

Coastal Program Grant Report

Minnesota Department of Natural Resources; Minnesota's Lake Superior Coastal Program
October 3, 2024; Presented by: [Cynthia Poyhonen](#), grants specialist

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Completed Projects

The following projects were completed between July 1, 2023 and June 30, 2024.

Annual Grants (15 month projects, \$10,001 - \$100,000 grants)

Silver Bay Public Access Boat Cleaning Station

Project Number: 22-306-09

Grantee: Lake County Soil and Water Conservation District

Final Cost: \$41,790.69 (Grant: \$20,868)

Project Start: 09/07/2022

Project End: 11/30/2023

The Lake County Soil and Water Conservation District (SWCD) purchased and installed a waterless boat cleaning station, a CD3 Wayside Solar unit, at the Silver Bay public marina. The Wayside Solar unit is an easy-to-use, self-serve station that is available to boaters free-of-charge 24 hours a day. The attached tools include a marine brush, vacuum, grabber tool, plug wrench (to remove boat plug), blower, and marine LED lights. Lake SWCD evaluated the unit, and users with observation, surveys, and data collected by the unit. They also promoted the unit in [social](#) and [traditional](#) medias. In its first year, about 232 users used the different tools approximately 456 times.



Photo of the wayside solar unit at the Silver Bay Marina.

Miller Creek: Restoration of a Ditched Trout Stream

Project Number: 22-306A-01

Grantee: South St. Louis Soil and Water Conservation District

Final Cost: \$451,646.45 (Grant: \$95,000)

Project Start: 09/07/2022

Project End: 11/30/2023

South St. Louis Soil and Water Conservation District restored over 6,100 feet of ditched stream channel in Miller Creek and Miller Tributary 1 with both state and federal funds. Miller Creek is a designated trout stream that is listed as impaired for water temperature. The project resulted in a new stream channel is almost twice as long as the former ditch and converted 3,700' of low-quality stream habitat to over 6,100' of high-quality habitat with large wood, suitable

substrate, and a diversity of stream features. The new stream channel is also significantly narrow and deeper than the former ditch, which is expected to lower stream temperatures. Constructing an appropriately sized stream channel allows larger floods to spread out on the floodplain, dissipating stream energy, filtering out pollutants, recharging ground water, and depositing fine sediment. They built oxbow ponds to improve floodplain flood storage capacity and increase deep-water habitat at the project site. They reintroduced native plant communities to the site to improve ecosystem function and stream shading while providing a long-term source of large woody debris to Miller Creek.

From the Grantee: Coastal Program funding was critical to address the degradation of Tributary 1 and thus restore the ecological and physical function of the entire project area.

Drone aerial image of Tributary 1 after project completion – November 2023.



Didymo Impacts on Coaster Brook Trout

Project Number: 22-306-07

Grantee: Science Museum of Minnesota

Final Cost: \$232,537.78 (Grant: \$99,349)

Project Start: 09/07/2022

Project End: 11/30/2023

To assess the relationship between *D. geminata* and Coaster Brook Trout, this project characterized: 1) the upstream distribution of water chemistry and *D. geminata*, 2) the associated diatom community with/without *D. geminata*, 3) the Coaster Brook Trout populations in streams and reaches with/without *D. geminata*, and 4) the diets of Coaster Brook Trout in stream reaches with/without *D. geminata*. Four North Shore streams—the Cross, Onion, Devil Track, and Kimball—were sampled in June, August, and October 2023. In each stream, four reaches were identified and sampled separately; three stations were downstream of the fish barrier, and one station was above the fish barrier (due to its short length, only a downstream and upstream site were sampled in the Cross and Onion Rivers in August and October).

Initial results from this study represent the first comprehensive look at Lake Superior Tributary ecology along the north shore of Lake Superior—from water quality to fish and fish diets in the presence and absence of *D. geminata*. This study provides a foundation for understanding future change to these streams and native Brook Trout habitat as we consider the potential impact and spread of *D. geminata* along our North Shore streams and other cold-water sites in Minnesota. The final analysis of this study will be submitted to a peer-reviewed journal for publication.

