

MISSISSIPPI MAKEOVER

A Plan for Restoration, Just Around the Bend

Planning for ecological restoration in Spring Lake and lower Pool 2, Pool 3, and the Lower Vermillion River is the focus of the Mississippi Makeover Project. The Project engaged citizens in developing a vision and indicators of successful restoration and utilized technical experts to help set quantifiable targets. The resulting list of prioritized projects will help government officials, organizations, and citizens work toward restoration targets.

Restoration Targets: The Citizen Advisory Group (CAG) and experts from multiple agencies developed the following indicators of restoration and numeric targets. Visit www.dakotaswcd.org/wshd_missmak.html for more details.

Healthy Ecosystem
Abundant Wildlife
Recreational Mecca

Interim Target
Long Range Target

<p>WATER CLARITY is simply, how far you can see into the water. It is influenced by the amount of suspended and dissolved material in the water - often referred to as total suspended solids (TSS). It includes both organics like algae, and inorganics like sediment. Measurements of clarity include <i>TSS, turbidity and Secchi disk(SD) transparency</i>.</p>	<p>39.5 mg/l TSS 43 cm SD @Lock & Dam 3 32 mg/l TSS 47 cm SD @Lock & Dam 3</p>
<p>AQUATIC VEGETATION is one of the most important components of a healthy aquatic ecosystem. It includes floating leaved plants that are rooted to the bottom, submersed plants that grow entirely under water, and emergent plants that grow above water along shorelines and in marshes. Vegetation is influenced by substrate, flow, and water clarity and is measured by <i>percent frequency of occurrence, species richness, and biomass</i>.</p>	<p>15% freq of occurrence 10 species</p> <hr/> <p>21% freq of occurrence 11 species</p>
<p>SEDIMENTATION is the deposition of soil (sand, silt and clay) and organic matter (decaying plant material) in rivers and floodplains. Sediment comes from tributary watersheds, and from the river's channel and floodplain. Lake Pepin is a natural sink for sediment as the slow current allows sediment coming into the lake to settle on the bottom. Measurements for sedimentation include <i>load and accumulation rate</i>.</p>	<p>Life of Lk Pepin: 450 yr 683,000 metric tons/yr</p> <hr/> <p>Life of Lk Pepin: 600 yr 502,000 metric tons/yr</p>
<p>INVERTEBRATES are bugs and clams (mussels) found in the river. There are many types of invertebrates; their presence and numbers depend on factors like substrate, vegetation, flow, nutrients, dissolved oxygen. Invertebrates are good indicators of ecosystem health. Measurements include <i>species richness and presence of the Mucket Mussel</i> (a once abundant species that has not been collected in years).</p>	<p>30 species % Mucket in population: 0.1</p> <hr/> <p>35 species % Mucket in population: 1%</p>
<p>FISH - including game fish, panfish, non-game, and forage fish comprise different levels of the food web in the Mississippi River and backwaters. Game fish are the most well-known but all species are important components of the ecosystem. <i>Species assemblage</i>, represented by the percent of individual species within the total fish population, is a good measurement of the overall fish community.</p>	<p>Target is healthy assemblage of native game and non-game species. Similar to Pool 13 Similar to Pool 8</p>



How do we get there?

Restoration in this area will require a variety of in-river habitat restoration projects and on-land best practices, as well as significant reductions in sediment coming from upstream sources. The CAG ranked the projects below using multiple criteria to determine a priority for implementation.



Technique	Location	CAG Priority Level	Expected Outcome	Primary Agencies
Island Building	Spring Lake & Lower Pool 2	#1	Islands provide a multitude of benefits: Habitat diversity; reduced wind fetch for less stirring of sediments; “quiet” zones for aquatic plants to establish and boaters to enjoy	ACOE, MDNR, WDNR; Needs local support
	North and Sturgeon Lakes	#3		
	Upper Lake Pepin	#5		
Water Level Management	Pool 3	#2	Managing water levels can mimic historic flow patterns. Periodically lowering water levels allows consolidation of bottom sediments and emergence of vegetation from the seed bank. Vegetation reduces stirring of sediments, improves water clarity, provides habitat.	ACOE, MDNR; Needs local support
	Pool 2	#4		
Shoreland Habitat Restoration	- Backwater lakes - Gores Wildlife Mgmt Area - Scientific & Natural Areas - Other floodplain areas	Tier 2 Ranking	Projects such as invasive species control, shoreline stabilization, and the restoration of prairies, wetlands, and wild rice improve habitats and water quality.	PIIC, MDNR, FMR
Management Plan Development	Gores Pool 3 Wildlife Management Area and Aquatic Management Area	#7	A comprehensive management plan will include multiple MDNR departments and help prioritize work in this area.	MDNR with stakeholders
Rough Fish Management	- Pickerel Slough - Mud Lake - Other backwater lakes	# 6	Rough fish, like carp, dig up river and lake bottoms, stir up sediment and out-compete native species. Control methods in backwaters are being studied.	MDNR
Rural Lands and Urban Stormwater BMPs	- Townships (Nininger, Ravenna, Marshan, Welch) - Cities (Hastings, Red Wing)	Not ranked	Best management practices (BMPs) in urban areas include storm water infiltration, low impact development, and erosion control. BMPs in rural areas include sediment and water control structures, streambank stabilization, buffers, and grassed waterways.	Dakota & Goodhue SWCDs, NRCS, PIIC, VRWJPO

ACOE = U.S. Army Corps of Engineers; MDNR/WDNR = Minnesota/Wisconsin Department of Natural Resources; PIIC = Prairie Island Indian Community; BMPs = best management practices; SWCD = Soil and Water Conservation District; NRCS = Natural Resource Conservation Service; VRWJPO = Vermillion River Watershed Joint Powers Organization

For More Information: Visit the Mississippi Makeover website (www.dakotaswcd.org/wshd_missmak.html) for the Project Implementation Plan and a variety of resources, fact sheets, and links. Or, contact Project Coordinator Laura Jester, Dakota County SWCD at 651-480-7784; laura.jester@co.dakota.mn.us.