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Current RAP Partners

Arrowhead Regional Development Commission
 City of Duluth
 City of Superior
 Community Action Duluth –Duluth Stream Corps
 Douglas County, Wisconsin
 Duluth Seaway Port Authority
 Lake Superior BiNational Program
 Lake Superior National Estuarine Research Reserve(NERR)
 Metropolitan Commission –Harbor Tech Advisory Committee
 Minnesota Sea Grant
 Minnesota Lake Superior Coastal Program
 Minnesota Land Trust
 Natural Resources Research Institute (NRRI)
 St. Louis River Alliance (SLRA)
 The Nature Conservancy
 South St Louis Soil and Water District (SSLSWD)
 University of Minnesota Duluth (UMD)
 US EPA Midcontinent Division
 US Geological Survey (USGS)
 University of Wisconsin Superior (UWS)
 West Wisconsin Land Trust
 Western Lake Superior Sanitary District (WLSSD)
 Wisconsin Coastal Program
 Wisconsin Sea Grant
 1854 Treaty Authority

St. Louis River Area of Concern

2013 Progress Report



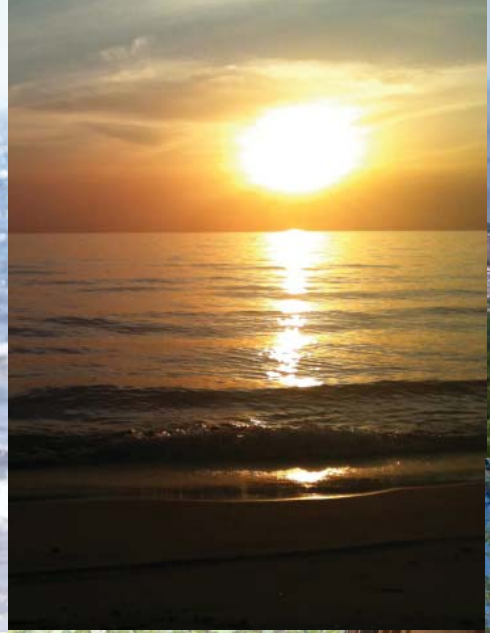
Prepared by the St. Louis River Alliance, a partner of the Area of Concern Coordination Team which includes:

Minnesota Pollution Control Agency
 Wisconsin Department of Natural Resources
 Minnesota Department of Natural Resources
 Fond du Lac Band of Lake Superior Chippewa



Funded by:





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Jack Ezell, Richard Hamilton Smith, Community Action Duluth

Working Harbor
Photo by Lynelle Hanson

<p>2010 Great Lakes Restorative Initiative established. Clough Island protected. Superior completes stormwater sewer separation.</p>	<p>2011 Spirit Island protected. Naturally reproducing sturgeon identified in estuary. SLRIT clean up and restoration complete. National Audubon Society names estuary Important Birding Area. Piping Plover Habitat Improvement Project.</p>	<p>2012 Priority restoration project planning & implementation at 40th & 21st Ave W. Duluth Stormwater Overflow Tanks completed.</p>	<p>2013 AOC-wide sediment characterization analysis complete. St. Louis River Implementation Framework Completed.</p>	<p>2025 Area of Recovery achieved and possible de-listing.</p>
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Area of Recovery by 2025

The Duluth-Superior Harbor is America's busiest inland port. It is a tremendous asset to the Twin Ports region - an area rich with natural resources for commercial and recreational growth.

This report celebrates many important actions that have taken place in the Area of Concern since its formal designation in 1989. The St. Louis River estuary was heavily impacted by historic land uses, dredging and the release of harmful chemicals.

Over the years, nearly one-third of the St. Louis River Estuary has been filled or dredged. These actions from the years prior to environmental regulation led to the loss of important habitat and a legacy of contaminated sediments.

While we reflect on the successful efforts to correct some of these legacy concerns over the past 24 years, we know much more work remains. Fortunately, the time is ripe for bold efforts to finish the job of

restoring the Area of Concern to an Area of Recovery.

