



Minnesota Pollution Control Agency
Minnesota Department of Natural Resources



July 2001

Dear Recipient:

Enclosed is the final document describing Minnesota's Lake Superior Coastal Nonpoint Pollution Control Program. This is the third and final version of this program document. It is the culmination of a process that began in 1995-96 and was resumed in 2000. It was preceded by the draft scoping document (comprised of the 1995-96 work) in August 2000, and the draft program document in March 2001. Comments received throughout the program's development and review are included and addressed in this new document.

Minnesota became part of a national coastal management program in 1999, through the Coastal Zone Management Act of 1972, as amended. Participating states are required to develop a coastal nonpoint pollution program. Minnesota's Lake Superior Coastal Nonpoint Pollution Control Program is built upon existing state statutes, rules and programs that are used to control nonpoint source pollution (polluted runoff).

This document contains the following chapters: I: Overview, II: Introduction, III: Program Components, IV: Management Measures, V: Additional Management Measures, and VI: Minnesota's 2001 Nonpoint Source Management Program Plan. Chapter II includes a discussion of state programs and a table containing the state's pertinent statutes and rules. Chapter IV is divided into six sections that feature the primary nonpoint pollution source categories: agriculture, forestry, urban/rural areas, marinas and recreational boating, hydromodification (channelization, dams and streambank/shoreline erosion) and wetlands.

Next steps will include the identification of implementation activities, which will be done in conjunction with the development of Minnesota's Lake Superior Basin Plan. We look forward to continued public input in building an effective program that will help local communities deal with coastal nonpoint pollution issues.

Additional copies of this document are available in print and in other formats, upon request.

The document is also available on the Internet at:

<http://www.pca.state.mn.us/water/basins/superior/coastalnp.html>

Thank you for your interest in Lake Superior!

Sincerely,

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MINNESOTA'S LAKE SUPERIOR COASTAL NONPOINT POLLUTION CONTROL PROGRAM



Minnesota
Pollution
Control
Agency

PROGRAM DOCUMENT

JULY 2001

Minnesota's Lake Superior Coastal Nonpoint Pollution Control Program

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ACKNOWLEDGEMENTS

We thank the individuals, agencies and organizations that contributed to the development of this document. This especially includes the efforts of staff from the Minnesota Department of Natural Resources, Minnesota Pollution Control Agency and Minnesota Board of Water and Soil Resources, including Mike Peloquin and the other authors of the 1995 report (cited below), which served as our starting point. We appreciate the input and suggestions provided by members of the Programmatic Work Group (PWG), which is comprised of representatives of federal, state and local government that manage land uses in the Lake Superior Basin. The PWG provides input and guidance for both Minnesota's Coastal Nonpoint Pollution Control Program and Minnesota's Lake Superior Basin Plan. Finally, we want to thank the citizens who took the time to provide comments and suggestions.

The authors would like to acknowledge the use of other key documents previously developed by the State of Minnesota. These include the following:

Lake Superior Basin Information Document. MPCA, 1997.

Minnesota Watermarks: Gauging the Flow of Progress, 2000-2010. Minnesota Planning: Environmental Quality Board, 2000.

Minnesota's 2001-2005 Nonpoint Source Management Program Plan. MPCA, 2001.

Minnesota's Lake Superior Coastal Program, Final Environmental Impact Statement. DNR, 1999.

State of Minnesota, Nonpoint Source Pollution, Existing Controls and Programs, Lake Superior Watershed Report. DNR, 1995.

This document is available on the Internet.

<http://www.pca.state.mn.us/water/basins/superior/coastalnp.html>

MINNESOTA'S LAKE SUPERIOR COASTAL NONPOINT POLLUTION CONTROL PROGRAM

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<http://www.pca.state.mn.us/water/basins/superior/coastalnp.html>

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I

OVERVIEW

CHAPTER I. OVERVIEW

As a part of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA), Congress created a stand-alone provision, Section 6217, which requires that states and territories with approved coastal management programs develop a coastal nonpoint pollution control program to address water quality impairment of coastal waters. According to Section 6217, the program must be submitted to the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Environmental Protection Agency (USEPA) for approval.

According to *Guidance Specifying Management Measures For Sources of Nonpoint Pollution in Coastal Water* (1993), the purpose of the coastal nonpoint pollution control program “shall be to develop and implement management measures for nonpoint source pollution to restore and protect coastal waters, working in close conjunction with other state and local authorities.”

The guidance also says that coastal nonpoint programs are not intended to supplant existing coastal zone management programs and nonpoint source management programs. Rather, they are to serve as an update and expansion of existing nonpoint source management programs, and are to be coordinated closely with existing coastal management programs. The legislative history indicates that the central purpose of Section 6217 is to strengthen the links between federal and state coastal zone management and water quality programs, and to enhance state and local efforts to manage land use activities that degrade coastal waters and coastal habitats. The legislative history further indicates that state coastal zone and water quality agencies have a shared responsibility for coastal nonpoint programs, which is analogous to the sharing of responsibility between NOAA and USEPA at the federal level.

This Coastal Nonpoint Program document was developed as a joint effort between the Minnesota Department of Natural Resources (DNR) and the Minnesota Pollution Control Agency (MPCA), with assistance from the Board of Water and Soil Resources (BWSR). It was developed as part of Minnesota’s Lake Superior Coastal Program (which is being led by the DNR) and Minnesota’s Lake Superior Basin Plan (which is being facilitated by the MPCA). Additional assistance in document development and review was provided by representatives of a number of federal, tribal and state agencies and local units of government that manage land use and/or water quality.

States have 30 months from the time they are accepted into the national Coastal Zone Management Program to develop and submit a coastal nonpoint pollution control program. Minnesota was accepted into the national program in July 1999, making the state's submittal deadline January 2002. Minnesota's original target for submittal was December 2001. In the spring of 2001, however, this was accelerated to July 2001, primarily in response to a change in federal funding policies. This acceleration was proposed with an opportunity for public input, and was accompanied two additional weeks of public review (totaling six, rather than four, weeks). No concerns were expressed about the acceleration process.

Minnesota developed its Coastal Nonpoint Pollution Control Program, and this document describing it, in several stages. Each stage involved public review. These stages were:

- *Coastal Nonpoint Program Scoping Document*: This consisted of two earlier reports: a preliminary summary of state programs (*State of Minnesota, Nonpoint Source Pollution, Existing Controls and Programs, Lake Superior Watershed Report*, 1995), and the federal response ("Minnesota Nonpoint Source Pollution Consultation Report, Comments on Minnesota's Existing Controls and Programs, Lake Superior Watershed Report," 1996). The public review period for the scoping document began August 28, 2000, and ended October 6, 2000.
- *Minnesota's Coastal Nonpoint Pollution Control Program - Draft Program Document for Public Review*. The public review period for the draft Coastal Nonpoint Program document began March 12, 2001, and ended April 27, 2001.
- *Minnesota's Coastal Nonpoint Pollution Control Program*. This Coastal Nonpoint Program document incorporates comments received during the preceding public review periods, and is being submitted to NOAA and USEPA in July 2001.

This Coastal Nonpoint Pollution Control Program document identifies the programs and enforceable authorities that Minnesota uses to control nonpoint pollution in each of six nonpoint source categories, as defined in the *Guidance Specifying Management Measures For Sources of Nonpoint Pollution in Coastal Water*. The six nonpoint source pollution categories are:

1. Agriculture
2. Forestry
3. Urban and Rural Areas
4. Marinas
5. Hydromodification
6. Wetlands

The *Guidance Specifying Management Measures For Sources of Nonpoint Pollution in Coastal Water* also describes 55 nonpoint source management measures that states must address. The six federal nonpoint source categories and 55 management measures are described in Chapter IV of this Coastal Nonpoint Program document. The programs and/or practices that Minnesota uses to address each nonpoint source category are identified and summarized for each of the federally defined management measures. Of the 55 management measures, Minnesota proposes to exclude one: Agricultural Irrigation.

The following items are included for each management measure:

- A. Federal Description of Management Measure [Nationwide]
- B. Applicability [Nationwide] (including Existing State Programs)
- C. Nonregulatory Approaches
 - 1. Economic Incentives and Disincentives
 - 2. Public Information/Education and Technical/Related Assistance
- D. Enforceable Policies and Mechanisms
 - 1. State Permitting and Licensing
 - 2. Local Zoning
 - 3. Direct State Statutory Authorities
- E. Monitoring and Tracking
 - 1. Existing and Planned Monitoring Efforts
 - 2. Inspection, Tracking and Assessment Techniques
 - 3. Management Measure Effectiveness
- F. Agency Coordination and Linkages

State enforceable authorities (statutes, rules and operation orders) are summarized in tables for each nonpoint source category. In addition, all of the authorities cited in this document are listed in Section II C: State Enforceable Authorities for Controlling Nonpoint Pollution.

Minnesota's control of nonpoint source pollution is achieved through a combination of federal, state and local government programs and authorities. State agencies include the Minnesota DNR, MPCA and BWSR, and the Minnesota departments of Agriculture (MDA), Health (MDH) and Transportation (MnDOT). Nonpoint source pollution control efforts at the local level are the responsibility of the local units of government that are involved in health, highways, land use, local water planning, planning and zoning, and soil and water conservation. The approach used by these various federal, state and local entities ranges from strong regulatory measures, to voluntary best management practices, to education.

The proposed boundary for Minnesota's Coastal Nonpoint (Section 6217) Pollution Control Program is the boundary for Minnesota's entire Lake Superior Basin. This includes portions of seven counties. Four (Carlton, Cook, Lake and St. Louis counties) make up most of the basin. Three others (Aitkin, Itasca and Pine counties) lie mostly outside the basin, but comprise a small portion of the basin.

Clean, clear water is a precious thing to Minnesotans. Minnesota's high quality of life is dependent upon both a clean, diverse environment and a thriving economy. Both the environment and the economy depend upon the proper use and management of water resources. Minnesota has, accordingly, recognized the importance of these water resources and taken steps to protect them.

Minnesota has in place a comprehensive array of laws and programs that provide the ability to meet identified goals for natural resources and water quality. It is the position of the State of Minnesota, therefore, that sufficient state enforceable authorities exist to meet the goals of the federally defined nonpoint source management measures, and to adequately control nonpoint pollution, within the Lake Superior Basin and within the state.



Minnesota Pollution Control Agency
Minnesota Department of Natural Resources



June 14, 2001

Mr. Charles Ehler, Director
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Mr. Robert H. Wayland III, Director
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Washington, DC 20460

Dear Mr. Ehler and Mr. Wayland:

On behalf of the State of Minnesota, we hereby submit *Minnesota's Lake Superior Coastal Nonpoint Pollution Control Program* to both the National Oceanic and Atmospheric Administration and the U.S. Environmental Protection Agency for approval under the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA).

Minnesota's enclosed Coastal Nonpoint Pollution Control Program document describes the statutes, rules and programs that Minnesota uses to control nonpoint pollution in the coastal area. It discusses how Minnesota addresses the six federally defined nonpoint source categories, and how the state meets the goals of the associated 55 management measures. It includes a certification letter from the office of Minnesota's Attorney General.

The enclosed program document has been developed with full public participation and with careful consideration of all comments received from state and federal agencies, units of government, organizations and individuals who have submitted remarks.

The Minnesota Department of Natural Resources and the Minnesota Pollution Control Agency have served as co-lead agencies for the development of Minnesota's Lake Superior Coastal Nonpoint Pollution Control Program. We certify that the State of Minnesota has the authorities and the capabilities to implement the program.

If you have questions, please contact Tricia Ryan of the MnDNR at (218) 834-6625 or Pat Carey of the MPCA at (218) 723-4744.

We look forward to continued cooperation with both NOAA and EPA in the implementation of Minnesota's Lake Superior Coastal Nonpoint Pollution Control Program.

Sincerely,

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Enclosure

Copies to NOAA:
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Copies to USEPA:
Dov Weitman
Tom Davenport

Note: The original version of this letter was printed on letterhead belonging to the Board of Water and Soil Resources, and included the attachments listed at the end of the letter.

June 7, 2001

Mr. Charles Ehler, Director
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NOAA, 10th Floor, N/ORM1
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Mr. Robert H. Wayland III, Director
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USEPA Headquarters, 4501F
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Dear Mr. Ehler and Mr. Wayland:

This letter is to confirm that the Minnesota Board of Water and Soil Resources (BWSR) is committed to nonpoint water quality protection and improvement in Minnesota, including the Lake Superior Basin.

The BWSR administers a number of state programs and federal grants for nonpoint water quality protection and improvement, in cooperation with many local units of government. These programs include comprehensive local water planning, conservation easements, cost-share for nonpoint water quality practices on private lands, engineering and other technical assistance, no-net-loss wetland regulation, natural resources information reporting and management, education and other services. The attached maps show recent water quality improvement outcomes for many of these programs.

The BWSR operates in compliance with the state statutes and rules cited in Minnesota's Lake Superior Coastal Nonpoint Pollution Control Program document.

Sincerely,

Ronald D. Harnack
Executive Director

Attachments:

Local Area Reporting System (LARS) Information

- 1) 1999 Land and Water Treatment Projects Soil Loss Reduction
- 2) 1999 Land and Water Treatment Projects Phosphorus Reduction
- 3) 1998-1999 Land and Water Treatment Projects Sediment Reduction by Major Watershed

II

INTRODUCTION

CHAPTER II. INTRODUCTION

A. SETTING

Much of the following description of the Lake Superior region comes from *Minnesota's Lake Superior Coastal Program and Final Environmental Impact Statement (MLSCP-FEIS)* (1999). The *MLSCP-FEIS* contains complete citations for the references listed below, and is available on the Internet.

<http://www.dnr.state.mn.us/waters/czm/feis/cover.html>

1. Geography

Lake Superior is the largest of the Great Lakes and has the greatest surface area of any freshwater lake in the world. It contains almost 3,000 cubic miles of water, which could fill all the other Great Lakes plus three additional Lake Eries. This is about 10 percent of the world's fresh water. With an average depth approaching 500 feet, Lake Superior also is the coldest and deepest (1,332 feet) of the Laurentian Great Lakes. The lake stretches approximately 350 miles from the west to east, and 160 miles north to south, with a shoreline almost 2,800 miles long. The drainage basin, totaling 49,300 square miles, 89 percent of which is forested, encompasses parts of Michigan, Minnesota, Wisconsin and Ontario.

See Figure 1. The Great Lakes and Adjacent States and Provinces. (DNR).

Minnesota's lowest (602 feet above sea level) and highest (2,301 feet) elevations are found in the Lake Superior watershed. Within the immediate vicinity of the lake, elevations vary from 602 feet above sea level at Lake Superior to 1,770 feet near Grand Marais. A pattern emerges in elevation as one goes north along the shoreline. St. Louis County has, at most, an 800-foot change in elevation adjacent to the lake, while Cook County has a change in elevation that exceeds 1,100 feet.

Minnesota is known for its wealth of lakes, but the gem may be the North Shore of Lake Superior. The North Shore is located in northeastern Minnesota, representing approximately 206 miles of shoreline extending from the St. Louis River on the south

to the Pigeon River on the United States/Canadian Border. Minnesota's portion of the Lake Superior shore includes St. Louis, Lake and Cook counties.

2. Precipitation

Average annual precipitation varies from 26 inches inland to 28 inches along the North Shore. Though spring and fall precipitation patterns follow the rest of Minnesota, summer and winter precipitation differs as it is influenced by Lake Superior. Before the western part of Lake Superior freezes, snowfall increases near the lake. This is due to southerly and easterly winds absorbing large amounts of moisture as they cross over the open lake. When the moister air reaches land it is cooled and condenses as snow. An area of heavy snowfall generally occurs five to seven miles inland from Lake Superior. In the summer, land quickly becomes warmer than the water in Lake Superior. Air passing over the lake is ordinarily cooled and stabilized, occasionally to the point of condensation. For this reason, fog is not an uncommon feature on the lake and nearby shoreline during the summer. The least amount of rain is found in the very northeast part of the state, an effect of Lake Superior and prevailing winds.

Normal summer (June - August) precipitation averages 10 inches. Precipitation during the growing season (May - September) averages 15-17 inches inland. Average annual runoff is between 12 and 15 inches. The median snowfall is 70 inches. The number of days when the snow cover is greater than 12 inches varies from 65 days along Lake Superior to 100 days inland.

3. Geology

The Lake Superior region has been affected by several major periods of volcanism, mountain-building, deformation, erosion and sedimentation throughout geologic time. Billions of years ago, intense deformation metamorphosed many of the volcanic and sedimentary rocks producing a mountainous landscape. However, by about 1.2 billion years ago, erosion had reduced the area to a low, rolling plain.

The Midcontinent Rift System extends from the east end of Lake Superior to Duluth, then south. Rifting occurred around 1.1 billion years ago as a result of the North American continent splitting apart. As the earth's crust thinned, a depression formed and fractures allowed magma to work its way to the surface and erupt as lava flows. The flows are well exposed along the North Shore. Lake Superior agate, for which

Minnesota is famous, originally formed as fillings in the vesicles of these volcanic basalts.

The last major volcanic sequence can now be seen as the “backbone” of Michigan’s Isle Royale and Keweenaw Point. The rift continued to sink for a while, however, and streams washed sand, pebbles, and mud into the slowly subsiding basin. Finally, over a period of 100 million years, the crust stabilized, and the buried sediments gradually hardened into rock.

Within the past two million years (most recently about 14,000 years ago) the Great Ice Age brought new forces that shaped the landscape. Great continental glaciers, up to one or two miles thick, built up and flowed from Canada. The ice streams eroded the underlying rock, some of which had become deeply weathered. The Superior Lobe (moving southwestward) carried debris (including volcanic rocks, agates and sandstone) from the North Shore area as far as the Twin Cities, the Minnesota River and even Iowa. The ice eroded the sedimentary rock in the middle of the old Midcontinental Rift System relatively easily, and excavated what was to be the Lake Superior basin well below sea level. As the glacier receded about 11,000 years ago, it scoured-out the ancient volcanic rift and created a depression which then filled with water. Currently, the principal geologic processes occurring in this area are:

- Slow weathering of the surface rocks and soils.
- Stream erosion of surface materials (mainly glacial and glacial-lake deposits, which are carried downstream to become sediment in Lake Superior).
- Erosion, transportation, deposition by wave activity of rocks and surface materials, and the building and maintaining of sand beaches. Resuspension of fine offshore sediment is also common during large storms with high waves.
- Hydrogeological processes involving precipitation, stream runoff and groundwater infiltration. This water eventually moves down-gradient toward Lake Superior.

Geologic processes are constantly reworking Lake Superior and its shore. While the processes generally act very slowly, the combination of beach and bluff erosion associated with periods of high water have caused, and will continue to cause, considerable changes to the shore.

4. Soils

The soils in the Lake Superior watershed formed as a result of the weathering of unconsolidated materials derived from very deep to shallow glacial and organic

deposits. This material has been subjected to climate and biological processes, which have been affected by topographic relief, over the last 14,000 years.

The relative proportions of soil types vary dramatically within the Lake Superior watershed, mostly due to the depth to bedrock, slope gradient, geologic parent material and landscape position. The following narrative is based on major soil groupings within the subwatersheds.

The major soils within the St. Louis River watershed are very deep, nearly level to sloping, on loamy glacial till moraines, nearly level silty glacial lake plains and nearly level muck and peat in bogs. They are well and moderately well drained on summits and sideslopes, somewhat poorly and poorly drained on flat areas, and very poorly drained in depressions and bogs. Natural fertility is moderately high to high. The potential for surface erosion on steeper areas is high. (Minor soils are on sandy glacial outwash plains).

The major soils within the Cloquet River watershed are very deep, nearly level to sloping, on sandy glacial outwash plains. They are somewhat excessively to moderately well drained on summits and sideslopes, somewhat poorly drained on flat areas, and poorly or very poorly drained in depressions. Natural fertility is low to moderate. The potential for surface erosion on steeper areas is moderately high. (Minor soils are on dense-loamy glacial till moraines and drumlins on the borders of the outwash plains. Other minor soils are muck and peat in bogs).

The major soils within the Lake Superior (south) and (north) watersheds are, above 1,000 feet in elevation, very deep to shallow over bedrock, nearly level to extremely steep, on gravelly, loamy glacial till moraines. They are well to moderately well drained on summits and sideslopes, somewhat poorly and poorly drained on flat areas, and poorly or very poorly drained in depressions. Natural fertility is low to moderately high. The potential for surface erosion on steeper areas is high. Below 1,000 feet in elevation, the major soils are very deep to shallow over bedrock, and nearly level to steep on clayey glacial till moraines. They are well to moderately well drained on summits and sideslopes, somewhat poorly and poorly drained on flat areas, and poorly or very poorly drained in depressions. Natural fertility is high. The potential for surface erosion and soil slumping on steeper areas is high. (Minor soils are on sandy glacial outwash terraces adjacent to major streams. Other minor soils are mucks and peat in bogs).

5. Physical Shoreline

The Duluth-Superior Harbor, protected by Minnesota Point (a bay-mouth sand bar that is six miles long), covers 19 square miles of land and water that includes 17 miles of dredged channels, most with a depth of 27 feet. The Duluth-Superior Harbor receives more than 1,000 visits annually by lake carriers and oceangoing ships, which load or deliver some 35 million tons of mostly bulk cargoes. Duluth (population 86,000) is the largest city in the Minnesota portion of the Lake Superior Basin.

See Figure 2. Minnesota's Lake Superior Basin: Subwatersheds and Communities. (DNR).

Heading north, the Lester River is the first major stream entering Lake Superior at the eastern limits of Duluth. Nearly all agriculturally suitable land in the coastal area, with the exception of Carlton County, is between Duluth and Two Harbors. Along this 25-mile stretch, the land rises gently northwestward in a 10-mile wide swath composed of woods, a few lakes and little development other than rural homes and small farms.

State Highway 61 is a four-lane expressway between Duluth and Two Harbors, while old Route 61 provides a scenic drive along the shore. Most of the development here is confined to private residences or tourist accommodations. At French River, the DNR operates a fish hatchery for sport and commercial species. Six miles beyond, at Knife River, the DNR owns a marina that can accommodate nearly 100 boats. The Knife River is one of the most productive and prized trout streams on Minnesota's North Shore.

Two Harbors (population 3,650) is primarily an ore shipping and railroad center with an excellent natural harbor, Agate Bay. To the east is the second harbor, Burlington Bay, which is not commercially developed. Two Harbors is the terminus of a mining railroad from the Iron Range and a rail spur to Duluth. The city also has several small manufacturing plants.

East of Two Harbors, the coastal highway mounts the cliffs and tunnels through the bluffs that have made the North Shore such a popular tourist attraction. The bluffs found at Silver Creek Cliff, Split Rock, Beaver Bay, Palisade Head and Shovel Point are composed of very hard volcanic and intrusive rock, which resisted the erosion that cut down surrounding formations. Between these headlands, rivers along the North Shore cut their way through softer rock on their brief, tumultuous journeys from the

uplands to Lake Superior. Rivers have created dramatic, eroded gorges along the shore. The Gooseberry, Baptism, Manitou, Brule and Cascade rivers have spectacular waterfalls.

Beyond Gooseberry Falls State Park is Split Rock Lighthouse (1909), another popular state park and a state historic site. Beaver Bay is the oldest town on the shore. The town of Silver Bay was built by Reserve Mining Company in the 1950s for workers in its new taconite plant, which closed in 1986. The plant was reopened as Cyprus Northshore in 1990, and was renamed Northshore Mining Company in 1994, after being acquired by Cleveland-Cliffs.

At Silver Bay, and eastward to Taconite Harbor, the Lake Superior watershed widens. Beyond Shovel Point, the extremely rugged character of the shore ends for quite a distance. Here the underlying lava flows were more easily eroded, resulting in a plain sloping up to the highland ridge.

About two miles east of Taconite Harbor, the Superior National Forest begins, and comprises nearly the entire coastal area for 40 miles. Within the national forest are the coastal towns of Schroeder, Tofte and Lutsen. Originally commercial fishing and logging settlements, they now depend largely upon tourism.

The generally level slope of the coast breaks at Tofte, where Carlton Peak, an outcropping of very hard rock (anorthosite), stands more than 900 feet above lake level. Beyond Tofte, the coast levels out again, until it rises over the basalt cliff several miles southwest of Grand Marais. This lava flow overlies the largest of the occasional sandstone deposits found between lava flows on the North Shore.

Closely paralleling the coast in this area, the North Shore ridge becomes a jagged range called the Sawtooth Mountains. There are three state parks along this section of the coast. Grand Marais (population 1,200) is the only incorporated city in Cook County. It was founded as a trading post and commercial fishing center, and now thrives on the tourist and logging industries. On the Grand Marais waterfront, a Precambrian island of columnar basalt helped to create a tombolo, a characteristic formation on the Great Lakes in which a bedrock island is connected to the mainland by a sand or gravel beach. Grand Marais has one of Minnesota's finest examples of a tombolo, and it provides excellent natural protection for the city's harbor. Heading inland from Grand Marais, the Gunflint Trail paves one of the major routes into the Boundary Waters Canoe Area Wilderness, which lies within Superior National Forest.

The shoreland is fairly level east of Grand Marais, sloping up from the lake to the north. At Hovland, however, the ridge formed by the eastern end of the Duluth Gabbro Complex cuts back down to the shore. Beyond Hovland, the shore is relatively level again until near the Grand Portage Indian Reservation (45,000 acres), where the dramatic results of unequal erosion and glacial action have created some of the shore's most spectacular scenery. Intrusive rock formations come down to the shore as mountains, ridges and points. These rock masses trend generally northeastward, but one particularly large formation runs at almost a right angle to the ridge, jutting out into Lake Superior. This forms 700-foot Mt. Josephine and tapers down to Hat Point, dividing Grand Portage Bay from Wausaugoning Bay. Grand Portage is also the home of the Grand Portage National Monument (790 acres), a replica fur company stockade operated by the U.S. National Park Service, and passenger ferry service to Isle Royale National Park in Michigan, 18 miles offshore. The Pigeon River is the international border between the U.S. and Canada, with the port city of Thunder Bay, Ontario, only another 40 miles away.

6. Fisheries

The Lake Superior fish community has undergone dramatic changes since the mid-1900s due to over fishing, introductions and invasions of nonnative species, pollution and land use changes in the watershed. Before 1950, the community was a relatively simple one with lake trout, siscowet, lake whitefish, brook trout, lake sturgeon and walleye as the top native predators. Rainbow trout were intentionally introduced in the late 1800s and quickly established self-reproducing populations throughout the lake. The major species of prey fish were lake herring, chubs and sculpins.

Since the 1950s, the Lake Superior fish community has become much more complex, and is composed of both native and nonnative species. Introductions of nonnative species have been both intentional and unintentional. Introduced game fish species include chinook, coho, pink and Atlantic salmon, brown trout and several rainbow trout strains. The introduced nonnative rainbow smelt population increased dramatically in importance for commercial use and as prey (forage) for game fish. Smelt populations have since fallen in Lake Superior, and are less important today commercially and as a forage species. The most devastating introduction to the Lake Superior fish community has been the sea lamprey, which for years virtually eliminated lake trout in all but a few isolated areas of Lake Superior. More recently, species from Europe have been introduced in ballast water. These include the ruffe, zebra mussel and spiny water flea. Since the 1960s, partial restoration of healthy fish stocks has occurred, thanks to rehabilitation efforts, including sea lamprey control,

harvest regulations and stocking programs, along with stricter pollution standards and improved land use practices.

7. Population

In the 1980s, St. Louis and Lake counties went through a downturn in the taconite and shipping industries that led to a decrease in population and jobs. The table below shows the difference between the 1990 census figures and the 1996 population estimates.

Table 1. Change in Population in the Lake Superior Basin Counties, 1990-1996. (MLSCP-FEIS).

County	1990 Census	1996 Estimate	Percent Change
Carlton	29,259	30,426	4.0
Cook	3,868	4,688	24.2
Lake	10,415	10,707	2.8
St. Louis	198,213	196,414	-0.9

Note: Minnesota information from the 2000 census had not been posted on the official census Web site at the time of printing. The 2000 census information that follows came from a newspaper article.

According to the *Duluth News-Tribune*, the population of Carlton County rose eight percent in the 2000 census. St. Louis County gained only one percent, but Duluth (in the county's coastal area) gained 1.7 percent. About 40 percent of St. Louis County's population resides in Duluth, which now has 86,918 people. Lake County gained six percent. Cook County had a large increase of 34 percent. Much of the gain has been concentrated in the coastal areas for both Lake and Cook counties. Lake County now has 11,058 residents and Cook County has 5,168.

In 2000, the Minnesota Environmental Quality Board estimated that 208,740 people were living in Minnesota's Lake Superior Basin. This would include most of the area within the four counties listed in Table 1, plus small portions of Aitkin, Itasca and Pine counties.

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1. Purpose of Program

The purpose of Minnesota’s Coastal Nonpoint Pollution Control Program is to reduce, control and, to the extent that it is feasible, eliminate nonpoint source (NPS) pollution that is causing, or could potentially cause, harm to the water quality of Lake Superior and its connected waters. The geographic scope includes the entire Lake Superior Basin, but the primary focus is on nonpoint issues that have a negative effect on the lake and its tributaries, particularly on its designated trout streams.

2. Definition of Nonpoint Source Pollution

Even though the term “nonpoint source pollution” can be technically defined, the concept can be confusing. A wide variety of human activities and land use practices are potential nonpoint sources of pollution, even when many such activities and practices take place away from water.

Nonpoint source pollution is defined under Section 319 of the Clean Water Act as follows: “Land management activity or land use activity that contributes or may contribute to ground and surface water pollution as a result of runoff, seepage or percolation, and that is not defined as a point source (in Section 115.01, Subd. 15). Nonpoint sources include, but are not limited to, rural and urban land management activities, land use activities and specialty land use activities such as transportation” (Section 115.03, Subd. 6).

3. Minnesota’s Approaches to Controlling Nonpoint Pollution

Chapter IV of this Coastal Nonpoint Program document discusses in detail Minnesota’s statutes, rules, programs, etc., for each of the 55 federally defined management measures. Before going into that detailed discussion, it may be helpful to describe more broadly how Minnesota approaches the management of its land and water resources.

In addition to the information presented below (in this section of this Coastal Nonpoint Program document) as to how Minnesota manages land use, water, and water quality, additional information on each of the six federally defined nonpoint source categories may be found elsewhere, in one or more of the following documents:

- This Coastal Nonpoint Program document.
- *Minnesota’s Lake Superior Coastal Program and Final Environmental Impact Statement (MLSCP-FEIS)*. This is available on the Internet.
<http://www.dnr.state.mn.us/waters/czm/feis/cover.html>
- *Minnesota’s 2001-2005 Nonpoint Source Management Program Plan (NPS/319 Plan)*. This is available on the Internet.
<http://www.pca.state.mn.us/water/nonpoint/mplan.html>

Additional information for each of the six nonpoint source categories is available in the following document locations:

1. Agriculture:

- Coastal Nonpoint Program document: Section IV 1.
- *MLSCP-FEIS*: Part V, pages 3-61 to 3-65.
- *Minnesota’s NPS/319 Plan*: Chapters 7 through 10.

2. Forestry:

- Coastal Nonpoint Program document: Section IV 2.
- *MLSCP-FEIS*: Part V, pages 3-97 to 3-104.

- *Minnesota's NPS/319 Plan*: Chapter 12.
3. Urban/Rural Areas:
 - Coastal Nonpoint Program document: Section IV 3.
 - *MLSCP-FEIS*: Part V, pages 3-3 to 3-34 and 3-61 to 3-65.
 - *Minnesota's NPS/319 Plan*: Chapters 11 and 14.
 4. Marinas and Recreational Boating:
 - Coastal Nonpoint Program document: Section IV 4.
 - *MLSCP-FEIS*: Part V, pages 3-61 to 3-65.
 5. Hydromodification:
 - Coastal Nonpoint Program document: Section IV 5.
 - *MLSCP-FEIS*: Part V, pages 3-3 to 3-34 and 3-38 to 3-39.
 6. Wetlands Section IV 6 of this Coastal Nonpoint Program document.
 - Coastal Nonpoint Program document: Section IV 6.
 - *MLSCP-FEIS*: Part V, pages 3-40 to 3-47.

a. Land Use Management

{3. Minnesota's Approaches to Controlling Nonpoint Pollution}

Since activities that occur on land can profoundly impact the quality of nearby surface waters, Minnesota has recognized the importance of managing development and use of lands abutting surface waters. Improper land management can contribute nutrient, sediment and chemical loading to surface waters, reducing the water's ability to support a diversity of fish and wildlife species, limiting its use for water supply and recreational purposes, and decreasing its aesthetic and economic values.

Minnesota has in place a combination of state policies and laws and local authorities that apply controls to the subdivision and use of land. These controls are administered through the **Shoreland Management Act**, the **North Shore Management Plan**, County Planning and Zoning, Municipal and Township Planning and Zoning, the **Floodplain Management Act**, and the **Wetland Conservation Act**. Although each of these programs is guided by state standards or enabling laws, their administration and enforcement are accomplished at the local level, i.e., by the counties, municipalities and townships.

(1) Shoreland Development {a. Land Use Management}

Control over the use of lands adjacent to lakes and rivers is primarily accomplished through the **Shoreland Management Act**. Along the Lake Superior shore, it is accomplished through the North Shore Management Plan (NSMP). These programs guide activities on shorelands for the primary purpose of minimizing the potential impacts of land development on the area's surface water and ground water features. While the provisions of the **Shoreland Management Act** apply to lakes and rivers in general, those of the NSMP more specifically apply to land located along the North Shore of Lake Superior.

(a) Shoreland Management Act {(1) Shoreland Development}

Selected Activities managed by the Shoreland Management Act:

- Residential lot sizes
- Placement and height of structures
- Placement and design of roads, driveways and parking areas
- Shoreland alterations
- Agricultural activities
- Forest management activities
- Stormwater management
- Sanitary systems
- Subdivisions and planned unit developments
- Administrative review

Implementation: Under the act, the DNR is required to promulgate minimum standards for the subdivision, use and development of shorelands of "public waters" in both unincorporated areas of counties and within municipalities. Shorelands include lands within 300 feet of streams and rivers and within 1,000 feet of lakes and flowages. "Public waters," for the purposes of shoreland management, means any waters as defined in **M.S. 103G.005, Subd. 15**. No lake, pond or flowage of less than ten acres in size in municipalities, or 25 acres in size in unincorporated areas, needs to be regulated for the purposes of these rules.

Standards for counties were developed in 1970, and separate standards were developed for municipalities in 1976. In 1989, these standards were amended and combined into a single document under **Minn. Rules 6120.2500 - 6120.3900**. The act requires counties and municipalities to adopt and administer these state standards as part of their official land use controls. A local government may adopt and enforce controls that are more restrictive, and may, under special circumstances and with the commissioner's approval, adopt shoreland management controls that are not in strict conformity with these minimum standards and criteria through alternative management standards. Local governments are required to adopt land use ordinances when they are notified by the DNR in writing according to **Minn. Rules 6120.2800**. Failure to adopt means the community has not submitted a draft or adopted ordinance. The Shoreland Management Act obligates the DNR to adopt an ordinance for a community when the community refuses to do so.

Activities such as grading, filling, tree and shrub removal, onsite sewage treatment system placement, types of development allowed, and subdivisions and planned unit developments are guided by a system of building permits, conditional use permits, variances and shoreland alteration permits. Permits for activities having minimal impact and meeting the performance standards of the local controls are generally issued by the local government's zoning staff, while the more complicated permits may be reviewed and approved by a zoning commission, board of adjustment or the governing body. If a planned shoreland activity proposes excavation where the intended purpose is connection to a public water, local government approval to excavate may be given only after the DNR has approved the proposed connection to public waters pursuant to **M.S. 103G.245**. Any aggrieved person can appeal a permit decision of a local governmental unit. Such appeals may be heard by the governing body of the local government or ultimately be decided by an appropriate state court of law.

Local governments are required to provide the DNR with copies of all notices of any public hearings to consider variances, amendments or conditional uses under their shoreland controls at least 10 days before the hearings. Also, copies of approved amendments and subdivision plats, and notices of final decisions granting variances or conditional uses must be provided to the DNR within 10 days of final action. This notification process allows the DNR to provide advisory information to local governments on shoreland development proposals and enables the DNR to monitor local decision making to assure consistency with the statewide minimum standards. The DNR works with the

local government to insure that it has fulfilled all statutory procedural requirements in the granting of plats, variances and conditional use permits. The DNR has no prior approval authority over the issuance of a variance or conditional use permit, but has legal standing to appeal these decisions to the district court within 30 days.

Within the coastal area, compliant shoreland controls have been adopted by all of the coastal counties, cities and townships with shoreland area that have been notified by the DNR.

Authorities:

- Shoreland Management Act, **M.S. 103F.201 - 103F.221**
- Statewide Standards for “Management of Shoreland Areas,” **Minn. Rules 6120.2500 - 6120.3900**

(b) North Shore Management Plan {(1) Shoreland Development}

Minnesota’s statewide Shoreland Management Program was conceived by the legislature in 1969 as a cooperative effort between the DNR and local units of government (LGUs). In 1981, the Legislative Commission on Minnesota Resources funded a program evaluation. It identified Lake Superior as a distinctive management unit that was not adequately addressed by the existing statewide Shoreland Management Program.