The data is available from the [Science Museum](#), the report is on file with the [Coastal Program](#).

Nearshore and Devils Track Watershed Water Monitoring

Project Number: 22-306-10

Grantee: Cook County Soil and Water Conservation District

Final Cost: \$63,980.29 (Grant: \$28,542)

Project Start: 09/01/2022

Project End: 05/31/2024

The Cook County SWCD engages with stakeholders and community scientists to understand land use practices for the benefit of soil and water quality. Hands on experience has been beneficial to spreading conservation impacts and sharing with landowners. For this water monitoring project, the SWCD worked with 11 volunteers, provided education to one school group, met with 50 landowners around Devil Track Lake, submitted data to the Minnesota Pollution Control Agency EqUIS database on water quality, and presented to the Grand Marais City Council.

Within the Devil Track River Watershed, six trained volunteers and staff took samples on a routine schedule at five stream sites and on Devil Track Lake. Staff and volunteers collected data and water samples from six sites in Lake Superior seven times during 2023. Data collected at each site included: total phosphorus, e-coli, chlorophyll-a, transparency, temperature, dissolved oxygen, pH, specific conductance, total suspended solids, total suspended volatile solids, and nitrogen, nitrate + nitrite, chloride.

Landowners asked for site visits and are working with the SWCD on projects to improve lakeshore buffers and forestry practices for forest health. As part of the project, Cook County Land Services provided match through site visits and work within the watershed about water quality and impacts from land use and development.

All data collected through this project is accessible through the [MPCA Water Quality database](#) and upon request from the [Cook SWCD office](#).

Identifying Drowning Hotspots in the St. Louis River Estuary

Project Number: 22-306-11

Grantee: Regents of the University of Minnesota

Final Cost: \$102,364.98 (Grant: \$50,968.98)

Project Start: 11/22/2022

Project End: 05/31/2024

The project team, including staff from both the University of Minnesota (NRRI) and the University of Wisconsin-Madison, published a StoryMap of [Drowning Incidents in the St. Louis River and Estuary](#). The team developed an approach for linking drowning incidents to weather and water conditions at the time of the event.

The project team designed and operationalized a sensor network. They incorporated the sensors into the modeling infrastructure, which now spans from the Fond du Lac dam to the Duluth and Superior entrances and includes 31 streams. They validated the model using Lake Superior seiche events (i.e., flow direction, water level) with good agreement between the model and the sensors. They developed freely available, [near real-time stage height data for seven locations in the St. Louis River Estuary](#), an interactive map with 24 hours of hindcast and 18 hours of forecast, detailed current information on map mouseover, and a dangerous current hotspot map highlighting locations where the current has exceeded 3 ft/s in the last 6 hours.

Minnesota Sea Grant updated the [PaddleSafeTwinPorts.org](#) website with the new data.

Demonstration of a Mobile Stormwater Lab

Project Number: 21-306-12

Grantee: Regents of the University of Minnesota

Final Cost: \$172,870.00 (Grant: \$86,435)

Project Start: 11/24/2021

Project End: 06/30/2024

The objective of this project was to demonstrate a method of acquiring site-specific filter media performance to inform best management practice implementation, such that they can assist watershed management efforts of local governments across the Lake Superior coastal area. To meet these goals, researchers at the Natural Resources Research Institute (NRRI) at the University of Minnesota Duluth fabricated a mobile stormwater testing laboratory that includes a filter media testing column manifold and automated water delivery system, and then demonstrated application of the laboratory for evaluating the performance of filter media for treatment of urban runoff. They designed the laboratory to include an educational graphic wrap as well as a viewing window, such that it can also serve as a tool for community education on coastal water quality issues.



Grand Marais Public Water Access Improvements

Minnesota Department of Natural Resources

Project 20-306A-01; Completed by December 31, 2022

Non-Federal Match provided: \$166,676

The DNR completed the upgrading and expansion of the existing Lake Superior / Parkside Public Water Access in Grand Marais. The DNR opened the facility for public use fall 2022. At this time, all pedestrian accommodations and storm water management / sedimentation basins had been installed. The project was completed summer 2023 with the installation of an accessible kayak dock and the completion of wood screen around the portable toilet pads (outside the scope of this project).



