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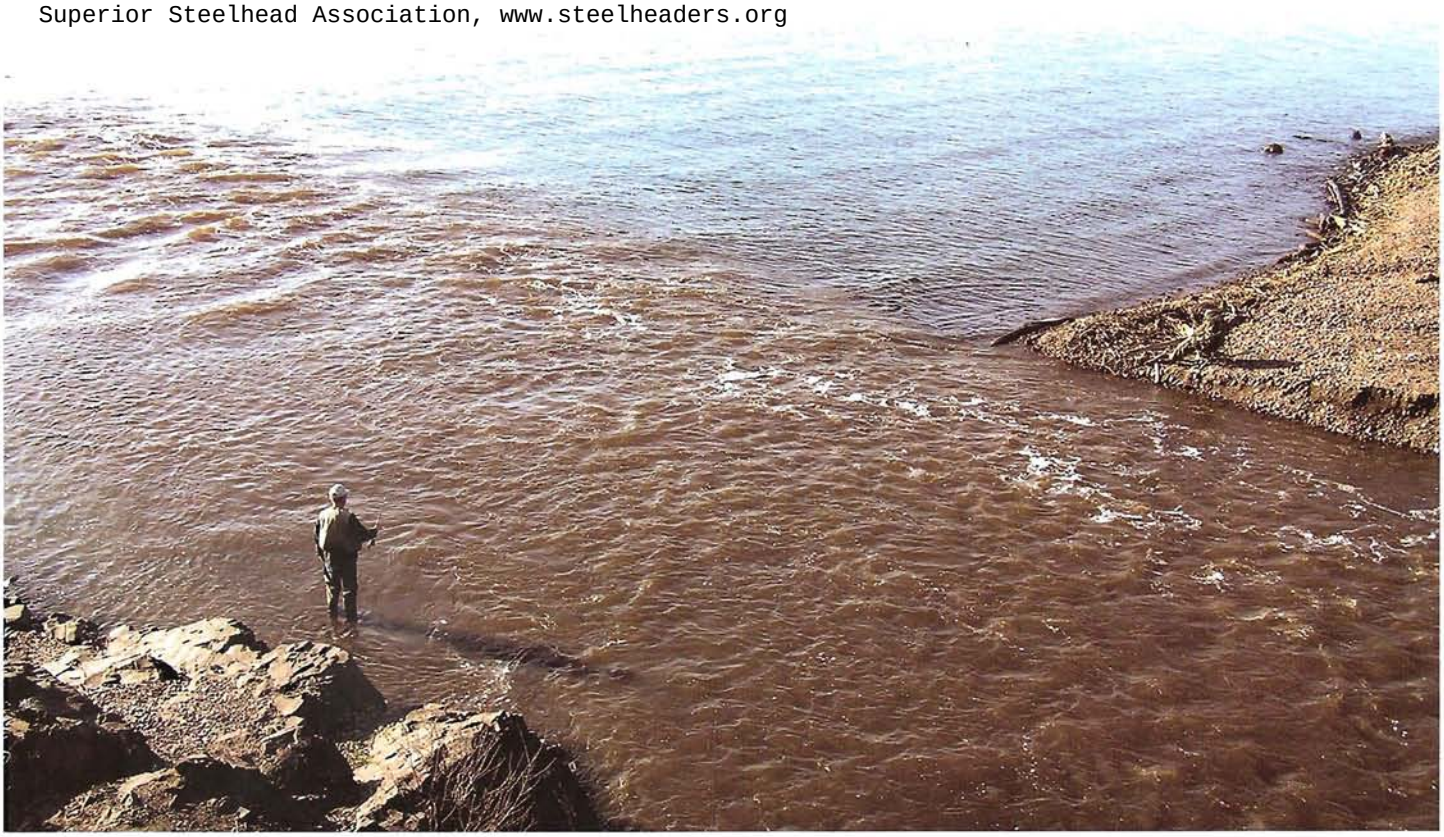


Photo by: Kevin J. Bovee

Weber Stream Restoration Initiative.