Recommendations in this evaluation called for the initiation and support of a local government effort to develop a shoreland management plan for the North Shore of Lake Superior. The North Shore Management Board (NSMB) was created under the authority of a joint powers agreement (**M.S. 471.59**). It is comprised of the counties of Cook, Lake and St. Louis; the cities of Beaver Bay, Grand Marais, Silver Bay and Two Harbors; and the townships of Duluth and Lakewood. The purpose of the NSMB is to direct the development of a North Shore Management Plan (NSMP) with strategies for environmental protection and orderly growth on the North Shore of Lake Superior. The management responsibility is jointly shared by the counties, cities and townships exercising land use control and jurisdiction over certain public and private lands within this corridor. Management responsibility is accomplished through adoption of a comprehensive plan that provides the foundation for strong local controls and policy decisions within the boundaries of the member

units of government. The *North Shore Management Plan, A Shoreland Management Plan for Lake Superior's North Shore* was published in 1988.

A Memorandum of Understanding (MOU) between the NSMB and the DNR pertaining to coordination, cooperation and responsibilities for developing the NSMP was signed in October 1987. The goals of the MOU were to define the responsibilities of the DNR and NSMB in support of common objectives, interests and statutory requirements; to ensure timely identification and resolution of differences; and to enhance communication and coordination.

The North Shore Management Plan (**Minn. Rules 6121.2800, Subp. 1a**) incorporates standards for shoreland management that are consistent with the statewide minimum standards contained in **Minn. Rules 6120.2500 - 6120.3900**. The minimum standards and criteria for the subdivision, use and development of the shoreland of Lake Superior, other than for the city of Duluth, are those specified in the NSMP. Local governments adopt shoreland management controls conforming to the North Shore Management Plan and comply with **Minn. Rules 6120.3900, Subp. 6**, in administration of their shoreland management controls, according to **Minn. Rules 6120.2800**, Shoreland Management Plan for Lake Superior's North Shore.

The NSMP planning area is approximately 150 miles long, extending from and including Lakewood Township east of Duluth, to the Pigeon River on the US/Canada border. The inland boundary includes the 1,000 foot shoreland jurisdiction along Lake Superior as established in **M.S. 103F.205**, but also extends inland to include the Trunk Highway 61 corridor. For more detailed information about the determination of the boundary, see the *MLSCP-FEIS*, Chapter V, pages 3-9 to 3-16.

See Figure 3. The North Shore Management Plan Boundary in St. Louis Co., Minnesota. (DNR).

See Figure 4. The North Shore Management Plan Boundary in Lake Co., Minnesota. (DNR).

See Figure 5. The North Shore Management Plan Boundary in Cook Co., Minnesota. (DNR).

Within the NSMP, 16 policy fundamentals provide the foundation for shoreland management standards and criteria. More specific shoreland management policies and implementation strategies are detailed in the NSMP, providing the policy guidance to be followed by LGUs in revising their existing ordinances to be consistent with the plan.

The North Shore Management Plan Policy Fundamentals
<ul style="list-style-type: none"> ● Shoreland use should first satisfy the economic, social and environmental needs of the North Shore region and its people. ● Shoreland areas particularly suited for specific and appropriate use should be designated and reserved for such use through shoreland use districts. ● Shoreland areas unsuitable for development because of public health or physical limitations should be designated and managed to encourage appropriate use. ● Where feasible, shoreland use should restore, enhance or maintain the land and water environments. ● Shoreland use should not negatively affect the economic base of the area. ● Shoreland development should be encouraged in areas where public services and facilities essential to such development are adequate. ● Like or compatible shoreland use should be located in an orderly manner rather than developed at random. ● All shoreland use should be located, designed, constructed and operated in a manner that assures minimal impact on surrounding lands and waters and their use. ● All shoreland use should be aesthetically compatible with the natural environment. ● Scenic, aesthetic, geologic and ecological qualities of natural and developed shoreland should be recognized and where possible preserved as valuable resources. ● Fish and wildlife habitats should be protected, preserved and where practical restored or enhanced so as to maintain their viability as habitats. ● Structures, sites or areas that are of significance in the history, architecture, archeology or culture of the North Shore should be identified and protected, enhanced or restored. ● All proposed governmental agency management decisions and plans within the NSMP area should be consistent with the policies, standards and criteria of this plan and be coordinated through the North Shore Management Board. ● All North Shore Management actions shall protect and enhance the public health and safety of residents and visitors. ● Existing public access areas should be protected and maintained. Additional public access opportunities should be pursued. ● Lake Superior's land and water resources should be locally managed and protected recognizing their statewide and national significance.

Six types of management areas within the North Shore planning area are defined to guide local plan implementation and shoreland decision making. Goals and policies are established for each management area. The management area concept is designed to separate incompatible uses, provide for development and protection that is consistent with the carrying capacity of the shoreland (provide development policies that will ensure the stable, long-term growth and protection of environmentally sensitive areas) and foster the “node” concept of development, which seeks to centralize like or compatible uses. Sensitive environmental areas, or areas that are of exceptional scenic or historical value, should be protected from intense land uses. Proposed developments that are inconsistent with the specific management area policies and/or the policy fundamentals should not be permitted.

When necessary, local ordinances and/or performance standards should be revised to be consistent with the management area policies. The goals and policies provide a uniform decision-making framework for the North Shore. They address shorewide issues and treat the North Shore as a single resource unit. LGUs have the responsibility of carrying out their specific planning and zoning responsibilities, including but not limited to the issuance of permits, conditional uses, variances and land use zoning district designations or zoning changes. To ensure that the goals and objectives of the plan are achieved, these local decisions should be made after consulting the NSMP policies and should be in compliance with them.

The criteria used to determine the management areas were existing development patterns, existing zoning, shoreland resource characteristics, location of scenic and historical areas, and desired location for new uses. The management areas are broadly mapped and do not replace existing zoning maps of the counties, cities or townships. They are intended to reflect existing development patterns. Most management area policies are founded on common sense principles and are intended to “bracket” the range of options available to local decision makers in each management area and provide a degree of consistency along the entire corridor. The ultimate decision for shoreland use is left to the responsible LGU, but the plan provides the common policies and parameters for those local decisions.

Selected Activities managed by the North Shore Management Plan:

- Zoning
- Sanitary systems

- Shoreland alterations
- Planned unit developments
- Erosion hazard areas

To assure consistency of governmental decisions with the NSMP, the NSMB has the authority to review certain zoning decisions of the member LGUs. Decisions subject to the NSMB's review include ordinance amendments, variances, conditional uses, subdivision plats and planned unit developments. The NSMP is the statewide standard and criteria for both municipalities and counties (local governments). A failure of these local governments to adopt an ordinance obligates the DNR to adopt for them.

Authorities:

- North Shore Management Plan, **Minn. Rules 6120.2800**
- Joint Exercise of Powers, **M.S. 471.59**
- Shoreland Development Model Standards and Criteria, **M.S. 103F.211**
- Planning, Development, Zoning (County), **M.S. 394**
- Municipal Planning and Development, **M.S. 462**

(2) Floodplain Management {a. Land Use Management}

The state Floodplain Management Act (**M.S. 103F.101 - 103F.165**), enacted in 1969, stresses the need for a comprehensive approach for solving flood problems by emphasizing nonstructural measures, such as floodplain zoning regulations, flood insurance, flood proofing, and flood warning and response planning.

Flood considerations along the Lake Superior shoreline require special attention. Here, flooding is influenced by two factors: lake level fluctuation and storm induced wave runoff. The most sensitive flood hazard area is along Minnesota Point (Park Point), the beach/bar interface between Lake Superior and the St. Louis River. During fall storm events, wind generated waves, primarily from the northeast, can result in property and infrastructure damage along Minnesota Point.

Selected activities managed by the Floodplain Management Act:

- Delineation of floodplains and floodways
- Regulation and use of land in the floodplain
- Structure alterations and hazardous uses

- Flood protection measures
- Administrative review

Implementation: By law, flood prone communities in Minnesota are required to:

- Adopt floodplain management regulations when adequate technical information is available to identify floodplain areas; and
- Enroll and maintain eligibility in the National Flood Insurance Program (NFIP) so that the community residents may insure themselves from future losses through the purchase of flood insurance.

Pursuant to the Floodplain Management Act, DNR developed statewide minimum standards for the management of floodplain areas (**Minn. Rules 6120.5000 - 6120.6200**).

Authorities:

- Floodplain Management Act, **M.S. 103F**
- Floodplain Management, **Minn. Rules 6120.5000 - 6120.6200**

(3) County, Municipal and Township Planning and Development {a. Land Use Management}

Legislation in Minnesota empowers local governmental units (counties, townships and municipalities) with the authority to plan for and manage the use of lands located within their boundaries. In contrast to the Shoreland Management Act and the North Shore Management Plan – which manage the use of lands within specifically defined areas that are associated with surface water features such as lakes, streams and the North Shore of Lake Superior – local planning and development authority enables local governments to manage land use activities throughout their entire jurisdiction.

In granting local governments this authority, Minnesota has recognized that certain activities, regardless of their location, can have impacts that are of more than local significance. Local controls provide a means for managing such activities, thereby minimizing related impacts.

The planning and zoning authority that Minnesota has granted to local governments is the mechanism by which many state policies and programs are implemented. Shoreland, floodplain, wetlands, hazard areas and other management

programs are administered and enforced by the township, municipality, city or county, whichever is the responsible LGU with planning and zoning authority.

Selected activities managed by local (county, township, municipal) governments:

- Zoning activities
- Subdivision plats
- Nonconformities
- Administrative procedures

Implementation: LGUs develop comprehensive land use plans and local zoning ordinances. The local ordinances manage subdivisions and control development so that it is done in an orderly manner consistent with established local customs and traditions, and with state and regional policies. In general, it is the policy and intent of local government to promote the health, safety and welfare of citizens by dividing the local governmental unit into zones and regulating land uses and structure placement to encourage the most appropriate use of the land, and to recognize and preserve its economic and natural environmental value.

Official controls adopted by the local government apply to the use of land for both private and public purposes, except that no land owned or leased by the federal or state government is subject to official controls of the local government.

Counties, cities and townships may adopt land use controls that are more restrictive than minimum state standards and criteria. State standards that are implemented through local controls or ordinances apply to state and federal agencies, and are only enforceable to the extent of the state standard.

Local governmental units apply their land use controls throughout their jurisdictions. This has the effect of establishing procedures for the review of building placement, land division and appropriateness of proposed uses in locations not covered by the aforementioned Shoreland Management Act, North Shore Management Plan or Floodplain Management Act. Appeals of local decisions are made to the governing body or to a court of law of the state. Local land use plans and controls include the following:

Carlton County

Carlton County Shoreland Management Ordinance #19.

Carlton County Subdivision Ordinance #8.

Carlton County Zoning Ordinance #6.

Cook County

Cook County Zoning Ordinance #37.

City of Grand Marais Zoning Ordinance, Sec. 19.

Lake County

Lake County Comprehensive Plan and Land Use Ordinance #12.

Lake County Sewage Treatment Ordinance #11.

Lake County Solid Waste Ordinance #4.

Subdivision Regulations of Lake County, Ordinance #9.

City of Two Harbors, Zoning Ordinance #317.

Beaver Bay Zoning Ordinance.

City of Silver Bay, Ordinance No. 73 “N.”

St. Louis County

Subdivision Regulations of St. Louis County, Minnesota, Ordinance #33.

Zoning Ordinance of St. Louis County, Minnesota, Ordinance #46.

St. Louis, Cloquet, Whiteface Corridor Management Plan.

Duluth Zoning Regulations, Chapter 50.

Duluth Water Resources Management Ordinance, Chapter 51.

Zoning Ordinance for the City of Proctor.

Zoning Ordinance for the City of Hermantown.

Town of Lakewood Zoning Ordinance #15.

Zoning Ordinance for the Town of Duluth.

Zoning Ordinance for Canosia Township, Ordinance #98-1.

Canosia Township Comprehensive Plan, February 1996.

Authorities:

- Planning, Development, Zoning, **M.S. 394**
- Municipal Planning and Development, **M.S. 462**

(4) Coastal Shoreline Erosion {a. Land Use Management}

The North Shore Management Plan (**Minn. Rules 6120.2800, Subp. 1a**) establishes development standards for “Erosion Hazard Areas”(EHAs). Erosion Hazard Areas are defined as those areas of Lake Superior’s North Shore where the long-term average annual rate of recession, based on scientific studies, is at least one foot per year. The Erosion Hazard Areas represent the more severe erosion problems on the shore.

Selected activities managed in “Erosion Hazard Areas”:

- Vegetation removal, including proposed landscaping
- Proposed sewage treatment systems
- Structure and driveway location
- Bluff toe protection
- Slope alterations

Implementation: Erosion control structures along Lake Superior are regulated by the DNR pursuant to **M.S. 103G** and **Minn. Rules 6115**. Any activity to control erosion that occurs at or below the Ordinary High Water Level (OHWL) requires a permit. (On Lake Superior, the OHWL is the wave run up line or vegetation line). See the Protected Waters Program discussion, below. The North Shore Management Plan, which stands as the state Shoreland Rule (pursuant to the **Shoreland Act, M.S. 103F**), establishes development standards for Erosion Hazard Areas.

Authorities:

- Shoreland Management Act, **M.S. 103F**
- Protected Waters Program, **Minn. Rules 6115, M.S. 103G**
- North Shore Management Plan, **Minn. Rules 6120.2800**

b. Water Management

{3. Minnesota’s Approaches to Controlling Nonpoint Pollution}

To manage Minnesota’s water resources, the state has promulgated a body of laws that guide the alteration and use of water in order to assure its continued high quality and availability for future users. The primary state agencies involved in the protection and regulation of Minnesota’s water and wetland resources are the DNR, BWSR and MPCA. The U.S. Army Corps of Engineers (USCOE) is the primary federal agency involved with water and wetland regulation. The USCOE regulates various activities in virtually all of Minnesota’s waters (lakes, rivers and all wetland types). All four of these agencies are working to simplify and coordinate the regulatory process.

Depending on the size and the type of wetland or water basin affected by a proposed action, a permit applicant could be faced with working with a number of possible combinations of regulatory agencies. To address this issue, the DNR and BWSR, in cooperation with the USCOE, have developed a combined joint notification form – the

Minnesota Local/State/Federal Application Forms for Water/Wetland Projects – which is available from all the agencies. This form allows a potential applicant to notify all regulatory agencies of a project. The applicant is responsible for sending a copy of the form, with required attachments including plans and drawings, to each agency listed on the back of the form. The form enables regulatory agencies to determine jurisdictional authority over a proposed project. The agencies then notify the applicant of their jurisdictional interest, and the need for any additional application forms, project information and fees.

The DNR administers the Protected Waters Permits Program for activities at or below the OHWL which alter the course, current or cross-section of Minnesota’s public waters and public waters wetlands (Protected Waters).

BWSR and the local Soil and Water Conservation Districts (SWCDs) oversee LGU regulation of wetland areas (Types 1 through 8, with certain exemptions) that are not under DNR jurisdiction. There are no minimum basin size limits, and the jurisdictional boundaries of regulated wetland areas generally corresponds to the boundary that would be used by the USCOE (1987 Federal Delineation Manual). Applicants must replace altered/degraded wetlands under a locally approved mitigation plan.

Many counties and municipalities have implemented shoreland, floodplain and wetland ordinances, in addition to their own building and zoning codes, to control development and protect the environment.

The MPCA issues certification for activities that will result in the discharge of dredge or fill materials into waters of the state. The MPCA’s rules are applicable to both state and federal permits.

(1) Protected Waters Permit Program {b. Water Management}

The DNR administers the state’s Protected Waters Permit Program on surface water features that meet certain criteria. Public waters are those waters as defined in **M.S. 103G.005, Subd. 15**. For the purposes of administration of the DNR program, protected waters are defined per **Minn. Rules 6115.0170, Subp. 31**. This program has been in place in its present form since the late 1970s.

Protected waters and wetlands inventory maps are developed for each county and are on file in the county auditor’s office. The Protected Waters Permit Program applies to physical changes such as excavation, fill and construction of permanent

structures that extend below the OHWL of a protected water. The OHWL means the boundary of water basins, watercourses, public waters and wetlands, and is defined in **M.S. 103G.005, Subd. 14**

The Protected Waters Program is described in three categories in *MLSCP-FEIS*: work in the beds permits, water appropriations and dam safety. The discussion below includes two categories: work in the beds permits and dam safety. Of the 55 federally defined management measures that are the focus of this Coastal Nonpoint Pollution Control Program, water appropriations would apply only to the Agricultural Irrigation Management Measure, for which Minnesota has requested an exclusion.

Implementation: A DNR Protected Waters Permit is required for activities that will alter the course, current or cross-section of a protected water or wetland. Applications for Protected Waters Permits are submitted to and reviewed by DNR Waters. Decisions on individual applications are guided by **Minn. Rules 6115.0150 - 6115.0520**. If plans are reasonable, practical and will adequately protect public safety and promote the public welfare, the permit may be granted. Generally, the rules seek to balance one's lawful right to reasonable use of and access to protected waters with the need to maintain the quantity and quality of these waters for the benefit of the public as a whole.

While the program primarily manages physical alterations to waters such as excavations and placement of structures or fill, it also establishes a link with water quality issues. Issuance of a Protected Waters Permit may be conditioned upon certain specific water quality parameters. Where such parameters are managed under other programs more specifically related to water quality, those programs are identified and addressed more fully, below, in Section II B c: Water Quality Management.

Administration of Protected Waters Permit Program is handled by DNR Waters. Permit application review is coordinated with DNR Fisheries, DNR Wildlife, local SWCDs, USCOE and the affected LGU. The agencies have 30 days to review and comment, and DNR typically makes a decision to issue, deny or approve a modified permit within 60 days. Applicant can request a public hearing to seek reversal of a permit decision, but may not proceed with the project until a permit is issued. Violations occur when an activity is conducted without a permit or if conditions of a permit are not met. Violations are prosecuted by criminal and civil proceedings. Restoration can be ordered, if necessary.

(a) Work in the Beds Permits {(1) Protected Waters Permit Program}

Selected activities managed under Work in the Beds Permits:

- Placement of fill
- Excavation
- Placement of structures
- Water level controls
- Bridges, culverts, intakes and outfalls
- Mining
- Drainage
- Diversions of water
- Dredging and port development

Standards and Criteria: In the protected waters of the state, Minnesota Rules regulate placement of fill, excavation, placement of structures, water level controls, bridges, culverts, intakes and outfalls, mining, drainage and diversions of water. Minnesota Rules lay out comprehensive goals for each of these activities and criteria for specific types of activities.

Filling: Placement of fill is not permitted for:

- Vegetation control, creating upland areas;
- Stabilizing the beds of protected waters in areas that cannot support the fill;
- Stabilizing or impounding active springs;
- Disposing of rock, sand or any other solid material resulting from activities carried out above the ordinary high water level;
- Constructing roadways or pathways to islands;
- Filling posted fish spawning areas.

Water Level Controls: It is the goal of the DNR to manage protected waters to:

- Maintain natural flow and natural water level conditions to the maximum feasible extent;
- Encourage the construction of small upstream retarding structures for the conservation of water in natural waterbasins and watercourses;
- Limit the artificial manipulation of water levels except where the balance of affected public interests clearly warrants the establishment of appropriate controls and is not proposed solely to satisfy private interests.

Excavation: The goals of the program relating to excavation are to:

- Limit excavation from the beds of protected waters in order to preserve the natural character of protected waters and their shoreland;
- Regulate the nature, degree and purpose of excavations, so that excavations are compatible with the capability of the waters to assimilate the excavation; and
- Control the deposition of materials excavated from protected waters, and protect and preserve the waters and adjacent lands from sedimentation and other adverse physical and biological effects.

Placement of Structures: Structures are not permitted in protected waters where they:

- Will obstruct navigation or create a water safety hazard;
- Will be detrimental to significant fish and wildlife habitat or protected vegetation;
- Are designed or intended to be used for human habitation or as a boathouse; or
- Are designed or intended to include walls, a roof or sewage facilities.

Bridges, Culverts, Intakes, Outfalls: Bridge and culvert crossings may be permitted for a variety of purposes provided they are properly designed. They are not permitted where they will:

- Obstruct navigation or create a water safety hazard;
- Cause or contribute to significant increases in flood elevations and flood damages either upstream or downstream;
- Involve extensive channelization of a stream channel;
- Be detrimental to water quality, protected vegetation, or significant fish and wildlife habitat;
- Provide private access to an island.

Authorities:

- Protected Waters Permit Program, **M.S. 103G.201 - 103G.315**
- Water Permits, **Minn. Rules 6115.0010 - 6115.0810**

(b) Dam Safety {(1) Protected Waters Permit Program}

Note: For additional information on dams, see Section IV 5: Hydromodification.

The purpose of the Dam Safety Program is to ensure that dams are designed, constructed, operated and maintained to protect public safety and welfare. DNR Waters reviews designs or plans and issues permits for dam construction, inspects dams to detect unsafe conditions, and provides grants to LGUs to make repairs or remove structures when they become safety hazards or are too expensive to repair. The Dam Safety Program is also responsible for coordinating state review of federal hydropower license applications and dam operating plans to establish the minimum stream flow levels necessary to protect instream uses such as fish and wildlife habitat and recreation.

Authorities:

- Waters of the State, **M.S. 103G**
- Dams, **Minn. Rules 6115.0300**

(2) Wetlands Programs {b. Water Management}

Note: For additional information on wetlands, see Section IV 6: Wetlands, Riparian Areas and Vegetated Treatment Systems.

Minnesota has developed a state wetland management plan (Minnesota Wetlands Conservation Plan, Version 1.01, 1997), which refines the public policy goals for wetlands, establishes specific management objectives to achieve those goals and identifies how to improve the system.

State Executive Order 00-02 directs state agencies to protect, enhance and restore wetlands to the fullest extent of their authority, and to follow a strict policy of “no net loss” of wetlands for any projects that are their responsibility. The order requires state agencies to survey and categorize all wetlands on lands being acquired by or donated to the state, and wetlands on state lands that may be threatened by developments. The head of each state agency is required to report to the BWSR and the commissioner of natural resources each year summarizing the extent of wetland activities resulting from an agency’s activities. All state agencies are required to monitor and record all wetland impacts, wetland mitigation, wetlands restored or created other than for mitigation, and the acreage of wetlands

acquired or removed from state ownership or administration. The DNR and BWSR report to the governor and the legislature on the status of the implementation of wetland regulations.

Under the **DNR Protected Waters Program**, Types 3, 4 and 5 wetlands, as defined in U.S. Fish and Wildlife Service Circular No. 39, that are 10 or more acres in size in unincorporated areas, or 2.5 acres in size in incorporated areas, are inventoried and mapped as “public waters” pursuant to **M.S. 103G, Waters of the State**. Projects affecting the “course, current or cross-section” of these wetlands are regulated by the DNR through **Minn. Rules 6115**.

The **Minnesota Wetlands Conservation Act of 1991 (Wetland Conservation Act or WCA)**, along with subsequent amendments, extended protection to wetlands not covered under the “public waters” statute (**M.S. 103G**), and established a “no net loss” policy. The purpose of this act is to: achieve no net loss in the quantity, quality and biological diversity of Minnesota’s existing wetlands; increase the quantity, quality and biological diversity of Minnesota’s existing wetlands; avoid direct or indirect impacts from activities that destroy or diminish the quantity, quality and biological diversity of wetlands; and replace wetland values where avoidance of activity is not feasible and prudent. The central tenet of the WCA is that wetlands may not be drained or filled without replacement by wetlands of equal public value, either through restoration or creation.

Additional features of the **Wetland Conservation Act** include:

- A dedicated state wetland banking fund for restoring wetlands impacted by local road authorities.
- Additional incentives to include vegetative buffers and water quality treatment systems in areas adjacent to wetlands, thereby enhancing the water quality and wildlife benefits of the wetlands.
- A strong state participation and oversight role in the development, implementation and enforcement of local government comprehensive wetland protection and management plans. This state presence is intended to ensure that the law is consistently and fairly administered.
- Enhancement of the notification and administrative appeals process, by providing an avenue for concerned citizens to participate in the environmental review process to help ensure that the public maintains an active voice in the management of their resources, while allowing project sponsors to get timely decisions on their proposals.

- Tax exemption and easement programs to protect high priority wetlands. Landowners who maintain wetlands (rather than draining or filling them) have access to some financial compensation.
- Incentives to retain restored wetlands that are eligible for drainage.
- Local government liability prevention, whereby the state pays claims against and assists in the defense of the local government if they are properly implementing the law and a court awards a taking or damage claim against them.

Selected activities managed by the WCA:

- Exemptions
- Mining
- High priority regions/areas and wetland preservation areas
- Sequencing, wetland replacement plans and monitoring
- Local comprehensive wetland protection and management plans
- Wetland banking

Implementation: The **WCA** gives local government units (counties, cities, townships, watershed districts or SWCDs) the primary responsibility for implementation, including review and approval of wetland replacement plans. The BWSR provides administrative and technical assistance, coordinates wetland mitigation banking and hears administrative appeals. The DNR provides regulation of wetlands impacted by metallic and peat mining, and review of proposed replacement plans.

The Minnesota Local/State/Federal Application Forms for Water/Wetland Projects (described earlier) allows all relevant agencies to view proposed wetland impacts. This technique is efficient for both the landowner and government agencies. All the agencies that administer wetland laws have consistent mitigation requirements so that one mitigation plan is usually accepted by all the agencies if various permits are required.

A person or entity proposing to fill or drain a wetland, unless the activity is exempt, must apply to the appropriate local government unit for a sequencing determination and approval of a wetland replacement plan to compensate for all unavoidable wetland losses. The LGUs are the counties, cities or their delegate, which in some instances is the SWCD. State agencies act as the LGU for their own projects and are therefore not required to obtain local government approvals for

their projects. However, they must comply with the sequencing and replacement provisions of the WCA and are required to consult with local government units having jurisdiction in the project area. The notice includes both the proposed impact and the mitigation required (replacement plan).

The decision of a LGU can be appealed to the BWSR. Enforcement is performed by DNR conservation officers, and other peace officers through Cease and Desist Orders and Restoration and Replacement Orders. Violation of any of these orders is a misdemeanor offense.

If the BWSR has information that a local government unit is not following **Minn. Rules 8420 (WCA)** in making exemption, no-loss, replacement plan or banking determinations, BWSR notifies the local government unit of its concerns. If necessary, BWSR can take legal action to ensure compliance.

Standards and Criteria: The standards and criteria described below come from **Minn. Rules 8420, the Wetland Conservation Act (WCA)**.

Sequencing, Wetland Replacement Plans and Monitoring: When intending to drain or fill a wetland, a landowner who does not qualify for an exemption under **Minn. Rules 8420.0122** must submit a wetland replacement plan and obtain LGU approval prior to draining or filling. Minnesota rules specify the procedures and criteria for avoiding and minimizing (sequencing) impacts to wetlands and for ensuring adequate replacement of lost public values for unavoidable wetland impacts. Sequencing involves the compliance with the following principles in descending order of priority:

- Avoidance of direct or indirect impacts
- Minimization of impacts by limiting magnitude or degree of activity
- Rectification of impact by repair, rehabilitation or restoration
- Reduction or elimination of impacts over time
- Replacement of unavoidable impacts by restoration or creation

Local Comprehensive Wetland Protection and Management Plans: In order to provide local government control, regionalization and flexibility, amendments to the **WCA** made in 1996 allow LGUs to adopt Local Comprehensive Wetland Protection and Management Plans. The plans allow certain modifications to the rules governing the act by providing additional flexibility in those areas of the state that retain 80 percent or more of their original wetlands. This includes the Lake Superior Basin.

Plan contents are identified in the rule. The LGU must adopt the plan as an ordinance pursuant to **M.S. 462** for cities, **M.S. 395** for counties, and **M.S. 366** for towns. The BWSR reviews the final plan for compliance with **Minn. Rules 8420.0650**.

Wetland Banking: The creation of a wetland banking system must meet the intent of the **WCA** by achieving a “no net loss” of wetland functions and values including quantity, quality and biological diversity. The use of the wetland banking system requires compliance with the sequencing requirements of the act, and the approval of the local government unit. The LGU is responsible for monitoring wetland banking within its jurisdiction. All LGUs are required to submit an annual report to BWSR summarizing the use of wetland banking.

Authorities:

- Public Water Wetlands - **M.S. 103G.221 - 103G.2373**
- Wetland Conservation Act - **Minn. Rules 8420**

c. Water Quality Management

The MPCA has a strong regulatory and data gathering role. The areas of management and regulation include surface and ground water quality, air quality, solid waste disposal, inventory and management of feedlots, underground storage tanks and landfills, disposal of wastes or surplus waters; hazardous waste shipment, storage and disposal; used oil, used tires, operation and management of individual and municipal waste treatment systems, and cleanups of accidental spills.

The water quality of Minnesota’s coastal area is considered good. The conservation and protection of water resources and their improvement in areas adversely affected by human activities are major objectives of water managers. Water quality management in Minnesota’s Lake Superior Basin may involve numerous levels of government: federal, interstate, state, tribal, regional and local. At the state level, the MPCA is the primary agency responsible for water quality management.

The MPCA’s authority to regulate pollution of state waters is principally vested in the federal Clean Water Act. The MPCA must adopt minimum standards, criteria and rules as prescribed in the federal law. Additional or more restrictive rules or criteria are promulgated by the MPCA in instances where it is deemed necessary and appropriate. The basic authorities of the agency with respect to water quality are found

in **M.S. 115 (Water Pollution Control Act)** and **Minn. Rules 7050 (Water Quality Rules)**.

Selected water quality activities managed by the MPCA:

- Water quality standards
- National Pollutant Discharge Elimination System (NPDES) and State Disposal System (SDS) Permits
- NPDES and Stormwater permits
- Animal feedlots
- Wastewater treatment facilities
- Individual sewage treatment systems
- Ambient surface water quality monitoring
- Ambient ground water monitoring
- Programs: Section 319 Nonpoint Source Program, Clean Water Partnerships, Total Maximum Daily Loads, etc.
- Section 401 water quality certification

Implementation: The MPCA administers and enforces all laws relating to the pollution of any waters of the state. The MPCA is actively involved with gathering data concerning water quality in the state, including assessments of surface water and ground water quality, setting limits on contaminants, and establishing nondegradation standards for water quality.

The MPCA is managing its programs and activities using a basin approach, with a focus on hydrologic units (basins and watersheds). Through this process, a basin management plan for the Lake Superior watershed is being developed. It will describe how the MPCA will manage its programs with respect to the basin and why. The plan will identify the water quality related priorities and activities of other agencies, LGUs and the MPCA. Based on these programs, the MPCA will develop water quality priorities and management strategies, including a monitoring plan for the basin.

The MPCA has a broader definition of waters of the state than do other state agencies. According to **M.S. 115.01, Subd. 22**, “Waters of the State” means all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the state or any portion thereof.

The comprehensive **Local Water Planning Act, M.S. 103B**, enables counties to prepare local water management plans. These water plans are revised and updated every five years. Plan updates will include an emphasis on watershed management, water quality assessments, sensitive ground water areas, well-head protection, stormwater management for developing areas, and identification of high priority wetland areas. All of the counties within the coastal area of Lake Superior have developed and adopted comprehensive local water plans.

The MPCA has responsibility under **Minn. Rules 7001.1400** for issuing Clean Water Act Section 401 water quality certifications, which are required for all activities that need a Section 404 Permit from the USCOE (i.e., for discharges of fill into surface waters, including wetlands), plus U.S. Coast Guard Section 10 Permits and Federal Energy Regulatory Commission (FERC) Permits. Under the Section 401 provision, the MPCA reviews USCOE permits for compliance with state water quality standards (**Minn. Rules 7050**). Water quality certification may be approved, waived or denied. The USCOE cannot issue a permit for which MPCA has denied water quality certification. Approval for discharges to wetlands is usually dependent on satisfactory mitigation sequencing and wetland replacement. The MPCA may issue, reissue, deny, revoke or modify a Section 401 water quality certification.

The MPCA has issued blanket water quality certifications for the Section 404 nationwide permits, with regional conditions, and for Minnesota's General Permit (MN-001-GP). When the USCOE rescinded their nationwide permits in Minnesota, they replaced them with a series of general permits and letters of permission through Permit GP/LOP [General Permit/Letter of Permission]-98-MN. The MPCA and other agencies agreed to the conditions placed on this permit, and to the conditions and thresholds under which these General Permits/Letter of Permits could be used.

Standards and Criteria: Water quality standards consist of two parts: beneficial uses for a water body, and numeric or narrative water quality standards. Beneficial uses are the desirable uses that water quality should support, legally defined in **Minn. Rules 7050**, to include domestic consumption, aquatic life, recreation (swimming), agriculture and wildlife, industrial consumption and aesthetics. Numeric water quality standards establish the minimum chemical and physical parameters required to support a beneficial use. Physical and chemical numeric standards set maximum concentrations of pollutants, acceptable ranges of physical parameters, and the minimum concentrations for desirable parameters, such as dissolved oxygen.

As required by the 1990 Great Lakes Critical Programs Act, Minnesota promulgated a special set of water quality rules for the Lake Superior watershed that became effective

in 1998. **Minn. Rules 7052** was established to provide water quality standards, implementation procedures and nondegradation policies that provide “a consistent level of environmental protection for the Great Lakes ecosystem (60 Fed. Reg. 15368).” The rules focus on point source discharges of 29 toxic or bioaccumulative pollutants. The rules also provide nondegradation provisions, including special protection designations, applicable to new and expanded discharges of 22 bioaccumulative chemicals of concern.

NPDES and State Disposal Permits implement the provisions of **M.S. 115** and **M.S. 116**, as amended, by instituting a permit program in accordance with the National Pollutant Discharge Elimination System (NPDES) and providing for the processing of disposal system permits required pursuant to **M.S. 115.07**. The NPDES system was initiated by Congress in the federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500).

Minn. Rules 7001 establishes the requirements of MPCA permits issued for pollutants that enter waters of the state. Under **Minn. Rules 7001.0210**, the MPCA may issue general permits for activities that are substantially similar types of discharges, facilities and operations. With some exceptions, NPDES permits are required under **Minn. Rules 7001.1030** for any person who discharges to waters of the state. Exceptions include, but are not limited to: discharges of sewage or effluent from a vessel, persons discharging pollutants into private treatment facilities, or persons discharging dredge or fill materials regulated under Section 404 of the Clean Water Act.

NPDES and Stormwater Permits: **Minn. Rules 7002** establishes permit fees for both NPDES point source and stormwater permits, describing fee schedules, annual fees and late payment penalties. The 1987 amendments to the Clean Water Act required the USEPA to develop regulations for stormwater discharges associated with industrial activity that disturbs five or more acres of land. These activities are managed by the MPCA through the Stormwater Permit for Construction Activities. The General Construction Stormwater Permit requires a temporary erosion and sediment control plan to prevent erosion during construction, and a permanent erosion and sediment control plan to address negative stormwater impacts from the site after construction.

Phase I of the USEPA’s stormwater program relies on NPDES permit coverage to address stormwater runoff from “medium” and “large” municipal separate storm sewer systems, construction activities disturbing five or more acres of land, and ten categories of industrial activity. The USEPA’s new Phase II final stormwater rule requires additional operators of “medium” and “large” municipal separate storm sewer systems in urbanized areas, and operators of small construction sites (one to five

acres), through the use of NPDES permits, to implement programs and practices to control polluted storm water runoff.

Animal Feedlots: **Minn. Rules 7020** establishes permit conditions and cooperative arrangements necessary for the regulation of animal husbandry. These rules recognize the expertise and sensitivity of LGUs to agricultural practices and soil and water conservation. LGUs have the authority under **Minn. Rules 7020** to work with the MPCA to develop plans and programs that meet unique geographic conditions and needs. Under **Minn. Rules 7020.0100**, LGUs have the primary responsibility for managing animal husbandry in a manner that protects other land uses. Emphasis on local management does not absolve the LGU or MPCA of their responsibility to protect the environment.

Minn. Rules 7020 prescribes the pollution control procedures for animal feedlots, general agency permit procedures, county permit procedures, and appeal and variance processes. Under **Minn. Rules 7020.0500**, owners of proposed or existing feedlots of more than ten animal units are required to make a permit application to the MPCA whenever: (1) a new feedlot is proposed, (2) a change of the existing feedlot is proposed, (3) feedlot ownership changes and (4) whenever an NPDES permit is required by state and federal laws. Counties may assume some of these permit processing responsibilities by resolution. Counties are responsible for the requirements specified in **Minn. Rules 7020.1600**. Counties may voluntarily withdraw from program operation by stating their rationale for doing so, and by forwarding an official resolution to the MPCA. The MPCA may also revoke the county's review authority for failing to uphold the requirements of **Minn. Rules 7020.1600**.

Sewage Sludge Management: **Minn. Rules 7041** outlines requirements for sewage sludge management. In general, this chapter specifies permit procedures, characteristics necessary for land spreading sites, and prerequisites for land spreading facilities. Applicants for land spreading site permits must submit detailed information to the MPCA regarding hydrologic characteristics, well locations, soil conditions, recreational areas and other pertinent data. Similar types of data are also required for permits to operate sewage land spreading facilities (i.e., storage facilities). **Minn. Rules 7041** assigns specific performance standards to protect surface waters and public health. For instance, sewage land spreading sites may not be located within 1,000 feet of the ordinary high water mark of public waters. Sewage sludge applied to food chain crops must also meet the requirements of the U.S. Department of Agriculture and the U.S. Food and Drug Administration.

Waste Treatment Facilities: **Minn. Rules 7048** defines wastewater treatment facilities and related terms, and specifies procedures and requirements for the certification of treatment operators. Disposal facilities are organized in five basic categories under **Minn. Rules 7048.0300**. These categories include:

- Type I facilities, which accept hazardous waste,
- Type II facilities, which accept solid waste, or are permitted to dispose of sewage sludge as a solid waste,
- Type III facilities, which accept nonhazardous waste from industrial processes or construction waste,
- Type IV facilities, which land apply sewage sludge, and
- Type V facilities, which include any disposal facility that land applies nonhazardous liquid waste from commercial, agriculture or industrial sources.