Photo 1 caption: Aerial view of the breakwall and parking lot at the public access site in Grand Marais, with stormwater amenities completed.



Photo 2 caption: (closer) Aerial view of the breakwall and parking lot at the public access site in Grand Marais, with locations of stormwater amenities such as trees.

STAR Grants (~6 month projects, ≤\$10,000 grants)

Grand Marais Stormwater Model Update

Project Number: 22-306-06B

Grantee: City of Grand Marais

Final Cost: \$12,037 (Grant: \$9,174)

Project Start: 04/06/2023

Project End: 09/30/2023

The City of Grand Marais contracted with EOR, who updated the model to include several highly impactful projects from the last 5 years, including Highway 61 reconstruction, 5th Avenue reconstructions, 2nd Avenue Raingarden, and 8th Avenue Stormwater Pond. EOR then used the updated model to evaluate stormwater improvements and run climate change scenarios. EOR also trained two city staff members with three 2-hour trainings using the model and video conferencing with the model creators.

Culvert Assessment in the Duluth Urban Watershed

Project Number: 22-306-06F

Grantee: South St. Louis Soil and Water Conservation District

Final Cost: \$13,056.22 (Grant: \$10,000)

Project Start: 07/25/2023

Project End: 12/31/2023

South St. Louis SWCD identified and assessed over 130 stream-road crossings that hadn't yet been inventoried. They targeted crossings within the Knowlton Creek and Kingsbury Creek watersheds as well as other knowledge gaps for the other 14 Duluth trout streams such as unnamed or unmapped tributaries. They then assessed identified culverts in the field using standardized DNR stream crossing methods. They entered the collected data in the state database and used the data to rank the culverts to highlight which culverts should be prioritized for replacement. Once approved, users can download the data via the [statewide culvert inventory suite](#) at the MN Geospatial Commons.

Nagaajiwanaang: Where the Water Stops

Project Number: 21-306-08A

Grantee: Trustees of the Hamline University of Minnesota

Final Cost: \$12,404.12 (Grant: \$9,948)

Project Start: 08/02/2023

Project End: 12/31/2023

In partnership with the Fond du Lac Band of Lake Superior Chippewa, Hamline University Center for Global Environmental Education (CGEE) integrated videos to create a special [Fond du Lac Edition](#) of CGEE's Lake Superior

Capacity Grants (~6 months; \$1,000 – 4,500; Youth education max of \$2,500)