By Dan Breneman

A familiar quote comes to mind when describing the association between Minnesota anglers and North Shore streams, "Focus not on the destination but the journey". Likewise, fishing streams along Lake Superior is more about the activity than simply filling a limit. This is probably more apparent to those "vintage" anglers with an extensive resume of old waders under their belt. Anticipating the next outing, gathering the weathered gear, sharing experiences with others, and the sentimental value placed on that old rod tested by several seasons, for most, surpasses the satisfaction of landing the "big one". That special bond between anglers and Lake Superior is well established in many northern Minnesota families.

For one individual, a Duluth childhood spent exploring and fishing local streams, and later an entrepreneurial instinct that helped make "Rapala" a house-hold name for fishing enthusiasts throughout North America, has culminated in returning that same interest in aquatic resources and quality fishing back to the North Shore. Ron Weber, a former Duluth resident and avid angler, established an endowment through the University of Minnesota Duluth's Natural Resources Research Institute (NRRI) in 2004 to place an emphasis on understanding, restoring, and preserving the North Shore stream systems that had such a positive influence on his life. "Water is proving to be the most important resource we have," Weber said two years ago following the public announcement of his generous gift. "The sooner we start maintaining its quality, the better. The Lester River is a tremendous resource for young people to have access to a good, wholesome sport right here in town."

Through Mr. Weber's gift and another matched by an anonymous donor, scientists at NRRI and Minnesota Sea Grant set out to coordinate the Weber Stream Restoration Initiative, bringing together local collaborators with a variety of interests associated with the North Shore and coastal habitats of Lake Superior. Over 30 organizations joined together to address topics related to recreational use, economic viability, and sustainable use of Minnesota's North Shore resources, with Lake Superior streams as the focus.

Currently, the endowment is being leveraged, along with collaborator in-kind support, to secure additional funds through the grant proposal process. Successful requests will be used to continue on-going stream and landscape monitoring, educate and promote outreach programs to foster community involvement, and implement and evaluate best management plans (BMPs) designed to reduce negative impacts on water quality. Improving water quality is obviously not a new concept to many organizations and water resource managers. It is the Weber Stream Restoration Initiative's goal to seek out and support organizations and the innovative efforts that present opportunities to improve water quality conditions and prevent degradation of Lake Superior tributaries.

The Weber Stream Restoration Initiative at a glance:

Problem

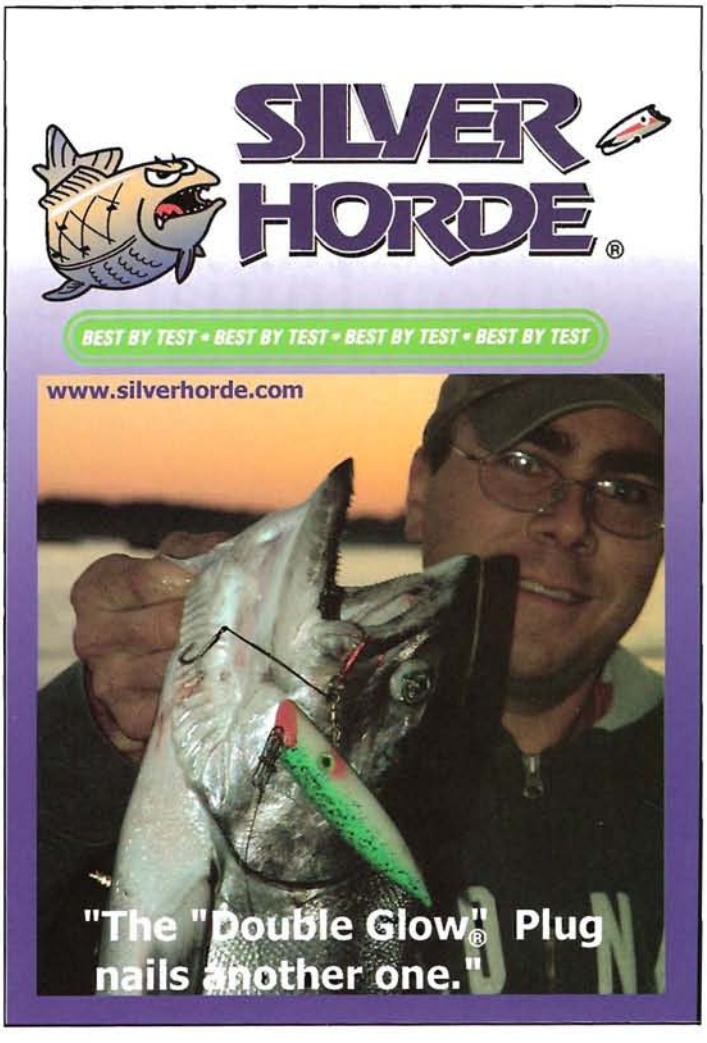
Lake Superior's North Shore is highly valued for the natural beauty, recreational opportunities, and resource potential. Increased recreational use and development in these watersheds over the next decade will seriously threaten water quality and the processes that support a strong fishery.