Today, partnerships are strong and the potential is high for funding restoration efforts. Federal funding is through the Great Lakes Restoration Initiative (GLRI), and the Great Lakes Legacy Act (GLLA) and state funding is through Minnesota's Legacy Funds and Wisconsin's Knowles-Nelson Stewardship Fund.

"We have a really diverse fishery and the quality is really high... I would challenge you to find a higher quality fishery near a quarter million people."

John Lindgren
Fisheries Biologist
MDNR AOC Coordinator

There are also other state and local funding sources. Formal delisting of the Area of Concern is within reach!

The St. Louis River AOC Implementation Framework is being developed this year. This is an exciting cooperative strategic

planning effort funded by the GLRI which has involved input from over 100 partners.

State, federal and local agencies, the Fond du Lac Tribe, and other partners will release this consensus framework "roadmap" this year. It will provide a multi-year comprehensive strategic action plan that will clearly identify actions necessary to remove the nine Beneficial Use Impairments and ultimately delist the AOC - by 2025!

Future reports will highlight progress made towards the ultimate goal of delisting the AOC.

We look forward to a bright future that includes a healthy St. Louis River, an economically and ecologically sustainable asset for all.



Introduction

This report provides a summary of activities completed on the St. Louis River over the past 24 years to restore and revitalize this unique resource.

These efforts have addressed the significant pollution and habitat issues that led to the 1989 listing of the St. Louis River as an Area of Concern (AOC), one of the 43 most polluted sites around the Great Lakes. The ultimate goal is to "delist" the AOC.

Progress has been achieved through collaborative efforts between the local, state, and federal agencies, Fond du Lac Tribe, non-governmental organizations, academia, and the general public.

The Great Lakes Start Here!

The St. Louis River is the second largest river flowing into Lake Superior, running 179 miles from northeastern Minnesota through the St. Louis River Estuary to its outlet at the Duluth/Harbor. The natural outlet is near Superior, Wisconsin.

The St. Louis River Estuary is a 12,000-acre area located along the river's reach that runs between the cities of Duluth, Minnesota and Superior, Wisconsin. This area includes shallow backwaters, bays and islands that provide ideal habitat for many resident and migratory bird and wildlife species. It is a unique ecosystem with regional and global significance.

While parts of the upper estuary are almost wilderness-like, the lower estuary was dredged and filled to accommodate shipping traffic beginning in the 1860s. This created the largest industrial port on the Great Lakes. The Duluth entrance (now the site of the famous canal and lift bridge) was constructed in 1871 to provide an alternative entrance to the original Superior entrance.

The estuary has experienced many changes over the past 150 years. Logging cleared the landscape of vegetation for some time. It is estimated that between 50 and 100 dams existed along the St. Louis River during the 1800s to serve the

logging industry. Iron, shipbuilding, and the grain trade were major industries in the 1880s. Other industries included brewing, railway cars, iceboxes and refrigerators, flax, shoes, cigars and cigarettes, and coke from Lake Erie coal. Superior became a major petroleum-refining site. Duluth-Superior is now a regional hub for a variety of transportation modes; highway, rail, pipeline, air and waterborne shipping. The Duluth-Superior Harbor is America's busiest inland port with 1,000 vessels visiting annually carrying \$2 billion in cargo and supporting 2,000 local jobs with a \$210 million economic impact.



St. Louis River Estuary. Photo by Diane Desotelle

AOC Milestone Timeline

1989

St. Louis River AOC listed under Great Lakes Water Quality Agreement.

1992

Nine Beneficial Use Impairments formally listed.

1995

St. Louis /Red River Streambank Protection Area protected 5,000 acres & 5 miles of shoreline.

2002

Lower St. Louis River Habitat Plan completed. Lake Superior Beach Monitoring Program initiated.

2005

Hog Island -Newton Creek remediation completed. Magney-Snively Duluth Natural Area Program designated.

2008

MN & WI jointly developed BUI Removal Targets. MN Legacy Funds established.

In the 1980s, 43 Areas of Concern (AOC) were listed as the most polluted areas around the Great Lakes by the Canada-US Great Lakes Water Quality Agreement. These AOCs share a history of past industrial uses when, prior to environmental regulation, dumping waste on land and in water was commonplace.