Federal Award	Grantee	Grant	Description
NA21NOS4190083	Cloquet Area Alternative Education Program	\$2,500	Youth Education: Over 80 High School students at CAAEP participated in a field research Ecology class, using the Rivers2Lake curriculum from the Lake Superior NERR. The students, some of them for the first time, took eight field trips to locations on Lake Superior and its southern watershed. They also spent two days a week outside, looking at the water, making observations, collecting data, and reflecting on past and future impacts throughout the St. Louis River Watershed and how those impacts effect the environment and the people living in it.
NA21NOS4190083	Sea Change Expeditions	\$2,454	Youth Education: The Sea Change Expeditions team provided “Keep Lake Superior Clean Cold and Clear Challenge”, lessons to educate 5th, 6th, and 7th grade students along the North Shore about how aquatic species, micro-plastics, and direct impacts such as warming waters and less ice cover are interrelated and what the students can do to help keep Lake Superior clean, cold, and clear. Between March 5th and May 31, Sea Change Expeditions provided 35 classroom presentations at the North Shore Community School in Clover Valley, Minnehaha Elementary School in Two Harbors and William Kelly Elementary in Silver Bay; and hosted three field trips to their sailboat for these schools, as well as for 7th graders in Cook County (Grand Marais). In all, approximately 150 students participated in the program, most of them in multiple sessions. From the Grantee: <i>“The North Shore Community School teachers provided this presentation to their Board to describe the activities; pictures, videos, and letters say it in a way is hard to describe.”</i>
NA21NOS4190083	Lake County SWCD	\$2,500	Youth Education: The SWCD, with Stevens SWCD and North St. Louis SWCD, hosted the Minnesota State Envirothon at Wolf Ridge Environmental Learning Center (Finland, MN) in May 2024. The 115 students from all over Minnesota, and their 51 teachers, staff, and volunteers, used a study guide with a focus on northeastern Minnesota and coastal issues, and applied that knowledge during tests and oral presentations at the state Envirothon. One of the Coastal Program staff served as a judge during the event.
NA21NOS4190083	Cook County SWCD	\$4,500	Technology Update: The SWCD purchased a new ProDss and replacement parts for the current ProDss meters that are used to monitor water quality in Lake Superior and inland lakes, as well Lake Superior streams.
NA21NOS4190083	University of Minnesota	\$4,177	Workshop: The University of Minnesota hosted AIS Detector training in the Duluth area. Participants (twenty-six) first completed online modules and nineteen attended an in-person workshop at the Great Lakes Aquarium in June. Ten of the 19 participants identified as professionals while nine self-identified as community members. Participants learned aquatic invasive species (AIS) identification, regulations, reporting, and monitoring to become more active in detection, education, outreach, and management. The training also offered a professional development opportunity for resource managers interested in aquatic invasive species issues.
NA22NOS4190054	Carlton County SWCD	\$3,077	Workshop: The SWCD staff took an ‘on-the-water’ tour of the St. Louis River in Carlton County. They saw restoration projects and erosion problem spots that are best seen from the river. They also went to the Thompson Reservoir, where they got an up-close look at contaminated sediment remediation efforts led by the EPA. After the tour, they met with Coastal Program staff to discuss potential collaborative, and grant funded, projects.

Federal Award	Grantee	Grant	Description
NA21NOS4190083	City of Beaver Bay	\$4,500	Technology Upgrade: Beaver Bay, with engineers from MSA, acquired a cloud-based ArcGIS Online city account from ESRI. MSA configured all necessary security, settings, organizational settings, users, data access, and branding. MSA GIS staff migrated previous utility GPS work and other subsequent data into authoritative datasets for water distribution, sanitary sewer, and stormwater. MSA trained Beaver Bay staff to use all applications, edit data, update data, delete data, and future capabilities and options within their GIS. Product: City of Beaver Bay, MN
NA21NOS4190083	University of Minnesota	\$4,033	Workshop: Minnesota Sea Grant (MNSG), in partnership with Wisconsin Sea Grant (WISG) and the Dredging Subcommittee of the Harbor Technical Advisory Committee (HTAC), hosted the <i>'Beneficial Use of Dredged Material from the Port of Duluth-Superior'</i> on January 31, 2024, at the Minnesota Pollution Control Agency office in Duluth. Twenty-six individuals attended the workshop in-person, there were another 34 virtual participants. The workshop included a mix of education for attendees, and the development of a comprehensive list of beneficial use projects. Product: Captioned, publicly available video on the importance of dredging to the Great Lakes maritime transportation system (link to YouTube video also available on MNSG's Great Lakes Shipping 101 webpage).
NA21NOS4190083	Pike Lake Area Wastewater Collection System	\$4,500	Technology Upgrade: PLAWCS upgraded their ArcGIS Online account from a basic mapping system to system of operations and asset management by adding workflows, layers, and applications to allow for maintenance and inspection records to be captured and documented from any device.
NA21NOS4190083	Lake County	\$3,546	Technology Upgrade: Over summer 2023, Lake County Environmental Services replaced aging GPS and construction septic system site inspection equipment. The fulfilled request for technology upgrades has enabled more efficient and accurate data collection, compliance assurance, and end of year reporting for county staff. They completed 10 new septic system inspections with the new technology.
NA21NOS4190083	University of Minnesota, Sea Grant	\$3,087	Workshop: Minnesota Sea Grant hosted the 2023 Lake Superior Cooperative Science and Monitoring Initiative (CSMI) reporting workshop in October 2023. Over 100 participants attended each day from Lake Superior Partnership agencies and researchers participating in CSMI activities. During the workshop, 31 researchers gave presentations on CSMI results or projects relevant to the management of Lake Superior. The presentations were divided into four sessions: Chemical Contaminants, Nutrients and Bacterial Pollution, Other Conditions, Microplastics and Cumulative Stress, and Habitat and Species.
NA21NOS4190083	DNR	Funds \$1,850	Workshop: The DNR's LAMP Coordinator and Lake Superior Manager traveled to Chicago for the State's forum of the Great Lakes Restoration Initiative (GLRI) in November 2023. They provided information to several federal agencies on state priorities for GLRI.
NA21 and NA22	Department of Natural Resource	Funds \$2,750	Climate Action/Workshop: The Coastal Program paid the registration for 10 local (coastal based) DNR employees, from Ecological and Water Resources, Fish and Wildlife, and Parks and Trails to attend the 2023 Midwest Climate Resilience Conference in Duluth, October 2023.

