

Collaborations, grants buoy North Shore stormwater fixes



Left: Apprentices placed with the Lake County SWCD through Conservation Corps Minnesota & Iowa sampled the discharge from a stormwater pipe outletting into Agate Bay in Two Harbors. Agate Bay is impaired for *E. coli*. **Below:** A stormwater pipe discharged directly into Agate Bay. It's one of three that outlet directly into the bay. **Photo Credits:** Lake County SWCD



The three North Shore communities' stormwater management plans drew from Watershed-Based Implementation Funding. The Clean Water Fund supports WBIF.

One Watershed, One Plan implementation funds were used to identify needs and begin project implementation for three North Shore communities' stormwater management plans. Tailored to each community, the plans guide work to alleviate flooding, address bacteria and sediment impairments and improve drainage. The plans incorporate Watershed-Based Implementation Funding (WBIF) and available outside funds.

Prior to European settlement, the Anishinaabe were the primary inhabitants along the north shore of Lake Superior. The landscape was mostly forested; rain and snowmelt followed natural channels, streams and rivers to Lake Superior. Much of the North Shore landscape remains forested. But the discovery of iron ore and extensive logging in the late 1800s and early 1900s changed the landscape and flow patterns. Two Harbors, aptly named because of its two harbors (Burlington Bay and Agate Bay), was well positioned to ship iron ore. As taconite



production replaced higher-grade iron ore, 28 miles up the shore, the city of Silver Bay was established in 1954 as a taconite processing and shipping center.

Today, privately owned parcels and communities dot the shore, following historic Highway 61 and other major roads. The Lake

Superior North (LSN) Comprehensive Watershed Plan developed under the One Watershed, One Plan program (and approved by the Minnesota Board of Water and Soil Resources [BWSR] in January 2017) identified these “urban nodes” as areas where stormwater treatment and management would benefit streams as well as Lake Superior.

Over time, streets and storm sewers carried runoff directly to Lake Superior without treatment. This runoff carries sediment and pollutants to the lake, which can negatively impact fish.

In Two Harbors, for example, multiple stormwater outlets discharge directly into Agate Bay and Skunk Creek, a stream that runs through town and outlets into Burlington Bay. Two Harbors’ aging, original sewer and stormwater infrastructure was incorrectly connected in the older parts of town before the sewer was established. Both Burlington Bay and Agate Bay are impaired for *E. coli* bacteria; Skunk Creek is impaired for *E. coli* and sediment.

The concept of a stormwater management plan for Two Harbors grew from the Lake County Soil and Water Conservation District (SWCD) and stakeholders’ work on the LSN plan. Funding for the plan — which identified projects that would help improve stormwater drainage while reducing bacteria and sediment — drew from WBIF and local dollars.



Above: A hydrodynamic separator was installed to collect sediment from stormwater pipes before it’s discharged into Skunk Creek. **Below left:** A health advisory sign posted at Agate Bay indicated high levels of *E. coli* bacteria. The Minnesota Department of Health conducts weekly Lake Superior beach monitoring from Memorial Day to Labor Day. **Below right:** Stormwater drains into Burlington Bay. **Photo Credits:** Lake County SWCD



“The North Shore is a highly valued, beautiful place, and it’s impressive to see everyone come together to plan for a healthy, sustainable watershed. Watershed planning and the implementation funds allow opportunities to incorporate projects that address water quality and quantity concerns while leveraging federal funds to make the project a success,” said Lake County SWCD District Manager Tara Solem.

Lake County SWCD staff helped Two Harbors staff and their contracted



engineers to reference and implement the stormwater plan and the LSN plan. Together, the stormwater plan and the LSN plan led to the installation of two hydrodynamic separators — installed in conjunction with a road improvement project, and supported by WBIF from BWSR. The hydrodynamic separators separate sediment from stormwater before it’s discharged into Skunk Creek.

The Lake County SWCD also received a \$250,000 U.S. Army Corps of Engineers (USACE)

grant to implement stormwater treatment and filtration incorporating hydrodynamic separators plus native vegetation planted on the boulevard in a three-block road reconstruction project. That project could begin as early as this summer.

Additionally, a \$750,000 grant the SWCD received from the Great Lakes Restoration Initiative program will allow the SWCD to daylight stormwater that is discharging into Agate Bay, moving the stream out of the pipe and above ground. The planned two-stage ditch enhanced with biochar is designed to curb the bacteria impairments that have periodically affected the beach. Together, the Two Harbors Stormwater Management and LSN plans have leveraged more than \$1 million in grant funding to assist with stormwater treatment and enhanced filtration.

The city of Silver Bay completed its stormwater management plan in March, drawing from WBIF and [Minnesota’s Lake Superior Coastal Program](#) funds from the Minnesota Department of Natural Resources (DNR). Projects addressing stormwater quality and quantity are being planned.

Lake County SWCD engineer Derrick Passe was instrumental in coordinating the grant application and project design.

“Neither Two Harbors nor Silver Bay is an MS4 (short for “municipal separate storm sewer system”) city; meaning there is no state mandate for municipal

stormwater management. Creating these stormwater management plans in collaboration with these cities allows us to augment traditional capital improvement plans by adding features that will target sediment and bacteria removal from the stormwater runoff," Passe said.

Elsewhere along the North Shore, the Lake County Highway Department and Lake County SWCD collaborated to hire a consultant to create a Knife River Stormwater

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— Tara Solem, Lake County SWCD district manager

Management Plan. This was supported by WBIF via Clean Water Funds, coastal funding from the DNR, and climate resiliency funding from the Minnesota Pollution Control Agency. Slated for completion in fall 2023, the Knife River

Stormwater Management Plan addresses flooding, drainage, green infrastructure options, and long-term county road planning.

An SWCD-hosted public meeting to hear citizens’ priorities regarding the Knife River Stormwater

Management Plan drew roughly 45 people who shared their concerns about flooding, drainage problems, and their ideas about where to incorporate green infrastructure and rain gardens.

“I’m excited about local government collaboration and coordination with citizen input on stormwater planning and resiliency and the ability to incorporate green infrastructure enhancements into these projects,” Solem said.