These past practices left “legacy” pollutants in bottom sediment, which degraded habitat for fish and wildlife, and contributed to human health risks. The Agreement provides a framework for the US and Canada to work together to restore the integrity of the Great Lakes by addressing the environmental problems caused by past practices.

Today, the St. Louis River AOC is one of 38 remaining AOCs in the Great Lakes. The St. Louis River AOC encompasses portions of the St. Louis River watershed in Minnesota, the Nemadji River watershed in Wisconsin and the western tip of Lake Superior. The Nemadji River runs 65 miles through Minnesota and Wisconsin and is the last tributary to the St. Louis River. Actions to restore the AOC, however, focus primarily on the lower St. Louis River Estuary.

The St. Louis River was also listed as an AOC due to historic habitat loss from the extensive filling of wetlands and dredging of shallow aquatic habitat. In addition, the release of harmful chemicals contaminated the sediments and water in the river. Since 1861, nearly 3,000 acres of wetlands have been filled, and 4,000 acres have been dredged or deepened for navigation.

There is no clear documentation on how industries and municipalities in the Duluth-Superior area handled their solid and liquid wastes prior to the 1970s. A number of industries discharged directly and indirectly into the estuary. The AOC contains several sites that are known to contain hazardous wastes and chemical contaminants from these discharges.

These conditions led to a listing of nine “beneficial use impairments” (BUIs) within the AOC. These are issues that limit the use of the river by humans and wildlife. They are described on page 5. In order to remove (“delist”) the St. Louis River from the list of AOCs, the issues leading to these BUIs need to be resolved.



Canoeing on the St. Louis River. Photo by SLRA

Clean Up Plans and Progress

In 1992, a Remedial Action Plan (RAP) was developed to recommend actions within the AOC that will lead to the removal of the BUIs. Uses will be restored through programs and measures to control pollution sources, restore habitat and remediate environmental problems.

The goal of the RAP was to define problems and their causes, and recommend actions and timetables to restore all beneficial uses to the AOC. The development of the RAP was a collaborative effort between the Wisconsin Department of Natural Resources (WDNR), Minnesota Pollution Control Agency (MPCA), Minnesota Department of Natural Resources (MDNR), St. Louis River Alliance (SLRA) and many other agencies, stakeholders, and citizens.

The RAP was updated in 1995. In 2002, government agencies,

stakeholders, and citizens collaborated to produce the St. Louis River Habitat Plan to facilitate protection of the ecological diversity of the Lower St. Louis River in accordance with the RAP.

Many important clean-up projects have since occurred and today priorities for delisting the AOC continue to include remediation of contaminated sediments and habitat restoration.

Since 2010, Wisconsin and Minnesota have been working together on a strategic action plan to focus remediation and restoration projects on the most important sites. In addition, the states are jointly developing a data system to help assess, prioritize, design, and implement these projects.