Federal Award and Grant Funds Awarded

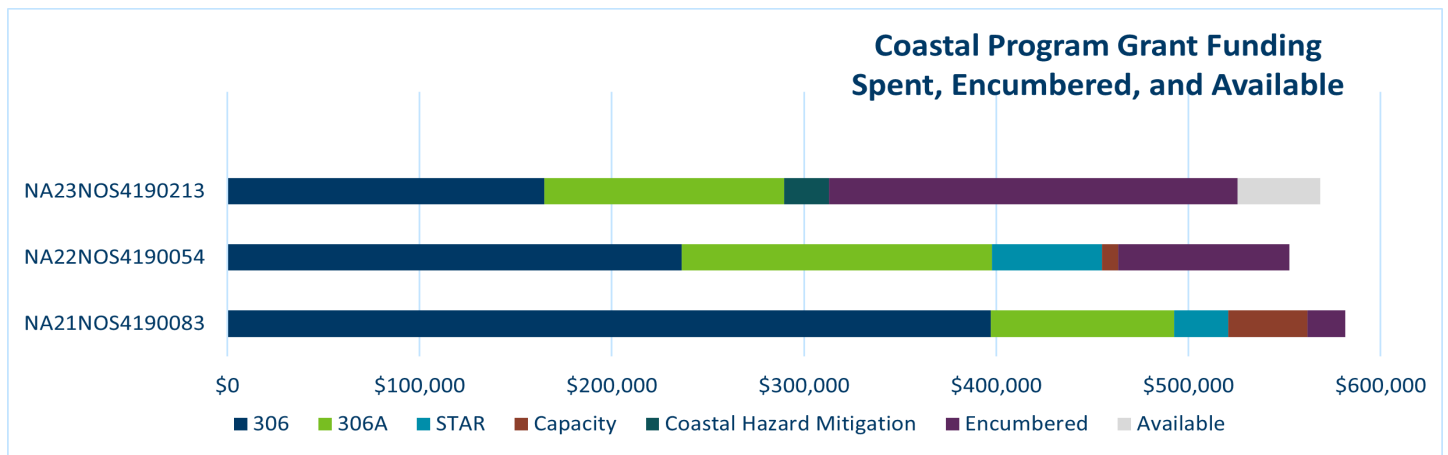
The table below shows the total federal award and amount of Annual and STAR grants awarded to date for the open NOAA Office of Coastal Management awards.

Federal Fiscal Year and Award	Total NOAA Award	Award Expiration	Annual Grants Awarded	Small Grants Awarded	Total Funds Awarded to Date
2021; NA21NOS4190083	1,122,000	06/30/2024	501,620	80,108	581,728
2022; NA22NOS4190054	1,128,000	06/30/2025	474,560	82,485	557,045
2023; NA23NOS4190213	1,158,000	12/31/2024	521,296	4,348	525,644
Total	\$3,408,000		\$1,497,476	\$166,941	\$1,664,417

Grants Reimbursed

The State has reimbursed grantees for project expenses (projects completed/in process), as shown in the chart below.