Goal

The Weber Initiative's goal is improving water quality in Lake Superior streams by taking part in a collaborative process focused on educating, implementing projects, and critically evaluating restoration efforts. Successfully enacting policies and opportunities that result in minimal human impact on streams in the watershed will ensure a solid investment in the region's future.

Action Steps

The Weber Initiative is ultimately about quality water and a healthy fishery, but a realistic approach to that goal will incorporate many facets to a problem including both the environmental concerns and economic considerations.



Successfully preserving the quality recreational and social opportunities associated with Northern Minnesota will involve long-term dedication by its inhabitants. University of Minnesota staff, local agencies, city officials, and community organizations are teaming-up to prioritize problematic areas, secure funding, engage the community as stakeholders, and implement innovative and effective best management plans that benefit the region.

An ounce of prevention is worth a pound of cure

Northeastern Minnesota contains unique geological structures that create a high density of stream corridors in small, relatively narrow, forested watersheds along the North Shore. Increased runoff rates during heavy rainstorms and snowmelt are amplified by human alterations (e.g. impervious surfaces) and drainage modifications (e.g., tiles and ditches) that reduce rainwater retention time. Increased sediment inputs due to erosion are a major water quality concern, and amplified flow rates add to the problem by additional inputs such as lawn fertilizers, automobile waste, pet feces, etc. that enter directly into streams that flow into Lake Superior. Runoff commonly includes road salts and grit, or refuse, and those practices do result in poor water quality. Fortunately, with a little effort from all of us, unnecessary sources of impairment can be minimized.

In the early 1990s, over 50 new lodging establishments were constructed along the North Shore, and from 1990-1996 Cook County, MN experienced a 24% population increase. With the anticipated population growth among North Shore communities, the ability to cost-effectively preserve and maintain the relatively pristine nature of the North Shore will be severely tested in the next decade. The Weber Initiative is currently using the Lester/Amity watershed within the Duluth city limits as a demonstration project to evaluate alternative best management plans, with the intent of improving urban stream conditions and providing alternative approaches to problematic rural sources of impairment. North Shore streams lie in a relatively pristine setting. Because of that, it is difficult to see the existing problems, and more difficult to draw attention and resources to support the preservation of these sensitive systems.

At least 13 streams flowing through the Duluth area are designated trout streams, but also function as important components to the City's Stormwater Management Plan. Approximately 500 miles of storm sewer, creeks and ditches are incorporated into the municipal stormwater system, as is typical of other coastal-zone communities (www.lakesuperiorstreams.org). If residential runoff alternatives and other innovative activities prove to be successful at reducing peak-flows within this urban setting, this knowledge will be available to other North Shore communities. By providing better development alternatives before impact occurs, the river systems will be exposed to less stress, not to mention the financial burden on communities and the state to initiate costly mitigation and restoration activities that can be avoided.

A problematic tributary entering an urban trout stream. Runoff following a rain even results in high discharge and excessive sediment, road salt, and nutrient inputs. Photo courtesy: Dan Breneman

Education and Outreach Opportunities

Local agencies and environmental managers are addressing potential impairments to several Lake Superior tributaries under the auspices of the Federal Clean Water Act. State agencies are handed the responsibility of initiating programs designed to take a hard look at sources of impairment to our water bodies, and eventually establish specific projects that take incremental steps to resolve them. Impairments such as mercury levels, turbidity, low dissolved oxygen, and sanitary sewer overflows are among a few of the more common.