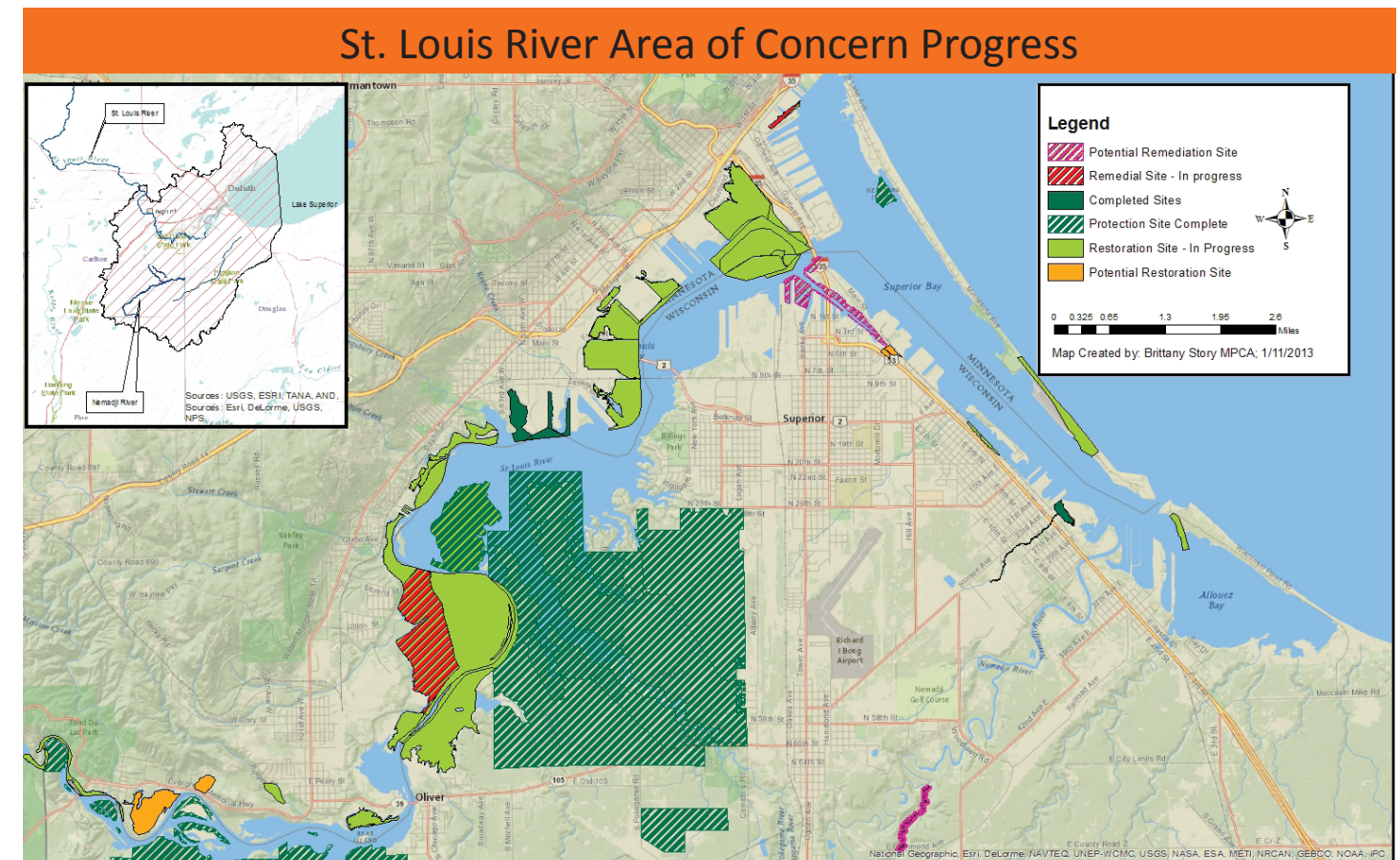
Achievements

- The cities of Superior and Duluth have done substantial work to control wastewater overflows that are due to excess stormwater entering the sanitary sewer system.
- Sediment quality studies and data management projects are being carried out by joint efforts between Wisconsin and Minnesota.
- Beach monitoring programs by both states provide information and education on the human health component at AOC area beaches.
- Education and information on preventing the spread of aquatic invasive species is provided to boaters and the public is provided by both states.
- A collaborative multi-year effort to sample for the incidences of fish tumors is underway.
- Habitat protection measures have been taken including Wisconsin’s creation of the St. Louis River Streambank Protection Area in 1995; the purchase of Clough Island in 2010 as a State Conservation Area; and Douglas County’s Hog Island restoration project. The MDNR and the MPCA are working on remediation and/or restoration projects (i.e., 21st Ave W, 40th Ave W, Grassy Point, Radio Tower Bay) with input from the WDNR, Fond du Lac Tribe, USACE, USFWS, City of Duluth and other partners.

Remediation and/or Restoration Projects Underway in 2012:

- Conceptual designs for 40th Ave W, Duluth. **8**
- Conceptual designs for 21st Ave W, Duluth. **9**
- Several hundred pilings removed from Radio Tower Bay. **3**
- Restoration on Clough Island. **4**
- Piping Plover habitat restoration on Minnesota and Wisconsin Point. **12 14 15**
- Conceptual designs for Pickle Pond. **17**

Please see map on page 6-7 for location of these projects.