- Annual grants (306) are shown in blue, and STAR grants are shown in teal.
- Low-cost construction and land acquisition projects (306A) are in green.
- Coastal Hazard Mitigation funds (dark green) were only awarded in 2023.
- Shown in purple are all the funds under contract (i.e., encumbered), not yet reimbursed.
- Funds available (not yet awarded) is in gray.



Coastal Program Applications – Received and Funded

The table below shows the applications received and funded between July 1, 2019 and June 30, 2024.

Funding	Federal Fiscal Year	2019	2020	2021	2022	2023	2024	Total
Annual	Applications Received	10	3	12	9	6	2	42
Annual	Applications Funded	9	2	6	7	6	2	32
STAR	Applications Received	18	12	14	10	N/A		54
STAR	Applications Funded	17	10	8	10	N/A		45
Capacity	Applications Received	4	4	5	5	19		37
Capacity	Applications Funded	4	4	5	5	18		36

- Annual Applications are funded in federal fiscal year (i.e., 2023 with the NA23 award, begins July 2023).
- STAR and Capacity applications are received during federal fiscal year (i.e., 2023 applications are received between July 1, 2023 and June 30, 2024); and funded with available funds.

Coastal Program Funded Projects - Active

(as of July 1, 2024)

Federal Award	Project Number	Project Name	Grantee	Start Date	Expiration	Grant
NA21	21-306-09	Coastal Erosion Hazard Map Update - Phase 3	ARDC	9/23/2021	12/31/2024	\$47,200
NA22	22-306-08	Mycorrhizal Fungi and Tree Seedling Success	University of Minnesota	10/24/2022	11/30/2024	\$71,224
NA22	22-306A-02	Minnesota Point Boardwalk and Dune Restoration	City of Duluth	10/11/2022	12/31/2024	\$108,182
NA23	23-306-09	Mitigating Coastal Hazards: Community Wildfire Protection Plan for Carlton County	Carlton SWCD	12/1/2023	11/30/2024	\$18,300
NA23	23-306-09	Mitigating Coastal Hazards: Poplar River Flood Damage Scoping and Mitigation Plan	Cook SWCD	10/6/2023	9/30/2024	\$18,300
NA23	23-306-09	Mitigating Coastal Hazards: Stormwater Modeling, Knife River & Two Harbors	Lake County	2/2/2024	11/30/2024	\$18,300
NA23	23-306-09	Mitigating Coastal Hazards: Stoney Point Coastal Hazard Mitigation Project	St. Louis County	1/23/2024	11/30/2024	\$18,300
NA23	23-306-10	Documentary: A Sea Change for Lake Superior	Hamline University (Center for Global Environmental Education)	9/4/2023	11/30/2024	\$98,727
NA23	23-306-11	North Shore Management Plan Update	ARDC	9/12/2023	11/30/2024	\$14,238
NA23	23-306-12	Low-Cost Buoys for Smart Coastal Monitoring	University of Minnesota	9/20/2023	11/30/2024	\$94,747
NA23	23-306A-01	Park Hill Acquisition	City of Duluth	9/22/2023	11/30/2024	\$100,000
NA23	23-306A-02	Native Plant Restoration along Agate Bay Shoreline	Lake County SWCD	9/8/2023	11/30/2024	\$37,384
NA23	23-306A-03	Minnesota Point Boardwalk and Dune Restoration - Phase 2	City of Duluth	9/22/2023	11/30/2024	\$108,000
IIJA	Task3	Staff Training and Education on Forest Management	Cook SWCD	5/6/2024	11/30/2025	\$11,000
IIJA	Task3	Develop a Land Stewardship Plan	Lake SWCD	4/23/2024	11/30/2025	\$13,000
IIJA	Task3	Coordinate the Lake Superior Headwaters Sustainability Partnership	Minnesota Land Trust	6/5/2023	11/30/2025	\$111,288
16						\$888,190