

Tour spotlights stormwater work, post-flood habitat restoration



The St. Louis Estuary is the largest freshwater estuary in North America and is the headwaters of the Great Lakes. Over the past 150 years, commercial uses in the estuary disrupted and altered natural habitats as shorelines and near-shore areas were dredged and developed, and chemicals contaminated the water. Restoration efforts in the estuary center on once-plentiful wild rice and critical spawning habitat for fish.

Photo Credits: Ashley Rezachek, BWSR



Clean Water Funds supported some of the conservation projects featured during the annual BWSR Board tour in Duluth.

During a four-stop tour of projects throughout Duluth, Minnesota Board of Water and Soil Resources (BWSR) and South St. Louis Soil and Water Conservation District (SWCD) staff members highlighted conservation and water-quality outcomes.

The annual BWSR Board tour drew almost 50 people including BWSR staff and BWSR Board members. Partners who delivered presentations represented the city of Duluth, Minnesota Department of Natural Resources (DNR), Minnesota Pollution Control Agency, Fond du Lac Band of Lake Superior Chippewa and the 1854 Treaty Authority.



Each August, BWSR Board members and staff tour conservation sites with ties to BWSR's work to see project outcomes and accomplishments. Destinations rotate each year and are held in all regions of Minnesota.

Featured sites all drain to Lake Superior. Highlighted work included stormwater improvements, habitat enhancements, shoreline restorations and erosion control.

“Duluth has 42 named streams and 10,000 acres of public land; both estuary and, of course, the greatest of the Great Lakes, Lake Superior,” Duluth Mayor Roger Reinert said in a welcome message.



Left and middle: Tour participants viewed Miller Creek, a designated trout stream in Duluth, which flows from the Miller Hill Mall area through Lincoln Park to Lake Superior. Stormwater treatment improvements installed in 2023 included a rain garden, a native species pollinator planting and bioswales. These improvements help filter, cool and slow stormwater runoff before it reaches the stream. **Right:** City of Duluth Construction Project Coordinator Ron Hurd answered questions about the Lincoln Park project.

“Land stewardship in the city of Duluth is a monumental task.”

Duluth faces challenges such as aging infrastructure, stormwater runoff and erosion. The city and other conservation partners continue to address issues related to the 2012 flood.

In June 2012, a 7.25-inch, two-day rainfall caused serious damage in Duluth. Streambanks eroded, threatening private and public infrastructure and degrading the riparian and in-stream habitat and biota. Flooding significantly damaged many of Duluth’s 16 cold-water trout streams. Substantial flooding was reported in many areas around Duluth, leading to several road closures, including Highway 61 and Interstate Highway 35.

The event triggered a Presidential Major Disaster Declaration on July 6, 2012. On Aug. 24, 2012, Gov. Mark Dayton signed a \$167 million disaster relief bill to help Duluth and nearby impacted areas.

Many tour stops included sites where the 2012 flooding negatively impacted the area and its

natural resources.

The first stop showcased [stormwater improvements at Lincoln Park](#). Miller Creek, a designated trout stream with a temperature impairment, flows through heavily developed areas of Duluth and passes through the 45-acre Lincoln Park on its way to Lake Superior. Untreated stormwater carries sediment and pollutants and increases water temperatures, which impacts cold-water species such as trout.

The \$4.2 million park revitalization project completed last year included BWSR-backed stormwater treatment improvements. These improvements included a rain garden, a native species pollinator planting, three bioswales, three tree trenches and three biofiltration basins.

The next stop highlighted shoreline and habitat restoration work in the Chambers Grove Park area and the St. Louis River Estuary. The estuary marks the confluence of the St. Louis River and Lake Superior and is the headwaters of the Great Lakes. Chambers Grove Park borders a section of the St. Louis River

near Duluth’s Fond du Lac neighborhood. This area serves as a critical spawning area for Lake Superior’s migratory fish species, including sturgeon, walleye and longnose sucker.

The city park was built next to the river in the 1960s. At that time, the shoreline was stabilized with a wall of steel sheet piling and a wooden boardwalk. This stabilizing technique eliminated the shallow, slow-moving water needed for fish-rearing and did not accommodate spawning habitat for lake sturgeon.

Commercial use of the estuary altered the natural habitat. Where once an estimated 3,000 acres of wild rice grew, now only a few pockets remain.

The 2012 flood damaged the park’s walkway and fishing pier. When the city of Duluth began planning for repairs, [St. Louis River Area of Concern](#) (AOC) partners recognized it as an opportunity to incorporate habitat restoration into park improvements. The U.S.-Canada Great Lakes Water Quality Agreement [defines an AOC](#) as a geographic area where human activities have

significantly damaged the environment.

The Chambers Grove aquatic restoration project was completed in 2015, with 1,000 feet of restored shoreline habitat stabilized with toe wood and three in-water water control/spawning structures.

Tom Howes, natural resources program manager for the Fond du Lac Band of Lake Superior Chippewa, shared the history of the Fond du Lac Band, treaties, wild rice (called “manoomin” in Ojibwe) and some of the restoration efforts the Band has coordinated with state agencies.

“The way I was taught growing up is that we also have a responsibility. I wouldn’t be here today if it wasn’t for all the fish that are in this river and the trees that are around here, and the wild rice that’s in this estuary. Those things are all really central to our culture, and so that’s why our ancestors stipulated for that in our treaties,” Howes said.

The Fond du Lac Band of Lake Superior Chippewa has a vested interest in the environmental

protection of the area and resource projects, including wild rice restoration work.