Collaborative groups like the Regional Stormwater Protection Team were established in the Twin Ports region in 2003 as one approach to address municipal stormwater problems. As a preventative measure, local municipal officials and stakeholders joined together to provide educational programs and technical support for local governments, the business sector, and the community, with the mission of protecting and enhancing the region's water resources (www.lakesuperiorstreams.org). The collaborative process has proved to be more effective and cost-efficient at producing results than the entities would have been if conducted separately.

Other programs, that include total maximum daily load (TMDL) studies, are another approach initiated by the state's regulatory arm to address water pollution problems with non-point source potential. For Minnesota and Wisconsin, these efforts are administered through the Minnesota Pollution Control Agency and the Wisconsin DNR. Acceptable levels of disturbance are established by considering a water body's designated uses, then examining condition and sources of impairment. Eventually, a coordinated plan at the watershed-level for each impairment is designed and implemented by agency personnel, local stakeholders, non-profit organizations, and citizens. This collaboration can result in best management plans that simply involve educational workshops on water quality issues, assist homeowners installing devices to retain rain water (e.g., rain barrels, ditch swales, retention ponds, etc.), or certification for individual construction projects to eliminate intermittent sediment runoff. Best management plans can also involve expensive bank stabilization or stream habitat restoration on problematic areas, but preventative action is the most cost-effective option and addresses the source of impairment. Basic science is critical to understanding the type and extent of disturbance, but monitoring the response of a system being studied, whether it be water quality or the stream community, is essential for an unbiased evaluation of the money spent.

Successful stream restoration or preservation projects will benefit from community input and by incorporating innovative ideas that result in alternatives to reduce human impact on streams. This combined effort is intended to either make certain water bodies remain off an impaired list through prevention, or generate work plans to improve conditions that will eventually de-list impaired water bodies. Initiatives like the Weber Project will assist where possible to help stream restoration projects succeed.

Current Projects

The Weber Stream Restoration Initiative has been instrumental in securing funds from the Great Lake Nation Program Office (GLNPO)-National Fish and Wildlife Federation and Minnesota Sea Grant for prioritizing sensitive riparian corridors on the Lester/Amity systems using Geographical Information Systems. These projects will provide high-resolution landscape and landuse data in selected North Shore watersheds, and relate those conditions to the resulting stream biota.

Projects funded by the Minnesota Lake Superior Coastal Program will provide scientists and the public with educational tools and data from real-time stream monitoring equipment stationed in urban streams. Additional funding from the Minnesota Lake Superior Coastal Program will also allow some of the previously mentioned data, along with existing information, to be used in a GIS-based modeling exercise to assist

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North Shore coastal communities in making zoning and development decisions, with the intent of minimizing negative impact to tributaries and Lake Superior streams.

Proposed Projects

Collaborative efforts between the City of Duluth Utilities Operation, St. Louis Co Soil and Water Conservation District, NRRI, Minnesota Sea Grant, MNDNR, and support from other organizations have recently requested funds from various sources including the Minnesota Pollution Control Agency (MPCA) Legacy and 319 Programs to implement bank stabilization projects and to evaluate outcomes on local Duluth streams. Additional requests have been made to the Environmental Protection Agency to evaluate the differences in runoff between paired residential neighborhoods before and after implementing individual homeowner stormwater retention alternatives. A variety of approaches are proposed to cost-effectively reduce water quality impairments related to Lake Superior streams.

Continued Support

Local units of government have their responsibility to preserve traditional economic opportunities and plan for community growth, services, and a quality of life that is compatible with a changing world. Natural resource agencies are a community's environmental navigator. They must evaluate and enforce water quality standards with long-term goals in mind, using environmental health as a sign-post. Unfortunately, the environment doesn't keep pace with human activity, and often does not adapt positively to change. Since we aren't always quick to detect, nor able to understand well, the response of streams and the biological assemblages they support, our best efforts should consider conservation and to minimize human impact.

Ultimately, our ability to maintain high quality streams in the region rests on individual values placed on the local resource, involvement in the decision process, and doing our part to better understand human impact on the landscape. The long-term objective of the Weber Stream Restoration Initiative will be reached if collaborators can collectively foster continued interest in Lake Superior watershed issues, implement improvements, promote sound science, and insure sustainable policy decisions as an investment in healthy Lake Superior streams.

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