Sturgeon Recovery 1

Lake Sturgeon were plentiful in the St. Louis River until the early 1900s, when their populations declined due to overharvesting, pollution and dam construction. In 1983, the MDNR and WDNR began stocking sturgeon fry in the river. In 2009, a project to improve habitat conditions for sturgeon-spawning was completed. Finally, in 2011, four young sturgeon were collected: the first evidence of sturgeon reproduction in many decades. This is a positive step towards the recovery of this species in the AOC.



Sturgeon in the St. Louis River Estuary. Photo by Bob Rashid

Protection and Restoration

Many habitat areas in the St. Louis River Estuary have been significantly impacted by past industrial practices such as steel making and sawmills. Many habitat restoration projects funded by state and federal agencies have been completed in recent years, such as the 1998 project at **Grassy Point 7** that removed sawmill waste and provided recreational access and the 2010 project that restored the **Tallus Island 5** water access. Other natural areas such as **Clough Island 4** have been purchased or set aside by state agencies and non-profits to preserve critical shoreline habitats or provide recreation or cultural access to resources. Significant efforts have included the **Red River Breaks Stream Bank Protection Area 2** by the WDNR and the purchase of **Spirit Island 16** by the Fond du Lac Tribe.

Please see map on page 6-7 for location of these projects.

BUI 1. Restriction of Fish Consumption: Contaminant levels in fish exceed state standards for mercury and polychlorinated biphenyls in Minnesota and Wisconsin at levels greater than other areas due to legacy contaminants.

BUI 2. Degradation of Fish and Wildlife Population: Fish and wildlife management programs have identified degraded populations of fish and wildlife due to pollutants, habitat loss, and invasive species.

BUI 3. Fish Tumors and Deformities: Fish tumors and lesions have been observed and studies are underway to understand if there is any correlation to contaminated sediments.

BUI 4. Degradation of Benthos: Degraded benthos (organisms living on or in the bottom of a body of water) density, diversity, and species richness have been found due to physical disturbances or proximity to known pollutants.

BUI 5. Restrictions on Dredging Activities: Sediment dredged to maintain the shipping channels have been known to contain a variety of toxic and/or bio-accumulative contaminants which may place restrictions on dredging.

BUI 6. Excessive Loading of Sediments and Nutrients: Persistent water quality problems were identified including increased nutrients (particularly phosphorus and nitrogen). Decreased water clarity due to sediments can lead to reduced water quality in both the St. Louis River and Lake Superior.

BUI 7. Beach Closing and Body Contact: Potential sources of microbial contamination (i.e., fecal coliform) exist. High levels of fecal coliform is an indicator of detrimental health effects from total body contact recreation such as swimming and boating.

BUI 8. Degradation of Aesthetics: The aesthetic values of some areas have been impaired due to oil slicks, chemical residues, taconite pellets or rotting grain residue on the water.

BUI 9. Loss of Fish and Wildlife Habitat: Extensive loss of fish and wildlife habitat due to land alterations, contaminated sediments, invasive species, and high sedimentation rates has impaired fish and wildlife management goals.



Wisconsin Point DNR Shorebird Sanctuary Piping Plover habitat restoration. Photo by SLRA



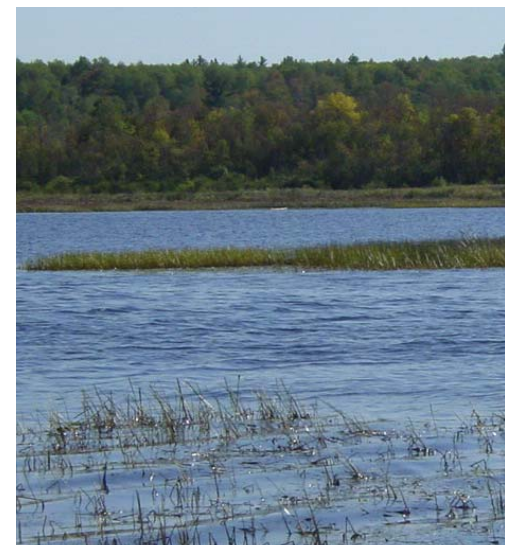
Harbor tugboat. Photo by Diane Desotelle