Minn. Rules 7048.0400 - 7048.1300 describe certification procedures and processes for the operators of each type of facility.

Onsite Septic Systems: **Minn. Rules 7080** establishes technical standards and criteria and describes a framework for locally administered permitting and inspection programs, and describes “responsibilities, licensing and enforcement requirements of sewage treatment system professionals.” Technical standards cover such areas as system sizing requirements, tank construction, soil standards, effluent distribution systems and setbacks. Owners are also required to adhere to maintenance and system abandonment procedures as described in **Minn. Rules 7080.0175 - 7080.0176**. County administration of the individual sewage treatment system program and licensing standards are outlined in **Minn. Rules 7080.0300 - 7080.0860**. LGUs with onsite septic system ordinances were required to adopt **Minn. Rules 7080** in 1998.

Cleaning Agents: **Minn. Rules 7100** establishes procedures and performance standards for the management of oil and other hazardous substances including excessive nutrients from cleaning agents. The purpose of **Minn. Rules 7100.0150 - 7100.0240** is to limit adverse impacts to surface waters from nutrients contained in cleaning agents and water conditioners. **Minn. Rules 7100.0210** sets phosphorous limits (by weight) at 0.5 percent for laundry detergents and household cleaners, 11 percent for household and commercial detergents, and 20 percent for chemical water conditioners. No person may sell, distribute or offer for sale any cleaning agents or water conditioners that exceed these limits.

Authorities:

- **Water Pollution Control Act - M.S. 115 and M.S. 115A-B**
- **Water Quality Standards - Minn. Rules 7050**

- Water Quality Standard - Standard Implementation, and Nondegradation Standard for Great Lakes Initiative Pollutants in the Lake Superior Basin - **Minn. Rules 7052**
- NPDES and State Disposal Permits - **Minn. Rules 7001**
- NPDES and Stormwater Permits - **Minn. Rules 7002**
- Animal Feedlots - **Minn. Rules 7020**
- Waste Treatment Facilities - **Minn. Rules 7048**
- Individual Sewage Treatment Systems - **Minn. Rules 7080**
- Oil and Hazardous Substances - **Minn. Rules 7100**
- Sewage Sludge Management - **Minn. Rules 7041**

C. STATE ENFORCEABLE AUTHORITIES FOR CONTROLLING COASTAL NONPOINT POLLUTION

1. Definitions

Statutes: Statutes are a codification of session laws that are compiled and published every year as Minnesota Statutes. By codifying laws into Minnesota Statutes, the laws are placed into context of statutes that have been on the books in previous years. Some laws, such as appropriation bills, don't become statutes.

Rules: An administrative rule is a general statement adopted by an agency to make the law it enforces or administers more specific, or to govern the agency's organization or procedure. An agency may adopt a rule only after the legislature has enacted a law granting the agency such authority. An agency rule that is adopted under the rulemaking provisions of **M.S. 14** has the force and effect of law. Rules are usually grouped under the agency that administers them. Some agencies are assigned one chapter in Minnesota Rules; others have many chapters. The chapters appear in alphabetical order by agency or department name.

Executive Orders: According to **M.S. 4.035**, an executive order is a written statement or order executed by the governor pursuant to constitutional or statutory authority. Unless an earlier date is specified by statute or by executive order, an executive order expires 90 days after the date that the governor who issued the order vacates office.

2. Minnesota's Backup Authorities

The State of Minnesota has numerous state enforceable authorities designed to help control various kinds of pollution, including nonpoint pollution. Listed below, in Table 2a - Table 2c, are the state statutes and rules that are cited elsewhere in this document. Detailed citations occur primarily in Chapter IV, which describes the six nonpoint source categories that are of particular interest for the Coastal Nonpoint Program. A table in each of those six source category discussions summarizes the statutes and rules that apply for each individual management measure.

It is the position of the State of Minnesota that sufficient state enforceable authorities exist to adequately control nonpoint pollution within the Lake Superior Basin, as well

as within the rest of the state. As part of the specific statutes and rules cited in this document, Minnesota has several comprehensive backup authorities. These are described below.

a. Minn. Rules 7050

Minn. Rules 7050, Waters of the State, describes Minnesota’s Water Quality Standards. Language from both **Minn. Rules 7050.0185** and **Minn. Rules 7050.0210** is included below:

- **Minn. Rules 7050.0185**: Nondegradation for All Waters. [This is referred to in this document as the “Antidegradation Policy”]. Subpart 1. Policy. ...It is the policy of the state of Minnesota to protect all waters from significant degradation from point and nonpoint sources and wetland alterations, and to maintain existing water uses, aquatic and wetland habitats, and the level of water quality necessary to protect these uses.
- **Minn. Rules 7050.0210**: General Standards for Dischargers to Waters of the State (includes Subpart 2: Nuisance Conditions Prohibited). [This is referred to in this document as the “Nuisance Condition Prohibition”].
 - **Subp. 1. Untreated sewage.** No untreated sewage shall be discharged into any waters of the state. Effective disinfection of any discharges, including combined flows of sewage and storm water, will be required where necessary to protect the specified uses of the waters of the state.
 - **Subp. 2. Nuisance conditions prohibited.** No sewage, industrial waste, or other wastes shall be discharged from either point or nonpoint sources into any waters of the state so as to cause any nuisance conditions, such as the presence of significant amounts of floating solids, scum, visible oil film, excessive suspended solids, material discoloration, obnoxious odors, gas ebullition, deleterious sludge deposits, undesirable slimes or fungus growths, aquatic habitat degradation, excessive growths of aquatic plants or other offensive or harmful effects.
 - **Subp. 13. Pollution prohibited.** No sewage, industrial waste, or other wastes shall be discharged from either a point or a nonpoint source into the waters of the state in such quantity or in such manner alone or in combination with other substances as to cause pollution as defined by law. In any case where the waters of the state into which sewage, industrial waste, or other waste effluents discharge are assigned different standards than the waters of the state into which the receiving waters flow, the standards applicable to the waters into which the sewage, industrial waste, or other wastes discharged shall be

supplemented by the following: The quality of any waters of the state receiving sewage, industrial waste, or other waste effluents shall be such that no violation of the standards of any waters of the state in any other class shall occur by reason of the discharge of the sewage, industrial waste, or other waste effluents.

- **Subp. 15. Point source dischargers must report to agency.** All persons operating or responsible for sewage, industrial waste or other waste-disposal systems which are adjacent to or which discharge effluents to these waters or to tributaries which affect the same, shall submit a report to the agency upon request on the operation of the disposal system, the effluent flow, and the characteristics of the effluents and receiving waters. Sufficient data on measurements, observations, sampling, and analyses, and other pertinent information shall be furnished as may be required by the agency to adequately evaluate the condition of the disposal system, the effluent, and the waters receiving or affected by the effluent.

Minn. Rules 7050.0185 is used mostly for permits, which **Minn. Rules 7050.0210** is used for enforcement. Since April 1999, MPCA's Duluth Region has taken 18 enforcement actions for various unauthorized discharges to waters of the state, both point and nonpoint. Of those 18 enforcement actions, 11 cited **Minn. Rules 7050.0210**.

b. M.S. 609

M.S. 609 is Minnesota's Criminal Code of 1963. **MS. 609.68** and **M.S. 609.74** are pertinent to the Coastal Nonpoint Program. Details follow.

- **M.S. 609.68.** Unlawful deposit of garbage, litter or like: Whoever unlawfully deposits garbage, rubbish, offal, or the body of a dead animal or other litter in or upon any public highway, public waters or the ice thereon, shoreland areas adjacent to rivers or streams as defined by **M.S. 103F.205**, public lands, or, without the consent of the owner, private lands or water or ice thereon, is guilty of a misdemeanor.
- **M.S. 609.74.** Public nuisance: Whoever by an act or failure to perform a legal duty intentionally does any of the following is guilty of maintaining a public nuisance, which is a misdemeanor:
 - Maintains or permits a condition which unreasonably annoys, injures or endangers the safety, health, morals, comfort or repose of any considerable number of members of the public; or

- Interferes with, obstructs or renders dangerous for passage, any public highway or right-of-way, or waters used by the public; or
- Is guilty of any other act or omission declared by law to be a public nuisance and for which no sentence is specifically provided.

c. M.S. 116B.03 (MERA)

The **Minnesota Environmental Rights Act (MERA)** provides that any person residing in the state may maintain a civil action in the district court for declaratory or equitable relief in the name of the State of Minnesota against any person, for the protection of the air, water, land or other natural resources located within the state, whether privately or publicly owned, from pollution, impairment or destruction. Where the subject of the action is conduct governed by an environmental quality standard, limitation, rule, order, license, stipulation agreement, or permit promulgated or issued by the MPCA, DNR, Department of Health or Department of Agriculture, the person taking the action must show evidence that the action violates or is likely to violate the environmental quality standard, limitation, rule, order, license, stipulation agreement or permit.

d. M.S. 116D.04 - 116D.045 (MEPA)

The **Minnesota Environmental Policy Act (MEPA)**, **Subd. 6**, regarding permitting and approval decisions, relates to significant environmental impacts disclosed through the Environmental Review Program. No state action can be allowed or permitted if it is likely to cause pollution, impairment or destruction of the air, water, land or other natural resources if there is a prudent and feasible alternative. Economic considerations alone cannot be used to justify a decision.

In addition, MEPA provides additional direction to state agencies, including to:

- Use a systematic, interdisciplinary approach to ensure the integrated use of the natural and social sciences and the environmental arts in planning and in decision making that may have an impact on the environment.
- Identify and develop methods and procedures to ensure that environmental amenities and values, whether quantified or not, will be given at least equal consideration with economic and technical considerations in decision making.

- Study, develop and describe appropriate alternatives to recommended courses of action for any proposal that involves unresolved conflicts concerning alternative uses of available resources.
- Make available, to federal and state government agencies, counties, municipalities, institutions and individuals, information useful in restoring, maintaining and enhancing the quality of the environment, and in meeting the policies of the state set forth throughout MEPA.
- Initiate the gathering and utilization of ecological information in the planning and development of resource oriented projects.

Certain types and sizes of projects require the preparation of an Environmental Impact Statement (EIS) or Environmental Assessment Worksheet (EAW). The “mandatory categories” and standard exemptions are listed in **Minn. Rules 4410.4300 (EAW)** and **Minn. Rules 4410.4400 (EIS)**. Examples that would require an EAW within the coastal area include the following:

- Marina development (20,000 sq. ft. of area).
- Residential and recreational development (dependent on site size or number of units).
- Highway projects (new roads, additional lanes).
- Projects that affect wetlands and protected waters (dependent on size of impact).
- Stream diversions (watersheds greater than 10 square miles or designated trout streams).
- Agriculture and forestry (harvesting and conversion of land).
- Natural areas (permanent physical encroachment).

There are some standard exemptions, as described in **M.S. 4410.4600**. For additional information, see the *Guide to Minnesota Environmental Review Rules*. It is available on the Internet.

<http://www.mnplan.state.mn.us/cgi-bin/byteserver.pl/pdf/rulguid3.pdf>

3. SELECTED MINNESOTA STATUTES, RULES, EXECUTIVE ORDERS AND PERMITS

Minnesota's statutes and rules are available via the Internet two different ways. The information is the same either way.

1. *Statutes and rules may be viewed by section on the Internet on Minnesota's Revisor of Statutes Web site at:*
 - *For administrative rules - <http://www.revisor.leg.state.mn.us/arule/> [plus add number of specific rule]*
 - *For statutes - <http://www.revisor.leg.state.mn.us/stats/>*

2. *Statutes and rules may be viewed or easily downloaded in their entirety from Minnesota's Legislative Web site at:*
<http://www.leg.state.mn.us/leg/statutes.htm>.

Table 2a. Selected Minnesota Statutes.

Minnesota Statutes, Chapters 17-43: Agriculture	
17	Department of Agriculture
17.114	Sustainable Agriculture
18B	Pesticide Control
18B.04	Pesticide impact on environment
18C	Fertilizers, Soil Amendments, Plant Amendments
18C.201	Prohibited Fertilizer Activities
18D	Agricultural Chemical Liability
18D.103	Report of Incidents Required
18D.105	Corrective Action Orders

Minnesota Statutes, Chapter 40A: Agricultural Land Preservation
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Minnesota Statutes, Chapters 83A-84: Natural Resources	
84.64	Conservation Restrictions
84.942	Fish and Wildlife Resources Management Plan
84.942, Subd. 5	Public Agency Coordination
84.944	Acquisition of Critical Natural Habitat

Minnesota Statutes, Chapters 85-87: Recreation	
86	Federal Funds for Natural Resources

Minnesota Statutes, Chapters 85-87: Recreation	
86A	Outdoor Recreation System
86A, Subd. 14	Aquatic Management Areas
86A.20 - .24	Lake Superior Harbors Program
86A.20	Definitions
86A.21	Powers and Duties of Commissioner
86A.22	Authority of Local units of Government
86A.23	Open Facilities; Liability Exemption
86A.24	Financing of Harbors and Facilities
86B	Water Safety, Watercraft and Watercraft Titling
86B.201	State Law and Local Ordinance Authority
86B.205	Water Surface Use Ordinance
86B.211	Water Safety Rules
86B.313	Personal Watercraft Regulations
86B.325	Discharge from Marine Toilets Prohibited

Minnesota Statutes, Chapters 88-91: Forestry	
88	Division of Lands and Forestry
88.16	Starting and Reporting Fires
88.17	Permission to Start Fires
89	State forests; Tree Planting; Forest Roads [Minnesota Forest Management Act]
89.002, Subd. 3	Forest Road Policies
89A	Sustainable Forest Resources [Minnesota Sustainable Forest Resources Act]

Minnesota Statutes, Chapters 92-94: Lands and Minerals	
92	State Lands; Sales
92.45	State Land on Meandered Lakes Withdrawn From Sale

Minnesota Statutes, Chapters 97-192: Game and Fish	
97A	Game and Fish
97A.141	Public Water Access Sites
97C	Fishing
97C.02	Acquisition of Critical Habitat
97C.025	Fishing and Motorboats Prohibited in Certain Areas
97C.061	Dragging a Weight or Anchor through Vegetation
97C.065	Pollutants in Waters

Minnesota Statutes, Chapters 103A-114B: Water	
103A-103G	Water Law
103B	Water Planning and Project Implementation

Minnesota Statutes, Chapters 103A-114B: Water	
103B.301	Comprehensive Local Water Management Act
103B.3361 - .3369	Local Water Resources Protection and Management Program
103C	Soil and Water Conservation Districts
103C.501	Cost-sharing Contracts for Erosion Control/Water Mgmt.
103D	Watershed Law (Watershed Districts)
103E	Drainage
103F	Protection of Water Resources
103F.101 - .155	Floodplain Management Act
103F.201 - .221	Shoreland Management Act
103F.211	Shoreland Development Model Standards and Criteria
103F.401 - .461	Soil Erosion
103G	Waters of the State [Protected Water Program]
103G.105	Cooperation with Other Agencies
103G.201 - .315	Public Waters Inventory
103G.221	Drainage of Public Waters Wetlands
103G.222	Replacement of Wetlands (Wetlands Conservation Act)
103G.245	Work in Public Waters
103G.271 - .315	Appropriation/Use of Water; Denial and Issuance of Permits
103H	Groundwater Protection

Minnesota Statutes, Chapters 114C-116: Environmental Protection	
115	Water Pollution Control; Sanitary Districts [Water Pollution Control Act]
115.03	Powers and Duties
115.061	Duty to Notify and Avoid Water Pollution
115.075	Information and Monitoring
115A	Waste Management Act
115A.072	Public Education
115A.45	Technical Assistance
115A.551 - .552	Recycling
115E.02	Duty to Prevent Discharges
115E.03	Duty to Prepare for Response to Discharges
115E.04	Prevention and Response Plans
115E.08	Coordination
115E.09	Single Answering Point System
116	Pollution Control Agency
116.05	Cooperation
116.481	Petroleum Tank Monitoring
116B	Minnesota Environmental Rights Act (MERA)
116D	Minnesota Environmental Policy Act (MEPA)

Minnesota Statutes, Chapters 162: State-aid System (Transportation)	
162.02	County State-aid Highway System
162.021	Natural Preservation Routes

Minnesota Statutes, Chapters 299A-299N: Public Safety	
299F.011	Uniform Fire Code
299F.19	Flammable Liquids and Explosives

Minnesota Statutes, Chapters 370-403: Counties; Regional Authorities	
394	Planning, Development, Zoning
394.21	County Planning and Zoning Activities
394.23	Comprehensive Plan
394.23	Community-based Planning
394.301	Conditional Use Permits
400	Solid Waste Management
400.01 - .17	County Solid Waste Management Act
400.04	Solid Waste Management Program
400.16	Solid Waste and Sewage Sludge Management Regulations
400.161	Hazardous Waste Regulations
458D	Western Lake Superior Sanitary District
462.351 - .364	Municipal Planning and Development
462.371 - .398	Regional Planning and Development

Minnesota Statutes, Chapter 609: Crimes, Criminals	
609.68	Unlawful Deposit of Garbage, Litter or Like [including offal]
609.74	Public Nuisance

Table 2b. Selected Minnesota Rules (with Lead Agencies).

Minnesota Rules, Chapter 4410: Environmental Review [Lead Agency: Environmental Quality Board]	
4410.0200 - .8000	Water Quality - Definitions and Abbreviations
4410.4300	Mandatory EAW Categories
4410.4300, Subp. 24	Water Appropriation and Impoundments
4410.4300, Subp. 25	Marinas
4410.4300, Subp. 26	Stream Diversion
4410.4300, Subp. 27	Wetlands and Protected Waters
4410.4300, Subp. 28	Forestry
4410.4300, Subp. 29	Animal Feedlots
4410.4400	Mandatory EIS Categories

Minnesota Rules, Chapter 4410: Environmental Review [Lead Agency: Environmental Quality Board]	
4410.4600	Exemptions

Minnesota Rules, Chapter 4717: Environmental Health [Lead Agency: Department of Health]	
4717.4300	Sewage or Other Waste Disposal Requirements
4717.4500	Wastes from Watercraft, Marine Toilets, etc.

Minnesota Rules, Chapter 6115: Public Waters [Lead Agency: Department of Natural Resources]	
6115.0010 - .0810 Water Permits	
6115.0600 - .0810 Water Resources	
6115.0190 - .0231 Stream Crossings	
6115.0190	Filling Into Public Waters
6115.0191	Specific Standards
6115.0200	Excavation of Public Waters
6115.0201	Specific Standards
6115.0210	Structures in Public Waters
6115.0211	Specific Standards
6115.0220	Water Level Control
6115.0231	Specific Standards
6115.0250	Permit Review
6115.0300	Dams
6115.0320	Definitions
6115.0360	Inspections
6115.0380	Operation and Maintenance
6115.0390	Terms of Operation and Perpetual Maintenance

Minnesota Rules, Chapter 6120: Shoreland and Floodplain Management [Lead Agency: Department of Natural Resources]	
6120.2500 - .3900	Statewide Standards, Management of Shoreland Areas
6120.2500	Definitions
6120.2600	Policy
6120.2800	Scope
6120.3000	Shoreland Management Classification System
6120.3100	Land Use Districts
6120.3200	Criteria for Land Use Zoning District Designation
6120.3300	Zoning Provisions
6120.3400	Sanitary Provisions

Minnesota Rules, Chapter 7001: Permits and Certifications [Lead Agency: Pollution Control Agency]	
7001	NPDES/State Disposal Permits [Air Emission Permits]
7001.0020	Scope
7001.0520	Permit Requirements
7001.1035	Stormwater Permits
7001.3050	Permit Requirements

Minnesota Rules, Chapter 7020: Animal Feedlots [Lead Agency: Pollution Control Agency]	
7020.0350	Registration Requirements for Animal Feedlots and Manure Storage Areas

Minnesota Rules, Chapter 7035: Solid Waste [Lead Agency: Pollution Control Agency]	
7035.0400	General Requirements
7035.0700	Storage of Solid Waste at Individual Properties
7035.0800	Collection and Transportation of Solid Waste

Minnesota Rules, Chapter 7040: Sewage Sludge Management [Lead Agency: Pollution Control Agency]	
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Minnesota Rules, Chapter 7045: Hazardous Waste [Lead Agency: Pollution Control Agency]	
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Minnesota Rules, Chapter 7046: Facility and Generator Fees [Lead Agency: Pollution Control Agency]	
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Minnesota Rules, Chapter 7050: Waters of the State (Water Quality Standards) [Lead Agency: Pollution Control Agency]	
7050.180	Nondegradation for Outstanding Resource Value Waters
7050.0185	Nondegradation for All Waters [“Antidegradation Policy”]
7050.0210	General Standards for Dischargers to Waters of State [“Nuisance Condition Prohibition”]

Minnesota Rules, Chapter 7052: Lake Superior Basin Water Standards [Lead Agency: Pollution Control Agency]	
7052.0005	Scope
7052.0100	Water Quality Standards
7052.0200	Total Maximum Daily Loads
7052.0300	Nondegradation Standards
7052.0310	Nondegradation Implementation

Minnesota Rules, **Chapter 7060: Underground Waters**
[Lead Agency: Pollution Control Agency]

Minnesota Rules, **Chapter 7065: Effluent Standards**
[Lead Agency: Pollution Control Agency]

Minnesota Rules, **Chapter 7076: Clean Water Partnership Financial Assistance**
[Lead Agency: Pollution Control Agency]

Minnesota Rules, **Chapter 7080: Onsite Septic Systems**
[Lead Agency: Pollution Control Agency]

7080.0010	Purpose and Intent
7080.0130	Sewage Tanks

Minnesota Rules, **Chapter 7100: Oil and Hazardous Substances**
[Lead Agency: Pollution Control Agency]

7100.0150 - .0240	Prohibition of Excess Phosphorus in Cleaning Products
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Minnesota Rules, **Chapter 7150: Underground Storage Tanks; Program**
[Lead Agency: Pollution Control Agency]

Minnesota Rules, **Chapter 7510: Fire Safety**
[Lead Agency: Pollution Control Agency]

7510.3440	Uniform Fire Code
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Minnesota Rules, **Chapter 8400: Cost-share Program**
[Lead Agency: Board of Water and Soil Resources]

Minnesota Rules, **Chapter 8405: Local Water Protection and Management**
[Lead Agency: Board of Water and Soil Resources]

Minnesota Rules, **Chapter 8420: Wetlands Conservation Act**
[Lead Agency: Board of Water and Soil Resources]

8420.0520	Sequencing
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Minnesota Rules, **Chapter 8820: Local State-aid Route Standards, Financing**
[Lead Agency: Department of Transportation]

8820.4010	Natural Preservation Route Characteristics
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Minnesota Rules, **Chapter 9300: Local Water Management**
[Lead Agency: Board of Water and Soil Resources]

Table 2c. Selected Executive Orders and Permit Numbers.

Order/Permit Number	Item/Topic
MN G 611000	Stormwater General Permit (Industrial)
MN R 110000	Stormwater General Permit (Construction)
Executive Order 00-02	No Net Loss of Wetlands

D. IMPLEMENTATION FRAMEWORK, FOCUS AND SCHEDULE

1. Implementation Framework

This chapter could be titled “Framework for Further Implementation.” Although Minnesota’s Coastal Nonpoint Pollution Control Program is new, it grows directly out of the state’s ongoing implementation of programs that are designed to control nonpoint pollution, preserve water quality and enhance natural resources. Implementation will take place through a number of key state programs, including the following:

- Minnesota’s Nonpoint Source Management (Section 319) Program
- Minnesota’s Shoreland Management and Floodplain Management Programs
- Minnesota’s Lake Superior Coastal Program
- Minnesota’s Lake Superior Basin Plan.

For additional information on these ongoing programs, see the following sections of this Coastal Nonpoint Program document:

- Section II B: Purpose and Approach
- Section III B: Coordination
- Chapter VI: Minnesota’s Nonpoint Source Management (Section 319) Program

Minnesota relies on a mix of voluntary and regulatory approaches for controlling nonpoint source pollution. For example, approaches for dealing with nonpoint source issues in agriculture and forestry have historically used a voluntary approach. Below is a brief list of selected programs used as tools for implementing nonpoint pollution programs. Table 3a features voluntary programs. Table 3b features regulatory and “mixed” programs (having both voluntary and regulatory elements). This provides a snapshot of the voluntary/regulatory mix in Minnesota. (Tables 3a and 3b are based on *MLSCP-FEIS*).

Table 3a. Selected Voluntary Programs and Tools Used for Addressing Nonpoint Source Pollution in Minnesota.

Programs	Programs (continued)
Agricultural BMP Loan Program	Hydrologic Unit Areas Program

Programs	Programs (continued)
Ambient Groundwater Quality Monitoring Ambient Surface Water Monitoring BMP Auditing BMP Effectiveness Monitoring BWSR's Cost-share Program [through the local SWCDs] Certification Programs Citizen-based Monitoring Programs Clean Lakes Program Clean Water Partnership Program Compliance Monitoring Conservation Easements Conservation Reserve Program Cost-share Programs Demonstration Projects Design Standards Educational Programs Environmental Quality Incentives Program Feedlot Water Quality Management Cost-share Program Fish Contaminant Monitoring Program Forestry BMP Program Great Lakes Commission Grants	Interagency Coordination Lake Assessment Program Lake Sampling Program Lake Superior Shoreline Protection Project Intensive Surveys Program Local Ordinances Local Water Planning Local Zoning Low-interest Loans and Grants Penalties Performance Standards Permitting Programs Research Section 319 Grants Targeting Tax Incentives Technical Assistance; Technical Transfer Training Seminars Trend Monitoring Use Restrictions (i.e., pesticides) Water Planning Challenge Grants Water Quality Demonstration Projects Water Quality Special Projects

Table 3b. Selected Regulatory and Mixed (Voluntary/Regulatory) Programs and Tools Used for Addressing Nonpoint Source Pollution in Minnesota.

Programs	Programs (continued)
Aquatic Plant Management Program Comprehensive Planning Developing Total Maximum Daily Loads (TMDLs) Flood Plain Management Program ISTS Program Marketable Permits (source trading) Minnesota Pesticide Control Act Minnesota Water Well Construction Code National Pollutant Discharge Elimination System (NPDES) Permit Program	Numeric Water Quality Standards Public Water Supply Program Regulation of Fertilizers, and Soil and Plant Amendments Sludge Disposal Program Structural BMPs Wastewater Treatment Facility Operator Certification and Training Water Quality (401) Certifications Wellhead Protection Program Wetland Conservation Act

Additional details about Minnesota's programs and authorities, both regulatory and nonregulatory, are provided at the end of this section in Tables 4 - 9, which are based on *MLSCP-FEIS*.

Table 4a. Selected Land Management Programs and Authorities (Regulatory).

Table 4b. Selected Land Management Programs and Authorities (Nonregulatory).

Table 5a. Selected Water Management Programs and Authorities (Regulatory).

Table 5b. Selected Water Management Programs and Authorities (Nonregulatory).

Table 6a. Selected Water Quality Programs and Authorities (Regulatory).

Table 6b. Selected Water Quality Programs and Authorities (Nonregulatory).

Table 7a. Selected Fish and Wildlife Programs and Authorities (Regulatory).

Table 7b. Selected Fish and Wildlife Programs and Authorities (Nonregulatory).

Table 8a. Selected Forestry Programs and Authorities (Regulatory).

Table 8b. Selected Forestry Wildlife Programs and Authorities (Nonregulatory).

Table 9a. Selected Environmental Review Programs and Authorities (Regulatory).

Table 9b. Selected Environmental Review Programs and Authorities (Nonregulatory).

2. Implementation Focus and Schedule

This Coastal Nonpoint Program is part of Minnesota's effort to reduce nonpoint pollution through the Section 319 Program, Minnesota's Lake Superior Coastal Program, and Minnesota's Lake Superior Basin Plan. This document provides a description of Minnesota's programs and enforceable authorities, rather than identifying a number of recommendations. This is in large part due to time constraints, based initially on the 30-month submittal deadline and later on the six-month acceleration process. Therefore, a key effort through 2002 will be to identify implementation activities.

The federal guidelines suggest a timeline, following program approval, of five years for program implementation and evidence of progress.

Of the six federally defined nonpoint source categories, three seem to be highest priority and will receive the most staff attention. These are as follows:

- Marinas and Recreational Boating, because there is increasing interest in recreation on Minnesota's North Shore, and therefore increasing pressure on marinas, boating facilities and public access sites, and because several different agencies are responsible for implementation of the diverse management measures for this nonpoint source category. This is likely to include developing a marina manual, and evaluating interest establishing a voluntary "clean-marina" program.
- Urban/Rural Areas, because this is a complex category, and because development pressure is increasing. Programs will continue to focus on development and land use.
- Hydromodification, Part 1 (Channelization and Channel Modification) and Part 2 (Streambank and Shoreline Erosion), because there is always a need for stream improvement and protection. Efforts on Miller Creek in Duluth will continue, in order to enhance conditions for a naturally reproducing brook trout population in a rapidly developing watershed. Efforts on the Knife River will continue, in order to increase forest cover and make other watershed improvements that will enhance conditions for trout and salmon.

The remaining three nonpoint source categories are Forestry, Wetlands and Agriculture:

- Forestry is well covered in Minnesota, with a great deal of coordination, cooperation, education and a strong, new system in place for tracking management measure effectiveness.
- Wetlands are well protected in Minnesota, with systems in place to ensure a high degree of organizational coordination and management measure effectiveness.
- Agriculture does not represent a major land use in the Lake Superior Basin, which has cool temperatures and a short growing season.

In addition to focusing on the three nonpoint source categories listed above, agency staff expect to do the following:

- Examine more closely the watersheds that have been identified as threatened or impaired. (See Chapter V: Additional Management Measures). For these watersheds, efforts will be made to improve the collection and sharing of water quality monitoring data, and identify land use practices that may be contributing to water quality problems.
- Identify those management measures for which a more thorough assessment of management measure implementation and/or effectiveness would be useful. For those management measures, efforts will be made to identify and use better methods for making, tracking and sharing those assessments.

Furthermore, state agency staff will work with other partners toward the following goals:

- Improved communication, coordination and sharing of data
- Nonpoint pollution training opportunities
- Innovative nonpoint pollution reduction efforts
- Additional Section 319 (nonpoint pollution control) grants being submitted from and awarded to nonpoint pollution reduction efforts in the Lake Superior Basin.

While working on program implementation, state agency staff will continue to work with numerous partners from other agencies and organizations. Staff will also continue to work closely with the Programmatic Work Group, which advises the Lake Superior Basin Planning and Coastal Nonpoint programs, as well as with local governments and the public.

Finally, during 2002, DNR and MPCA staff look forward to strengthening the state's partnership with NOAA and USEPA. Federal feedback on this Coastal Nonpoint Program document may identify additional opportunities for strengthening Minnesota's efforts to control nonpoint pollution in the Lake Superior Basin.

Table 4a. Selected Land Management Programs and Authorities (Regulatory).

Agency Name	Program	Authority	Funding	Program Delivery
DNR Area Hydrologist or Shoreland Management Program: (651) 296-4800	Shoreland Management Program: establishes standards for development of shoreland areas (within 300 feet of a stream or 1,000 feet of a lake or wetland, or in the floodplain). Standards address subdivision of land, structure setbacks, vegetative management, land alterations, agricultural activities and sewage treatment.	M.S. 103F.201 - .221 Minn. Rules 6120.2500 - 6120.3900	General Fund	State sets standards that are incorporated into local government zoning ordinances. DNR reviews and comments on certain zoning actions. DNR provides technical support and grants to local governments to help implement programs.
DNR Division of Waters, Floodplain Management Program: (651) 296-4800	Flood Plain Management: provides standards for identifying floodplains, floodways and flood fringe areas; describes flood protection measures for new construction in the flood fringe.	M.S. 103F.101 - .165 Minn. Rules 6120.5000 - 6120.6200	FEMA-CAP funds and state General Fund	State standards are incorporated into local zoning ordinances. DNR reviews and comments on certain zoning actions, provides technical support and conducts flood studies.
North Shore Management Board (NSMB)	North Shore Management Plan: establishes standards within the North Shore Management Plan boundary (land adjacent to Lake Superior). NSMP standards are used in place of the Shoreland Management Program standards.	M.S. 103F.201 - .221 Minn. Rules 6120.2500 - 6120.3900 Minn. Rules 6120.2800	General Fund	NSMB set NSMP standards that are incorporated into LGU land use ordinances. DNR provides technical and financial assistance, reviews and approves annual work plan.
MDA	Pesticide Control Law	M.S. 18B	Federal FIFRA Grant, Pesticide Regulatory Account	The MDA is empowered to regulate activities associated with pesticides in the State
MDA	Fertilizer , Soil Amendment, and Plant amendment Law	M.S. 18C	Tonnage Fees	The MDA is empowered to regulate activities associated with fertilizers, soil amendments and plant amendments in the state.
MDA	Agricultural Chemical Bulk Storage Program	M.S. 18B M.S. 18C	Federal grant, pesticide and fertilizer fees	Regulates the bulk storage of agricultural chemicals via a permitting program.

Table 4b. Selected Land Management Programs (Nonregulatory).

Agency Name	Program	Authority	Funding	Program Delivery
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Agency Name	Program	Authority	Funding	Program Delivery
BWSR Grants Coordinator: (651) 297-7361	Local Water Resources Protection and Management Program: provides noncompetitive base grants and competitive challenge grants to counties for administration and implementation of approved and locally adopted local water plans. Lake restoration and enhancement projects are an eligible actions.	M.S. 103B.3369 Minn. Rules 9400	Funding is provided biennially as base grants to counties. Base grant amounts are variable but, when combined with the local levy for water plan implementation, results in base grants of \$18,500-\$37,500 per county. Challenge grants are available biennially.	Administered at the state level by BWSR; administered locally by county water plan coordinators and water planning task forces. Counties prepare biennial work plans and budgets, and must have a state approved and locally adopted plan to receive funding.
BWSR Water Plan Coordinator: (651) 297-7361	Comprehensive Local Water Planning and Management Program: assists counties to write, update and implement comprehensive water management plans.	M.S. 103B.3369 Minn. Rules 8405	Funding is provided biennially as base grants to counties. Base grant amounts are variable but, when combined with the local levy for water plan implementation, results in base grants of \$18,500-\$37,500 per county. Challenge grants are available biennially.	Administered at the state level by BWSR; administered locally by county water plan coordinators and water planning task forces. Counties revise water plans every five to 10 years. The BWSR approves the updated plans.
DNR Shoreland Hydrologist: (218) 828-2605	Lake Advocate Program: train private citizens living on lakes as "lake advocates" regarding shoreland regulations, state permitting processes and surface and ground water issues. Answer questions from other lake residents or refer to governmental units.	Agency authorities	Federal grant to PCA and local governments.	A partnership among the DNR, PCA, local units of government and coalition of Lake Associations. They provide training and materials to advocates and coordinate this network.
DNR Area Hydrologist, or Floodplain Management Program: (651) 296-4800	Flood Damage Reduction Program: provides matching grants to local governments to implement flood damage reduction projects.	M.S. 103F.161	State General Fund and Bonding	Local Area Hydrologists provide assistance. If funds are available, DNR can make grants up to \$75,000. For larger projects, the legislature acts on bonding requests.
MDA	Waste Pesticide Collection Program	M.S. 18B	Federal grant, pesticide fees, counties	Provides for the collection and disposal of unused pesticides.
MDA	Pesticide Container Collection Program	M.S. 18B	Pesticide fees, private collaboration	Provides for the collection and recycling of cleaned (properly rinsed) pesticide containers.

Agency Name	Program	Authority	Funding	Program Delivery
MDA	Ag BMP Loan Program	M.S. 17.117	State Revolving Fund	Provides low cost loan funds for practices to improve water quality.
MDA	Sustainable Ag Program	M.S. 17.114	General Fund	Provides grants for sustainable agricultural projects demonstrating beneficial alternatives.
MDA	Integrated Pest Management Program	M.S. 17.114	General Fund	Encourages development and adoption of Integrated Pest Management.
MDA	Monitoring and Assessment Program	M.S. 18B.04 M.S. 103H.251	Federal FIFRA grant, pesticide fees, general fund	Monitors the impact of routine use of pesticides and fertilizers to water resources.
MDA	Pesticide Management Plan	M.S. 18B	Pesticide fees	Provides the framework for the management of pesticides when they impact water resources..
MDA	Nitrogen Fertilizer Management Plan	M.S. 18C	Tonnage fees	Provides the framework for the management of nitrogen fertilizers when they impact water resources.

Table 5a. Selected Water Management Programs (Regulatory).

Agency Name	Program	Authority	Funding	Program Delivery
DNR Area Hydrologist, or DNR Waters: (651) 296-4800	Protected Waters & Wetlands Permit Program: requires a permit for activities that will change or diminish the course, current or cross-section of wetlands or streams that are designated as protected waters or wetlands by the DNR. About 100 permits per year are processed in coastal area.	M.S. 103G.101 - .315 Minn. Rules 6115.0150 - 6115.0280	Permit application fees go to the General Fund and are then appropriated to DNR Waters.	DNR regional offices process permit applications. Area hydrologists review applications and make recommendations for their respective areas. Permits are approved, modified or denied at region or Central Office depending on permit type.
DNR Area Hydrologist, or DNR Waters Permit Coordinator: (651) 296-4800	Water Appropriation Permit Program: requires permits for appropriations of surface or ground water exceeding 10,000 gallons per day or one million gallons per year. Includes surface waters in lakes, wetlands and streams. About 100 permits per year are processed in coastal area.	M.S. 103G.255 - .297 Minn. Rules 6115.062	Permit application fees go to the General Fund and are then appropriated to the DNR Waters.	DNR regional offices process permit applications. Area hydrologists review applicants and make recommendations in their respective areas. Permits are approved, modified or denied at the region or Central Office, depending on permit type.

