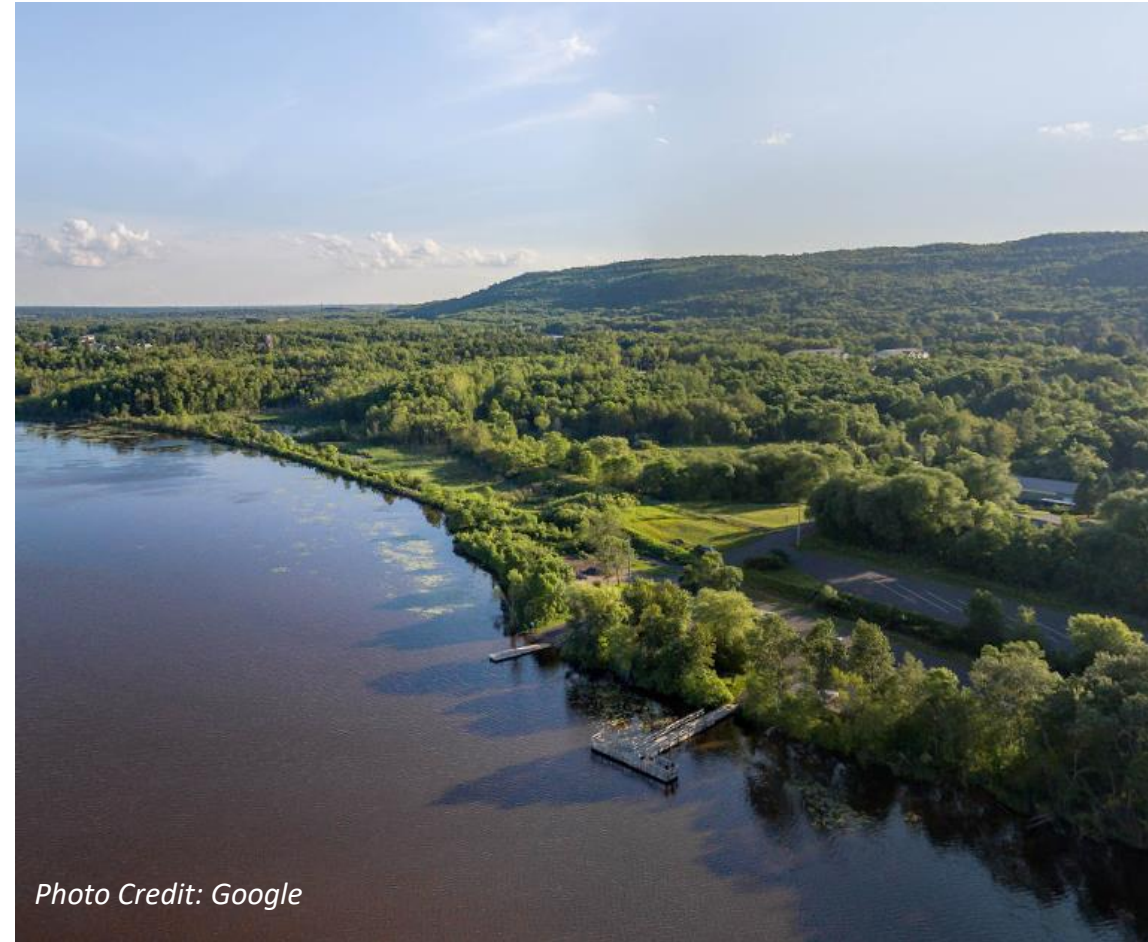