The Chambers Grove aquatic restoration work also included reseeding wild rice and managing seven sites within the estuary covering more than 200 acres. In partnership with the Fond du Lac Band of Lake Superior Chippewa, 1854 Treaty Authority, Minnesota DNR and Wisconsin DNR, seeding is in progress and is set to be completed by 2026. This work includes managing the sites by reducing competition from other vegetation and guarding sensitive wild rice beds from grazing waterfowl. These efforts are a part of a larger AOC delisting effort.

Duluth-area DNR biologist John Lindgren discussed project partnerships, sturgeon restoration, streambank stabilization work and restoration projects upstream and downstream of the Chambers Grove Park area.

South St. Louis SWCD Manager R.C. Boehm discussed soil nailing, a slope stabilizing technique that uses steel “nails” anchored deeply into a slope and grouted in place. This helps support a wire mesh that is covered with a shotcrete (sprayable concrete or mortar) material.

After the 2012 flood, two homes located above Chester Creek were in danger of collapsing after their backyards eroded. The steepness of the slope and its proximity to the homes made the project



South St. Louis SWCD conservation specialist Tim Beaster discussed the restoration of Chester Creek, a trout stream that flows through Chester Park in Duluth. The project addressed the ecological impact of two dams installed in the 1930s. The restoration incorporated natural channel design principles with support from state funding, including a Minnesota Flood Relief Grant and Minnesota DNR grant funding.



a priority for the South St. Louis SWCD. The SWCD applied soil nailing to stabilize the slope’s upper edge.

At Chester Park, the group learned about the Chester Creek restoration project. Chester Creek was one of the many cold-water

trout streams damaged during the 2012 flood. The popular stream flows through Duluth’s Chester Park, which offers hiking, mountain biking and skiing. Originally two dams were located in the park, one of which was washed out and damaged during the 2012 flood. The flood also filled the park’s pond with sediment.

In 2016, the city of Duluth completed restoration work in Chester Park designed to protect infrastructure. The project used toe wood to create a floodplain bench from natural materials including tree trunks, root wads, brush and soil. The bench is designed to reduce streambank erosion, create fish habitat and provide native vegetation along the river corridor.

In 2017, the South St. Louis SWCD and its partners removed the two dams, and realigned and stabilized the stream, providing trout habitat and increased resiliency for future flooding events.

“The philosophy that we’ve adopted in our office to restore these systems is a form of biomimicry,” said South St. Louis SWCD conservation specialist Tim Beaster. “We basically just try to mimic nature in our approach to these restoration projects.”

The restoration team used a reach of the East Split Rock River for reference. A reference reach is an undisturbed, healthy stream used as a model to guide project design and implementation. The team measured and documented characteristics of the

reference reach to replicate those natural conditions.

“The benefit of trying to emulate nature is that you’re taking all those processes that maintain that ecosystem into account, and you’re really addressing the five components of watershed health,” Beaster said. “Those five components are hydrology, geomorphology, biology, water quality and connectivity. All those five components need to be working together to protect and restore these ecosystems.”

The tour concluded with a visit to McQuade Safe Harbor, which overlooks Lake Superior. Here, Amber Westerbur, program manager of [Minnesota’s Lake Superior Coastal Program](#), discussed its goals and outcomes. The program’s purpose is to preserve, protect, develop, and, where possible, restore or enhance coastal resources along Minnesota’s North Shore of Lake Superior. The program works closely with partners including the city of Duluth and the five SWCDs within the coastal area.

“Minnesota’s coastal program is dedicated to empowering and supporting the leaders and professionals that work every day to manage the phenomenal resources that we have along Lake Superior,” Westerbur said.

This voluntary, federal-state partnership provides technical and financial



South St. Louis SWCD Manager R.C. Boheim (center back) answered questions near the Lake Superior shoreline. Later, tour attendees walked down a boardwalk overlooking Lake Superior. Minnesota’s Lake Superior Coastal Program has provided more than \$15 million in grant funding, supporting more than 700 projects across 189 miles of shoreline.



resources. The coastal area covers parts of Carlton, Cook, Lake and St. Louis counties, the Fond du Lac and Grand Portage reservations, and the Minnesota waters of Lake Superior. Local government units, nonprofit organizations, colleges and universities and other non-governmental organizations can apply for program grants.

Minnesota’s Lake Superior

Coastal Program is funded and supported by the National Oceanic and Atmospheric Administration (NOAA). The DNR is the lead agency for the state’s coastal program and is responsible for applying for and administering an annual cooperative agreement with NOAA to support program implementation. Minnesota receives an annual allocation of about \$1 million in federal

funding from NOAA, most of which goes out in the form of grants.

Following the 2012 flood, the program served as a resource for state and local partners, particularly the SWCDs, as they evaluated damage and worked to repair damage. The program supported its partners in their efforts to address stormwater in multiple ways, including supporting stormwater planning in flood-prone communities, designing and installing green infrastructure, mapping and assessing the conditions of culverts, and helping communities work with landowners on shoreline management.

Since it began in 1999, the program has funded 700-plus projects through more than \$15 million in grants throughout 100-plus communities and organizations. Projects range from protecting water quality to reducing risks associated with flooding and erosion, to enhancing and building public access sites, and conserving forests, wetlands and streams.

Partnering and collaborating with local entities is crucial to the program’s ability to leverage federal funding and implement projects.

“We would not be as successful as we are if it weren’t for the partnerships and collaborations that really underpin all of our day-to-day work,” Westerbur said.