Agency Name	Program	Authority	Funding	Program Delivery
DNR Area Hydrologist, or DNR Waters Dam Safety Supervisor: (651) 296-0525	Dam Safety Program: requires a permit for construction, alteration, operation, repairs, transfer of ownership and abandonment of a dam which is greater than 6' in height and has a maximum storage capacity greater than 15 acre/feet with some exemptions.	M.S. 103G Minn. Rules 6115.0300 - 6115.0520	Permit application fees go to state General Fund and are then appropriated to DNR Waters.	DNR regional offices process permit applications. Area hydrologists review and make recommendations. Technical review is conducted by the Dam Safety Unit, which also inspects and evaluates existing dams, the contact for grant program and hydropower information.
DNR Surface Water Unit: (651) 296-0525	Stream Flow Protection and Regulation: recommends protected flow levels for rivers, lakes, hydropower and reservoir operations. Reviews applications to FERC for relicensing of hydropower facilities.	M.S. 103G	State General Fund	DNR Waters Permit Unit initiates requests for protected flow determination. Field studies and/or statistical analysis of historic flow data used to set protected flow levels.
BWSR Wetlands Specialists: (651) 297-3432	Wetland Conservation Act: provides no-net-loss protection to regulated wetlands. The Act includes some exemptions.	M.S. 103G.222 - .2373 Minn. Rules 8420	State General Fund	Local government units and watershed management organizations certify exemptions and approve replacement plans. DNR and locally licensed peace officers can enforce the act.
DNR Area Hydrologist, or DNR Waters: (651) 296-4800	Duluth Comprehensive Port Development Plan: provides standards and criteria for dredging activities and land use management for Duluth Harbor and St. Louis River Estuary.	M.S. 103G Minn. Rules 6115.0191	State General Fund	City of Duluth, Port Authority of Duluth and DNR through an MOU manage all actions relating to the Duluth Harbor.

Table 5b. Selected Water Management Programs (Nonregulatory).

Agency Name	Program	Authority	Funding	Program Delivery
DNR Program Coordinator: (651) 297-5476	Adopt-A-River Program: encourages better stewardship of state rivers by sponsoring group cleanups of nonpoint source pollution on designated rivers. Groups make a two-year commitment to clean a stretch at least once a year. Average stretch is 2 miles. Program has 144 active groups.	Commissioner's authority	Funds from Water Recreation Account. Minn. Conservation Corps is used to leverage funds to support program.	Interested groups contact the program coordinator, who provides kits that explain the program. Groups register with the coordinator. They receive a video describing cleanups, and set a cleanup time and location.
DNR Area Wildlife Managers	Migratory Waterfowl Feeding and Resting Areas Program: designates and protects wetlands that provide feeding and resting habitat for ducks, geese, other migratory waterfowl and wildlife. Some uses of these areas are restricted to minimize human disturbance.	M.S. 97A.145	Duck stamp revenues and State General Fund	DNR area wildlife managers identify and designate refuge sites.

Agency Name	Program	Authority	Funding	Program Delivery
BWSR Grants Coordinator: (651) 297-7361	BWSR Cost-share Program: provides financial and technical assistance to landowners and operators for installation of erosion, sediment and water quality control projects..	M.S. 103C.501 Minn. Rules 8400	State general funds. Cost-shares with landowners up to 75% of total cost for high priority erosion and water quality problems; includes technical assistance.	Administered by BWSR at the state level, administered locally through soil and water conservation districts. Applications taken at SWCD offices year-round.
BWSR Grants Coordinator: (651) 297-7361	BWSR Special Projects: provide cost-share to landowners and local units of government for erosion control projects, BMP demonstration projects, etc.	M.S. 103C.501 Minn. Rules 8400	From State General Funds for State Cost-share Program	Administered by the BWSR at the state level. Administered locally through Soil and Water Conservation Districts (SWCDs). Applications are taken once per year. The deadline is May 1.
BWSR Easement Coordinator: (651) 297-7965	Reinvest in Minnesota (RIM) Reserve Program: acquires conservation easements and establishes permanent vegetation on marginal cropland. Restores drained or altered wetlands in agricultural areas of the state. Purposes include erosion and sedimentation reduction, water quality improvement and wildlife habitat improvement.	M.S. 103F.501 - .515	State General Funds or Capital Bonding. Perpetual easement payments are 90% of the average market value of ag-land in the township. Landowner payment for vegetation establishment and wetland restoration is 100% of the cost, up to established maximums per acre.	Administered by the BWSR at the state level, administered locally through SWCDs. Application period determined annually.
DNR Area Wildlife Managers	Forestry Stewardship Program: funds the costs of wildlife habitat restoration projects on wetlands in forested areas. A cooperative program between DNR Wildlife and DNR Forestry.	M.S. 97A.145	U.S. Forest Service federal grant funds.	Local area wildlife manager or foresters provide information and assistance to interested landowners and local governments.
DNR Area Fisheries Supervisors	Northern Pike Spawning Area Program: develops controlled Type II wetlands adjacent to lakes and streams as northern pike spawning and nursery habitat by diking and manipulating water levels. Most sites are less than 15 acres, and are located where natural spawning habitat is limited or lost to drainage or shoreland development.	M.S. 97A.135 M.S.97A.141 M.S. 97A.145	Fishing license fees; Federal Aid in Sport Fishing Restoration; and Reinvest in Minnesota (RIM) Funds	Area fisheries supervisors identify sites for acquisition and development. Fisheries staff operate ponds to produce northern pike fingerlings.
DNR Area Wildlife Managers	Private Lands Wetland Restoration Program: assistance provided to private landowners to restore wetlands and improve associated upland areas for wildlife habitat.	M.S. 97A.145	RIM and pheasant stamp revenues	Contact local area wildlife manager for information and assistance.

Agency Name	Program	Authority	Funding	Program Delivery
DNR Area Wildlife Managers	Wildlife Habitat Enhancement on Wildlife Management Areas Program: improves wildlife habitat through wetlands restoration, addition of cover grasses and development of upland habitat.	M.S. 97A.145	Waterfowl stamp revenues and surcharge on hunting licenses.	Local area wildlife managers identify or suggest projects.
DNR Area Wildlife Managers	Wildlife Lakes Designation and Enhancement Program: designates and enhances wetlands and lakes for wildlife management based on habitat suitability. These are generally shallow public waters with a history of wildlife use and public access.	M.S. 97A.145	Duck stamp revenues	Local area wildlife managers select appropriate lakes and develop and implement management plans.
BWSR Easement Coordinator: (651) 297-1894	Permanent Wetlands Preserve Program: acquires perpetual conservation easements for certain existing at-risk Type 1, 2, 3 or 6 wetlands.	M.S. 103F. 516	State bonding funds	Administered at the state level by BWSR; administered locally by soil and water conservation districts.
DNR Area Wildlife Managers	Consolidated Conservation Lands Program: acquires wetlands through tax forfeiture for development of wildlife habitat.	M.S. 97A.145	Lands transferred at no cost to DNR.	Local area wildlife managers identify and acquire properties.
DNR Area Wildlife Managers	Land Acquisition for Wildlife Management Areas Program: acquires existing or drained wetlands and associated upland areas in fee title for wildlife management areas.	M.S. 97A.145	RIM; surcharges on hunting licenses; private donations; federal grant funds; and LCMR funds.	Local Area Wildlife Managers develop a prioritized list of acquisition sites and implement this program.
DNR Area Wildlife Managers	Game Lake Designation Program: includes survey, inventory and mapping of wetlands and lakes for potential wildlife habitat for waterfowl and fur bearing animals.	M.S. 97A.145	Duck stamp revenues and General Fund	Local area wildlife managers implement this program.
DNR Area Hydrologist, or DNR Protected Waters Coordinator: (651) 296-4800	Protected Waters and Wetlands Inventory: Inventory of waters and wetlands for which permits are required (includes 10,029 wetlands on 261,700 acres). Available as paper maps on county highway map base with legal descriptions for protected lakes, streams and wetlands.	M.S. 103G.201	Inventory complete activities. Current digitization is funded by LCMR.	Area hydrologist or Central Office provides maps.
DNR Bemidji Wetland-Wildlife Research Station: (218) 755-2973	Waterfowl and Wetland Conditions Survey Program: count of breeding and migrating wildfowl and an index of wetland conditions statewide.	M.S. 97A.145	Duck stamp revenues and General Fund	The Bemidji Wetland/Wildlife Research Station is completing the survey.
BWSR Grants Coordinator: (651) 297-7361	BWSR General Services Grants: provide financial assistance to local units of government for implementation of programs.	M.S. 103C	General Fund	SWCD offices provide technical and administrative assistance. BWSR provides grants to local SWCDs to support these services.
DNR Area Wildlife Managers	Wetland and Lake Wildlife Management Program: provides assistance to landowners to increase wildlife populations on wetlands and lakes including advice on enhancement techniques and funding available.	M.S. 97.145	General Fund	Local area wildlife managers provide information and assistance on request.

Agency Name	Program	Authority	Funding	Program Delivery
DNR Area Wildlife Managers	Wetland Restoration Technical Assistance: provides assistance to private landowners and local governments on wetlands restoration potential, best restoration techniques and information on funds available, including funding from private sources.	M.S. 97.145	General Fund	Local area wildlife managers provide information and assistance on request.
BWSR Grants Coordinators (651) 297-7361	Nonpoint Engineering Assistance Program: provides engineering assistance to landowners and occupiers for planning, surveys, design and construction of various conservation and nonpoint water quality management practices.	M.S. 103C	State General Funds allocated as grants to joint powers groups of SWCDs.	SWCD joint powers groups employ engineers and technicians to provide technical assistance through member SWCDs.

Table 6a. Selected Water Quality Programs (Regulatory).

Agency Name	Program	Authority	Funding	Program Delivery
MPCA Water Quality Programs:	Water Quality Certification Program: requires that an applicant for federal permits or licenses for a project that may affect water quality obtain a certification from MPCA that water quality standards will be met before the license or permit may be granted. The majority of applications include construction projects that involve physical alterations of wetlands.	M.S. 116.07 Minn. Rules 7050 Minn. Rules 7001.1400 - 7001.1470 Executive Order 00-02	State General Fund Federal 106 Fund	An applicant may apply directly to the MPCA for a water quality certification, or the federal agency granting the permit or license may notify the MPCA.
MDA Agronomy Services Div. - Incident Response Unit: (651) 297-1975	Agricultural Chemical Spills Response Program: requires that spills of agricultural chemicals (pesticides or fertilizers) be immediately reported to MDA.	M.S. 18D.103 - .331	Federal grants, Pesticide registration fees, Superfund, and penalties	The program is administered statewide by the MDA. Any person who has a spill of an agricultural chemical is required to immediately report it to the MDA.
MDH Public Water Supply Unit: (651) 627-5180	Public Water Supply Program: regulates public water supplies that use ground water and surface water sources through enforcement of water quality standards and facility construction standards. Provides technical assistance, training and public information.	M.S. 144.381 - .387 Minn. Rules 4720	Fees and federal Safe Drinking Water grant. (The federal Safe Drinking Water Program is enforced in MN by MDH through an agreement with the U.S. EPA)	MDH performs most monitoring; field staff conduct routine inspections of public water supplies and collect water samples. MDH provides water operator training and certification. Construction standards are enforced through a plan review and approval process. Remediation is the responsibility of the water supplier.
MPCA Water Quality Programs: (800) 657-3864	Individual Sewage Treatment Systems (ISTS) Program: sets minimum standards and criteria for the design, location, installation, use and maintenance of individual sewage treatment systems.	M.S. 116.07 Minn. Rules 7080	General Fund	Local units of government administer and enforce the ISTS standards, mainly through incorporation into local planning and zoning.

Agency Name	Program	Authority	Funding	Program Delivery
MPCA Water Quality Programs: (800) 657-3864	Sewage Sludge Management Program: issues permits for design, location and operation of municipal sewage sludge land spreading sites and facilities.	Minn. Rules 7001 Minn. Rules 7041	Permit Fees	MPCA issues permits and regulates activities
MPCA Hazardous Waste Programs: (800) 657-3864	Hazardous Waste Management Program: provides a tracking system for hazardous wastes. Tracks materials from the point at which the wastes are generated to their final disposal, and ensures that at all times the wastes are stored, handled and disposed of safely.	Minn. Rules 7001 Minn. Rules 7045 Minn. Rules 7100	Federal funds and fees	The MPCA licenses generators of hazardous waste and provides assistance. Generators must notify MPCA of waste shipments and verify receiving locations and proper disposal. Facility owners must clean up on-site contamination.
MPCA Hazardous Waste Programs: (800) 657-3864	Spills Response Program: ensures cleanup of hazardous materials spills, leaks and other catastrophic occurrences. State law requires those who are responsible for pollution to clean it up. Spill response staff also serve as responders to emergencies.	M.S. 115 Minnesota Environmental Response and Liability Act (MERLA)	General Fund Minnesota State Petrofund	All spills and incidents are required to be reported to the MPCA when they occur. MPCA staff coordinate the cleanup process. Training has been given to clean-up contractors to explain the MPCA guidance.
MPCA Ground Water and Solid Waste Programs: (800) 657-3864	Solid Waste Disposal Program: requires permits for most categories of solid waste disposal, storage and transfer facilities.	M.S. 115 M.S. 115A M.S. 116 Minn. Rules 7001	State General Fund; Select Committee on Recycling and the Environment (SCORE)	MPCA issues permits. Permit requirements vary, depending on type of facility. Facilities must comply with design, siting and operation requirements.
MPCA Ground Water and Solid Waste Programs: (800) 657-3864	Underground Disposal Control Program: regulates the use of on-site sewage treatment systems for disposal of industrial and commercial wastewaters.	M.S. 103H Minn. Rules 7001 Minn. Rules 7060	State General Fund	The program is implemented by MPCA through its Underground Disposal Coordinator.
MPCA Water Quality Programs: (800) 657-3864	Feedlot Program: requires the owner of a proposed or existing feedlot of 10 or more animal units to apply for an MPCA permit when a feedlot is proposed, modified, changes ownership; when a federal permit is required; or an investigation of a complaint reveals a pollution problem.	M.S. 116.07 Minn. Rules 7001 Minn. Rules 7020	Federal Section 106 and 319 Funds	The MPCA reviews applications by examining the livestock facility for potential pollution problems. The feedlot review process results in issuance of a certificate of compliance, an interim permit, an NPDES permit or a five year feedlot permit.
MPCA Water Quality Programs: (800) 657-3864	Water Pollution Control Act: authorizes the MPCA to regulate activities that have the potential to pollute waters of the state.	M.S. 115	State General Fund	MPCA administers all laws regarding pollution of any waters of the state.
MPCA Water Quality Programs: (800) 657-3864	Water Quality Standards: water quality standards are developed to regulate discharges to state waters. Standards include effluent standards, effluent limitations, water quality, pretreatment standards and prohibitions.	M.S. 115.44 Minn. Rules 7050 Minn. Rules 7052	State General Fund	Applicants for federal/state permits/licenses for projects that may affect water quality must obtain MPCA certification that water quality standards will be met, before the license/permit is issued.

Agency Name	Program	Authority	Funding	Program Delivery
MPCA Water Quality Programs: (800) 657-3864	NDPES/Stormwater Permits: permits are required for industrial activities and construction activities that disturb five acres, or more, of land.	Minn. Rules 7002	Federal Section 319 - Nonpoint Source Program	Applicants needing permits submit plans for controlling stormwater runoff during construction and after development.
MPCA: (800) 657-3864	Underground Storage Tanks Program: establishes standards for underground storage tanks, including design, construction, installation, release detention and notification, site closure and record keeping.	Minn. Rules 7150	Federal UST Program Grant	MPCA implements the program often with the assistance of local government units. State inspectors do compliance inspections and enforce rules.
MPCA: (800) 657-3864	Above Ground Storage Tanks: creates administrative and technical requirements: permits, containment, labeling, operation, maintenance, de-activation and re-activation of above ground tanks.	Minn. Rules 7151	State General Fund General Fund	MPCA implements the program through the permit and notification procedures. Tanks must be registered, monitored and may also need other permits.
MPCA: (800) 657-3864	Petroleum Contaminated Soil Management: establishes standards for the management and treatment of petroleum contaminated soils: land treatment, soil spreading procedures and siting, exemptions, sampling requirements, methods, etc.	Minn. Rules 7037	General fund	MPCA implements and oversees contaminated soil management. Permits and administration is accomplished through local government units where applicable.

Table 6b. Selected Water Quality Programs (Nonregulatory).

Agency Name	Program	Authority	Funding	Program Delivery
MPCA Water Quality Division: (651) 296-7202	Clean Lakes Program: provides financial assistance through matching grants and technical assistance to local governments to lead lake restoration projects with an emphasis on watershed management. Includes data collection, problem identification and development of an implementation plan to restore water quality.	Section 314 of the Clean Water Act (administered by the USEPA, working through the MPCA for projects in Minnesota).	Federal funds. Local governments are required to provide a 50/50 match to the federal funds.	Local governments conduct watershed projects for lakes. The applications are ranked and selected by USEPA. Applicants develop a work plan and monitoring plan that is approved by the MPCA. The local government then may apply for funds to implement their project.
MPCA Tanks and Spills Section: (651) 297-8564	Underground Storage Tank (UST) Program: maintains a database of registered underground storage tanks. Staff inspect selected sites for compliance with state and federal requirements. The program includes outreach and technical assistance.	Minn. Rules 7105 Minn. Rules 7150 U.S. Resource Conservation and Recovery Act, Subtitle I	Federal UST Program Grant State General Fund	The MPCA implements the program, often with the input and assistance of local units of government. State inspectors conduct compliance inspections, provide technical assistance and enforce UST rules.
MPCA Water Quality Division, Nonpoint Source Section: (651) 296-7248	Individual On-Site Wastewater Treatment Systems Grant Program: provides grants to municipalities to assist owners of individual on-site systems to upgrade or replace failing systems.	M.S. 116.18, Subd. 3c Minn. Rules 7077.0700 - 7077.0765	Program covers 50% of construction costs per dwelling (\$2500 - \$3750).	MPCA helps municipalities for projects within the boundary of a municipality or alternative planning area. Prioritization is based on median household income.

Agency Name	Program	Authority	Funding	Program Delivery
MPCA Water Quality Division: (651) 296-7202	Clean Water Partnership Program: provides matching grants and technical assistance to local governments to lead watershed management projects; to protect and improve wetlands, lakes, streams and/or ground water degraded by nonpoint sources of pollution.	Clean Water Partnership Act (M.S. 103F.701) Minn. Rules 7076	Local governments provide a 50/50 match to state funds.	Local governments apply to the MPCA to conduct a project directed at protecting a specific resource. The applications are ranked, projects selected and work plans developed. Implementation funds are also available.
MPCA Hazardous Waste Division: (651) 297-8502	Household Hazardous Waste Program: helps local governments establish programs to safely manage household hazardous wastes that can affect ground water quality. Includes a public education component along with development of regional collection sites.	M.S. 115A	State General Fund	Counties operate programs in partnership with the MPCA. MPCA provides technical assistance in collection facility design, staff training, waste management and developing educational materials.

Table 7a. Selected Fish and Wildlife Management Programs (Regulatory).

Agency Name	Program	Authority	Funding	Program Delivery
DNR Exotics Program Coordinator: (651) 297-1464	Aquatic Exotics Program: includes inventory, monitoring and control of infestations of purple loosestrife, milfoil and zebra mussels. Provides public education, information; conducts research.	M.S. 18.317 M.S. 84.966 - .969	Water Recreation Account and boat license surcharge funds.	Ecological Services Division coordinates this program, with field assistance from regional offices in monitoring and control efforts.

Table 7b. Selected Fish and Wildlife Management Programs (Nonregulatory).

Agency Name	Program	Authority	Funding	Program Delivery
DNR Regional Fisheries Supervisors	Lake Habitat Improvement Program: includes methods to manage lake communities and improve or maintain angling opportunities (shoreline stabilization, vegetative restoration/improvement, or development of fish spawning habitat).	M.S. 97A.345	Fishing license revenues, partially reimbursed by federal Sport Fish Restoration Funds.	Improvements initiated by regional fisheries managers or occasionally requested by local interests. Contact regional managers for information and project approval.
DNR Regional Fisheries Managers	Aquatic Management Areas Program: acquires easements on lakes for angler access, riparian protection, habitat improvement/rehabilitation, or fish structures/barriers.	M.S. 86A.05	Funding from bonding programs, license fees and federal Sport Fish Restoration Funds.	Projects are initiated by area fisheries managers.

Agency Name	Program	Authority	Funding	Program Delivery
DNR Regional Fisheries Managers	Trout Stream Habitat Improvement Program: improves trout habitat on streams in public ownership or where easements have been acquired by DNR. Includes grading of banks, riprap and addition of instream cover structures as needed to improve habitat.	M.S. 97.135 M.S. 141 M.S. 145	Federal funds through trout and salmon stamp purchases, state RIM Funds and fishing license revenues.	Program is delivered through Area Fisheries offices. DNR staff survey streams, prioritize for improvements and implement improvement projects.
DNR Regional Fisheries Managers	Warmwater Stream Habitat Improvement Program: includes a variety of techniques to maintain and improve fish habitat, such as shoreline stabilization, addition of instream cover and structures, and flow modifications such as dam or barrier removal.	M.S. 97.135 M.S. 141 M.S. 145	Fishing license fees, federal Sport Fish Restoration Funds and some state bonding funds.	Area fisheries managers propose and implement projects.
DNR Area Fisheries Supervisors	Fisheries Land Acquisition for Angler Access Program: acquires corridor easements on designated trout streams for access by anglers and management agency and for riparian protections.	M.S. 97A.135 M.S. 97A.141 M.S. 97A.145	Fishing license fees; Federal Aid in Sport Fish Restoration; trout stamps; state RIM Funds.	DNR fisheries personnel solicit landowners to sell corridor easements. Anglers are then permitted access to fish.
DNR Regional Fisheries Managers	Trout Stream Easements Program: acquire easements along trout streams to improve angler access. Includes riparian protection and habitat improvement activities.	M.S. 97A.135 M.S. 141 M.S. 145	Fishing license fees; bonding and partially reimbursed by USFWS from federal Sport Fish Restoration Funds.	Area fisheries managers propose and implement projects.
DNR Senior Biologist: (218) 739-7449	In-stream Flow Programs: collect biological and hydraulic data; apply Instream Flow Incremental Methodology (IFIM) models to examine water level manipulations (i.e., dams and water appropriation) and their effects on stream ecology..	M.S. 103G	State RIM Fund	Studies are coordinated by Fergus Falls Regional office.
DNR Survey and Systems Coordinator: (651) 297-3287	Stream Management Data Base: DNR is currently developing this data base to include all data from DNR stream surveys and monitoring programs.	M.S. 97A.045	State Fish and Game Fund; partially reimbursed by USFWS Federal Aid for Sport Fish Restoration Funds.	Database maintained at fisheries division offices in St. Paul.
DNR SNA Planning Supervisor: (651) 297-2357	Scientific and Natural Areas Acquisition Program: acquires lands to preserve remaining natural areas and native ecosystems in the state for protection and scientific study.	M.S. 84.033	LCMR and RIM funds	Scientific and Natural Areas Program identifies areas for acquisition with field and central office staff.

Table 8a. Selected Forestry Programs (Regulatory).

Agency Name	Program	Authority	Funding	Program Delivery
DNR Fire Management Specialist: (651) 296-4490	Wildfire Protection and Management Program: includes prevention, presuppression and suppression of wildfires on public and private lands. DNR provides education, regulates open burning, trains local firefighters, provides law enforcement and coordinates interagency actions. Includes prescribed burning activities for site preparation, forest regeneration, pest management and maintenance of natural communities.	M.S. 88.04 - 90.041	State General Fund	Programs provided through regional and area forestry offices. MN Interagency Fire Center coordinates the activities and resources of state, federal and local agencies.
DNR Division of Forestry: (888) 646-6367	State Timber Sales	M.S. 90	General Fund	Timber sales and permits for harvesting on state lands are administered at the area level. Foresters develop the site sale, including standards and criteria for achieving management goals.

Table 8b. Selected Forestry Programs (Nonregulatory).

Agency Name	Program	Authority	Funding	Program Delivery
DNR Private Forest Management: (651) 296-5970	Conservation Reserve Program (CRP): includes private landowner sign-up, conservation plan development and technical assistance on projects planting more than two acres of trees or shrubs.	M.S. 88.79 M.S. 89.01 Federal 1995 Farm Bill	Annual federal appropriation for CRP Program.	Area foresters provide technical assistance and training on forestry projects, in cooperation with county NRCS/FSA offices.
DNR Forest Pest Control: (651) 296-5965	County Forest Access Roads Assistance: provides grants to counties to improve access to timber lands, construct/ maintain county access roads on county administered forest lands.	M.S. 89.72	Unrefunded tax paid on fuels used to operate vehicles on forest roads.	Funds are passed-through to counties for administration of programs.
DNR Private Forest Management: (651) 296-5970	Forestry Incentives Program (FIP): activities include thinning, seeding and planting for reforestation and timber stand improvement on nonindustrial private forest lands.	M.S. 89.01 M.S. 89.79 Public Law 95.313	Annual federal appropriation for FIP Program.	Area foresters provide technical assistance and training.
DNR Regional Wildlife Managers	Habitat Management on Public Lands: includes maintenance and development of grasslands and woody cover, food plots, forest stand development, forest openings development and prescribed burns to improve wildlife habitat on public lands.	M.S. 97.045 M.S. 84.95	RIM Fund and deer hunting license fees.	Program delivered through county land offices by a cooperative agreement between counties and DNR Wildlife and Forestry Divisions.

Agency Name	Program	Authority	Funding	Program Delivery
DNR Farmland Wildlife Program Leader: (651) 296-3344	Habitat Management on Private Lands: provides cost-share to private landowners to develop food plots, woody cover, grasslands, forest openings and regeneration, and prescribed burning to improve wildlife habitat at private land.	M.S. 97A.125	RIM and pheasant stamp Fund.	Landowners should contact Farmland Wildlife Program leader for information and assistance.
DNR Private Forest Management: (651) 296-5970	Private Forest Management (PFM) Program: promotes forest management on private lands through contacts with landowners and development of forest stewardship management plans, technical assistance in forest practices, marketing assistance, and education.	M.S. 88.79	State General Fund; Federal Forest Stewardship funds; State Environmental Trust Fund	Area foresters visit private land on request, develop forest stewardship management plans and provide technical assistance. Implemented in cooperation with SWCDs, private forestry consultants, environmental organizations and forest industries.
DNR Private Forest Management: (651) 296-5970	Stewardship Incentive Program: provides technical and cost-share assistance to private landowners in managing forests for multiple uses.	M.S. 89.02 M.S. 88.79	Annual appropriation of federal Stewardship Program Funds.	Area foresters provide technical assistance and training.
DNR Nurseries: (218) 652-2385	Tree Sales Program: large scale sale of tree seedlings from state nurseries.	Public Law ch. 101 M.S. 89.35 - .39	Sales programs are self-supporting.	Administered by DNR Forestry: Some SWCDs provide trees.
DNR Forest Land Administration: (651) 297-3508	Land Administration Program: includes land acquisition, exchange, sale, leasing for forestry, to protect resources, consolidate ownership patterns and provide access to other lands.	M.S. 89.022 M.S. 89.032 M.S. 94	State bonding	DNR Forestry identifies/develops acquisition priorities, handles sales, leases, contracts. DNR Real Estate negotiates and appraises.
DNR Urban and Community Forestry: (651) 772-7562	Accelerated Community Forestry Assistance Program: provides training in management and protection of community forests, including ordinances, and tree planting/maintenance. Promotes Arbor Day celebrations and interagency coordination activities. Includes Minnesota RELEAF program, Energy Conservation Tree Planting, and Tree City USA Program. The Forestry Division also distributed a Community Forestry Resource Directory.	M.S. 89.01	State General Fund and federal allocations under the Minnesota RELEAF, America the Beautiful, Tree City USA, and Energy Conservation Tree Planting Programs.	Programs coordinated through the Forestry Division's Urban Forestry Program. Programs and technical assistance to communities and individuals are delivered by local area foresters.
DNR Forest Development: (651) 297-3513	State Forest Development: provides for forest regeneration and timber stand improvement on state forest lands. Include site prep, seeding, planting, thinning, pruning, seedling protection, and development of silvicultural guidelines.	M.S. 89.002	State General Fund	Program is delivered through area forestry offices with coordination through region and St. Paul staff.
Forest Roads: (218) 297-4449, x240	State Forest Roads: Maintenance and operation of the 2,064 mile state forest road system that provides access to state forest lands for public use and resource management, and to several million acres of federal, county and private forest lands.	M.S. 89.001 M.S. 89.002 M.S. 89.18 M.S. 89.71	State bonding.; State General Fund and unrefunded tax paid on fuels used to operate vehicles on forest roads.	Program is delivered through area offices with coordination from region and St. Paul staff.

Agency Name	Program	Authority	Funding	Program Delivery
DNR Resource Assessment: (218) 327-4449, x222	Forest Resources Assessment: maintenance and analysis of the management-level forest resource inventory for DNR administered lands, and a statewide forest inventory that encompasses all land ownerships. Includes periodic aerial Photography/satellite imagery of all or parts of the state to inventory and monitor changes in forest resources.	M.S. 89.011	State General Fund, Federal funding for the FIA/AFIS statewide inventory. Federal project funding (i.e., National Biological Service for Gap Analysis).	Overall coordination of remote sensing and forest inventories is through the DNR Resource Assessment Office. Field forest inventory work is accomplished through contracts and area foresters.
DNR Forest Health: (218) 327-4449, x241	Forest Ecosystem Health: forest pest population monitoring and evaluation on forest lands; development and communication of pest management guidelines.	M.S. 89.51 - .53	State General Fund	Program is delivered through St. Paul and Regional forestry staff in cooperation with the DNR Resource Assessment office.
DNR Division of Forestry: (888) 646-6367	Forest Resources Management Act of 1992	M.S. 89.001 - .012	General Fund	DNR Forestry prepares forest plans for the management, protection, development and production of forests.
DNR Division of Forestry: (888) 646-6367	Sustainable Forest Resources Act of 1995	M.S. 89A	General Fund	The Minnesota Forest Resources Council recommends site-level guidelines for sustainable forestry.

Table 9a. Selected Environmental Review Programs (Regulatory).

Agency Name	Program	Authority	Funding	Program Delivery
EQB (Environmental Quality Board)	Environmental Review: proposed major actions are reviewed for their effects on the environment before government approvals or permits are issued. The Environmental Assessment Worksheet is the primary tool used to evaluate the significance of proposed actions.	M.S. 116D.04 Minn. Rules 4410.0200 - 4410-8000	Those developing an EIS may charge the project (proposer) for its cost.	The EQB has rules that say when and how to prepare an EIS or EAW. The EQB may order a generic EIS to investigate classes of activities and to recommend ways to avoid or minimize effects.
Attorney General's Office	Environmental Rights Acts	M.S. 116D.03	General Fund	No action may cause the pollution, impairment or destruction of the air, water, land or other natural resources.

Table 9b. Selected Environmental Review Programs (Nonregulatory).

Agency Name	Program	Authority	Funding	Program Delivery
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Agency Name	Program	Authority	Funding	Program Delivery
EQB	Coordinates Water Planning and Management: the EQB coordinates water management among state agencies. Integrates other planning activity with state strategies.	M.S. 103A.204 M.S. 103A.43 M.S. 103B.151 M.S.116C.04	General Fund	The EQB has a Water Resources Committee. The Board identifies water policy priorities each even-numbered year and reviews agency reports.
EQB	Ensures Data Compatibility: ensures that monitoring and related data is provided and integrated into the Minnesota land management database according to guidelines.	M.S. 103B.151	State and LGU receiving state funds must have compatible data.	LMIC has guidelines for data compatibility. EQB Water Resources Committee oversees certain water-related data.

III

**PROGRAM
COMPONENTS**

CHAPTER III. PROGRAM COMPONENTS

A. COASTAL NONPOINT PROGRAM BOUNDARY

The geographic scope of each coastal nonpoint program must be sufficient to ensure implementation of management measures to “restore and protect coastal waters.” Section 6217(e) of CZARA requires NOAA to determine the geographic area encompassing the land and water uses having a “significant” impact on a state’s coastal waters. A significant impact can occur from the individual and cumulative effects of land and water uses.

The federal partners recommended that the coastal nonpoint program boundary in the state be the same as the Lake Superior Basin boundary, which is what Minnesota is proposing.

Minnesota could make a strong case for excluding from the Coastal Nonpoint Program boundary the small portions of Aitkin County (4 percent), Itasca (3 percent) and Pine County (4 percent) that make up a small portion (3 percent) of Minnesota’s Lake Superior Basin.

In 1995, in fact, Minnesota made a preliminary case for excluding Aitkin and Itasca counties report entitled *State of Minnesota, Nonpoint Source Pollution, Existing Controls and Programs, Lake Superior Watershed Report* (DNR), which was reissued in 2000 as part of the Coastal Nonpoint Scoping Document.

In 2001, however, Aitkin, Itasca and Pine counties were asked whether or not they wanted to be included within the Coastal Nonpoint Program (Section 6217) boundary. They chose to be included.

For additional details, see Table 10.

Table 10. Counties within Minnesota's Lake Superior Basin and within Minnesota's Coastal Nonpoint Program Boundary. (Based on DNR GIS data).

County	Total Acres in County	Acres within Lake Superior Basin	Percent of County in Lake Superior Basin	County's Percentage of Lake Superior Basin
Aitkin	1,275,724	45,682	4	1
Carlton	559,749	269,112	48	7
Cook	1,026,724	822,456	80	21
Itasca	1,872,341	51,566	3	1
Lake	1,463,144	599,644	41	15
Pine	917,099	32,260	4	1
St. Louis	4,311,686	2,115,003	49	54
Total, Acres	11,426,467	3,935,723		
Total, Percent				100

B. COORDINATION

Coordination on nonpoint pollution and water quality issues is ongoing, statewide, because the partner agencies are already working together on a broad array of programs. A primary example of this is in Minnesota's Nonpoint Source Management (Section 319) Program. Both the DNR and MPCA are involved in the Section 319 Program, along with the Minnesota Department of Agriculture and others. (See Section II D: Implementation Framework, Focus and Schedule).

Multiple federal and state agencies are involved in the Section 319 Program, and work together on a variety of program committees. The chapters in the state's Section 319 Plan are: developed by committees, discussed at meetings, shared with additional agency staff for comment, etc. In addition, the Section 319 Project Coordination Team (PCT), which meets monthly, has representatives from a number of federal and state agencies that have an interest in nonpoint pollution and water quality.

Coordination between Minnesota's Coastal Nonpoint Program and Section 319 staff has occurred in several ways. These include the following:

- DNR and MPCA staff from the Lake Superior Basin participate in the Section 319 program development process.
- DNR and MPCA staff from the Lake Superior Basin participated in a PCT meeting to explain and discuss Minnesota's Coastal Nonpoint Program.

Minnesota uses a number of mechanisms for ensuring coordination between and among programs, as described below.

Minnesota statutes often include a section on coordination to ensure agency coordination. The language normally specifies which state agency and/or even individual (i.e., the commissioner) is responsible for what, including their role in coordination.

State enforceable authorities sometimes create an entirely new organization and give it special responsibilities for coordination. An example of this is **M.S. 89A**, the **Sustainable Forestry Act**, which created the Minnesota Forest Resources Council. The Council's role in coordinating the development, implementation and assessment of Minnesota's new *Voluntary Site-level Forest Management Guidelines* is one reason for Minnesota success in using voluntary measures to manage nonpoint source pollution related to forestry.

The federal consistency requirement of the Coastal Zone Management Act of 1972 (CZMA) requires federal actions that are reasonably likely to affect any land or water use or natural resource of the coastal area to be consistent with the enforceable policies of the state's coastal program. Federal actions receive a coordinated review by a network of state agencies under the federal consistency review process that has been established by Minnesota's Lake Superior Coastal Program.

M.S. 103B.301, the **Comprehensive Local Water Planning and Management Act** was passed in 1985 to encourage counties outside of the Minneapolis/St. Paul metropolitan area to plan for the management and protection of water and water related resources. Most county water plans are updated every five years. The Coastal Nonpoint Program will incorporate the resources assessments, issues of concern, and goals and objectives of the county water plans for the Lakes Superior Basin.

Standing committees with a common focus bring representatives of different agencies and organizations together, where they develop working relationships and create consensus on their common programs and goals. Several examples are listed below.

Statewide, the Project Coordination Team (PCT), which represents some 20 different state, local, federal and tribal agencies. The PCT helps MPCA rank and select Section 319 nonpoint source projects each year, and is taking a more active role in setting policy and direction for MPCA's various state and federal nonpoint source funding programs.

Basinwide, the Programmatic Work Group (PWG), which consists of federal, tribal, state and local government staff from Minnesota's Lake Superior Basin who provide input into the development of both the Coastal Nonpoint Program and the Lake Superior Basin Plan. The PWG meets monthly to discuss issues of interest to the basin.

Locally, Technical Evaluation Panels (TEPs). This example is based on **Minn. Rules 8420.0240** (Technical Evaluation Panel Procedures), under **Minn. Rules 8420**, the **Wetlands Conservation Act**. TEPs include staff from the Board of Soil and Water Resources (BWSR), the SWCD, a water resources expert appointed by the local government unit and, for cases affecting or adjacent to public waters or public waters wetlands, the DNR. TEPs review and approve wetland replacement plans. Filling and draining cannot begin until the wetland replacement plan has been approved, unless the applicant qualifies for an exemption or no-loss determination.