Green Heron on Clough Island. Photo by Diane Desotelle



Removing pilings in Radio Tower Bay. Photo by SLRA



St. Louis River Estuary. Photo by The Nature Conservancy

Area of Concern Achievements

Wastewater Treatment 10

Prior to the 1970s untreated sewage and industrial waste was a significant source of pollution in the St. Louis River. Water quality conditions improved quickly after the start-up of Western Lake Superior Sanitary District (WLSSD) in 1978. In addition to WLSSD, improvements to the wastewater treatment facility in Superior, Wisconsin eliminated the daily load of pollutants to the St. Louis River. Upgrades to wastewater facilities, pipes and holding tanks have continued in recent years, and water quality (bacteria and nutrient levels, dissolved oxygen, etc) has improved as a result.



WLSSD wastewater treatment plant. Photo by WLSSD

Stormwater Upgrades

Stormwater runoff from residential and commercial property owners, as well as streets has been a major contributor of nonpoint source pollution in the St. Louis River. Several municipalities, counties, and other stormwater permit holders have formed the Regional Stormwater Protection Team (RSPT). The mission of the RSPT is to educate residents and municipalities on how to prevent stormwater runoff, thereby reducing the quantity of water and the amount of pollutants entering nearby waterbodies. WLSSD and the cities of Duluth and Superior have also worked to prevent the inflow and infiltration of stormwater into sanitary sewers which can cause sewage overflows.

Mercury Reduction Efforts

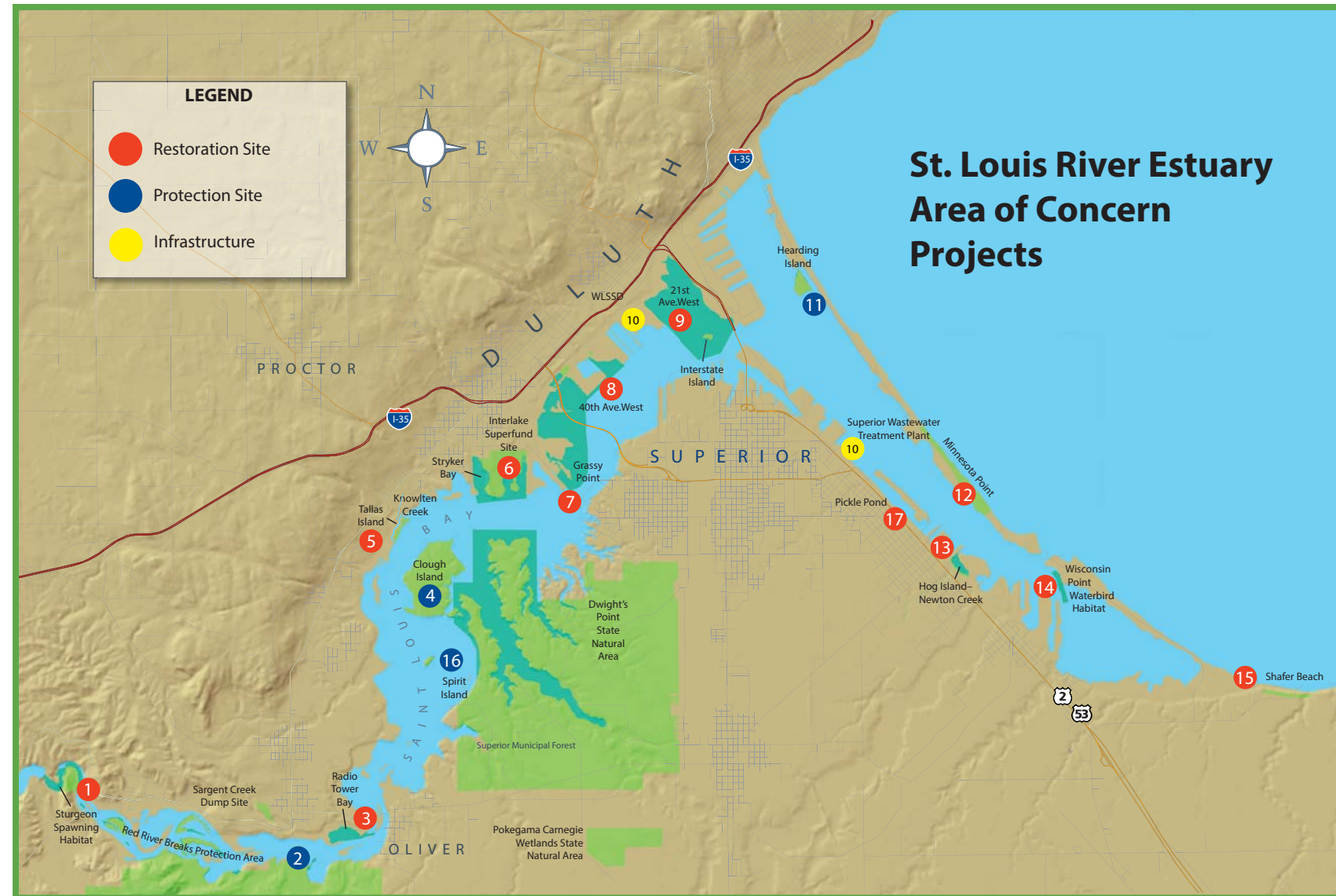
Mercury is a persistent toxin that accumulates in the food chain, leading to fish consumption advisories or hazards for wildlife that consume fish. WLSSD has successfully reduced mercury in wastewater by encouraging industries to use low to no-mercury chemicals and installing amalgam separators in dental offices. They also run a Household Hazardous Waste facility to encourage residents to properly dispose of fluorescent light bulbs and thermometers and other sources of mercury in the home. These actions help reduce the amount of mercury entering the St. Louis River and the larger environment.