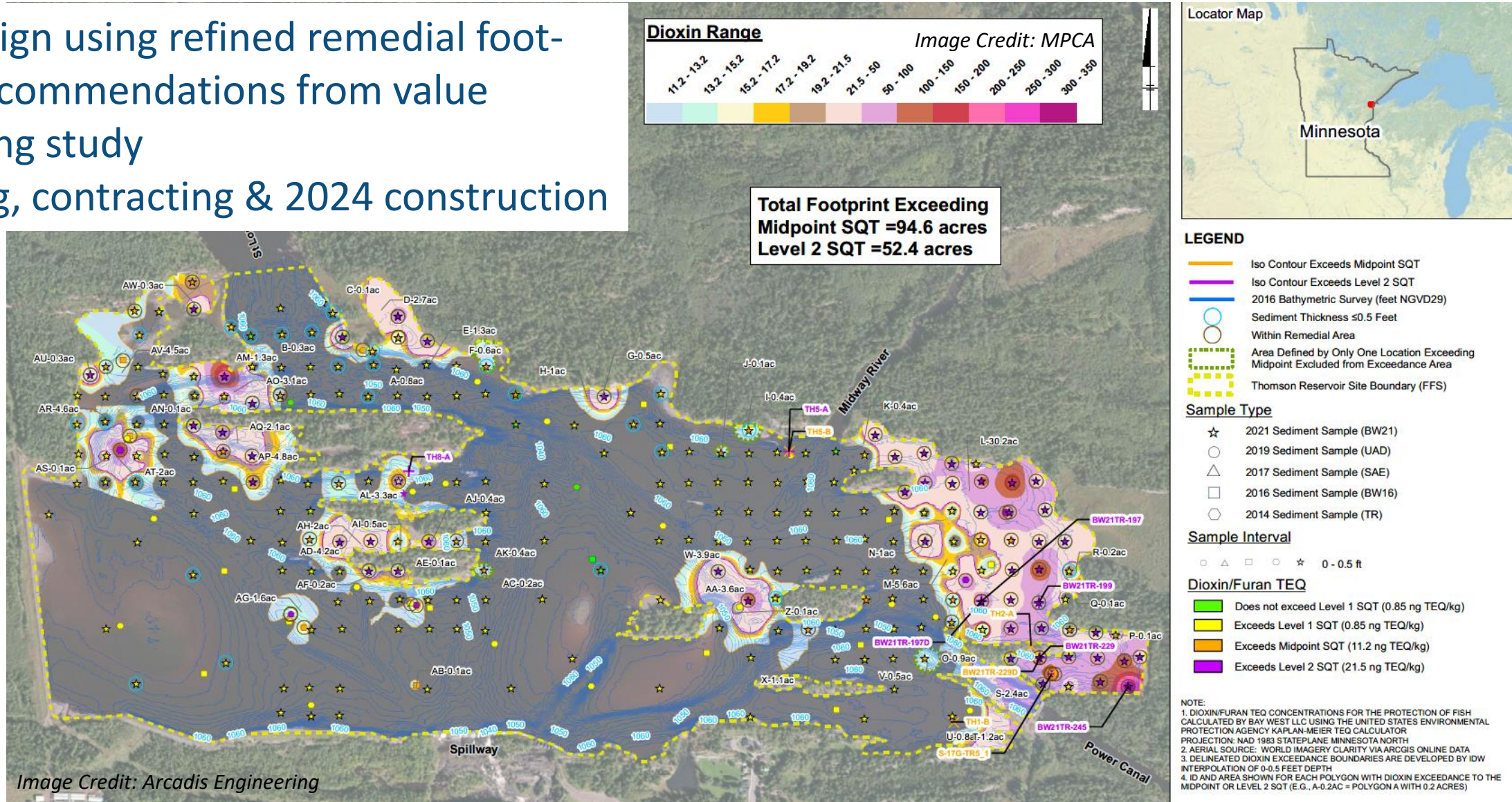