A memorandum of understanding (MOU) is used to formalize an agreement about how various units of government work together. When there is a need, an MOU is

developed. For examples of MOUs, see Appendix G of *Minnesota's Lake Superior Coastal Program Final Environmental Impact Statement (MLSCP-FEIS)*. That document is available on the Internet.

<http://www.dnr.state.mn.us/waters/czm/feis/cover.html>

Often, there is an identified procedure for resolving conflicts between agencies, should they arise. An MOU is being developed regarding such a procedure between the DNR and MPCA with regard to the Coastal Nonpoint Program. Should disagreements develop, staff from the two agencies will meet to resolve them. If consensus cannot be reached, the discussion will be elevated to the next identified staff level.

For specific details related to coordination for each of Minnesota's nonpoint source pollution management measures, see Chapter IV: Management Measures. Each management measure discussion includes Item F: Agency Coordination and Linkages.

C. PUBLIC PARTICIPATION

Public participation is crucial to the acceptance and ultimate success of the Coastal Nonpoint Pollution Program. Therefore, an attempt has been made to develop an extensive public involvement process and a “fish bowl” planning effort. This has allowed the public full view of the entire program planning and development process, and provided ample opportunities for active and meaningful public participation.

Most of the public participation activities undertaken by the DNR and MPCA for the Coastal Nonpoint Program have been done concurrently with those for the Lake Superior Basin Plan. This includes the following:

- An extensive distribution system for the dissemination of information, with 1,100 individuals reached by e-mail and another 1,000 reached by U.S. mail
- Fact sheets
- A new, quarterly information bulletin entitled “Expanding Basin Views.”

The 2,100 individuals in MPCA’s e-mail/U.S. mail distribution system receive announcements, fact sheets and quarterly information bulletins.

As explained in Chapter I: Overview, Minnesota’s Coastal Nonpoint Program Document was developed in several stages, with public review. Public review periods took place from August 28 until October 6, 2000, and from March 12 until April 27, 2001. Each public review period was announced to the 2,100 individuals in MPCA’s public distribution system.

The MPCA created a system to collect, organize and respond to public comments received throughout this process. The primary components are as follows:

- A generic e-mail addresses that lets people easily comment to and communicate with the Coastal Nonpoint team at coastal.nonpoint@pca.state.mn.us.
- A process for acknowledging each comment, and for developing and delivering a prompt response.
- A database called the “Listening Log” that makes it easy to store, organize and make use of all comments and responses. The Listening Log is shared with all who comment and is posted on MPCA’s Web site.

<http://www.pca.state.mn.us/water/basins/superior/lbsbasin/listeninglog.html>

Public meetings for the Coastal Nonpoint Program occurred in two rounds:

- The first round took place in January and February 2001. These meetings featured the Coastal Program's 309 Enhancement Study, as well as the Coastal Nonpoint Pollution Control Program and the Lake Superior Basin Plan.
- The second round took place during March and April 2001. These meetings focused specifically on the Coastal Nonpoint Pollution Control Program and the draft program document.

During the first four months of 2001, public meetings were held at various locations throughout Minnesota's Lake Superior Basin. Approximately 175 people attended the following public meetings:

- January 24, Duluth (St. Louis County)
- January 25, Two Harbors (Lake County)
- January 27, Duluth
- January 29, Mountain Iron (North St. Louis County)
- February 3, Mountain Iron
- February 10, Grand Marais (Cook County)
- February 13, Grand Marais
- February 14, Cloquet (Carlton County)
- March 28, Duluth
- April 3, Duluth

In addition to the public meetings listed above, a number of presentations were made, displays used and/or materials handed out at other public events throughout the basin to inform people about, and encourage dialogue about, the Coastal Nonpoint Pollution Control Program. Approximately 250 people had an opportunity to learn about the Coastal Nonpoint Program between fall 2000 and spring 2001 at the following presentations and events:

- Aitkin County Board (Board meeting), Aitkin (Aitkin County)
- Arrowhead Water Quality Team (monthly meeting), Duluth
- Carlton County SWCD (Board meeting), Carlton (Carlton County)
- Cook County SWCD (Board meeting), Grand Marais
- Harbor Technical Advisory Committee (regular meeting), Duluth
- Kiwanis Club (regular meeting), Duluth
- Programmatic Work Group (monthly meetings), Duluth
- St. Louis River Citizens Action Committee (Annual Meeting and Stewardship Awards Ceremony), Duluth

- St. Louis River Citizens Action Committee (Nonpoint Pollution Work Group), Duluth
- St. Louis River Citizens Action Committee (Quarterly Board Meeting), Superior (Douglas County, Wis.)
- Head of the Lakes E-Team (local, county and state collaboration to control erosion), Duluth
- North Shore Management Board (Citizens Advisory Committee), Schroeder (Cook County)

In addition to participation by the “general public,” the development of the Coastal Nonpoint Pollution Control Program has relied on input from the Programmatic Work Group (PWG). For a description of the membership of the PWG, see Section III B: Coordination. Public participation aspects of the PWG meetings include the following:

- The PWG meets at the same time and place each month.
- Meeting dates, times and locations are announced to the public.
- Everyone is welcome.
- Minutes of PWG meetings are posted on MPCA’s Web site for all to see.

D. TECHNICAL AND FINANCIAL ASSISTANCE

Much of the information in this section came from two sources:

- *Minnesota's 2001 Nonpoint Source Management Program Plan* (NPS/319 Plan), Chapter 2. This is available on the Internet.
<http://www.pca.state.mn.us/water/nonpoint/mplan.html>
- The DNR's Web site.
http://www.dnr.state.mn.us/omb/financial_assistance/matrix.html

In addition to the discussion about technical and financial assistance, below, such programs are included in two other parts of this document, as follows:

- Section II D: Implementation Framework, Focus and Schedule. This includes Tables 3a through 9b, which contain detailed information on a wide variety of (primarily) state programs, some of which provide technical and/or financial assistance.
- Section IV: Management Measures. The discussion for each management measure includes items C 1: Economic Incentives and Disincentives, and C 2: Public Information/Education and Technical/Related Assistance.

In Minnesota, the primary funding for nonpoint source activities in the Lake Superior Basin comes from both federal and state sources. It includes federal cost-share administered by the USDA's Natural Resources Conservation Service (NRCS), federal Section 319 grants, state cost-share programs administered by BWSR, the State Revolving [Loan] Fund (SRF) administered by MDA and MPCA, and state grants dedicated to Clean Water Partnership (CWP) projects.

There are also state funds allocated to programs that have a secondary benefit to water quality even though they may not focus directly on the control of nonpoint source pollution. Some lake surveys and wildlife management programs administered by the DNR fit into this category.

In addition, BWSR, the local SWCDs and the NRCS provide technical assistance to help land owners reduce nonpoint pollution.

Minnesota's commitment to providing state funding for technical and financial assistance is reflected in **M.S. 103F.705**, which reads as follows:

1. It is the purpose of the legislature to protect and improve surface and ground water in the state, through financial and technical assistance to local government units

(LGUs) to control water pollution associated with land use and land management activities;

2. It is also the purpose of the legislature to:

- Identify water quality problems and their causes;
- Direct technical and financial resources to resolve water quality problems and to abate their causes;
- Provide technical and financial resources to LGUs for implementation of water quality protection and improvement projects;
- Coordinate a nonpoint source pollution control program with elements of the existing state water quality program and other existing resource management programs; and
- Provide a legal basis for state implementation of federal laws controlling nonpoint source water pollution.

1. Selected Funding Sources

Section 319 Funding

From 1995-1998, Minnesota received approximately \$3.5 million per year from the USEPA under Section 319 of the Clean Water Act. In 1999, the allocation was increased to over \$6.9 million in base and incremental funding with the addition of money for the Clean Water Action Plan (CWAP).

States are allocated a portion of the CWA Section 319 money available nationwide using a USEPA formula. In Minnesota, about half of the state's allocation is used to fund the state nonpoint source program. The other half is passed through to project sponsors through a statewide competitive scoring and ranking process. Project awards are based upon project merit and consistency with Section 319 program requirements and priorities. The Project Coordination Team (PCT) helps the MPCA rank and choose the projects to be funded each year. The PCT represents some 20 different state, local, federal and tribal agencies.

In addition to the Section 319 base funding, Section 319 incremental funding integrates the protection of water resources and their associated natural resources through watershed protection. Focusing on a watershed scale creates opportunities for comprehensive solutions to problems in specific geographic areas.

Section 319 funding provides valuable federal support, but covers only a fraction of the work that needs to be done. Long-term stable funding is needed to implement a

successful program. Responsibility for future financial incentives will fall largely on state and local governments. Minnesota will need creative new ways to fund nonpoint source controls. Examples of creative funding mechanisms used in Minnesota and other states for funding nonpoint source programs include cost sharing, taxes, user fees, utility districts and permits.

Minnesota's Lake Superior Coastal Program

Minnesota's Lake Superior Coastal Program is administered by the DNR. The program's goal is to preserve, protect, develop and, where possible, restore or enhance coastal resources along Minnesota's North Shore of Lake Superior.

Eligible projects include those that preserve or restore specific areas as designated in Minnesota's Coastal Program because of their conservation, recreational, ecological or aesthetic values, redevelopment of deteriorating underutilized urban waterfronts, public access to beaches and other coastal areas, land and easement purchases, low cost shoreline stabilization; construction of paths, fences and parks; rehabilitation of historic buildings and structures; engineering plans, education and interpretation. Projects must be located within the Lake Superior Coastal Program Boundary.

Eligible applicants include cities, counties, townships, school districts, area-wide and regional agencies and nonprofits within the program's coastal boundary.

Forest Stewardship Program

The DNR has provided voluntary forestry planning advice since 1947. While still based on the landowner goals, this program has expanded to include all aspects of the ecosystem. The Forest Stewardship Program is authorized under **M.S. 88.79**. The program provides technical advice and long-range planning (i.e., Forest Stewardship Plans) to interested landowners. All aspects of the program are voluntary. Plans are designed to meet landowner goals while maintaining the sustainability of the land.

Forest Stewardship Plans may be provided by either DNR or other approved plan preparers, such as forest consultants, environmental organizations, the forest industry and SWCDs. Forest Stewardship Plans are free from most approved plan preparers. (DNR reimburses non-DNR plan providers). This program is available to private forest landowners with at least 20 acres, including corporations that are not publicly traded and that own from 20 to 5,000 acres, with least 10 acres of the land that have, or will have, trees.

Shoreland Grants

The DNR gives Shoreland Grants to LGUs to develop and implement shoreland zoning ordinances.

State Revolving [Loan] Fund (SRF) Initiative

One of the more significant funding sources in Minnesota is the State Revolving [Loan] Fund (SRF). Minnesota has used SRF funds as part of its nonpoint source management program since 1995. The program uses existing state delivery systems already servicing targeted clientele. Minnesota's Public Facilities Authority (PFA) currently receives the state's capitalization grant from the USEPA for the SRF.

Until 1995, the SRF had been used exclusively for municipal wastewater treatment projects. Under the SRF nonpoint source pollution initiative, however, the PFA negotiated with the lead agencies to establish funding for their respective programs. Minnesota's nonpoint source pollution initiative provides an innovative and flexible approach for local governments, farmers, individual homeowners and businesses to access low-interest, environmentally directed loans.

In the past ten years, there has been a tremendous surge in interest of local governments to improve water resources degraded by nonpoint sources of pollution. Problems vary, including agricultural runoff; urban runoff from streets, yards and construction sites; leachate from septic systems; forestry and mining activities; highway de-icing chemicals; dredging and drainage activities; and impacts of wetland loss. Solutions include BMPs for urban, forest and agricultural areas; stormwater control, erosion control, buffer zones, animal waste management systems, proper installation and maintenance of individual sewage treatment systems (ISTS), construction site management, well sealing, preservation of wetlands and education.

Loan funds have been used to implement BMPs, including sedimentation basins for urban runoff and suburban areas, lakeshore landscaping for erosion control and stabilization, streambank stabilization, in-stream and in-lake chemical treatment and aeration, feedlot improvements, upgrades of individual sewage treatment systems, BMPs for ground water aquifer recharge areas and education and outreach activities.

Clean Water Partnership (CWP)

For fiscal year 2001, the MPCA administratively combined the state CWP Program and the federal Section 319 Program. This was the first step in integrating the various

nonpoint source funding programs, and was intended to move toward a more cohesive, focused and holistic approach to water quality protection and improvement.

Board of Water and Soil Resources Challenge Grant

The BWSR helps LGUs manage natural resources. The BWSR aims to improve local capacity by providing technical, financial and administrative assistance. The BWSR administers a number of grant programs aimed at nonpoint source pollution abatement. These include block grants and special project grants. Funds are available for water quality management for feedlots, engineering for nonpoint pollution reduction, wetland conservation, and lakeshore easements. Most grants require a 50 percent match. The programs cover a wide range of activities, including education and information, monitoring, planning, environmental controls, and land and water treatment.

Natural Resources Block Grant (NRBG)

The NRBG, administered by the BWSR, provides assistance to local governments to:

- Implement Comprehensive Local Water Planning (CLWP)
- Administer the **Wetland Conservation Act (WCA)**
- Administer the DNR's Shoreland Management Program
- Administer the MPCA's Feedlot Program
- Administer the MPCA's ISTS Program.

SWCD Cost-share Funds

Local SWCDs receive annual allotments of funds that are used to fund erosion control and water quality improvement projects. Cost-share rates vary from 50 to 75 percent and are available on a year-round basis.

Special Project Funds

The state makes additional funds available for erosion control and water quality improvement through the BWSR. These funds are applied for on a competitive basis by SWCDs across Minnesota. Cost-share rates vary from 50 to 75 percent. Application deadlines are in December and April.

Environmental Quality Incentives Program (EQIP)

The EQIP program replaced the Agricultural Conservation Program. Like its predecessor, EQIP offers cost-sharing for soil, water and forestry practices with long-term benefit. The NRCS administers this program. The NRCS, through the local SWCDs, provides technical assistance in: determining where soil and water conservation practices are needed and feasible, preparing farm conservation plans, and designing specific best management practices. The NRCS also supervises and certifies the proper installation of some of these practices.

Farmers may qualify for cost-sharing of up to 75 percent of the total cost under five or ten year contracts on eligible land for the installation of practices designed to solve resource conservation and agricultural pollution problems. In recent years, an emphasis on water pollution control has led to the use of some EQIP funding for specific nonpoint source water quality projects. The maximum cost share amount of any one contract is \$50,000 and only one contract is allowed on the same piece of land at any one time.

Wildlife Habitat Improvement Program (WHIP)

The WHIP Program, which is administered by the NRCS, provides cost-sharing for wildlife habitat improvement. This includes tree planting in riparian and other areas.

Conservation Reserve Program (CRP)

The Conservation Reserve Program (CRP), which is administered by the NRCS, provides cost-sharing for cropland set-asides (taking crops out of production). It also provides funds for riparian forests, buffer establishment and tree planting.

2. Other Sources of Support

In addition to the various sources of financial and technical support mentioned above, or included in Chapter IV: Management Measures, there are a number of other sources of free or low-cost technical support. Some examples are listed below.

The DNR provides technical assistance to LGUs, agencies, businesses and individuals on numerous issues, including land use, water resources, wetlands, fish habitat protection and improvement, forest management, marina development, trails and waterways, etc. Similarly, MPCA provides technical assistance on hazardous waste, stormwater management, water quality, etc. The same pattern holds true for other state

agencies: each state agency offers technical assistance within the areas of its responsibility and expertise.

Technical assistance for engineering is available from several sources. Agricultural engineering assistance is available from the NRCS and SWCDs. Lakeshore engineering assistance is available from BWSR (with a lakeshore engineer located in Duluth) and the Minnesota Sea Grant Extension Program (with a lakeshore engineer available through the Great Lakes Sea Grant Network).

Technical assistance is available to LGUs through a three member technical evaluation panel (TEP). The panel is composed of technical professionals from the LGU, SWCD and BWSR. The panel makes determinations on matters such as wetland function and value, location, type and size for wetland replacement plans, exemptions, sequencing and other responsibilities as directed by the county board. For landowners, LGUs throughout the coastal area have been trained in wetland delineation. Usually for a fee, the LGU can ascertain the wetland limits and offer advice on proper land development.

Technical assistance is also available from the University of Minnesota system, including the Minnesota Extension Service (MES) and the Minnesota Sea Grant Extension Program. These Extension programs serve as the outreach arm of the university and, as part of their mission, conduct outreach education and encourage technology transfer.

The Arrowhead Water Quality Team (AWQT), consisting of outreach educators from Minnesota Sea Grant, DNR, MPCA, BWSR, the SWCDs and MES; representatives of LGUs, nonprofits and tribal environmental services; plus county water plan coordinators and environmental consultants; has developed educational materials (e.g., a packet of publications on shoreland BMPs, shoreland management videos and a newsletter for shoreland property owners). Members of the AWQT provide technical assistance to lake associations and shoreland property owners.

Many others provide technical assistance at little or no cost, as well. Examples at several levels include the following:

- State level: The Minnesota Tree Farm Program is a national program that is sponsored by Minnesota Forest Industries (MFI) in the state. Landowners who become members of the Tree Farm System work with a professional forester to develop a forest management plan for their woodland. A forester inspects the woodland every five years, and updates the forest management plan accordingly. In return, the forest landowner agrees to follow the plan and protect the woodland from fire, disease and grazing. This service is offered at no cost.

- Regional level: Western Lake Superior Sanitary District (WLSSD). WLSSD is a Sanitary District established by the state legislature and based in Duluth. WLSSD provides technical assistance to surrounding communities regarding recycling, hazardous waste, etc.

In addition to the sources listed above that offer technical assistance at little or no cost, there is a vast array of technical assistance available for hire. There is a broad range of providers, including both the public and private sector. Several examples include the following:

- Arrowhead Regional Development Commission: community planning and Geographic Information System (GIS) assistance.
- Community GIS Services: a nonprofit affiliated with the Carlton County SWCD.
- University of Minnesota, Natural Resources Research Institute: GIS Laboratory.
- Numerous independent consultants and contractors, including foresters, engineers and planners.

E. MONITORING

Section 6217 of CZARA calls for a description of monitoring techniques that track and assess applied management measures for coastal nonpoint programs over time.

Minnesota is a water-rich state, with 92,000 miles of stream, 12,000 lakes and 10.7 million acres of wetlands. *Minnesota Watermarks* (2000) reports that Minnesota's water resources are in good shape, overall, with more than 65 percent of assessed streams and lakes meeting water quality standards and criteria. The reports note, however, that it has been possible to assess only 5,000 miles of stream and 2,500 lakes.

Monitoring of surface water quality has been done in Minnesota since 1952. The USGS-State Cooperative Program, which provides for the collection of stream flow data and some water quality monitoring, peaked in 1979-1980 and has diminished in recent years due to state and federal funding reductions.

Many monitoring programs are conducted on a statewide basis, and have not been separated out by basins yet. Some examples include the following:

- DNR has conducted 12,000 lake and stream surveys on 3,700 water bodies since 1954.
- MPCA was responsible for fish contaminant monitoring from 1975 to 1989. The DNR became responsible for it in 1989, and has annually sampled 2,000 to 3,000 fish from 70 to 80 lakes and five to 10 streams since then.
- MPCA has a long standing ambient stream monitoring program, assessing conventional pollutants at 80 sites across the state.
- MPCA has the Citizen Lake Monitoring Program, in which 1,098 volunteers use Secchi disks to monitor lake clarity.
- MPCA staff and local citizens are working together on the Lake Assessment Program (LAP), which began in 1985. Over 160 LAPs have been conducted.
- The MPCA's Biological Monitoring Unit is currently developing an Index of Biological Integrity (IBI) using fish and macroinvertebrate communities to evaluate water quality within each major river basin in Minnesota. Initial sampling and biological surveys for this work in the Lake Superior Basin occurred from 1997 to 1999. Biosurvey techniques are also being developed.

Regionally, the USEPA Mid-continent Ecology Division (MED) and the University of Minnesota's Natural Resources Research Institute (NRRI), both located in Duluth, conduct both research and monitoring activities. Compared to the statewide

monitoring programs, this monitoring is often done over shorter periods of time. Some examples include the following:

- NRRI developed a macroinvertebrate IBI for streams in the Lake Superior Basin (excluding the St. Louis River drainage) in 2000 (“Development of Macroinvertebrate Biocriteria for Streams of Minnesota’s Lake Superior Watershed,” by Kevin Stroom and Carl Richards, July 2000).
- The USEPA Mid-continent Ecology Division produced “Watersheds at Risk,” by Naomi Detenbeck, et. al., 2000. This describes risks posed by forest conversion and lack of water storage areas in Lake Superior watersheds with regard to water temperature and increased erosion potential.
- The USEPA Mid-continent Ecology Division also produced “Effects of Climate Warming on Fish Thermal Habitat in Streams of the United States,” by John Eaton and Scheller, 1996, in *Limnology and Oceanography* 41(5): 1109-1115.

Interest has been expressed on all sides in increasing levels of data sharing and collaboration.

Minnesota’s statewide nonpoint pollution programs, monitoring and strategies are described in *Minnesota’s 2001-2005 Nonpoint Source Management Program Plan* (NPS/319 Plan). To better track BMP usage, and correlate it with pollution reductions, several state and federal agencies, led by BWSR, have developed a Web-based interactive GIS system: the Local Government Annual Reporting Systems (LARS).

In Minnesota’s NPS/319 Plan document, Chapter 5 (New Directions in Monitoring), includes the following goals:

- Design monitoring to characterize nonpoint source contributions. A primary goal is understanding the effects of the watershed on the water quality of a water resource.
- Take water quality samples over the range of flows and seasons. Nonpoint source pollution requires that water quality monitoring be weighted toward high flow seasons, to include snowmelt and stormwater runoff events.
- Increase biological monitoring and sediment sampling, because of the ability of biota and sediment to reflect water conditions over a period of time.
- Improve communication linkages among water monitoring agencies, in order to expand the statewide database and improve accessibility to it.
- Design monitoring to meet explicitly stated purposes, to address management information needs.

The NPS/319 Plan document is available on MPCA's Web site.

<http://www.pca.state.mn.us/water/nonpoint/mplan.html>

Lake Superior Basin Stream Monitoring Consideration (MPCA, 2001, final draft) provides basin demographics, monitoring history, trends and specific strategies for monitoring the primary North Shore streams. The general purpose of a Lake Superior Basin monitoring network is to determine the condition of the dominant North Shore tributaries and the Nemadji River, and to assess long-term water quality trends of the St. Louis River.

Since the monitoring document was produced, MPCA has received a grant from Minnesota's Lake Superior Coastal Program to monitor four additional North Shore rivers that are facing varying levels of development pressure. These include Amity Creek in Duluth, the French River, the Brule (or Arrowhead) River, and a second site on the Poplar River, above the more developed section.

This monitoring will incorporate automatic continuous streamflow, temperature and conductivity sampling with routine sample collections for nutrients, suspended sediment, turbidity, alkalinity and chloride. Seasonal patterns in water quality and annual estimates of nutrient and sediment loads to Lake Superior will be calculated and interpreted. Results will be shared with local governments to aid them in making local planning and zoning decisions. While these assessments will provide baseline monitoring, the new automated equipment will also allow long-term trend monitoring, where limited staffing prevented it in the past. This will allow for trend identification and correlation with management measure implementation and effectiveness.

The basin planning process will work with numerous partners to evaluate existing GIS information on land use in these monitored watersheds, or to develop data, if needed, for assessing and correlating land uses and management measure effectiveness. Among these partners is the Minnesota Forest Resources Council, which developed *Sustaining Minnesota Forest Resources: Voluntary Site-level Forest Management Guidelines for Landowners, Loggers and Resource Managers*. Also included is the new NEMO (Nonpoint Education for Municipal Officials) project, which involves Duluth Township and the Talmadge and French rivers. It is hoped that, if this pilot project proves to be a successful management tool for local governments on the North Shore, NEMO projects will be used in other watersheds in the Lake Superior Basin, as well.

For specific monitoring activities related to each of the 55 nonpoint pollution management measures, see Chapter IV: Management Measures, in this Coastal

Nonpoint Program document. Examples include state programs to assess forest management guideline implementation and monitor pesticide levels in surface waters.

IV

THE SIX NONPOINT SOURCE CATEGORIES AND 55 MANAGEMENT MEASURES

IV 1

AGRICULTURE

CHAPTER IV. MANAGEMENT MEASURES

SECTION 1. AGRICULTURE

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Introduction

Northeastern Minnesota is not considered to be an intensive agricultural area. For the majority of the Lake Superior Watershed, agricultural uses are minimal in comparison to the rest of the state. Only three percent of the total acreage in the Lake Superior Basin is agricultural crop land. A small percentage of this agricultural acreage is devoted to row crops that are usually associated with high sediment runoff rates. These few farms are in southeastern Carlton County roughly 20 miles from Lake Superior. Grazing is a more important agricultural practice in the Lake Superior Watershed. Resources and technical assistance are being focused on livestock producers in the St. Louis River Watershed, where there are over sixty livestock operations.

The state agencies with primary responsibility for coordination and program delivery are the Minnesota Department of Agriculture (MDA), Minnesota Extension Service (MES), Minnesota Pollution Control Agency (MPCA) and the Board of Water and Soil Resources (BWSR). The Minnesota Department of Agriculture is the lead state agency for the regulation of fertilizer including storage, handling, distribution, use and disposal. The MDA is also the lead state agency for the regulation of pesticides; this includes registration, labeling, distribution, sale, handling, use, application, storage and disposal (**M.S.18B** and **M.S. 18D**). They also developed a “Whole Farm Planning” document in 1997. Information is available on the Internet.

<http://www.revisor.leg.state.mn.us/stats/18B/>

<http://www.revisor.leg.state.mn.us/stats/18D/>

<http://www.mda.state.mn.us/DOCS/AGDEV/WHOLEF~1/WHOLE3.PDF>

The Minnesota Department of Natural Resources (DNR) has management standards for shoreland areas for many of the land use topics discussed below. DNR's Shoreland Rules have agriculture standards for the 50-foot Shoreland Impact Zone (SIZ), steep slopes, etc. Shoreland Standards are discussed later.

Local units of government are the primary delivery vehicles for many programs, through local zoning offices, Soil and Water Conservation District (SWCD) offices and local water plans.

At the federal level, the U.S. Department of Agriculture (USDA) implements a variety of programs aimed at management of nonpoint source (NPS) pollution.

Table 11a. State Enforceable Authorities for Agriculture.

Management Measure	Applicable Minn. Statutes	Applicable Minn. Rules
a. Erosion and Sedimentation Control	103C 103F	7050; 6120.3300; 7050.0185; 7050.0210
b. Confined Animal Facility Wastewater and Runoff	103F	6120; 7020; 7020.0350; 7050.0185; 7050.0210; 7050.0215
c. Nutrients	18C; 103F; 103G; 103H	6120; 7050.0185; 7050.0210
d. Pesticides	17.114; 18B; 18C; 18D; 40A; 103F; 103H	6120.3300; 7050.0185; 7050.0210
e. Grazing	103F	6120; 7050.0185; 7050.0210
f. Irrigation	18B; 103G	6115

Table 11b. Names of Statutes and Rules Cited for Agriculture.

Table 11b, Part 1: Statutes
17: Department of Agriculture M.S. 17.114: Sustainable Agriculture M.S. 18B: Pesticide Control Law 18C: Fertilizers, Soil Amendments, Plant Amendments 18C.201: Prohibited Fertilizer Activities 18D: Agricultural Chemical Liability 40A: Agricultural Land Preservation 103A: Water Policy and Information 103F: Protection of Water Resources [Floodplain Management Act] 103F.201-221: Shoreland Management Act 103F.401-455: Voluntary Soil Loss Limits Program 103G: Waters of the State [Protected Water Program] 103G.005, Subdivisions 15,17,18: Waters of the State, Definitions 103H: Groundwater Protection 103H.275: Management of Pollutants Where Groundwater is Polluted 103H.151: Pesticide BMPs

Table 11b, Part 2: Rules
6115: Public Waters 6115.0620: Public Waters Resources, Scope 6120: Shoreland and Floodplain Management 6120.3300: Zoning Provisions 7020: Feedlot Rules 7020.0350: Registration Requirements for Animal Feedlots/Manure Storage Areas 7050: Water Quality Standards 7050.0185: Nondegradation for All Waters [“Antidegradation Policy”] 7050.0210: Water Quality [“Nuisance Condition Prohibition”] 7050.0215: Requirements for Animal Feedlots

Note: Minnesota’s statutes and rules are available via the Internet two different ways. The information is the same either way.

1. Statutes and rules may be viewed by section on the Internet on Minnesota’s Revisor of Statutes Web site at:

- *For administrative rules - <http://www.revisor.leg.state.mn.us/arule/> [plus add number of specific rule]*
- *For statutes - <http://www.revisor.leg.state.mn.us/stats/>*

2. *Statutes and rules may be viewed or easily downloaded in their entirety from Minnesota's Legislative Web site at:
<http://www.leg.state.mn.us/leg/statutes.htm>.*

See Figure 6. Minnesota's Lake Superior Basin: Agricultural Land Uses (Grasslands, Cultivated Lands and Feedlots). (DNR).

1.a. Erosion and Sediment Control [Agriculture]

A. Federal Description of Management Measure [Nationwide] {1.a. Agricultural Erosion and Sedimentation}

Apply the erosion component of a Conservation Management System (C.M.S.) as defined in the Field Office Technical Guide of the USDA's Natural Resources Conservation Service (NRCS) to minimize the delivery of sediment from agricultural lands to surface waters, or

Design and install a combination of management and physical practices to settle the settleable solids and associated pollutants in runoff delivered from the contributing area for storms of up to and including a 10-year, 24-hour frequency event.

B. Applicability [Nationwide] {1.a. Agricultural Erosion and Sedimentation}

This management measure, nationwide, applies to activities that cause erosion on agricultural land (crop land, irrigated crop land, pasture, permanent hayland, specialty crop production, nursery crop production) and on land that is converted from other land uses to agricultural lands.

Applicable State Programs and Practices

C. Nonregulatory Approaches {1.a. Agricultural Erosion and Sedimentation}

1. Economic Incentives and Disincentives

Cost-sharing for implementing conservation practices to prevent erosion and off-site sedimentation are available through county Farm Services Agency (FSA) offices for federally based programs such as the Environmental Quality Incentives

Program (EQIP). Section 319 grant dollars are also available through the MPCA for erosion control projects.

Cost sharing for state based programs is available through local SWCDs. County water plan implementation funds are available through counties.

In 1995, the State Revolving [Loan] Fund became available for implementing conservation practices through a program being developed by the MDA. The program offers low interest loans through local lenders. The MDA's Sustainable Agriculture Shared Savings Loan Program offers low interest loans for projects related to erosion control.

2. Public Information/Education, and Technical/Related Assistance

The SWCD office and Minnesota Extension Service (MES) offer free information for land users. The SWCDs, NRCS and MES have information on agricultural practices to reduce erosion and sedimentation. MDA also has a Web site to provide public information.

<http://www.mda.state.mn.us>

SWCDs can offer technical assistance on farm planning. The SWCDs/NRCS can also assist in conservation practice design up to certain size limits.

To better correlate BMP installation with pollutant reductions, several state and federal agencies, led by BWSR, are developing a Web-based interactive GIS system that integrates the Local Government Annual Reporting System (LARS).

D. Enforceable Policies and Mechanisms

{1.a. Agricultural Erosion and Sedimentation}

1. State Permits and Licenses

Minnesota does not use state permits or licenses to implement this management measure.

2. Local Zoning

Local government units implement agricultural use standards in shoreland areas. General cultivation farming, grazing, nurseries, horticulture, truck farming, sod

farming and wild crop harvesting are permitted uses if steep slopes and shore and bluff impact zones are maintained in permanent vegetation, or operations are conducted under an approved conservation plan (**Minn. Rules 6120.3300, Subp. 7**).

<http://www.revisor.leg.state.mn.us/arule/6120/3300.html>

BWSR oversees a “soil loss limits” program (**M.S. 103F.401 - .455**) that enables counties and municipalities to voluntarily adopt soil-loss ordinances requiring conformance with soil loss tolerance (“T”) values.

<http://www.revisor.leg.state.mn.us/stats/103F/>

3. Direct State Statutory Requirements

Shoreland ordinances with agricultural standards are mandated by the state (**M.S. 103F**). A voluntary soil loss limits program currently exists in state statute (**M.S. 103F.401**). Minnesota has a “nuisance conditions prohibition,” **Minn. Rules 7050.0210, Subp. 2**, as well as an “antidegradation policy,” **Minn. Rules 7050.0185**, in its water quality standards. The nuisance provision says: “No sewage, industrial waste or other wastes shall be discharged from either point or nonpoint sources into any waters of the state so as to cause any nuisance conditions....” The description of these conditions includes excessive suspended solids, odors, undesirable slimes or fungus growths, aquatic habitat degradation, excessive growths of aquatic plants or other offensive or harmful effects.

<http://www.revisor.leg.state.mn.us/stats/103F/>

<http://www.revisor.leg.state.mn.us/arule/7050/0210.html>

<http://www.revisor.leg.state.mn.us/arule/7050/0185.html>

E. Monitoring and Tracking {1.a. Agricultural Erosion and Sedimentation}

1. Existing and Planned Monitoring Efforts

The Natural Resources Inventory (NRI) has been updated by NRCS. When this information becomes available, it will be useful in assessing erosion trends in the watershed.

To better correlate BMP installation with pollutant reductions, several state and federal agencies, led by BWSR, are developing a Web-based interactive GIS system that integrates the Local Government Annual Reporting System (LARS).

The Planning Information Center of Minnesota (PIC) has produced critical erosion and sedimentation maps for the state. These maps were created using the previous NRI data and other GIS techniques. The maps can be used as planning tools for the watershed.

2. Inspection, Tracking and Assessment Techniques

County water plans and SWCD annual reports and annual plans detail resource management issues, including agricultural erosion.

The St. Louis River Remedial Action Plan (RAP), St. Louis River Management Plan, North Shore Management Board and the Nemadji River Basin Project will all monitor erosion in the watershed.

3. Management Measure Effectiveness

The tools Minnesota lists for this measure are capable of meeting the goals of this management measure.

F. Agency Coordination and Linkages **{1.a. Agricultural Erosion and Sedimentation}**

The keys at the local level are the county and the SWCD. The county and their SWCD offices access State Revolving Funds (SRF) funds and implement erosion control ordinances. The SWCDs provide technical assistance and prioritize projects for SRF and cost-share funds. The NRCS and local SWCDs provide technical engineering signoff on erosion control projects.

At the state level, the BWSR distributes state funding to counties and SWCDs in the watershed for water plan implementation and cost-sharing.

The MDA has been given a charge to “investigate, demonstrate, report on and make recommendations regarding sustainable agriculture.”

DNR Waters coordinates the implementation of the **Shoreland Management Act** with federal, state and local government units.

1.b. Confined Animal Facility Wastewater and Runoff **(Large and Small Units) [Agriculture]**

A. Federal Description of Management Measure [Nationwide] **{1.b. Confined Animal Facility Wastewater and Runoff}**

For Small Units: [Minnesota uses Non-CAFO Units]

[Note: CAFO stands for Concentrated Animal Feeding Operation]

Design and implement systems that collect solids, reduce contaminant concentrations and reduce runoff to minimize the discharge of contaminants, in both facility wastewater and in runoff that is caused by storms up to and including a 25-year, 24-hour frequency event. Implement these systems to substantially reduce significant increases in pollutant loadings to ground water.

Manage stored runoff and accumulated solids from the facility through an appropriate waste utilization system.

For Large Units: [Minnesota uses CAFO Units]

Limit the discharge from the confined animal facility to surface waters by:

- (1) Storing both the facility wastewater and the runoff from confined animal facilities that is caused by storms, up to and including a 25-year, 24-hour frequency storm. Storage structures should:
 - (a) Have an earthen lining or plastic membrane lining, or
 - (b) Be constructed with concrete, or
 - (c) Be a storage tank.
- (2) Managing stored runoff and accumulated solids from the facility through an appropriate waste utilization system.

B. Applicability [Nationwide] **{1.b. Confined Animal Facility Wastewater and Runoff}**

The Large Units [CAFO] management measure, nationwide, applies to all new facilities regardless of size. These measures do not apply to systems already covered under the National Pollutant Discharge Elimination System (NPDES) program (Federal Regulation 40 CFR 122.23(c)).

Applicable State Programs and Practices

C. Nonregulatory Approaches

{1.b. Confined Animal Facility Wastewater and Runoff}

1. Economic Incentives and Disincentives

Cost-sharing is available through both the state and federal governments to install manure management systems. Cost-sharing is prioritized locally. Federal funding is available through USDA's EQIP program under a statewide competitive process. Money is also available through low interest loans from the SWCDs to install permitted manure management systems, and from the MDA through the SRF program.

The approximate nutrient value of manure can be determined by methods available from the MES, NRCS or SWCDs. In conjunction with soil tests, manure can be applied to crop land and proper nutrient credits taken.

Manure storage and pollution control systems that provide a minimum of 120 days of storage are exempt from property tax.

2. Public Information/Education, and Technical/Related Assistance

Information on what needs to be included in a manure management plan, and software for preparing a plan that meets the requirements of **Minn. Rules 7020**, is available on MPCA's Web site. MDA also developed a "Whole Farm Planning" document in 1997 and an information Web site.

<http://www.pca.state.mn.us/hot/feedlots.html#factsheets>

<http://www.mda.state.mn.us/>

Midwest Plan Services is a coalition formed between Land Grant Colleges located in the upper Midwest and the USDA. They make information available on livestock and manure management.

A directory from MDA walks landowners through the process of feedlot management. It includes a flow chart on the process, and it describes who does what.