Clean-up of Major Contaminated Sediments

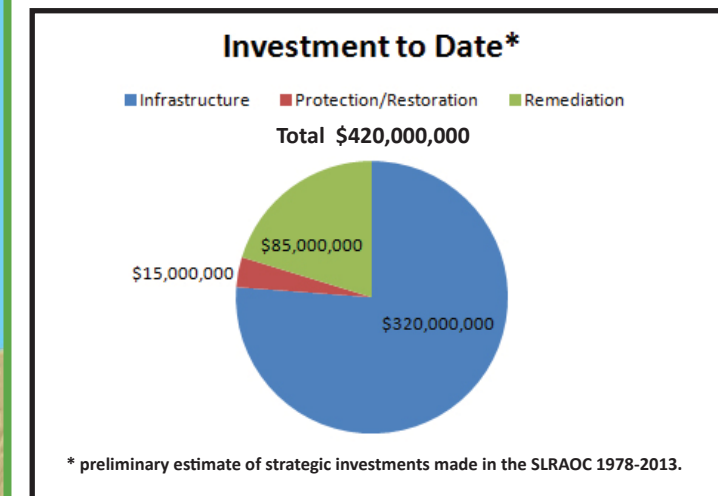
While the discharge of harmful chemicals by industries stopped decades ago, there are sites in the river where these legacy toxic chemicals still remain in the sediment. Several of these contaminated sites are being addressed by regulatory and resource management programs in the states of Wisconsin and Minnesota, as well as federal programs.

The state of Wisconsin teamed up with the EPA through the Great Lakes Legacy Act to clean up the **Hog Island/Newton Creek 13** inlet in 2005. Additional resources were secured to implement habitat restoration in this area.

In Minnesota, the Superfund site known as **St. Louis River Interlake Duluth Tar (SLRIDT) 6** was cleaned up and restored in 2011. Plans to address clean-up of the contaminants at the former U.S. Steel Duluth Works are now underway via the Great Lakes Legacy Act.



Hog Island. Photo by SLRA



Dredging in the Harbor. Photo by Diane Desotelle