Photo Credit: Google

*Scanlon, Ponds & Spirit Lake have in-water work complete, with 2023 site restoration & closure.*

- Finish design using refined remedial footprint & recommendations from value engineering study
- Permitting, contracting & 2024 construction



- Winter 2022/2023: dredge “slough” between highway and trail, place spawning gravel
- Summer 2023: install culvert under highway
- Fall 2023: install culvert under trail (potential delay to 2024)



Photo Credit: MNDNR

Photo Credit: MNDNR

- Review results of 2022 sampling
- Complete modeling
- Continue advancing the design with US Army Corps of Engineers
- Complete environmental review, work on permits/agreements



Crawford Creek contaminated floodplain



### Crawford Creek R2R

- Feasibility study review

### Piping Plover Habitat

- Continue monitoring & maintenance

Pulling Spotted Knapweed at PIPL Site



Final barrier at Little Balsam Creek



### Little Balsam Fish Passage Phase 2

- 2023 construction on final barrier

### Pickle Pond R2R

- 2023 construction
- 2024+ monitoring & maintenance



Begin Pickle Pond remediation to restoration construction



- Install goose exclosures (~40)
- MN/WI goose management
- Harvesting & seeding
- Monitoring
- Restoration Plan update
- Plan toxicology study

Manoomin restoration is planned at up to 14 sites in the AOC, including Allouez Bay

Canada Goose Management Plan  
for the  
City of Duluth



September, 2022



Photo Credit: Steve Kuchera – Duluth News Tribune

## Hallett Dock 8/C. Reiss Coal

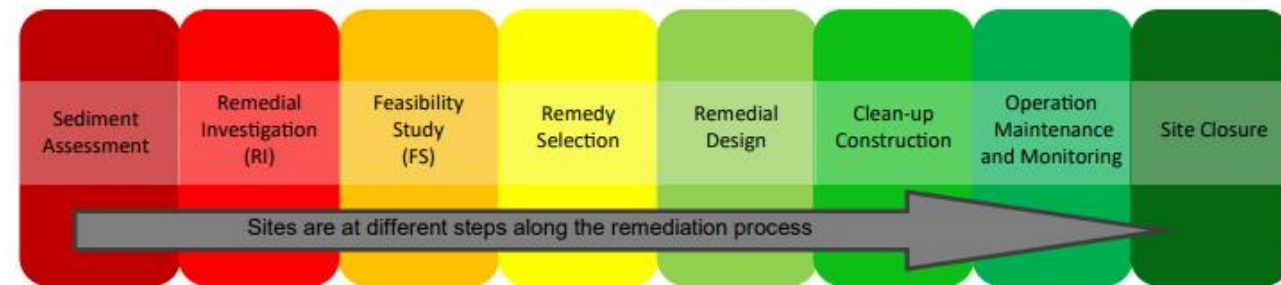
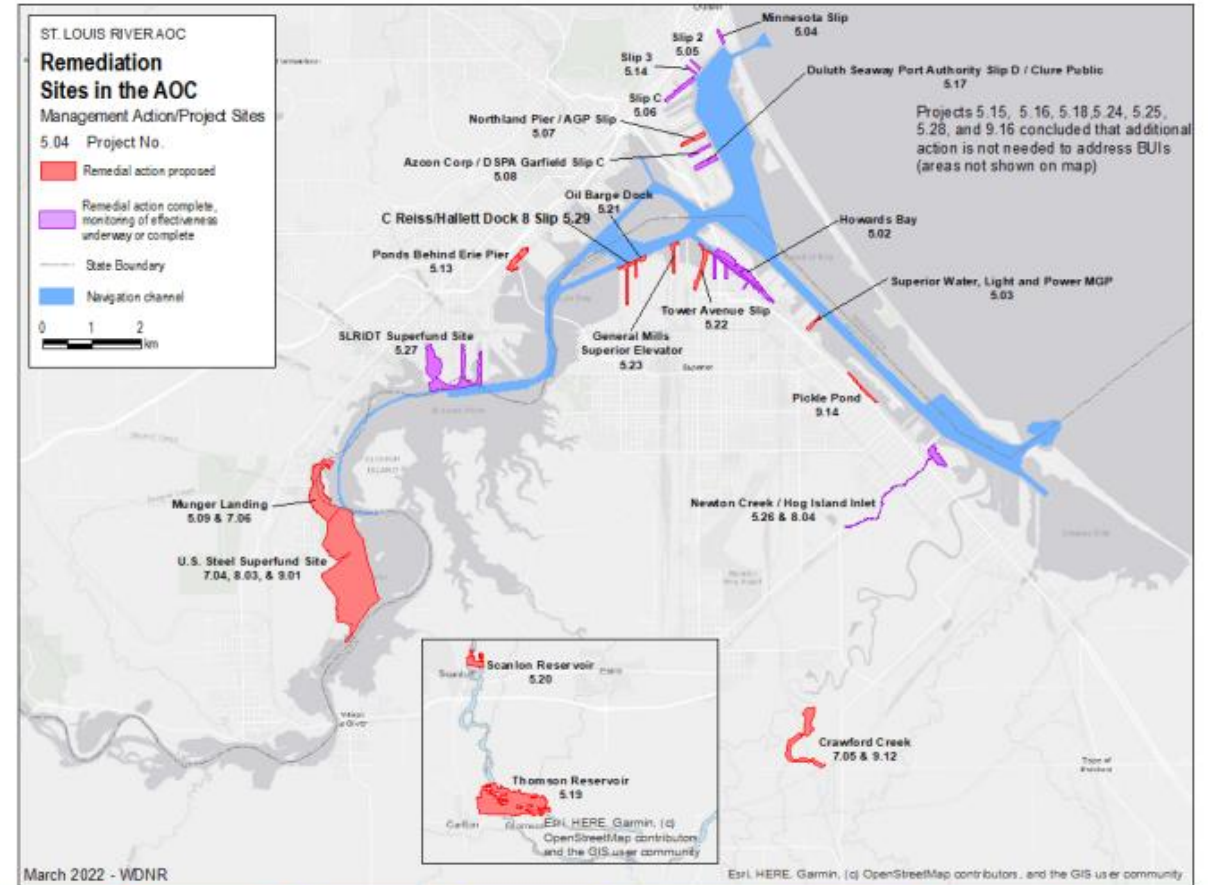
- Construction 2023