The MES has a program called Farm-a-Syst. This is a self-assessment program that aims to reduce health and safety risks by examining all practices on a farmstead.

BWSR has a Feedlot Inventory Guidebook. It outlines formats for varying degrees of inventories, which are performed by the county.

The SWCD, NRCS and Joint Powers Board staff can do on-site evaluations, designs and construction inspections for management measures. The private sector provides another option for management measure design and inspection. MPCA and the county zoning office may provide assistance in completing permit applications.

There are currently many watershed planning efforts completed or underway. They include county water plans, the St. Louis River RAP, the Nemadji River Basin Project, the St. Louis River Management Plan and the Midway River Watershed Restoration Plan. All of these projects address these management measures.

D. Enforceable Policies and Mechanisms

{1.b. Confined Animal Facility Wastewater and Runoff}

1. State Permits and Licenses

MPCA operates a state permitting program under **Minn. Rules 7020** and has the authority to issue NPDES permits under federal regulations. Counties can adopt the program to allow localized permit writing for sites that have up to 1,000 animal units.

<http://www.revisor.leg.state.mn.us/arule/7020/>

2. Local Zoning

Local ordinances either reference, or are consistent with, the MPCA program. The **State Shoreland Management Act (M.S. 103F)** requires local government units to develop standards in compliance with **Minn. Rules 6120.3300, Subp. 7**. In general, where allowed by local zoning district designations, feedlots must be reviewed as conditional use permits, and must meet the following standards:

- (1) New feedlots must not be located in the shoreland of watercourses or in bluff impact zones, and must meet a minimum setback of 300 feet from the ordinary high water level of all public water basins.

- (2) Modifications or expansions to existing feedlots are allowed if they do not encroach further into the setback.
- (3) A permit, when required by **Minn. Rules 7020**, must be obtained by the owner or operator of an animal feedlot.

<http://www.revisor.leg.state.mn.us/arule/7020/>

3. Direct State Statutory Requirements

Minn. Rules 7020 governs feedlots statewide in Minnesota. It allows for county adoption with some degree of state oversight. Carlton County, which has the highest percentage of agricultural land in the Lake Superior Basin, has adopted **Minn. Rules 7020** and has a feedlot officer. An increase of 1,000 animal units or more, or 500 animal units or more within a sensitive area, requires an Environmental Assessment Worksheet (EAW). The authority for the **Shoreland Management Act** is **M.S. 103F**.

<http://www.revisor.leg.state.mn.us/arule/7020/>
<http://www.revisor.leg.state.mn.us/stats/103F>

Minn. Rules 7050.0215 states that the discharge limit for a non-CAFO feedlot as a result of a storm event is equal to or less than the 25-year, 24-hour rainfall event, which is 25 mg/l, five day BOD. **Minn. Rules 7050.0210** refers to nuisance conditions created in Minnesota waters. **Minn. Rules 7050.0185** is the state's nondegradation policy for all waters of the state. All of these rules apply to nonpoint sources of pollution.

<http://www.revisor.leg.state.mn.us/arule/7050/0215.html>
<http://www.revisor.leg.state.mn.us/arule/7050/0210.html>
<http://www.revisor.leg.state.mn.us/arule/7050/0185.html>

Technical standards for the design and construction of all liquid manure storage structures are found in **Minn. Rules 7020**. These structures must be designed by a registered professional engineer. If counties don't adopt the feedlot program, MPCA administers it.

New feedlots or feedlot management systems are not allowed within the 100-year floodplain, shoreland, within 100 feet of a private well or within 1,000 feet of a public well. Expansions of existing feedlots located in any of these areas is limited to a total of no more than 999 animal units.

Enforcement can be triggered by an inspection by MPCA, a county feedlot officer, DNR conservation officer, and/or a local peace officer. Inspections are generally done as a result of a complaint or receipt of a permit application.

E. Monitoring and Tracking

{1.b. Confined Animal Facility Wastewater and Runoff}

1. Existing and Planned Monitoring Efforts

Numerous feedlot sites are being monitored statewide to evaluate groundwater effects of manure storage structures. Dairy farmers have regular well-water testing. Grade A dairies have annual water supply testing. Carlton County has completed a Level II feedlot inventory.

2. Inspection, Tracking and Assessment Techniques

Inspections are made on cost-share projects by the NRCS/SWCD. The MPCA and/or county feedlot officer do inspections as a result of a complaint, permit application, inventory, registration verification, construction of a manure storage structure or enforcement action.

3. Management Measure Effectiveness

The tools Minnesota lists for this measure are capable of meeting the goals of this management measure.

F. Agency Coordination and Linkages

{1.b. Confined Animal Facility Wastewater and Runoff}

Counties can adopt the feedlot program to allow localized permit writing for sites that have up to 1,000 animal units. If counties don't adopt the feedlot program, MPCA administrates it. The agencies share permit application information.

Minn. Rules 7020.0350, Subp. 1, requires that, after January 1, 2002, MPCA and all delegated counties shall maintain registration data for animal feedlots and manure storage areas. The registration data must include the information required in a Level II feedlot inventory, as described in the Feedlot Inventory Guidebook.

1.c. Nutrients [Agriculture]

A. Federal Description of Management Measure [Nationwide] {1.c. Nutrients}

Develop, implement and periodically update a nutrient management plan to: (1) apply nutrients at rates necessary to achieve realistic crop yields, (2) improve the timing of nutrient application, and (3) use agronomic crop production technology to increase nutrient use efficiency. When the source of the nutrients is other than commercial fertilizer, determine the nutrient value and the rate of availability of the nutrients. Determine and credit the nitrogen contribution of any legume crop. Soil and plant tissue testing should be used routinely. Nutrient management plans should contain the components found in *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*.

B. Applicability [Nationwide] {1.c. Nutrients}

This management measure, nationwide, applies to activities associated with the application of nutrients to agricultural lands.

Applicable State Programs and Practices

C. Nonregulatory Approaches {1.c. Nutrients}

1. Economic Incentives and Disincentives

Low interest loans are available for manure management. The USDA's EQIP program will pay for management of manure according to a nutrient management plan.

2. Public Information/Education, and Technical/Related Assistance

The MDA, MES, NRCS and SWCDs distribute information.

Information on what is to be included in a manure management plan, and software for preparing a plan that meets the requirements of **Minn. Rules 7020**, are available on MPCA's Web site.

<http://www.pca.state.mn.us/hot/feedlots.html#factsheets>

MDA has adopted BMPs for nitrogen fertilizers for corn and turf. This information is available from the MES and MDA.

Technical assistance is available from MES agents throughout the watershed. SWCD/NRCS staff in each county can also provide assistance to land users.

MDA, through the Agronomy Services Division Special Projects Unit, offers technical assistance for implementation of nitrogen fertilizer BMPs.

Agricultural Chemical Response and Reimbursement Account

An account has been established whereby eligible persons may receive reimbursement of costs incurred in the cleanup of incidents involving agricultural chemicals. Responsible persons who report a release of an agricultural chemical and proceed, under the direction of MDA, to clean up the release can access funds for reimbursement. Eligibility and reimbursement amounts are determined through an appointed board (the Agricultural Chemical Response Compensation Board).

Best Management Practices (BMPs)

MDA has adopted nitrogen fertilizer Best Management Practices (BMPs) for production of corn and for turf management in residential settings. The nitrogen fertilizer BMPs for corn production include a set of statewide, regional and special-situation BMPs. The state sets phosphorus and nitrogen “fertilizer replacement values” for manure and requires manure testing so that farmers don’t over fertilize their fields and cause runoff or ground water problems.

D. Enforceable Policies and Mechanisms {1.c. Nutrients}

1. State Permits and Licenses

The MDA requires persons who sell or distribute bulk fertilizers to obtain an MDA license.

MDA requires that a construction permit be obtained for the construction of facilities that store fertilizers in bulk. Permit requirements include safeguards (primary and secondary) to protect from product release.

MDA requires any person who sells, offers for sale or disposes of agricultural liming materials to obtain an MDA license.

MDA requires any person applying fertilizers through an irrigation system to obtain an MDA chemigation permit. Permit requirements include fitting with effective anti-siphon or check valves to prevent backflow.

2. Local Zoning

The **State Shoreland Management Act (M.S. 103F)** requires the “use of fertilizer, pesticides or animal wastes within shorelands be done in such a way as to minimize impact on the shore impact zone or public water by proper application or use of earth or vegetation” (**Minn. Rules, Part 6120.3300, Subp. 7**).

<http://www.revisor.leg.state.mn.us/stats/103F/>
<http://www.revisor.leg.state.mn.us/arule/6120/3300.html>

Wellhead protection requirements are currently being developed at the local level to protect drinking water supplies.

3. Direct State Statutory Requirements

MDA is responsible for the administration and enforcement of portions of the **State Ground Water Protection Law (M.S. 103H)** for agricultural chemicals. The management of pollutants where ground water is polluted is specifically identified in **M.S. 103H.275**. This section identified the process of promotion of BMPs for the identified pollutant or pollution problem and also provides for the process by which regulatory requirements called Water Resource Protection Requirements (WRPRs) can be established if implementation of BMPs is proven to be ineffective.

<http://www.revisor.leg.state.mn.us/stats/103H/>

A person may not store, handle, distribute or dispose of a fertilizer, fertilizer container or fertilizer application equipment in a manner that:

- (1) Endangers humans, damages agricultural products, food, livestock, fish or wildlife;
- (2) Will cause unreasonable adverse effects on the environment; or
- (3) Will cause contamination of public or other waters of the state, as defined in **M.S. 103G.005, Subd. 15, 17 and 18**, from back siphoning or back flowing of

fertilizers through water wells or from the direct flowage of fertilizers (**M.S. 18C.201**).

<http://www.revisor.leg.state.mn.us/stats/103G/>
<http://www.revisor.leg.state.mn.us/stats/18C/>

Minnesota has a “nuisance condition prohibition” **Minn. Rules 7050.0210, Subp. 2**, as well as an “antidegradation policy,” **Minn. Rules 7050.0185**, in its water quality standards.

<http://www.revisor.leg.state.mn.us/arule/7050/0210.html>
<http://www.revisor.leg.state.mn.us/arule/7050/0185.html>

E. Monitoring and Tracking {1.c. Nutrients}

1. Existing and Planned Monitoring Efforts

Carlton County is conducting county wide water testing to analyze trends in water quality. Nitrates are one of the test parameters. Wells are tested for nitrates when property transactions occur in St. Louis County. Cook and Lake counties also do some testing during transactions.

2. Inspection, Tracking and Assessment Techniques

Minnesota has developed the Farm Nutrient Management Assessment Program (FANMAP) to assess compliance with nutrient best management practices.

Nitrogen data from well testing has been plotted in some counties in the watershed. Carlton County is one example.

3. Management Measure Effectiveness

The tools Minnesota lists for this measure are capable of meeting the goals of this management measure.

F. Agency Coordination and Linkages {1.c. Nutrients}

MES provides information on nutrient management at the local level. MDA provides the guidance for the state in nutrient management.

1.d. Pesticides [Agriculture]

A. Federal Description of Management Measure [Nationwide] {1.d. Pesticides}

To reduce contamination of surface water and ground water from pesticides:

- (1) Evaluate the pest problems, previous pest control measures and cropping history;
- (2) Evaluate the soil and physical characteristics of the site, including mixing, loading and storage areas, for potential leaching or runoff of pesticides. If leaching or runoff is found to occur, steps should be taken to prevent further contamination;
- (3) Use integrated pest management (IPM) strategies that:
 - (a) Apply pesticides only when an economic benefit to the producer will be achieved (i.e., applications based on economic thresholds); and
 - (b) Apply pesticides efficiently and at times when runoff losses are unlikely;
- (4) When pesticide applications are necessary and a choice of registered materials exists, consider the persistence, toxicity, runoff potential, and leaching potential of products in making a selection;
- (5) Periodically calibrate pesticide spray equipment; and
- (6) Use anti-backflow devices on hoses used for filling tank mixtures.

B. Applicability [Nationwide] {1.d. Pesticides}

This management measure, nationwide, applies to activities associated with the application of pesticides to agricultural lands.

Applicable State Programs and Practices

C. Nonregulatory Approaches {1.d. Pesticides}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

MDA in conjunction MES has developed innovative education and training programs associated with pesticide applicator licensing and certification. These programs address various topics including: water quality protection, endangered species protection, pesticide residues in food and water, worker protection, chronic toxicity, integrated pest management, waste pesticide and pesticide container disposal, etc. Although this information is offered as part of a regulatory licensing/certification requirement, the applicator workshops are open to the general public. Pesticide Applicator Training workshops are held at various locations and times throughout the state. Workshops are targeted to specific categories of applicators, such as Forestry, Rights of Way, Aerial, Turf and Ornamental, etc. Private applicator training sessions are held at the county level through the MES.

MDA provides information in the form of fact sheets and brochures, as well as through personal contact at trade shows and exhibitions. MES offers information through field days at experiment stations, through local meetings and through presentations at conferences and other public meetings. MES also provides fact sheets, brochures and folders to the public.

MES and MDA offer technical assistance on Integrated Pest Management (IPM) techniques.

Waste Pesticide Collection

MDA has coordinated with counties throughout the state in the collection of waste pesticides. The collection service is provided at no cost to eligible participants (although there may be collection costs in certain situations). This program has collected roughly 430,000 lbs of waste pesticide from approximately 3,800 people, statewide, since 1990. The program has collected 7,700 pounds of waste pesticides from 48 people from counties within the Lake Superior Watershed.

Pesticide Container Collections

MDA has also been collecting properly rinsed pesticide containers for recycling. This program began with a pilot project in 1990. It is now an ongoing program, which is carried out as a coordinated effort between the MDA, counties and industry.

Agricultural Chemical Response and Reimbursement Account

An account has been established whereby eligible persons may receive reimbursement of costs incurred in the cleanup of incidents involving agricultural chemicals. Responsible persons who report a release of an agricultural chemical and proceed, under the direction of MDA, to clean up the release can access funds for reimbursement. Eligibility and reimbursement amounts are determined through an appointed board (the Agriculture Chemical Response Compensation Board).

Best Management Practices (BMPs)

MDA is responsible for the development and adoption of pesticide BMPs. **M.S. 103H.151** describes the process for the development and promotion of BMPs.

<http://www.revisor.leg.state.mn.us/stats/103H/151.html>

D. Enforceable Policies and Mechanisms {1.d. Pesticides}

1. State Permits and Licenses

MDA requires persons who sell or distribute bulk pesticides or restricted use pesticides to obtain an MDA license.

MDA requires pesticide applicators within the state to be licensed if they are commercial applicators (applying for hire) or apply restricted use pesticides as noncommercial applicators. They must be certified as private applicators if they apply restricted use pesticides to sites they own, rent or manage.

MDA requires that a construction permit be obtained for the construction of facilities that store pesticides in bulk. Permit requirements include safeguards (primary and secondary) to protect from product release.

MDA requires any person applying pesticides through an irrigation system to obtain an MDA chemigation permit. Permit requirements include fitting with effective anti-siphon or check valves to prevent backflow.

2. Local Zoning

Minn. Rules, Part 6120.3300, Subp. 7, requires that the “use of fertilizer, pesticides, or animal wastes within shorelands must be done in such a way as to

minimize impact on the shore impact zone or public water by proper application or use of earth or vegetation” (**M.S. 103F**).

<http://www.revisor.leg.state.mn.us/stats/103F/>
<http://www.revisor.leg.state.mn.us/arule/6120/>

3. Direct State Statutory Requirements

MDA administers and enforces the **State Pesticide Control Law (M.S. 18B, 18C and 18D)**. This law gives the department the authority to regulate pesticides in Minnesota, including provisions for the protection of the environment. Pursuant to **M.S. 18B.045**, the state has developed a Pesticide Management Plan. The purpose of the plan is the protection of ground and surface water from nonpoint source pollution pesticide contamination. The goals of the plan are prevention, evaluation, and mitigation. The plan applies in agricultural areas as well as urban areas. Backup authorities also include **Minn. Rules 7050.0185** (“Antidegradation Policy”) and **Minn. Rules 7050.0210** (Water Quality “Nuisance Condition Prohibition”).

<http://www.revisor.leg.state.mn.us/stats/18B/>
<http://www.revisor.leg.state.mn.us/stats/18C/>
<http://www.revisor.leg.state.mn.us/stats/18D/>
<http://www.revisor.leg.state.mn.us/arule/7050/0185.html>
<http://www.revisor.leg.state.mn.us/arule/7050/0210.html>

MDA is responsible for the administration and enforcement of portions of the **State Ground Water Protection Law (M. S. Section 103H)** for agricultural chemicals. The management of pollutants where ground water is polluted is specifically identified in **M.S. 103H.275**. This section identified the process of promotion of BMPs for the identified pollutant or pollution problem and also provides for the process by which regulatory requirements called Water Resource Protection Requirements (WRPRs) can become established if implementation of BMPs has proven to be ineffective. Other MDA programs include Agricultural Land Preservation (**M.S. 40A**), Water Policy (**M.S. 103A.301 - 103A.341**), Incidents/Emergency Response (**M.S. 18D** and **M.S. 115B.17**) and Sustainable Agriculture and Integrated Pest Management (**M.S. 17.114**).

<http://www.revisor.leg.state.mn.us/stats/103H/>
<http://www.revisor.leg.state.mn.us/stats/103A/>
<http://www.revisor.leg.state.mn.us/stats/40A/>

<http://www.revisor.leg.state.mn.us/stats/18D/>
<http://www.revisor.leg.state.mn.us/stats/17/114.html>

DNR Waters is responsible for the implementation of the **Shoreland Management Act, M.S. 103F**.

<http://www.revisor.leg.state.mn.us/stats/103F/>

The “nuisance conditions prohibition,” **Minn. Rules 7050.0210**, and the “antidegradation policy,” **Minn. Rules 7050.0185**, in Minnesota’s water quality standards both apply here also. The nuisance provision says, “No sewage, industrial waste, or other wastes shall be discharged from either point or nonpoint sources into any waters of the state so as to cause any nuisance conditions....” The description of these conditions includes excessive suspended solids, odors, undesirable slimes or fungus growths, aquatic habitat degradation, excessive growths of aquatic plants or other offensive or harmful effects. The antidegradation policy pledges “...to protect all waters from significant degradation from point and nonpoint sources and wetland alterations, and to maintain existing water uses, aquatic and wetland habitats, and the level of water quality necessary to protect these uses....”

<http://www.revisor.leg.state.mn.us/arule/7050/0210.html>
<http://www.revisor.leg.state.mn.us/arule/7050/0185.html>

E. Monitoring and Tracking {1.d. Pesticides}

1. Existing and Planned Monitoring Efforts

Rainwater was collected for pesticide analysis near Hoyt Lakes, which is in the Lake Superior Basin. Sampling of ground and surface water is being accomplished in the agricultural regions of the state. This research may be applicable in the Lake Superior Watershed.

2. Inspection, Tracking and Assessment Techniques

MDA is authorized to inspect agricultural chemical facilities, records of restricted use pesticide sales and records of pesticide applications. The MDA field staff performs, logs and tracks inspections.

MDA has agricultural chemical incident response authority. In the instance of a release or substantial threat of a release of a pollutant, contaminant or hazardous substance, MDA is authorized to take emergency action or order actions to protect the public health, welfare or the environment. MDA is also authorized to order corrective actions where necessary.

3. Management Measure Effectiveness

The tools Minnesota lists for this measure are capable of meeting the goals of this management measure.

F. Agency Coordination and Linkages {1.d. Pesticides}

The University of Minnesota, through the MES, Ag Experiment Stations and various departments, provides education and research functions relevant to pesticides.

1.e. Grazing [Agriculture]

A. Federal Description of Management Measure [Nationwide] {1.e. Grazing}

Protect pasture and other grazing lands:

- (1) By implementing one or more of the following to protect sensitive areas (such as stream banks, wetlands, estuaries, ponds, lake shores and riparian zones):
 - (a) Exclude livestock,
 - (b) Provide stream crossings or hardened watering access for drinking,
 - (c) Provide alternative drinking water locations,
 - (d) Locate salt and additional shade, if needed, away from sensitive areas, or
 - (e) Use improved grazing management (e.g., herding) to improve the physical disturbance and reduce direct loading of animal waste and sediment caused by livestock; and
- (2) By achieving either of the following on all pasture and other grazing lands not addressed under (1):
 - (a) Implement the range and pasture components of a Conservation Management System (C.M.S.) as defined in the Field Office Technical Guide of the USDA's NRCS by applying the progressive planning approach of the NRCS to reduce erosion, or

- (b) Maintain range, pasture and other grazing lands in accordance with activity plans established by either the Bureau of Land Management of the U.S. Department of the Interior, or the USDA Forest Service.

B. Applicability [Nationwide] {1.e. Grazing}

This management measure, nationwide, is intended to be applied to activities on irrigated and nonirrigated pasture, and other grazing lands used by domestic livestock.

There are no irrigated pasture lands in the Lake Superior Basin. Such systems would not be cost-effective to install in an area with 32 inches of average annual rainfall.

Applicable State Programs and Practices

C. Nonregulatory Approaches {1.e. Grazing}

1. Economic Incentives and Disincentives

State and federal cost-sharing is available to stabilize eroding areas and install fencing and water systems. Reinvest in Minnesota easement payments are available to protect riparian areas. The USDA's Conservation Reserve Program (CRP) offers rental payments and cost-share assistance to protect eligible riparian areas.

MDA's Sustainable Agriculture Program funds grazing projects on a competitive basis through its Demonstration Grant Program, and provides low interest loan funds for fencing and watering systems through its Shared Savings Loan Program.

USDA also offers cost-share programs to provide funding for fencing or alternative water sources to keep livestock out of sensitive areas.

The USDA's EQIP program pays for managing pastures according to a Prescribed Grazing Plan.

2. Public Information/Education, and Technical/Related Assistance

The NRCS, working through the local SWCDs, offers public outreach through planning meetings, newsletters, site visits, etc.

The MDA Sustainable Agriculture Program, along with other sustainable farming organizations, offers information and sponsors field days and workshops on rotational grazing and grazing management throughout the state. There may be opportunities to focus some future efforts in the Lake Superior Watershed.

The NRCS, SWCDs and MES are available to assist landowners in management plans for grazing. The DNR has educational brochures about agricultural practices in shoreland areas.

Technical assistance is available from NRCS and the SWCDs (including a feedlot engineer). The MES has a new bulletin on rotational grazing for land users.

D. Enforceable Policies and Mechanisms {1.e. Grazing}

1. State Permits and Licenses

St. Louis County's **Ordinance 46, Section 15** regulates cattle access to streams. The ordinance states that "animals shall not be picketed, fenced or otherwise contained in shore and bluff impact zones or on steep slopes. Access to the shore shall be allowed for watering purposes only, on a site to be approved by the NRCS."

2. Local Zoning

Under the **Shoreland Management Act**, grazing is generally allowed pursuant to **Minn. Rules 6120.3300, Subp. 7**. There are agricultural use zones in the county zoning ordinances. Generally, grazing does not need a permit if conducted in an agricultural use zone, but cattle grazing must be discontinued if permanent vegetative cover is not maintained within the shore impact zone (50 feet from the ordinary high water level mark) and on steep slopes, or within the bluff impact zone of a designated shoreland district.

<http://www.revisor.leg.state.mn.us/arule/6120/3300.html>

3. Direct State Statutory Requirements

Upon complaint, MPCA may cite a landowner if feeding operations produce a non-vegetative cover condition. This could happen in conjunction with intense grazing or overgrazing.

DNR conservation officers have the authority to enforce all water quality violations that occur in state waters. This could happen with overgrazing or concentrated feeding activities near surface waters.

M.S. 103F and **Minn. Rules 6120** apply to land uses, including agricultural activities, in the shoreland area.

<http://www.revisor.leg.state.mn.us/stats/103F/>
<http://www.revisor.leg.state.mn.us/arule/6120>

Minnesota has a “nuisance condition prohibition,” **Minn. Rules 7050.0210, Subp. 2**, as well as an “antidegradation policy,” **Minn. Rules 7050.0185**, in its water quality standards. Both apply here, also.

<http://www.revisor.leg.state.mn.us/arule/7050/0210.html>
<http://www.revisor.leg.state.mn.us/arule/7050/0185.html>

E. Monitoring and Tracking {1.e. Grazing}

1. Existing and Planned Monitoring Efforts

The feedlot engineer with the South St. Louis and Carlton county SWCDs has done extensive surveys of all feedlots and grazing areas in the watershed.

2. Inspection, Tracking and Assessment Techniques

Complaints can lead to an enforcement measure.

3. Management Measure Effectiveness

The tools Minnesota lists for this measure are capable of meeting the goals of this management measure.

F. Agency Coordination and Linkages {1.e. Grazing}

The SWCDs provide coordination as well as technical support.

1.f. Irrigation [Agriculture]

A. Federal Description of Management Measure [Nationwide] {1.f. Irrigation}

To reduce nonpoint source pollution of surface waters caused by irrigation:

- (1) Operate the irrigation system so that the timing and amount of irrigation water applied match crop water needs. This will require, as a minimum: (a) the accurate measurement of soil water depletion volume and the volume of irrigation water applied, and (b) uniform application of water.
- (2) When chemigation is used, include backflow preventers for wells, minimize the harmful amounts of chemigated waters that discharge from the edge of the field, and control deep percolation. In cases where chemigation is performed with furrow irrigation systems, a tailwater management system may be needed.

B. Applicability [Nationwide] {1.f. Irrigation}

This management measure, nationwide, applies to activities on irrigated lands, including agricultural crop land and pasture land (except isolated fields of less than 10 acres in size that are not contiguous to other irrigated lands); orchard land; specialty crop land and nursery crop land.

Applicable State Programs and Practices

The Lake Superior Watershed is generally water rich. A significant portion of the land surface is made up of an interconnected system of lakes, rivers and wetlands. Mean annual precipitation ranges between 26 and 30 inches throughout the watershed. Mean annual runoff ranges between eight and 15 inches (with higher values closer to Lake Superior). Mean annual evapo-transpiration ranges up to 30 inches. Precipitation and evapo-transpiration are roughly equal. Due to the hydrologic and climatic conditions in this geographic area, and the extremely limited crop land, irrigation needs are very low.

It is our request that Minnesota's Lake Superior Coastal Nonpoint Pollution Program be exempted from the agricultural irrigation management measure, because the potential for significant irrigation of crop land or pasture land in Minnesota's Lake Superior Basin is very remote.

DNR regulates the appropriation of waters (both surface and ground water). MDA regulates the application of pesticides or nutrients through irrigation systems (chemigation).

Note: Minnesota's definition of agricultural irrigation includes the watering of golf courses, which does occur in the Lake Superior Basin. Because golf course irrigation is not mentioned in the federal definition of this management measure, it will be discussed as part of Minnesota's Lake Superior Basin Plan, rather than in this document.

C. Nonregulatory Approaches {1.f. Irrigation}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

Information on the permitting and regulatory aspects of the appropriation of water and chemigation are available through the DNR and MDA, respectively. Information on water management and use in irrigation is available through MES.

Assistance is available through the MES and NRCS. The DNR and MDA assist with permitting issues. The MDA offers to perform on-site reviews and advise persons who either have an existing chemigation system, or are planning to develop one.

D. Enforceable Policies and Mechanisms {1.f. Irrigation}

1. State Permits and Licenses

A permit is needed from the DNR for appropriation of water that exceeds 10,000 gallons per day and/or one million gallons per year, as specified in **Minn. Rules 6115.0620**. The DNR has authority to control appropriations and take actions in the case of water use conflicts or when the resource may be negatively impacted. A permit from the MDA is required whenever a nutrient or pesticide is applied

through an irrigation system. MDA permit requirements include provision for effective anti-siphon or backflow prevention.

<http://www.revisor.leg.state.mn.us/arule/6115/0620.html>

2. Local Zoning

Minnesota does not rely on local zoning for implementation of this management measure.

3. Direct State Statutory Requirements

M.S. 103G provides authorities for the regulation of waters of the state, including provisions controlling the appropriation and use of water. **M.S. 18B** provides authorities for the regulation of chemigation systems.

<http://www.revisor.leg.state.mn.us/stats/103G/>

<http://www.revisor.leg.state.mn.us/stats/18B/>

E. Monitoring and Tracking {1.f. Irrigation}

1. Existing and Planned Monitoring Efforts

There are no agricultural irrigation sites in the basin at this time.

Research is being completed in the Anoka and Osage sand plain areas of Minnesota.

2. Inspection, Tracking and Assessment Techniques

Well interference complaints from affected landowners can lead to enforcement actions. The MDA chemigation specialist performs, logs and tracks regulatory inspections of chemigation sites.

3. Management Measure Effectiveness

The tools Minnesota lists for this measure are capable of meeting the goals of this management measure.

F. Agency Coordination and Linkages {1.f. Irrigation}

The MDA and DNR have primary statutory responsibility for irrigation.

See Appendix A (Acronyms) and Appendix B (References Cited).

IV 2

FORESTRY

CHAPTER IV: MANAGEMENT MEASURES

SECTION 2. FORESTRY

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Introduction

Northeastern Minnesota remains the most heavily forested region of the state. The presettlement forest can be characterized as having had two distinct zones depending on distance from Lake Superior. Within 10 miles of the lake, the forest was composed of a mixture of white pine, sugar maple, yellow birch, basswood, white cedar, balsam fir and black ash. Beyond 10 miles from the lake, the presettlement forest was a northern mixed hardwood/conifer forest. Dominant tree species on moist upland sites were white pine, balsam fir, white spruce, tamarack aspen and paper birch. Dry, fire-prone sites, though not extensive, were dominated by mixtures of red, white and jack pine. Wet sites were dominated by black spruce, tamarack and black ash. Northeastern Minnesota forests were extensively logged during the late 1800s and early 1900s. This undoubtedly had significant effects on water resources, as the larger streams were often “cleaned” and dammed for log drives. In the southern part of the basin, this was followed by massive forest fires.

See Figure 7. Minnesota’s Lake Superior Basin: Presettlement Vegetation. (DNR).

The basin is still mostly forested, but the forest has changed. Today's forest is predominately "second growth." The logging and exclusion of fire as a natural disturbance has shifted many of the forests from dominance by conifers toward dominance by deciduous species. In addition, the forests now tend to be dominated by early successional types, such as aspen and birch, and much less by conifers, such as the spruce-fir and pine assemblages of the presettlement forest.

See Figure 8. Minnesota's Lake Superior Basin: LandSat-Based Land Use-Land Cover. (DNR).

While the state is only 37 percent forested, the Lake Superior watershed is approximately 95 percent forested (*Minnesota's Lake Superior Coastal Program, Final EIS*, 1999). Cook, Lake, St. Louis and Carlton counties contain 6.7 million acres of land, of which 5.6 million acres, or 84 percent, are forested. Approximately 79 percent of the forest land in these counties is classified as timberland. Timberland is forest land that is capable of: (a) producing a minimum of 20 cubic feet per acre per year of industrial wood crops, and that (b) is not withdrawn from timber harvesting. Nearly two-thirds (2.9 million acres) of this timberland is publicly owned. Of the 1.6 million acres that are privately owned, about 260 thousand acres are held by the forest industry, with the remainder held in tribal ownership or owned by farmers and others.

Clean water is an important natural resource in Minnesota, and much of this water originates in forested areas. Many of the activities related to forest management have the potential to contribute some level of nonpoint source (NPS) pollution to surface water or groundwater. The forestry activities that have the greatest potential for creating NPS pollution, if conducted improperly, are road development and maintenance (especially for ditches and water crossings), timber harvesting, mechanical site preparation, pesticide application and prescribed burning. Road development and maintenance pose the greatest potential threat of NPS pollution because of the potential for surface (and sometimes subsurface) flow disruption, and the relative permanence of roads on the landscape.

Minnesota takes pride in the effectiveness of its voluntary approach to encouraging good forest management practices. There was much focus on forestry during the 1990s, including the following:

- *Visual Quality Best Management Practices for Forest Management in Minnesota*, 1994.

- *Generic Environmental Impact Statement Study on Timber Harvesting and Forest Management in Minnesota (GEIS)*, 1994.
- *Protecting Water Quality and Wetlands in Forest Management: Best Management Practices in Minnesota*, 1995.
- Minnesota Sustainable Forest Resources Act (**M.S. 89A**), 1995.
- *Sustaining Minnesota Forest Resources: Voluntary Site-level Forest Management Guidelines for Landowners, Loggers and Resource Managers*, 1999.
- *Conserving Wooded Areas in Developing Communities: Best Management Practices in Minnesota*, 1999.

Minnesota's Water Quality and Wetland Best Management Practices (BMPs) became the basis for water quality protection in Minnesota, and served as a model for other states, including Wisconsin. Minnesota has had voluntary water quality BMPs to address NPS pollution since 1990. These were revised in 1994, based on the results of implementation monitoring done in 1991, 1992 and 1993. Wetland BMPs were incorporated at that time, to better address the intent of the federal Clean Water and Coastal Zone Management acts, and to address the requirements of the state's **Wetland Conservation Act of 1991 (WCA) (Minn. Rules 8420)**. Visual Quality BMPs were also developed in 1994, as a result of collaboration initiated by the state's resort and forest product industries. Implementation monitoring of the revised water quality and new wetland and visual quality BMPs was conducted in 1995 and 1997.

Minnesota's *Generic Environmental Impact Statement Study on Timber Harvesting and Forest Management in Minnesota (GEIS)*, published in 1994, assessed the potential impacts of increased timber harvests. The GEIS assessed how three levels of statewide timber harvesting activity relate to Minnesota's environmental, economic and social resources. The three annual harvesting scenarios were: four million cords (the actual statewide timber harvest in 1990), 4.9 million cords (the level of statewide timber harvesting activity estimated to occur by 1995 if all announced or considered forest products industry expansions fully materialized), and seven million cords (the estimated maximum sustainable annual volume of timber available for harvest statewide for all tree species in the year 2000). Each scenario was projected over a 50-year planning horizon.

Based on this extensive effort and the recommendations of the GEIS Implementation Strategy Roundtable, the legislature passed the **Sustainable Forest Resources Act of 1995 (M.S. 89A)** to direct forest land use. **M.S. 89A** created the Minnesota Forest Resources Council (MFRC), which serves as a forum for discussing forest resource issues and providing forest management recommendations to the governor and to

federal, state, county and local governments. The 17 council members are appointed by the governor and represent a broad array of interests pertaining to timber harvesting and forest management throughout the state. They include representatives of resource management agencies, academic institutions, industry, land owners, environmental organizations and labor organizations with an interest in forestry.

Site-level Management

The focus of Minnesota's forestry BMPs is on site-level water quality and wetland protection for all forest ownerships across the state. Under the direction of the MFRC, these site-level practices have been expanded and integrated with timber harvest and forest management guidelines intended to enhance protection of and minimize impacts to riparian areas, wildlife, soil productivity, and cultural and historic resources. These BMPs and forest management guidelines are incorporated in *Sustaining Minnesota Forest Resources: Voluntary Site-level Forest Management Guidelines*, 1999. This document is available on MFRC's Web site.

<http://www.frc.state.mn.us/FMgdline/Guidelines.html>

The entire program remains voluntary for the landowner/manager to the extent practical within the constraints of existing federal, state and local laws and regulations. This provides important flexibility in meeting variations across landscapes, in on-site conditions, available equipment, technology and management goals.

Minnesota's Voluntary Site-level Forest Management Guidelines provide recommendations for protecting water quality, as follows:

1. General Guidelines, including:
 - Identifying Goals and Objectives; Conducting a Site Inventory; Incorporating Sustainability into Forest Management Plans
 - Maintaining Filter Strips; Managing Riparian Areas
 - Managing Equipment, Fuel and Lubricants.
2. Activity Specific Guidelines, including:
 - Forest Road Construction and Maintenance
 - Timber Harvesting
 - Mechanical Site Preparation
 - Pesticide Use

- Reforestation
- Timber Stand Improvement
- Fire Management.

Auditing and Monitoring Forestry Practices

(1) Former System for Forestry BMP Field Auditing

Implementation of the forest management guidelines has been assessed by field audits of a sample of recent forest management activities on all forested ownerships in Minnesota. Information gained from the field audits is used for the following purposes:

- Evaluate the degree of implementation of the guidelines
- Identify needed modifications to guidelines
- Focus technical assistance and education efforts on problem areas identified in the field audits.

From 1991 through 1997, field audits consisted of BMP monitoring that utilized multi-stakeholder teams of six to eight people. Team members had a broad range of expertise and represented as many interest groups as possible. These teams worked by consensus to evaluate which BMPs were appropriate for each site, whether they were applied properly and if they were functioning as intended. People of widely diverse backgrounds and opinions regarding environmental issues found common ground and built trust where they had assumed they would find conflict. These multi-stakeholder teams lent substantial credibility to the assessment of individual sites.

Minnesota's forestry BMP compliance rates were quite high, averaging 87 percent across all forest land ownerships. (See Table 12). For additional details, see the forestry section of *Minnesota's 2001-2005 Nonpoint Source Management Program Plan* (NPS/319 Plan). It is available on the Internet.

<http://www.pca.state.mn.us/water/nonpoint/mplan.html>

Table 12. Minnesota’s Water Quality BMP Monitoring Results
 [Source: Table 12.3 in NPS/319 Plan].

Year	Number of Sites Monitored	Number of Practices Rated	Application <i>(Meets or Exceeds BMP [%])</i>	Effectiveness <i>(Adequate Protection [%])</i>
1991, 1992, 1993	261	5,707	84	92
1995	110	2,731	91	95
1997	120	2,062	92	96
Total	491	10,500	87	93

Minnesota aims to sample 120 sites each year. Evaluating compliance with forest BMPs on all forest land ownerships, and using the monitoring results to focus training and technical assistance efforts on problem areas, has served as the cornerstone for improving forest management practices. While the results had some scientific weaknesses, they demonstrated progressive improvement in the application of BMPs on the majority of forest land ownerships. This, along with the high level of logger, forester, public agency and forest industry participation in the training programs, demonstrates a commitment on the part of the entire forestry community to support these voluntary practices.

From 1991 through 1997, because of funding constraints, county, federal, forest industry and tribal forestry organizations were asked to identify sites for monitoring. They were asked to submit documentation identifying all sites under their ownerships that met these criteria:

- The timber harvest, mechanical and chemical site preparation, and prescribed burn activities covered ten acres or more.
- Activities were located within 200 feet of open water.
- Activities had been completed within the previous two years.

There is less information available for Nonindustrial Private Forest (NIPF) lands, because less than 20 percent of such activity was accomplished with the assistance of a professional forester. No records were available the other 80 percent of the activity.

Three weaknesses were identified in the BMPs auditing process, as conducted during the 1990s:

- The self-selection process for public agencies and industry

- The lack of information on NIPF lands
- The level of resources needed to recruit and train 80 people to staff three multi-stakeholder audit teams to evaluate 120 sites over several months each fall.

(2) New System of Forest Guideline Implementation Monitoring

Besides the weaknesses described above, the increased complexity of the expanded forest management guidelines made the use of the traditional approach to auditing unworkable. For these reasons, changes were made in the process during 2000. The new monitoring process includes the following features:

- Biomatiicians [biomathematicians] designed a statistically valid system of randomly selecting townships in the forested regions of the state; aerial photography was used across those areas, to identify an unbiased pool of sample sites.
- A private contractor assesses the sites.
- A quality-control process ensures that the contractor accurately evaluates the sites.
- A computer program, now being developed, will allow data entry on-site, in the field.

The inaugural forest guideline implementation monitoring was conducted on 108 sites in 2000. The results were published in *Monitoring the Implementation of the Timber Harvesting and Forest Management Guidelines on Public and Private Forest Land in Minnesota: Report 2000*, Minnesota Department of Natural Resources, 2000. It is available on the Internet.

http://www.frc.state.mn.us/Info/March/frc_mp0201.pdf

All sites monitored in 2000 were harvested and/or stumpage sold under contract prior to publication of MFRC's timber harvesting and forest management guidebook, *Sustaining Minnesota Forest Resources: Voluntary Site-level Forest Management Guidelines*. Therefore, with the exception of water quality, wetland protection and visual quality practices where guidelines have existed for several years, the report describes **baseline** harvesting and management practices (i.e., those that existed prior to publication of Minnesota's comprehensive timber harvesting and forest management guidelines). Subsequent annual field monitoring will describe how harvesting and management practices change over time, and assess the extent to which the management practices recommended in the new guidebook are being applied across the state.

Some of the important findings from the first year's monitoring are as follows:

- Filter strip compliance with the guideline recommendation (less than five percent mineral soil exposure, dispersed over the filter strip) was 70 percent.
- For lakes, perennial streams and open water wetlands, 50 percent of riparian management zones (RMZ) met the guideline recommendations for width and residual basal area. A higher proportion of RMZs that met the guideline recommendations were adjacent to the harvest area, compared to those for waterbodies that were within the harvest area (open water wetlands, lakes) or traversed it (streams).
- A high percentage of skid trail and road approaches to wetlands and streams did not have the appropriate water diversion devices installed to divert surface run off from directly entering these waterbodies.
- The guidelines recommend that site infrastructure (i.e., roads, landings) should occupy no more than three percent of the harvest area. The statewide average was at the guideline recommended level of three percent.
- Landings were located outside of filter strips and RMZs 95 percent and 99 percent of the time, respectively.
- Rutting was found on 33 percent of the sites monitored and was most prominent on skid trails, wetland inclusions and roads. The use of slash and shifting operations until conditions improved accounted for 70 percent of the techniques used to minimize rutting.

Under the new monitoring system, several monitored practices had lower compliance rates than were reported under the former field auditing system. Filter strip compliance, for example, was 70 percent under the new monitoring system, whereas it had exceeded 90 percent under the former auditing system. The new report cites these possible explanations:

- The new monitoring system included filter strips for nonopen water wetlands, whereas the former auditing system did not.
- The new monitoring system rates each practice on a site separately, whereas the former auditing system recorded data for each applicable BMP on the basis of the entire site.

The monitoring conducted in 2000 established baseline conditions by which Minnesota's new forest guidelines can be assessed by means of subsequent monitoring in future years.

Landscape-level Management

In addition to the work being done at the site level, landscape-level forest management work is underway, as well, as follows:

- MFRC's initial landscape-level planning discussions are taking place in Northeastern Minnesota, which includes the Lake Superior Basin. For this project, staff from the University of Minnesota are working on an ecological matrix that shows current vegetation and a model that predicts future forest states under various management scenarios. These tools will be useful as the MFRC and others seek consensus on desired future forests types in the region.
- The Nemadji River Basin Project, which is discussed in Section V: Additional Management Measures (B: Land Uses..., has conducted studies and is now doing planning and restoration at a landscape level in a highly erosive, red clay watershed. Landscape-level alterations can cumulatively impact hydrologic conditions and exacerbate stream bank erosion problems. Identification of sensitive subwatersheds, coordinated forest harvesting and reforestation can minimize long-term impacts.

In the future, it might be possible to further reduce nonpoint forestry impacts by developing watershed based (e.g., landscape based) BMPs.

Public Concerns Registration Line

The MFRC has a toll free Public Concerns Registration Line at (888) 234-3702 that lets citizens register concerns about timber harvesting and forest management practices they see in Minnesota. The MFRC then contacts all involved, explaining that someone has registered a concern about forest management being done on the property, and finding out what happened. Concerns may also be submitted via MFRC's Web site.

<http://www.frc.state.mn.us/monitor/PCRP.htm>

In response to concerns, MFRC may distribute educational materials, and eventually distributes a report to the landowner, logger, forester and individual who raised the concern. This report indicates whether any forest management rules were not followed appropriately, and points out forest management guidelines that could have been used. It also recommends actions for mitigating problems on the site, or describes mitigation actions already being taken. This is an educational process. MFRC cannot impose punitive measures, and will not take legal action or resolve disputes between parties over contractual or legal issues regarding forest management activities.

Table 13a. State Enforceable Authorities for Forestry.

Management Measure	Applicable Minn. Statutes	Applicable Minn. Rules
a. Preharvest Planning	88; 89; 89A; 103F; 103G	6115
b. Streamside Management Areas	92.45; 103F; 394	6115
c. Road Construction and Reconstruction	89.002; 103F; 103G; 162.021, Subp. 1	6115
d. Road Management	89.002; 103F; 103G	6115
e. Timber Harvesting	103G; 116B	6115; 7050.0185; 7050.0210
f. Site Preparation and Forest Regeneration	89; 103G; 116B	6115; 7050.0185; 7050.0210
g. Fire Management	88.16; 88.17	
h. Revegetation of Disturbed Areas	103G; 116B	6115; 7050.0185; 7050.0210
i. Forest Chemical Management	18B; 18C; 18D; 103F.201 - .221	
j. Wetlands Forest Management	103G; 103H; 394	8420

Table 13b. Names of State Statutes and Rules Cited for Forestry.

Table 13b, Part 1: Statutes
18B: Pesticide Control 88: Division of Lands and Forestry 88.041: Wildfire Prevention and Suppression Agreements 88.16: Starting and Reporting Fires 88.17: Permission to Start Fires 89: State Forests; Tree Planting; Forest Roads [Minnesota Forest Management Act] 89.002, Subd. 3: Forest Road Policies 89A: Minnesota Sustainable Forest Resources Act 92: State Lands; Sales 92.45: State Land on Meandered Lakes Withdrawn From Sale 103F: Protection of Water Resources 103F.201 - .221: Shoreland Management Act 103G: Waters of the State [Protected Water Program] 103H: Groundwater Protection 116B: Minnesota Environmental Rights Act 162: State-aid System (Transportation)

Table 13b, Part 1: Statutes
162.021: Natural Preservation Routes 394: Planning, Development, Zoning [County Zoning]

Table 13b, Part 2: Rules
6115: Public Waters 7050: Water Quality Standards 7050.0185: Nondegradation for All Waters [“Antidegradation Policy”] 7050.0210: General Standards for Dischargers [“Nuisance Condition Prohibition”] 8420: Wetlands Conservation Act

Note: Minnesota’s statutes and rules are available via the Internet two different ways. The information is the same either way.

1. *Statutes and rules may be viewed by section on the Internet on Minnesota’s Revisor of Statutes Web site at:*
 - *For administrative rules - <http://www.revisor.leg.state.mn.us/arule/> [plus add number of specific rule]*
 - *For statutes - <http://www.revisor.leg.state.mn.us/stats/>*
2. *Statutes and rules may be viewed or easily downloaded in their entirety from Minnesota’s Legislative Web site at:*
<http://www.leg.state.mn.us/leg/statutes.htm>.

Specific Evaluation of Forestry Management Measures

2.a. Preharvest Planning [Forestry]

A. Federal Description of Management Measure [Nationwide] {2.a. Preharvest Planning}

Note: Text in italics, below, indicates that the state edited the wording in the original federal description of this management measure to make it more applicable to conditions and practices in Minnesota.

Perform advance planning for forest harvesting that includes the following elements where appropriate:

- (1) Identify the areas to be harvested including location of waterbodies and sensitive areas such as wetlands, threatened or endangered aquatic species habitat areas, or high erosion hazard areas (landslide prone areas) within the harvest unit.
- (2) Time the activity for the season or moisture conditions when the least impact occurs.
- (3) Consider potential water quality impacts and erosion and sedimentation control in the selection of silvicultural and regeneration systems, especially for harvesting and site preparation.
- (4) Reduce the risk of occurrence of landslides and severe erosion by identifying high erosion hazard areas and *avoiding equipment operation and soil disturbance* in such areas to the extent practicable.
- (5) Consider additional contributions from harvesting or roads to any known existing water quality impairments or problems in watersheds of concern.

Perform advance planning for forest road systems that includes the following elements where appropriate:

- (1) Locate and design road systems to minimize, to the extent practicable, potential sediment generation and delivery to surface waters *or wetlands*. Key components are:
 - Locate roads, landings and skid trails to avoid, to the extent practicable, steep grades and steep hillslope areas, and to decrease the number of stream crossings;
 - Avoid, to the extent practicable, locating new roads *in Streamside Management Areas (SMAs)*. *Locate all landings outside of SMAs*; and
 - *Design roads for the anticipated type and volume of traffic.*
- (2) Locate and design temporary and permanent stream crossings to prevent failure and control impacts from the road system. Key components are:
 - *Appropriately site crossing structures and design permanent structures to withstand a minimum of a 100-year flood and temporary structures to withstand a 50-year flood, or to be anchored at one end so as to swing out of the way and not obstruct the channel;*
 - *Design crossings to facilitate fish passage.*
- (3) Ensure that the design of road prism and the road surface drainage are appropriate to the terrain and that road surface design is consistent with the road drainage structures.
- (4) Use suitable materials to surface roads planned for all weather use to support truck traffic.

- (5) Design road systems to avoid high erosion or landslide areas. Identify these areas and consult a qualified specialist for design of any roads that must be constructed through these areas.

Each state should develop a process (or utilize an existing process) that ensures that these management measures are implemented. Such a process should include appropriate notification, compliance audits or other mechanisms for forestry activities with the potential for significant adverse nonpoint source effects based on the type and size of operation and the presence of stream crossings or streamside management areas.

B. Applicability [Nationwide] {2.a. Preharvest Planning}

The planning process components of this management measure, nationwide, are intended to apply to commercial harvesting on areas greater than five acres, and any associated road system construction or reconstruction conducted as part of normal silvicultural activities. The component for ensuring implementation of this management measure applies to harvesting and road construction activities that are determined by the state agency to be of a sufficient size to potentially impact the receiving water or that involve SMAs or stream crossings. On federal lands, where notification of forestry activities is provided to the federal land management agency, the provisions of the final paragraph of this measure, in the section immediately above, may be implemented through a formal agreement between the state agency and the federal land management agency. This measure does not apply to harvesting conducted for precommercial thinning or noncommercial firewood cutting.

Applicable State Programs and Practices

Minnesota's Voluntary Site-level Forest Management Guidelines (forest management guidelines) were developed to apply to all forest landowners in Minnesota. The guidelines recommend that timber harvesting and other forest management activities should be well planned to minimize sediment, nutrient and debris movement into surface water or groundwater, and to minimize thermal impacts to surface water.

The level of preharvest planning varies by landowner group. On state lands, the Minnesota Department of Natural Resources Division of Forestry (DNR Forestry), for example, is now using five-year Area Timber Management Plans (TMPs). The Two Harbors Area completed its current TMP in 1999. Some parts of the state have now

implemented Subsection Forest Resource Management Plans (SFRMPs), which are based on the subsection level of the ecological classification system, rather than on DNR's administrative boundaries. SFRMPs are seven-year plans that go through extensive interdisciplinary collaboration and public review. DNR Region 2, which includes the Lake Superior Basin, will start the planning process for the North Shore Highlands Subsection in the spring of 2001. More information is available on DNR's Web site.

www.dnr.state.mn.us/forestry/subsection/index.html

On federal, state and county lands, the use of forestry BMPs is mandatory. Figure 9 and Table 14 provide a broad look at land stewardship in Minnesota's Lake Superior Basin. They are based on the U.S. Geological Survey's Gap Analysis Program (GAP), which categorizes only **major** land stewards. These entities or individuals own or manage more than 50 percent of a 40 acre unit, and own or manage more than 120 acres within the state. This provides broad geographic information about biodiversity by focusing on the status of ordinary species (those not threatened with extinction or naturally rare) and their habitats in order to provide land managers, planners, scientists and policy makers with the information needed to make better informed decisions. Gap analysis is a scientific method for identifying the degree to which native animal species and natural communities are represented in our present day mix of conservation lands. Those species and communities not adequately represented in the existing network of conservation lands constitute conservation "gaps." For additional information, see the following Web sites:

<http://www.gap.uidaho.edu/>

<http://www.gap.uidaho.edu/About/Overview/GapDescription/default.htm>

<http://deli.dnr.state.mn.us/metadata/full/gapstpy2.html>

See Figure 9. Minnesota's Lake Superior Basin: GAP Stewardship by Agency (DNR).

Table 14. GAP Stewardship by Agency: Land Ownership/Administration when One Organization Owns or Manages more than 50 Percent of a 40-acre Unit. (From DNR GIS data).

Co. Name	Major Land Stewardship (>50% of 40 acres)					Totals			
	County	Federal	Private (Industry & Other)	State	Tribal	Subtotal (Major Stewards)	Subtotal (Other: Not Classified)	Total Area	Basin %
Aitkin	2,292	1,114	0	41,629	0	45,035	647	45,682	1
Carlton	28,380	6,609	10,511	43,762	9,289	98,551	170,561	269,112	7
Cook	3,644	596,002	5,727	135,652	32,638	773,663	48,793	822,456	21
Itasca	22,632	12,996	3,478	5,792	39	44,937	6,629	51,566	1
Lake	134,658	239,792	43,116	118,342	0	535,908	63,736	599,644	15
Pine	457	279	0	25,366	0	26,102	6,158	32,260	1
St. Louis	684,991	675,189	58,693	211,010	7,860	1,637,743	477,260	2,115,003	54
Total	877,054	1,531,981	121,525	581,553	49,826	3,161,939	773,784	3,935,723	
Basin %	22	39	3	15	1	80	20	100	100

According to the GAP Stewardship data, roughly three-quarters of the major stewards the Lake Superior basin are required to use forestry BMPs. It is important to remember, however, that land stewardship under the GAP classification system is done with a broad brush. If 51 percent of a 40-acre parcel is federal land, the entire 40 acres is classified as federal.

Based on the GAP classification system, the federal government owns or manages approximately 1,531,981 acres, or 39 percent, of the Lake Superior Basin. Grand Portage National Monument (710 acres) is part of the National Park Service. The U.S. Department of Agriculture (USDA) Forest Service administers the remaining federal lands in the watershed, including the Superior National Forest, which includes the Boundary Waters Canoe Area Wilderness. On these lands, Minnesota's forest management BMPs serve as the minimum standard for operation. In addition, harvest is done under the general guidance of a forest wide land management plan, with specific guidance from plans done for individual projects or groups of projects. Both the forest wide plans and individual project plans are based on environmental analyses which are produced with a rigorous look at alternative courses of action, interdisciplinary collaboration and public involvement at key stages in the analysis process.

Based on the GAP classification system, the state owns or manages approximately 581,553 acres, or 15 percent, of the Lake Superior Basin. Timber sale contracts on these lands specify that Minnesota's forestry BMPs (guidelines) are to be followed.

Based on the GAP classification system, the counties own or manage approximately 877,054 acres, or 22 percent, of the Lake Superior Basin. On these county lands, Minnesota's forest management guidelines are either incorporated by reference into the timber sale contract, or else the timber sale contract identifies the specific practices that are needed to protect water quality.

In addition to the government lands, described above, for timber harvest on private industrial forest lands, or for cuts conducted under permit, loggers must comply with the conditions and requirements of the cutting plan. The standard operating procedure is to follow Minnesota's forest management guidelines. They are incorporated, where appropriate, in the cutting plan.

C. Nonregulatory Approaches {2.a. Preharvest Planning}

1. Economic Incentives and Disincentives

Private landowners wishing to install conservation practices or retire their land may receive assistance through a variety of state and federal programs. Federal programs administered by the Natural Resources Conservation Service (NRCS) include the Environmental Quality Incentives Program (EQIP) with cost-share for erosion control, the Wildlife Habitat Improvement Program (WHIP) with cost-share for wildlife habitat, including riparian tree planting, and the Conservation Reserve Program (CRP) with cost-share for riparian forest buffers, including tree planting.

Minnesota's Forest Stewardship Program provides professional forestry advice and plans on the management of nonindustrial private forest lands. More than one million acres of privately owned woods in Minnesota have been enrolled into the Forest Stewardship Program. The Stewardship Incentives Program provides cost-share for road design and other activities.

The State Cost-share Program, administered by the Soil and Water Conservation Districts (SWCDs), provides funding to landowners to offset the cost of installing erosion and sediment control practices.

Under an agreement documented in a memorandum of understanding (MOU) between MPCA and DNR, loggers are not required to apply for coverage under the National Pollutant Discharge Elimination System (NPDES) General Stormwater

Permit for Industrial Activity. This saves them the \$85 application fee and the \$210 annual permit fee.

2. Public Information/Education, and Technical/Related Assistance

DNR Forestry, the SWCDs, Minnesota Extension Service (MES) and Minnesota Forestry Association (MFA) provide information and educational opportunities for landowners.

Annual logger workshops are organized by the Minnesota Logger Education Program (MLEP) and the University of Minnesota Center for Continuing Education, and are supported by DNR Forestry, MES, SWCDs, Minnesota Forest Industry, Timber Producers Association and Associated Contract Loggers. A continuing logger education committee has sponsored logger workshops since 1990. Topics for these workshops include changes to BMPs, erosion control and water quality protection. The Minnesota Logger Education Program is described on the Internet.

<http://www.mlep.org/index.htm>

Resource manager workshops, sponsored by DNR Forestry, are held periodically to provide an overview of field audit results, changes to BMPs and related issues.

County based Private Woodlands Committees, made up of representatives of the NRCS, SWCDs, DNR Forestry and private woodland owners, sponsor day long logger workshops that promote the use of BMPs in logging, among other topics.

DNR Forestry's private forest management program, the forest industries' forest assistance programs, SWCDs and NRCS district conservationists offer technical assistance for individual site planning. Information and assistance with preharvest planning can be obtained from the SWCDs, DNR Forestry private forest management specialists, Minnesota Association of Consulting Foresters, and forest industries' private forest assistance programs.

Minnesota's Forest Stewardship Program provides technical assistance on nonindustrial private forest lands. A Forest Stewardship Project has led to extensive tree planting and bioengineering in the 54,000-acre Knife River Watershed. Over the last 10 years, this project has led to the development of 95 Forest Stewardship Plans covering 7,200 acres in the Knife River Watershed, the

planting of many thousands of trees along streambanks, and the use of bioengineering techniques to stabilize streambanks with live willow shoots.

Sustaining Minnesota Forest Resources: Voluntary Site-level Forest Management Guidelines for Landowners, Loggers and Resource Managers can be obtained from DNR Forestry, local SWCDs, MES, MFRC and MFRC's Web site.

The Minnesota Tree Farm Program is a national program that is sponsored by Minnesota Forest Industries (MFI) in the state. Landowners who become members of the Tree Farm System work with a professional forester to develop a forest management plan for their woodland. A forester then inspects the woodland every five years and updates the forest management plan, accordingly. In return, the forest landowner agrees to follow the plan and protect the woodland from fire, disease and grazing. This service is offered at no cost.

Several forest product companies, including Boise Cascade, Blandin and Potlatch, offer private forest management (PFM) programs that help forest landowners develop forest management plans specific to their property. There is no fee and landowners retain their right to make implementation decisions. Landowners may be asked to grant the company the right to purchase timber for a specified time.

Four counties in the basin are involved in the Sustainable Forestry InitiativeSM program, which was adopted by the American Forest & Paper Association (AF&PA) in 1994. This is a comprehensive system of principles, objectives and performance measures that integrates the perpetual growing and harvesting of trees with the protection of wildlife, plants, soil and water quality. The SFI Standard Objectives translate these principles into action by providing forest managers with a specific roadmap to expand the practice of sustainable forestry and to visibly improve performance. The objectives form the substance of the program and promote:

- Broadening the practice of sustainable forestry
- Ensuring prompt reforestation
- Protecting water quality
- Enhancing wildlife habitat
- Minimizing the visual impact of harvesting
- Protecting special sites
- Contributing to biodiversity
- Continuing improvements in wood utilization
- Continuing the prudent use of forest chemicals to help ensure forest health
- Fostering the practice of sustainable forestry on all forest lands

- Publicly reporting on progress
- Providing opportunities for public outreach.

The SFI program was opened to landowners outside of AF&PA membership in 1998. St. Louis County, with 900,000 acres, was the first public land agency in the country to enroll in the program. Since then, Carlton, Itasca and Lake counties have also licensed county administered lands under the SFI program.

D. Enforceable Policies and Mechanisms {2.a. Preharvest Planning}

1. State Permits and Licenses

Preharvest Minnesota requires permits for working in the beds of public waters and public water wetlands under **Minn. Rules 6115.0190 - .0231** and **M.S. 103G**. Permits are required for stream crossings. Other than planning for stream crossings, Minnesota does not use state permits or licenses to implement this management measure.

2. Local Zoning

For lands in forestry use, the **Shoreland Management Act (M.S. 103F)** requires timber harvesting and reforestation practices to be consistent with the provisions of the Minnesota Nonpoint Source Pollution Assessment-Forestry and Minnesota's forest management guidelines. The guidelines are, therefore, the operational standard in shoreland areas, unless the counties choose to adopt a stronger standard. Although the state is not required to adhere to stronger county shoreland standards, the DNR does so, by policy.

The North Shore Management Plan (NSMP) is the shoreland standard within the NSMP boundary; outside of this boundary, the state's shoreland management regulations apply. The NSMP requires that any proposed clearcutting adjacent to Lake Superior be reviewed by the local government unit (LGU). Implementation of the NSMP is overseen by the North Shore Management Board (NSMB). Staff support for the NSMB is provided by the Arrowhead Regional Development Commission (ARDC), with financial support from DNR.

The St. Louis River Management Plan, which was adopted by counties and implemented into local zoning or land-use ordinances in 1994, requires a no-cut zone along the St. Louis, Whiteface and Cloquet rivers, as well as mandated forest management plans. Carlton County incorporated the plan by amending **Ordinance**

No. 19. St. Louis County adopted a modified version of the plan into **Ordinance No. 27.** Lake County adopted the plan with an implementing resolution. The Fond du Lac Reservation Business Committee adopted the plan into their land use controls. Enforcement follows through standard county and tribal mechanisms.

3. Direct State Statutory Requirements

The **Forest Management Act of 1982 (M.S. 89)** requires planning, including timber management planning, on state lands. The **Sustainable Forest Resources Act of 1995 (M.S. 89A)** takes planning even further, to ensure that coordination occurs at the landscape level.

For lands in forestry use, the **Shoreland Management Act (M.S. 103F)** requires timber harvesting and reforestation practices to be consistent with the provisions of the Minnesota Nonpoint Source Pollution Assessment-Forestry and Minnesota's forest management guidelines. The guidelines are, therefore, the operational standard in shoreland areas, unless the counties choose to adopt a stronger standard. Although the state is not required to adhere to stronger county shoreland standards, the DNR does so, by policy.

E. Monitoring and Tracking {2.a. Preharvest Planning}

1. Existing and Planned Monitoring Efforts

Minnesota's former field auditing system and new monitoring system for forestry is described in the introduction to this chapter. More than 100 sites are visited each year for monitoring (formerly auditing). Site visits are conducted by DNR and/or MPCA staff if complaints are lodged either to the MFRC system or directly to the agencies.

The St. Louis River System Remedial Action Plan (RAP) recommends more intensive field audits of silvicultural practices in the St. Louis and Nemadji river watersheds. Where compliance is found to be lagging, the RAP recommends that education efforts be enhanced. If subsequent audits find unacceptable compliance, the RAP recommends that county governments consider enacting ordinances requiring the use of BMPs.

Statewide monitoring of nonpoint source pollution is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan*. It is available on the Internet.

<http://www.pca.state.mn.us/water/nonpoint/nsmpp-ch5.pdf>

2. Inspection, Tracking and Assessment Techniques

As described in the introduction to this chapter, DNR's monitoring and tracking system has evolved from the use of field audits conducted by integrated teams that evaluate site-specific compliance with BMPs to the development of a more randomized scientific approach.

MFRC encourages citizens register concerns about timber harvesting and forest management practices by means of a toll free telephone Public Concerns Registration Line or on their Web site. Details are explained in the introduction to this chapter.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {2.a. Preharvest Planning}

DNR Forestry directs the statewide forestry water quality program in cooperation with the MPCA. Since the passage of **M.S. 89A**, the MFRC has served as a forum for regular communication, coordination and consensus-building among a broad range of forestry interests. Minnesota's new forest management guidelines reflect the involvement of more than 60 people and 25 organizations over a period of two and one-half years.

M.S. 89A.09 requires the DNR to establish an Interagency Information Cooperative (IIC) to coordinate the development and use of forest resources data. The IIC is a partnership between DNR, MFRC, the Minnesota Association of County Land Commissioners, Minnesota Land Management Information Center, University of Minnesota, and USDA Forest Service. (The IIC is described on MFRC's Web site).

M.S. 89A establishes a system for forest planning at the landscape level. Those efforts are beginning in the northern part of the state, and are being led by MFRC.

In addition, MOUs are developed between implementing agencies, as needed. A number of these are included as examples in *Minnesota's Lake Superior Coastal Program and Final Environmental Impact Statement (MLSCP-FEIS)*, Appendix G. It is available on the Internet.

<http://www.dnr.state.mn.us/waters/czm/feis/cover.html>

2.b. Streamside Management Areas (SMAs)/Riparian Management Zones (RMZs) [Forestry]

A. Federal Description of Management Measure [Nationwide] {2.b. SMAs/RMZs}

Note: The federal management measure uses the terminology "Streamside Management Areas" or SMAs. The state terminology is "Riparian Management Zones" or RMZs.

Establish and maintain a streamside management area along surface waters, which is sufficiently wide and which includes a sufficient number of canopy species to buffer against detrimental changes in the temperature regime of the waterbody, to provide bank stability and to withstand wind damage. Manage the SMA [RMZ] in such a way as to protect against soil disturbance in the SMA [RMZ] and delivery to the stream of sediments and nutrients generated by forestry activities, including harvesting. Manage the SMA [RMZ] canopy species to provide a sustainable source of large woody debris needed for instream channel structure and aquatic species habitat.

B. Applicability [Nationwide] {2.b. SMAs/RMZs}

This management measure, nationwide, applies to surface waters bordering or within the area of operations. SMAs [RMZs]* should be established for perennial waterbodies as well as for intermittent streams that are flowing during the time of operation. For winter logging, SMAs [RMZs] are also needed for intermittent streams, since spring breakup is both the time of maximum transport of sediments from the harvest unit and the time when highest flows are present in intermittent streams.

Applicable State Programs and Practices

While the federal management measures use the term Streamside Management Area (SMA), Minnesota uses the term Riparian Management Zone (RMZ). For this management measure, Minnesota's forest management guidelines include complex recommendations that are based on topography, hydrology and vegetation. Width, residual basal area and other recommendations are provided based on different types of water bodies, site conditions within the riparian management area and management objectives (e.g., even age or uneven age management).

On designated trout streams, tributaries and lakes, the recommended minimum RMZ width and recommended minimum residual basal area are:

- For even age management, a 150 foot RMZ, with 60 residual square feet per acre.
- For uneven age management, a 200 foot RMZ, with 80 residual square feet per acre.

For other bodies of water, the recommended minimums are:

- For even age management, a 50-100 foot RMZ, with 25-80 residual square feet per acre.
- For uneven age management, a 50-200 foot RMZ, with 80 residual square feet per acre.

Filter strips are important in RMZs. These are areas of land adjacent to a waterbody that trap and filter out suspended sediment, and attached chemicals, before it reaches the water body. Harvesting and other forest management activities are permitted in filter strips as long as the integrity of the filter strip is maintained and the exposure of mineral soil is kept to a minimum. The filter strip width recommendations in the forest management guidelines are based on slope. For a 0-10 percent slope, the recommended width is 50 feet; for an 11-20 percent slope, it is 51-70 feet; for a 21-40 percent slope, it is 71-110 feet; and for a 41-70 percent slope, it is 111-150 feet.

The options for ensuring implementation of this management measure are the same as those previously discussed.

C. Nonregulatory Approaches {2.b. SMAs/RMZs}

1. Economic Incentives and Disincentives

Private landowners wishing to install conservation practices or retire their land may receive assistance through a variety of state and federal programs. Federal

programs administered by the NRCS include the EQIP, with cost-share for erosion control; WHIP, with cost-share for wildlife habitat, including riparian tree planting; and CRP, with cost-share for riparian forest buffers, including tree planting.

Minnesota's Forest Stewardship Program provides professional forestry advice and plans on management of nonindustrial private forest lands. More than one million acres of privately owned woods in Minnesota have been enrolled into the Forest Stewardship Program. The Stewardship Incentives Program provides cost-share for road design and other activities.

The State Cost-share Program, administered by the SWCDs, provides funding to landowners to offset the cost of installing erosion and sediment control practices.

Under an MOU between the MPCA and DNR, loggers are not required to apply for coverage under the NPDES General Stormwater Permit for Industrial Activity. This saves them the \$85 application fee and the \$210 annual permit fee.

2. Public Information/Education, and Technical/Related Assistance

DNR Forestry, the SWCDs, MES and MFA provide information and educational opportunities for landowners.

County based Private Woodlands Committees, made up of representatives of the NRCS, SWCDs, DNR Forestry and private woodland owners, sponsor logger workshops that promote the use of BMPs in logging, among other topics.

Annual logger workshops are organized by the MLEP and the University of Minnesota Center for Continuing Education, and supported by DNR Forestry, the MES, SWCDs, MFI, Timber Producers Association and Associated Contract Loggers. A continuing logger education committee has sponsored logger workshops since 1990. Topics for these workshops include changes to BMPs, erosion control and water quality protection.

Resource manager workshops, sponsored by DNR Forestry, are held periodically to provide an overview of field audit results, changes to BMPs and related issues.

Visual Management Guidelines, BMPs, legislation (the Shipstead-Newton-Nolan Law, U.S. Code Title 16, Section 577, which is discussed in D 3, below) or other

agreements (e.g., river management plans) may require larger setbacks. If this occurs, the more protective buffer will apply.

Sustaining Minnesota Forest Resources: Voluntary Site-level Forest Management Guidelines for Landowners, Loggers and Resource Managers can be obtained from DNR Forestry, local SWCDs, MES, MFRC and MFRC's Web site.

Minnesota's Forest Stewardship Program provides technical assistance on nonindustrial private forest lands. A Forest Stewardship Project has led to extensive tree planting and bioengineering in the 54,000-acre Knife River Watershed. Over the last 10 years, this project has led to the development of 95 Forest Stewardship Plans covering 7,200 acres in the Knife River Watershed, the planting of many thousands of trees along streambanks, and the use of bioengineering techniques to stabilize streambanks with live willow shoots.

D. Enforceable Policies and Mechanisms {2.b. SMAs/RMZs}

1. State Permits and Licenses

Minnesota does not use state permits or licenses to implement this management measure.

2. Local Zoning

The St. Louis River Management Plan and North Shore Management Plan include restrictions on cutting adjacent to the St. Louis, Whiteface and Cloquet rivers, as well as adjacent to Lake Superior.

3. Direct State Statutory Requirements

The Shipstead-Newton-Nolan Law (SNN) (U.S. Code Title 16, Section 577, described in the act of Congress approved July 10, 1930, Statutes at Large, volume 46, page 1020) applies to federal lands within a specified boundary that are located within portions of Lake, Cook and St. Louis counties, in the Superior National Forest or along the Lake Superior shore. Within the boundary specified in the SNN law, shoreline logging restrictions apply to lakes or streams which now, or eventually could, accommodate boat or canoe travel to the degree of being considered general use. On state lands within the SNN area, the same shoreline logging restrictions apply under the same circumstances (**M.S. 92.45**).

E. Monitoring and Tracking {2.b. SMAs/RMZs}

1. Existing and Planned Monitoring Efforts

Minnesota's former field auditing system and new monitoring system for forestry is described in the introduction to this chapter. More than 100 sites are visited each year for monitoring (formerly auditing). Site visits are conducted by DNR and/or MPCA staff if complaints are lodged either to the MFRC system or directly to the agencies.

Statewide monitoring of nonpoint source pollution is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan*. It is available on the Internet.

2. Inspection, Tracking and Assessment Techniques

As described in the introduction to this chapter, DNR's monitoring and tracking system has evolved from the use of field audits conducted by integrated teams that evaluated site-specific compliance with BMPs, to a more randomized, scientific approach.

MFRC encourages citizens register concerns about timber harvesting and forest management practices by means of a toll free telephone Public Concerns Registration Line or on their Web site. Details are explained in the introduction to this chapter.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {2.b. SMAs/RMZs}

DNR Forestry directs the statewide forestry water quality program in cooperation with the MPCA. Since the passage of **M.S. 89A**, the MFRC has served as a forum for regular communication, coordination and consensus building among a broad range of forestry interests. Minnesota's new forestry management guidelines reflect the involvement of more than 60 people over a period of two and one-half years.

M.S. 89A.09 requires the DNR to establish an Interagency Information Cooperative (IIC) to coordinate the development and use of forest resources data. The IIC is a partnership between DNR, MFRC, the Minnesota Association of County Land Commissioners, Minnesota Land Management Information Center, University of Minnesota, and USDA Forest Service. The IIC information is described on MFRC's Web site.

M.S. 89A establishes a system for forest planning at the landscape level. Those efforts are beginning in the northern part of the state, and are being led by MFRC.

In addition, MOUs are developed between implementing agencies, as needed. A number of these are included as examples in *Minnesota's Lake Superior Coastal Program and Final Environmental Impact Statement (MLSCP-FEIS)*, Appendix G.

2.c. Road Construction/Reconstruction [Forestry]

A. Federal Description of Management Measure [Nationwide] {2.c. Road Construction/Reconstruction}

- (1) Follow Preharvest Planning (above) when constructing or reconstructing the road.
- (2) Follow designs planned under Preharvest Planning, for road surfacing and shaping.
- (3) Install road drainage structures according to designs planned under Preharvest Planning, and regional storm return period and installation specifications. Match these drainage structures with terrain features and with road surface and prism designs.
- (4) Guard against the production of sediment when installing stream crossings.
- (5) Protect surface waters from slash and debris material from roadway clearing.
- (6) Use straw bales, silt fences, mulching or other favorable practices on disturbed soils on unstable cuts, fills, etc.
- (7) Avoid constructing new roads in SMAs, to the extent practicable.

B. Applicability [Nationwide] {2.c. Road Construction/Reconstruction}

This management measure, nationwide, applies to road construction/reconstruction operations for silvicultural purposes.

Applicable State Programs and Practices

Minnesota's forest management guidelines include recommendations to address road construction and reconstruction activities. These address practices including the alignment and location of roads; the proper construction of water crossings, winter roads and wetland crossings; drainage structures; road setbacks to water bodies; and the proper placement and stabilization of slash and clearing debris. Specific examples are provided of design structures for drainage, culvert installation, and spacings for broad based dips and culverts. The intent is to reduce the volume, velocity and direction of flow so as to prevent excessive runoff and subsequent erosion.

C. Nonregulatory Approaches {2.c. Road Construction/Reconstruction}

1. Economic Incentives and Disincentives

Private landowners wishing to install conservation practices or retire their land may receive assistance through a variety of state and federal programs. Federal programs administered by the NRCS include the EQIP, with cost-share for erosion control; WHIP, with cost-share for wildlife habitat, including riparian tree planting; and CRP, with cost-share for riparian forest buffers, including tree planting.

Minnesota's Forest Stewardship Program provides professional forestry advice and plans on management of nonindustrial private forest lands. More than one million acres of privately owned woods in Minnesota have been enrolled into the Forest Stewardship Program. The Stewardship Incentives Program provides cost-share for road design and other activities.

The State Cost-share Program, administered by the SWCDs, provides funding to landowners to offset the cost of installing erosion and sediment control practices.