## C. Street Slip/SWL&P MGP Site

- Data review
- Upland source control project
- Remedial design

Complete Feasibility Study at three sites:  
*(Potential for project construction in 2025 or 2026)*

- Oil Barge Dock Slip
- Tower Ave Slip
- General Mills Slip



- Proposing 6 Regulated Navigation Areas at sites with engineered remedies
- Sharing data with local governmental units
- Archiving data & documents for future access
- Preparing Long-Term Monitoring & Maintenance Plans
- Embedding SLRAOC stories in the community

Image Credit: Barr Engineering

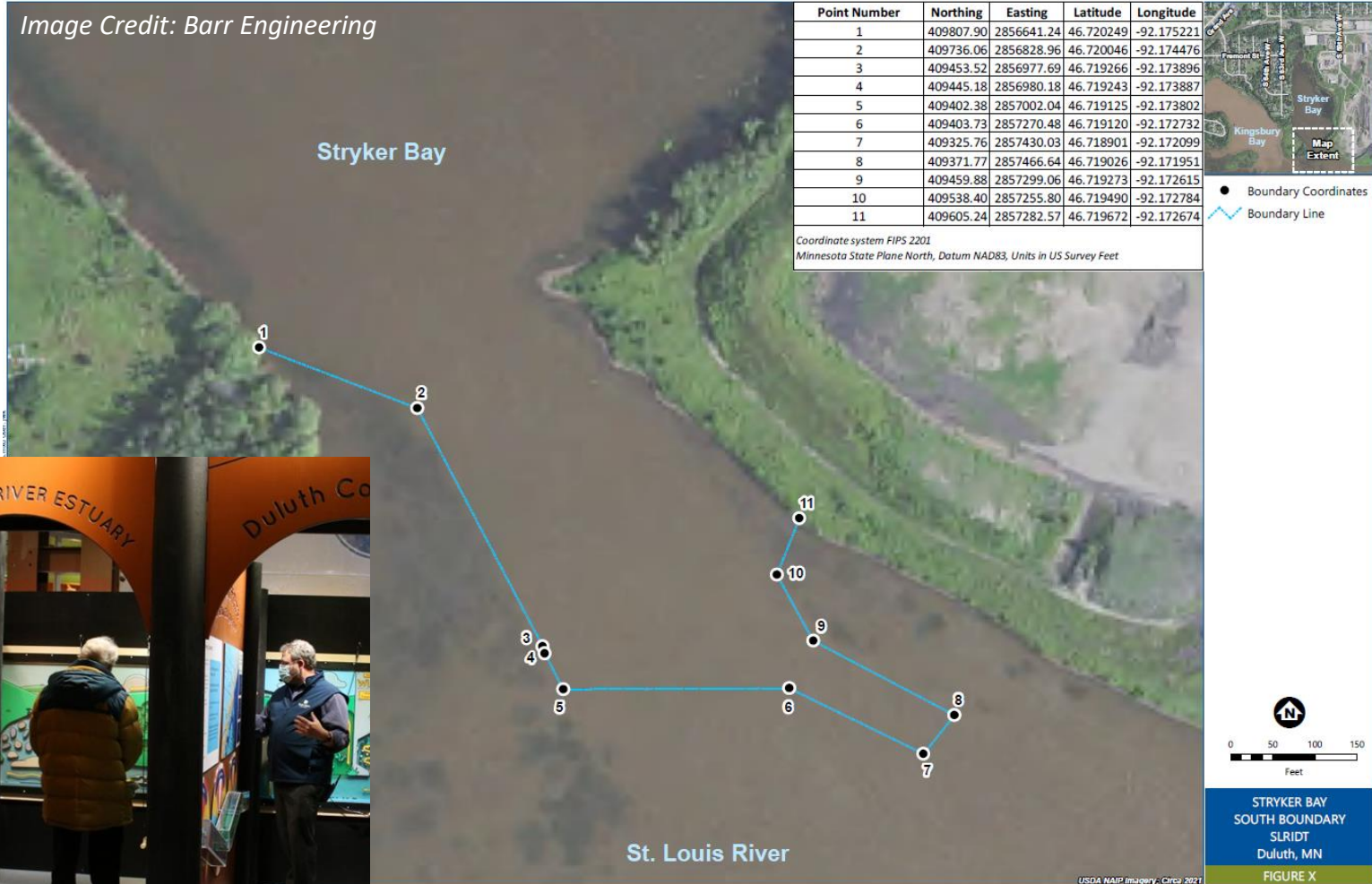


Photo Credit: MPCA

- Estuary-wide bathymetry
- Incorporating climate resiliency and environmental justice
- Project add-ons using other funds:
  - Hemi-marsh establishment @ Grassy Point (OHF, NRDA)
  - Shoreline softening @ Grassy Point (GLRI FA4)
  - Keene Creek coastal wetland (adjacent to Grassy Point) (OHF, GLRI FA4)
  - Kingsbury Creek (NRDA, OHF)
  - Lower Knowlton Creek Fish Passage (OHF)



- MPCA/WDNR – CWA enforcement & long-term maintenance plan implementation
- Implementing Duluth's Plans (NRMPP, SLR River Natural Area, Waabizheshikana)
- Grow the Lake Superior Headwaters Sustainability Partnership
- WDNR/Great Lakes Audubon FA4 Allouez Bay Marsh Bird Habitat
- Lake Superior Reserve: establish long-term monitoring plan
- Habitat Work Group: update Habitat & Wild Rice plans
- SLR Watershed 1W1P update in 2033
- SLRA – implement SLR NWT plan
- Data/document accessibility
- New LS-LAMP in 2025
- MNDNR – SLRRI



Lake Superior  
2020-2024 Lakewide Action & Management Plan



"Building a Collaborative  
Monitoring Strategy  
for a Changing St. Louis  
River Estuary"



Photo Credit: City of Duluth



Input opportunity coming soon  
for the 2022 Remedial Action Plan Update

Questions?

Ask now or visit the posters and chat with staff.