Under an MOU between the MPCA and DNR, loggers are not required to apply for coverage under the NPDES General Stormwater Permit for Industrial Activity. This saves them the \$85 application fee and the \$210 annual permit fee.

2. Public Information/Education, and Technical/Related Assistance

DNR Forestry, the SWCDs, MES and MFA provide information and educational opportunities for landowners.

County based Private Woodlands Committees, made up of representatives of the NRCS, SWCDs, DNR Forestry and private woodland owners, sponsor logger workshops that promote the use of BMPs in logging, among other topics.

Annual logger workshops are organized by the MLEP and the University of Minnesota Center for Continuing Education, and supported by DNR Forestry, the MES, SWCDs, MFI, Timber Producers Association and Associated Contract Loggers. A continuing logger education committee has sponsored logger workshops since 1990. Topics for these workshops include changes to BMPs, erosion control and water quality protection.

Resource manager workshops, sponsored by DNR Forestry, are held periodically to provide an overview of field audit results, changes to BMPs and related issues.

The MFRC is coordinating a Forest Road Inventory Project that is creating a forest road access map and database for all ownerships. This project will help reduce NPS pollution by encouraging the cooperative use of forest roads, and discouraging the construction of unneeded forest roads. The Superior National Forest is also conducting a forest wide analysis and inventory of roads.

Minnesota's Forest Stewardship Program provides technical assistance on nonindustrial private forest lands. A Forest Stewardship Project has led to extensive tree planting and bioengineering in the 54,000-acre Knife River Watershed. Over the last 10 years, this project has led to the development of 95 Forest Stewardship Plans covering 7,200 acres in the Knife River Watershed, the planting of many thousands of trees along streambanks, and the use of bioengineering techniques to stabilize streambanks with live willow shoots.

D. Enforceable Policies and Mechanisms **{2.c. Road Construction/Reconstruction}**

1. State Permits and Licenses

DNR administers the Protected Waters Permit Program, which requires Protected Waters Permits for activities that will alter the course, current or cross-section of Minnesota's public waters and wetlands under **M.S. 103G.101 - .315** and **Minn. Rules 6115.0150 - .0280**. DNR Waters regulates stream crossings under **Minn. Rules 6115.0190 - .0231** and **M.S. 103G**.

2. Local Zoning

Minnesota does not rely on local zoning for implementation of this management measure.

3. Direct State Statutory Authorities

DNR Waters regulates stream crossings under **Minn. Rules 6115.0190 - .0231** and **M.S. 103G**.

The Minnesota Environmental Quality Board (EQB) has established a guide to the rules regulating Environmental Assessment. **M.S. 116, Minn. Rules 4410.4300, Minn. Rules 4410.4400** and **Minn. Rules 4410.4600** identify categories for mandatory Environmental Assessment Worksheets (EAW), Environmental Impact Statements (EIS) and exemptions.

<http://www.revisor.leg.state.mn.us/stats/116/>
<http://www.revisor.leg.state.mn.us/arule/4410/>

M.S. 162.021, Subp. 1, is the authority to adopt rules establishing minimum construction and reconstruction standards for a natural preservation routes category within the County State-Aid Highway System.

<http://www.revisor.leg.state.mn.us/stats/162/021.html>

E. Monitoring and Tracking {2.c. Road Construction/Reconstruction}

1. Existing and Planned Monitoring Efforts

Minnesota's former field auditing system and new monitoring system for forestry is described in the introduction to this chapter. More than 100 sites are visited each year for monitoring (formerly auditing). The number of sites evaluated for road related BMP/guideline implementation is less than the total number of sites evaluated, because not all sites have roads that were constructed or reconstructed as part of forest management activity. Site visits are conducted by DNR and/or MPCA staff if complaints are lodged either via the MFRC system or directly to the agencies.

Statewide monitoring of nonpoint source pollution is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan*. It is available on the Internet.

2. Inspection, Tracking and Assessment Techniques

Bridge and highway projects are inspected and monitored for compliance by the appropriate road authority.

DNR issues and tracks Protected Waters Permits, for which area hydrologists perform inspections, as needed. MPCA may inspect sites to insure that water quality is not impacted by the activities. Complaints will trigger a site visit by MPCA and/or DNR.

MFRC encourages citizens register concerns about timber harvesting and forest management practices by means of a toll free telephone Public Concerns Registration Line or on their Web site. Details are explained in the introduction to this chapter.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {2.c. Road Construction/Reconstruction}

DNR Forestry directs the statewide forestry water quality program in cooperation with the MPCA. Since the passage of **M.S. 89A**, the MFRC has served as a forum for regular communication, coordination and consensus building among a broad range of forestry interests. Minnesota's new forestry management guidelines reflect the involvement of more than 60 people over a period of two and one-half years.

M.S. 89A.09 requires the DNR to establish an Interagency Information Cooperative (IIC) to coordinate the development and use of forest resources data. The IIC is a partnership between DNR, MFRC, the Minnesota Association of County Land Commissioners, Minnesota Land Management Information Center, University of Minnesota, and USDA Forest Service. The IIC information is described on MFRC's Web site.

M.S. 89A establishes a system for forest planning at the landscape level. Those efforts are beginning in the northern part of the state, and are being led by MFRC.

The MFRC is coordinating a Forest Road Inventory Project that is creating a forest road access map and database for all ownerships. This project will help reduce NPS pollution by encouraging the cooperative use of forest roads, and discouraging the construction of unneeded forest roads. The Superior National Forest is also conducting a forest wide analysis and inventory of roads.

In addition, MOUs are developed between implementing agencies, as needed. A number of these are included as examples in *Minnesota's Lake Superior Coastal Program and Final Environmental Impact Statement (MLSCP-FEIS)*, Appendix G.

2.d. Road Management [Forestry]

A. Federal Description of Management Measure [Nationwide] {2.d. Road Management}

Note: Text in italics, below, indicates that the state edited the wording in the original federal description of this management measure to make it more applicable to conditions and practices in Minnesota.

- (1) Avoid using roads where possible for timber hauling or heavy traffic during wet or thaw periods on roads not designed and constructed for these conditions.
- (2) Evaluate the future need for a road, and close roads that will not be needed. Leave closed roads and drainage channels in stable condition to withstand storms.
- (3) Remove drainage crossings and culverts if there is a reasonable risk of plugging or failure from lack of maintenance.
- (4) Following completion of harvesting, close and stabilize temporary spur roads and seasonal roads to control and direct water away from the roadway. Remove all temporary stream crossings.
- (5) Inspect roads to determine the need for structural maintenance. Conduct maintenance practices, when conditions warrant, including cleaning and replacement of deteriorated structures and erosion controls, grading or seeding of road surfaces, and, in extreme cases, slope stabilization or removal of road fills, where necessary to maintain structural integrity.

- (6) Properly maintain permanent stream crossings and associated fills and approaches to reduce the likelihood (a) that stream overflow will divert onto roads, and (b) that fill erosion will occur if the drainage structures become obstructed.

Note: Dust abatement is not done for forest operations in Minnesota. There is no demand for dust control on forest roads forest roads, because there are generally no residential homes nearby.

B. Applicability [Nationwide] {2.d. Road Management}

This management measure, nationwide, applies to active and inactive roads constructed or used for silvicultural activities.

Applicable State Programs and Practices

The forest management guidelines provide maintenance recommendations for roads in general, as well as specific considerations for active and inactive roads. Maintenance recommendations include: cleaning debris from culverts, ditches and other structures prior to periods of peak flow, and restricting road use during wet periods and spring breakup. Road closure recommendations include stabilizing the road surface, installing road barriers and posting road closed signs.

Maintenance recommendations for active roads include: maintaining the road surface for proper drainage, minimizing berms along road edges that may trap water on the road surface, minimizing the entry of dust-control agents into the water, and avoiding the use of calcium chloride.

The forest management guidelines separate inactive roads into two classes: temporarily closed and permanently closed. Maintenance recommendations for temporary closure include: restricting access, stabilizing road surfaces, providing periodic inspection and maintenance of road surfaces, and keeping drainage structures in working order. Where roads are permanently closed, maintenance recommendations include: installing water diversion devices such as water bars, where appropriate, and removing structures (e.g., culverts, bridges) that will require continuing maintenance.

Other general recommendations include: stabilizing bare soil areas by seeding to reduce erosion, installing temporary erosion control devices such as straw bales or mulch to help stabilize soils prior to establishment of vegetative cover, and inspecting and repairing erosion control measures on a regular basis.

C. Nonregulatory Approaches {2.d. Road Management}

See, also, forestry management measure a: Preharvest Planning, regarding C: Nonregulatory Approaches; D: Enforceable Policies and Mechanisms; and E: Monitoring and Tracking, below. These items in forestry management measure a: Preharvest Planning apply to the other forestry management measures that follow, as well.

1. Economic Incentives and Disincentives

Private landowners wishing to install conservation practices or retire their land may receive assistance through a variety of state and federal programs. Federal programs administered by the NRCS include the EQIP, with cost-share for erosion control; WHIP, with cost-share for wildlife habitat, including riparian tree planting; and CRP, with cost-share for riparian forest buffers, including tree planting.

Minnesota's Forest Stewardship Program provides professional forestry advice and plans on management of nonindustrial private forest lands. More than one million acres of privately owned woods in Minnesota have been enrolled into the Forest Stewardship Program. The Stewardship Incentives Program provides cost-share for road design and other activities.

The State Cost-share Program, administered by the SWCDs, provides funding to landowners to offset the cost of installing erosion and sediment control practices.

Under an MOU between the MPCA and DNR, loggers are not required to apply for coverage under the NPDES General Stormwater Permit for Industrial Activity. This saves them the \$85 application fee and the \$210 annual permit fee.

2. Public Information/Education, and Technical/Related Assistance

DNR Forestry, the SWCDs, MES and MFA provide information and educational opportunities for landowners.

County based Private Woodlands Committees, made up of representatives of the NRCS, SWCDs, DNR Forestry and private woodland owners, sponsor logger workshops that promote the use of BMPs in logging, among other topics.

Annual logger workshops are organized by the MLEP and the University of Minnesota Center for Continuing Education, and supported by DNR Forestry, the MES, SWCDs, MFI, Timber Producers Association and Associated Contract Loggers. A continuing logger education committee has sponsored logger workshops since 1990. Topics for these workshops include changes to BMPs, erosion control and water quality protection.

Resource manager workshops, sponsored by DNR Forestry, are held periodically to provide an overview of field audit results, changes to BMPs and related issues.

The MFRC is coordinating a Forest Road Inventory Project that is creating a forest road access map and database for all ownerships. This project will help reduce NPS pollution by encouraging the cooperative use of forest roads, and discouraging the construction of unneeded forest roads. The Superior National Forest is also conducting a forest wide analysis and inventory of roads.

D. Enforceable Policies and Mechanisms {2.d. Road Management}

1. State Permits and Licenses

DNR Waters regulates stream crossings under **Minn. Rules 6115.0190 - .0231** and **M.S. 103G**.

2. Local Zoning

Minnesota does not rely on local zoning for implementation of this management measure.

3. Direct State Statutory Authorities

Minnesota requires permits for working in the beds of public waters and public water wetlands and DNR Waters regulates stream crossings under **Minn. Rules 6115.0190 - .0231** and **M.S. 103G**.

E. Monitoring and Tracking {2.d. Road Management}

1. Existing and Planned Monitoring Efforts

Minnesota's former field auditing system and new monitoring system for forestry is described in the introduction to this chapter. More than 100 sites are visited each year for monitoring (formerly auditing). The number of sites evaluated for road

related BMP/guideline implementation is less than the total number of sites evaluated, because not all sites have roads that were constructed or reconstructed as part of forest management activity. Site visits are conducted by DNR and/or MPCA staff if complaints are lodged either to the MFRC system or directly to the agencies.

Statewide monitoring of nonpoint source pollution is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan*. It is available on the Internet.

2. Inspection, Tracking and Assessment Techniques

As described in the introduction to this chapter, DNR's monitoring and tracking system has evolved from the use of field audits conducted by integrated teams that evaluated site-specific compliance with BMPs, to a more randomized, scientific approach.

MFRC encourages citizens register concerns about timber harvesting and forest management practices by means of a toll free telephone Public Concerns Registration Line or on their Web site. Details are explained in the introduction to this chapter.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {2.d. Road Management}

DNR Forestry directs the statewide forestry water quality program in cooperation with the MPCA. Since the passage of **M.S. 89A**, the MFRC has served as a forum for regular communication, coordination and consensus building among a broad range of forestry interests. Minnesota's new forestry management guidelines reflect the involvement of more than 60 people over a period of two and one-half years.

M.S. 89A.09 requires the DNR to establish an Interagency Information Cooperative (IIC) to coordinate the development and use of forest resources data. The IIC is a partnership between DNR, MFRC, the Minnesota Association of County Land Commissioners, Minnesota Land Management Information Center,

University of Minnesota, and USDA Forest Service. The IIC information is described on MFRC's Web site.

M.S. 89A establishes a system for forest planning at the landscape level. Those efforts are beginning in the northern part of the state, and are being led by MFRC.

The MFRC is coordinating a Forest Road Inventory Project that is creating a forest road access map and database for all ownerships. This project will help reduce NPS pollution by encouraging the cooperative use of forest roads, and discouraging the construction of unneeded forest roads. The Superior National Forest is also conducting a forest-wide analysis and inventory of roads.

In addition, MOUs are developed between implementing agencies, as needed. A number of these are included as examples in *Minnesota's Lake Superior Coastal Program and Final Environmental Impact Statement (MLSCP-FEIS)*, Appendix G.

2.e. Timber Harvesting [Forestry]

A. Federal Description of Management Measure [Nationwide] {2.e. Timber Harvesting}

Note: Text in italics, below, indicates that the state edited the wording in the original federal description of this management measure to make it more applicable to conditions and practices in Minnesota.

The timber harvesting management measure consists of implementing the following:

- (1) Timber harvesting operations *with skid trails* following layouts determined under the Preharvest Planning management measure.
- (2) Install landing drainage structures to avoid sedimentation, to the extent practicable. Disperse landing drainage over sideslopes.
- (3) Construct landings away from steep slopes and reduce the likelihood of fill slope failures. Protect landing surfaces used during wet periods. Locate landings outside of SMAs.
- (4) Protect stream channels and significant *intermittent* drainages from logging debris and slash material.
- (5) Use appropriate areas for petroleum storage, drainage and dispensation. Establish procedures to contain and treat spills. Recycle or properly dispose of all waste materials.

For ground skidding:

- (1) Within SMAs, operate ground-skidding equipment *only at stream crossings*, to the extent practicable.
- (2) Use *temporary stream crossings for skid trails*. Construct skid trails to disperse runoff and with adequate drainage structures.
- (3) On steep slopes, use cable systems rather than *driving equipment where it may cause excessive sedimentation*.

Note: Cable yarding is not being done in Minnesota at this time.

B. Applicability [Nationwide] {2.e. Timber Harvesting}

This management measure, nationwide, applies to all harvesting, yarding and hauling conducted as part of normal silvicultural activities on harvest units larger than five acres. This measure does not apply to harvesting conducted for precommercial thinnings or to noncommercial firewood cutting.

Applicable State Programs and Practices

Minnesota's timber harvesting guidelines include the proper location and design of skid trails and landings to prevent or minimize erosion and sedimentation to perennial and intermittent streams, lakes, ponds and wetlands. Many of the suggested practices for forest roads are appropriate for skid trails, as well. The timber harvesting section also recommends keeping logging equipment out of filter strips, and discusses the proper disposal of slash and logging debris to protect streams, lakes and wetlands.

Recommendations are provided for locating maintenance and fueling areas. The forest management guidelines include recommendations on collecting and disposing of petroleum products and waste materials, as well as procedures for reporting and treating spills of petroleum products. They also identify sensitive areas where equipment operations should be limited based on slope and soil erodibility.

There are five basic harvest systems used in Minnesota (Rick Dahlman, DNR, personal communication). They are as follows:

- (1) The largest volume of wood is harvested with mechanical felling machines, on tracks or tires, with grapple skidders dragging whole trees (branches attached) or tree lengths (branches cut off) to a landing for further processing and hauling;

- (2) Some operations still use a cable skidder, instead of a grapple skidder, to do the same thing;
- (3) A number of larger logging operations now use cut to length systems that fell, limb and cut the tree into product lengths at the stump and move the logs to the landing using a forwarder. These first three systems are used primarily for pulpwood and small hardwood and softwood saw bolts;
- (4) Larger diameter trees are still most often harvested using a chain saw. The trees are limbed at the stump. They may be moved to the landing in tree lengths or in log lengths. Most logging in southern Minnesota uses this system;
- (5) Horse or mule logging is done by a small number of loggers.

C. Nonregulatory Approaches {2.e. Timber Harvesting}

1. Economic Incentives and Disincentives

Private landowners wishing to install conservation practices or retire their land may receive assistance through a variety of state and federal programs. Federal programs administered by the NRCS include the EQIP, with cost-share for erosion control; WHIP, with cost-share for wildlife habitat, including riparian tree planting; and CRP, with cost-share for riparian forest buffers, including tree planting.

Minnesota's Forest Stewardship Program provides professional forestry advice and plans on management of nonindustrial private forest lands. More than one million acres of privately owned woods in Minnesota have been enrolled into the Forest Stewardship Program. The Stewardship Incentives Program provides cost-share for road design and other activities.

The State Cost-share Program, administered by the SWCDs, provides funding to landowners to offset the cost of installing erosion and sediment control practices.

Under an MOU between the MPCA and DNR, loggers are not required to apply for coverage under the NPDES General Stormwater Permit for Industrial Activity. This saves them the \$85 application fee and the \$210 annual permit fee.

2. Public Information/Education, and Technical/Related Assistance

DNR Forestry, the SWCDs, MES and MFA provide information and educational opportunities for landowners.

County based Private Woodlands Committees, made up of representatives of the NRCS, SWCDs, DNR Forestry and private woodland owners, sponsor logger workshops that promote the use of BMPs in logging, among other topics.

Annual logger workshops are organized by the MLEP and the University of Minnesota Center for Continuing Education, and supported by DNR Forestry, the MES, SWCDs, MFI, Timber Producers Association and Associated Contract Loggers. A continuing logger education committee has sponsored logger workshops since 1990. Topics for these workshops include changes to BMPs, erosion control and water quality protection.

Resource manager workshops, sponsored by DNR Forestry, are held periodically to provide an overview of field audit results, changes to BMPs and related issues.

Sustaining Minnesota Forest Resources: Voluntary Site-level Forest Management Guidelines for Landowners, Loggers and Resource Managers can be obtained from DNR Forestry, local SWCDs, MES, MFRC and MFRC's Web site.

D. Enforceable Policies and Mechanisms {2.e. Timber Harvesting}

1. State Permits and Licenses

Minnesota does not use state permits or licenses to implement this management measure.

2. Local Zoning

Minnesota does not rely on local zoning for implementation of this management measure.

3. Direct State Statutory Authorities

Minnesota requires permits for working in the beds of public waters and public-water wetlands under **M.S. 103G**. DNR Waters regulates stream crossings under **Minn. Rules 6115.0190 - .0231** and **M.S. 103G**.

Minnesota has a "nuisance condition prohibition," **Minn. Rules 7050.0210, Subp. 2**, as well as an "antidegradation policy," **Minn. Rules 7050.0185**, in its water quality standards. The nuisance provision says: "No sewage, industrial waste or other wastes shall be discharged from either point or nonpoint sources into any

waters of the state so as to cause any nuisance conditions such as the presence of significant amounts of floating solids, scum, visible oil film, excessive suspended solids, material discoloration, obnoxious odors, gas ebullition, deleterious sludge deposits, undesirable slimes or fungus growths, aquatic habitat degradation, excessive growths of aquatic plants or other offensive or harmful effects.”

Under the **Minnesota Environmental Rights Act (MERA), M.S. 116B**, Minnesota allows state residents to take civil action against any person for the protection of the air, water, land or other natural resources located within the state, whether privately or publicly owned, from pollution, impairment or destruction.

The Shipstead-Newton-Nolan Law (SNN) (U.S. Code Title 16, Section 577, described in the act of Congress approved July 10, 1930, Statutes at Large, volume 46, page 1020) applies to federal lands within a specified boundary that are located within portions of Lake, Cook and St. Louis counties, in the Superior National Forest or along the Lake Superior shore. Within the boundary specified in the SNN law, shoreline logging restrictions apply to lakes or streams which now, or eventually could, accommodate boat or canoe travel to the degree of being considered general use. On state lands within the SNN area, the same shoreline logging restrictions apply under the same circumstances (**M.S. 92.45**).

E. Monitoring and Tracking {2.e. Timber Harvesting}

1. Existing and Planned Monitoring Efforts

Minnesota’s former field auditing system and new monitoring system for forestry is described in the introduction to this chapter. More than 100 sites are visited each year for monitoring (formerly auditing). Site visits are conducted by DNR and/or MPCA staff if complaints are lodged either via the MFRC system or directly to the agencies.

Statewide monitoring of nonpoint source pollution is identified in *Minnesota’s 2001-2005 Nonpoint Source Management Program Plan*. The monitoring chapter is available on the Internet.

MFRC has a toll-free Public Concerns Registration Line (888-234-3702) that lets citizens register concerns about timber harvesting and forest management practices they see in Minnesota. (See details below).

2. Inspection, Tracking and Assessment Techniques

As described in the introduction to this chapter, DNR's monitoring and tracking system has evolved from the use of field audits conducted by integrated teams that evaluated site-specific compliance with BMPs, to a more randomized, scientific approach.

MFRC has a toll free Public Concerns Registration Line that lets citizens register concerns about timber harvesting and forest management practices they see in Minnesota. MFRC then contacts all involved, explaining that someone has registered a concern about forest management being done on the property, and finding out what happened. The Public Concerns Registration Line is also available on the Internet.

<http://www.frc.state.mn.us/monitor/PCRP.htm>

In response to a concern, MFRC may distribute educational materials, and eventually distributes a report to the landowner, logger, forester and individual who raised the concern. This report indicates whether any forest management rules were not followed appropriately, and points out forest management guidelines that could have been used. It also recommends actions for mitigating problems on the site, or describes mitigation actions already being taken. This is an educational process. MFRC cannot impose punitive measures, and will not take legal action or resolve disputes between parties over contractual or legal issues regarding forest management activities.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {2.e. Timber Harvesting}

DNR Forestry directs the statewide forestry water quality program in cooperation with the MPCA. Since the passage of **M.S. 89A**, the MFRC has served as a forum for regular communication, coordination and consensus building among a broad range of forestry interests. Minnesota's new forestry management guidelines reflect the involvement of more than 60 people over a period of two and one-half years.

M.S. 89A.09 requires the DNR to establish an Interagency Information Cooperative (IIC) to coordinate the development and use of forest resources data. The IIC is a partnership between DNR, MFRC, the Minnesota Association of County Land Commissioners, Minnesota Land Management Information Center, University of Minnesota, and USDA Forest Service. The IIC information is described on MFRC's Web site.

M.S. 89A establishes a system for forest planning at the landscape level. Those efforts are beginning in the northern part of the state, and are being led by MFRC.

In addition, MOUs are developed between implementing agencies, as needed. A number of these are included as examples in *Minnesota's Lake Superior Coastal Program and Final Environmental Impact Statement (MLSCP-FEIS)*, Appendix G.

2.f. Site Preparation and Forest Regeneration [Forestry]

A. Federal Description of Management Measure [Nationwide] {2.f. Site Preparation and Forest Regeneration}

Note: Text in italics, below, indicates that the state edited the wording in the original federal description of this management measure to make it more applicable to conditions and practices in Minnesota.

Confine on-site potential nonpoint source (NPS) pollution and erosion resulting from site preparation and the regeneration of forest stands. The components of the management measure for site preparation and regeneration are:

- (1) Select a method of site preparation and regeneration suitable for the site conditions.
- (2) Conduct mechanical tree planting and ground disturbing site preparation activities on the contour of sloping terrain.
- (3) Do not conduct mechanical site preparation and mechanical tree planting in SMAs.
- (4) Protect surface waters from logging debris and slash material.
- (5) Suspend operations during wet periods if equipment used begins to cause excessive soil disturbance that will increase erosion.
- (6) Locate windrows at a safe distance from drainages and SMAs to control movement of the material during high runoff conditions.
- (7) Protect small *intermittent* drainages when conducting mechanical tree planting.

Note: Bedding operations are not currently being conducted in Minnesota.

B. Applicability [Nationwide] {2.f. Site Preparation and Forest Regeneration}

This management measure, nationwide, is intended to apply to all site preparation and regeneration activities conducted as part of normal silvicultural activities on harvested units larger than five acres.

Applicable State Programs and Practices

The forestry BMPs and guidelines include recommendations to mechanically prepare the site for forest regeneration and control undesirable vegetation. General recommendations include provisions for adequate filter strips, minimizing operations when wet conditions are present, avoiding activities that result in sedimentation, locating windrows outside filter strips, and following contours with proper consideration for operator safety. Recommended site preparation methods include shearing and raking, disking and patch row scarification.

Due to a moratorium, herbicide applications for site preparation and release have not been done for several years on national forest lands administered by the Superior National Forest.

C. Nonregulatory Approaches {2.f. Site Preparation and Forest Regeneration}

1. Economic Incentives and Disincentives

Private landowners wishing to install conservation practices or retire their land may receive assistance through a variety of state and federal programs. Federal programs administered by the NRCS include the EQIP, with cost-share for erosion control; WHIP, with cost-share for wildlife habitat, including riparian tree planting; and CRP, with cost-share for riparian forest buffers, including tree planting.

Minnesota's Forest Stewardship Program provides professional forestry advice and plans on management of nonindustrial private forest lands. More than one million acres of privately owned woods in Minnesota have been enrolled into the Forest Stewardship Program. The Stewardship Incentives Program provides cost-share for road design and other activities.

The State Cost-share Program, administered by the SWCDs, provides funding to landowners to offset the cost of installing erosion and sediment control practices.

Under an MOU between the MPCA and DNR, loggers are not required to apply for coverage under the NPDES General Stormwater Permit for Industrial Activity. This saves them the \$85 application fee and the \$210 annual permit fee.

2. Public Information/Education, and Technical/Related Assistance

DNR Forestry, the SWCDs, MES and MFA provide information and educational opportunities for landowners.

County based Private Woodlands Committees, made up of representatives of the NRCS, SWCDs, DNR Forestry and private woodland owners, sponsor logger workshops that promote the use of BMPs in logging, among other topics.

Annual logger workshops are organized by the MLEP and the University of Minnesota Center for Continuing Education, and supported by DNR Forestry, the MES, SWCDs, MFI, Timber Producers Association and Associated Contract Loggers. A continuing logger education committee has sponsored logger workshops since 1990. Topics for these workshops include changes to BMPs, erosion control and water quality protection.

Resource manager workshops, sponsored by DNR Forestry, are held periodically to provide an overview of field audit results, changes to BMPs and related issues.

Sustaining Minnesota Forest Resources: Voluntary Site-level Forest Management Guidelines for Landowners, Loggers and Resource Managers can be obtained from DNR Forestry, local SWCDs, MES, MFRC and MFRC's Web site.

Ensuring prompt reforestation is one of the Sustainable Forestry Initiative (SFI) Standard Objectives, which are adhered to by SFI participants. Carlton, Itasca, Lake and St. Louis counties have licensed their county administered lands under the SFI program.

Minnesota's Forest Stewardship Program provides technical assistance on nonindustrial private forest lands. A Forest Stewardship Project has led to extensive tree planting and bioengineering in the 54,000-acre Knife River Watershed. Over the last 10 years, this project has led to the development of 95 Forest Stewardship Plans covering 7,200 acres in the Knife River Watershed, the

planting of many thousands of trees along streambanks, and the use of bioengineering techniques to stabilize streambanks with live willow shoots.

D. Enforceable Policies and Mechanisms
{2.f. Site Preparation and Forest Regeneration}

1. State Permits and Licenses

Minnesota does not use state permits or licenses to implement this management measure.

2. Local Zoning

Minnesota does not rely on local zoning for implementation of this management measure.

3. Direct State Statutory Authorities

Minnesota has a “nuisance condition prohibition,” **Minn. Rules 7050.0210, Subp. 2**, as well as an “antidegradation policy,” **Minn. Rules 7050.0185**, in its water quality standards. The nuisance provision says: “No sewage, industrial waste or other wastes shall be discharged from either point or nonpoint sources into any waters of the state so as to cause any nuisance conditions such as the presence of significant amounts of floating solids, scum, visible oil film, excessive suspended solids, material discoloration, obnoxious odors, gas ebullition, deleterious sludge deposits, undesirable slimes or fungus growths, aquatic habitat degradation, excessive growths of aquatic plants or other offensive or harmful effects.”

Under the **Minnesota Environmental Rights Act (MERA), M.S. 116B**, Minnesota allows state residents to take civil action against any person for the protection of the air, water, land or other natural resources located within the state, whether privately or publicly owned, from pollution, impairment or destruction.

E. Monitoring and Tracking {2.f. Site Preparation and Forest Regeneration}

1. Existing and Planned Monitoring Efforts

Minnesota’s former field auditing system and new monitoring system for forestry is described in the introduction to this chapter. More than 100 sites are visited each year for monitoring (formerly auditing). Site visits are conducted by DNR and/or

MPCA staff if complaints are lodged either via the MFRC system or directly to the agencies.

Statewide monitoring of nonpoint source pollution is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan*. It is available on the Internet.

2. Inspection, Tracking and Assessment Techniques

As described in the introduction to this chapter, DNR's monitoring and tracking system has evolved from the use of field audits conducted by integrated teams that evaluated site-specific compliance with BMPs, to a more randomized, scientific approach.

MFRC encourages citizens register concerns about timber harvesting and forest management practices by means of a toll free telephone Public Concerns Registration Line or on their Web site. Details are explained in the introduction to this chapter and under forestry management measure e: Timber Harvesting.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {2.f. Site Preparation and Forest Regeneration}

DNR Forestry directs the statewide forestry water quality program in cooperation with the MPCA. Since the passage of **M.S. 89A**, the MFRC has served as a forum for regular communication, coordination and consensus building among a broad range of forestry interests. Minnesota's new forestry management guidelines reflect the involvement of more than 60 people over a period of two and one-half years.

M.S. 89A.09 requires the DNR to establish an Interagency Information Cooperative (IIC) to coordinate the development and use of forest resources data. The IIC is a partnership between DNR, MFRC, the Minnesota Association of County Land Commissioners, Minnesota Land Management Information Center, University of Minnesota, and USDA Forest Service. The IIC information is described on MFRC's Web site.

M.S. 89A establishes a system for forest planning at the landscape level. Those efforts are beginning in the northern part of the state, and are being led by MFRC.

In addition, MOUs are developed between implementing agencies, as needed. A number of these are included as examples in *Minnesota's Lake Superior Coastal Program and Final Environmental Impact Statement (MLSCP-FEIS)*, Appendix G.

2.g. Fire Management [Forestry]

A. Federal Description of Management Measure [Nationwide] {2.g. Fire Management}

Prescribe fire for site preparation and control or suppress wildfire in a manner that reduces potential NPS pollution of surface waters:

- (1) Intense prescribed fire should not cause excessive sedimentation due to the combined effect of removal of canopy species and the loss of soil binding ability of subcanopy and herbaceous vegetation roots, especially in SMAs, in streamside vegetation for small ephemeral drainages or on very steep slopes.
- (2) Prescriptions for prescribed fire should protect against excessive erosion or sedimentation, to the extent practicable.
- (3) All bladed firelines, for prescribed fire and wildfire, should be plowed on contour or stabilized with water bars and/or other appropriate techniques, if needed, to control excessive sedimentation or erosion of the fireline.
- (4) Wildfire suppression and rehabilitation should consider possible NPS pollution of watercourses, while recognizing the safety and operational priorities of fighting fires.

B. Applicability [Nationwide] {2.g. Fire Management}

This management measure, nationwide, applies to all prescribed burning conducted as part of normal silvicultural activities on harvested units larger than five acres, and for wildfire suppression and rehabilitation on forest lands.

Applicable State Programs and Practices

Prescribed burning is not used extensively as a site preparation technique in northeastern Minnesota. To the extent that prescribed burning is employed, the forest management guidelines provide recommendations to prevent or minimize sedimentation and erosion impacts to water quality. There are specific recommendations on the construction and orientation of firelines, placement of burning piles, use of filter strips, use of natural and in-place fire barriers, maintenance of erosion control measures on firelines, and revegetation of bare areas.

Prescribed burning is likely to occur to reduce the likelihood of wildfire in the aftermath of a July 4, 1999, storm that resulted in extensive blowdown areas with uprooted and broken trees. This storm increased the amount of fuel for wildfire by five to 10 times the pre-storm amounts. In the Superior National Forest, the majority of the blown down trees are within the Boundary Waters Canoe Area Wilderness (BWCAW), in a swath that is four to 12 miles wide and 30 miles long.

In January 2001, the Superior National Forest released for public review a Draft Environmental Impact Statement that documents the analysis of several alternative ways to address the increased risk of a wildfire due to this 1999 blowdown event. All alternatives include the current management direction for fire suppression and prevention.

The USDA Forest Service's preferred alternative is Alternative "B," which emphasizes prescribed burning in High and Moderate Risk Blowdown Areas. Approximately 77,000 acres would be treated, including 11 percent state and less than one percent county land. The proposed prescribed burn units would be strategically placed and located next to natural barriers such as lakes, streams and swamps, to effectively reduce the rate of fire spread and reduce the risk of a wildfire escaping the wilderness. Implementation would require some use of motorized and mechanized tools within the BWCAW.

The DNR has recently purchased two large Canadair CL-215 water-scooper aircraft. Their primary mission is to control potential wildfires in the 1999 blowdown area of the BWCAW.

The Minnesota Interagency Fire Center coordinates fire fighting information from Grand Rapids. It provides an information and coordinating center for staff from state and federal agencies. DNR Forestry and the associated Minnesota Conservation Corps are actively involved in fire suppression.

C. Nonregulatory Approaches {2.g. Fire Management}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

Technical assistance and advice on establishing goals for and conducting prescribed burns can be obtained from DNR Forestry, DNR Wildlife, The Nature Conservancy and the Sharp-tail Grouse Society.

D. Enforceable Policies and Mechanisms {2.g. Fire Management}

1. State Permits and Licenses

A burning permit must be obtained from a DNR Forestry field office or township fire warden prior to conducting a burn activity (**M.S. 88.16** and **M.S. 88.17**).

2. Local Zoning

Minnesota does not rely on local zoning for implementation of this management measure.

3. Direct State Statutory Authorities

M.S. 88.16 (Starting and Reporting Fires) and **M.S. 88.17** (Permission to Start Fires) require burning permits from a DNR Forestry field office or township fire warden prior to conducting a burn activity.

E. Monitoring and Tracking {2.g. Fire Management}

1. Existing and Planned Monitoring Efforts

Minnesota's former field auditing system and new monitoring system for forestry is described in the introduction to this chapter. More than 100 sites are visited each year for monitoring.(formerly auditing). Site visits are conducted by DNR and/or MPCA staff if complaints are lodged either via the MFRC system or directly to the agencies.

2. Inspection, Tracking and Assessment Techniques

The Minnesota Interagency Fire Center, DNR Forestry and USDA Forest Service keep a close eye on the prospects for and management of wildfire.

MFRC encourages citizens register concerns about timber harvesting and forest management practices by means of a toll free telephone Public Concerns Registration Line or on their Web site.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {2.g. Fire Management}

Under **M.S. 88.041**, the DNR may enter into agreements with other states, the Canadian or provincial governments to cooperatively prevent and suppress wildfires.

DNR Forestry directs the statewide forestry water quality program in cooperation with the MPCA. Since the passage of **M.S. 89A**, the MFRC has served as a forum for regular communication, coordination and consensus building among a broad range of forestry interests. Minnesota's new forestry management guidelines reflect the involvement of more than 60 people over a period of two and one-half years.

The Minnesota Interagency Fire Center coordinates fire-fighting information from Grand Rapids. It provides an information and coordinating center for staff from state and federal agencies.

In addition, MOUs are developed between implementing agencies, as needed. A number of these are included as examples in *Minnesota's Lake Superior Coastal Program and Final Environmental Impact Statement (MLSCP-FEIS)*, Appendix G.

2.h. Revegetation of Disturbed Areas [Forestry]

A. Federal Description of Management Measure [Nationwide] {2.h. Revegetation of Disturbed Areas}

Reduce erosion and sedimentation by rapid revegetation of areas disturbed by harvesting operations or road construction:

- (1) Revegetate disturbed areas (using seeding or planting) promptly after completion of the earth disturbing activity. Local growing conditions will dictate the timing for establishment of vegetative cover.
- (2) Use mixes of species and treatments developed and tailored for successful vegetation establishment for the region, or for areas within the region.
- (3) Concentrate revegetation efforts initially on priority areas, such as disturbed areas in SMAs or the steepest areas of disturbance near drainages.

B. Applicability [Nationwide] {2.h. Revegetation of Disturbed Areas}

This management measure, nationwide, applies to all disturbed areas resulting from harvesting, road building and site preparation conducted as part of normal silvicultural activities. Disturbed areas are those localized areas within harvest units or road systems where mineral soil is exposed or agitated (e.g., road cuts, fill slopes, landing surfaces, cable corridors or skid-trail ruts).

Applicable State Programs and Practices

Revegetation of disturbed areas is discussed and recommended for all forest management activities for which BMPs have been developed. These recommendations are contained in both the forestry BMPs and guidelines.

The options for ensuring implementation of this management measure are the same as those previously discussed.

C. Nonregulatory Approaches {2.h. Revegetation of Disturbed Areas}

1. Economic Incentives and Disincentives

Private landowners wishing to install conservation practices or retire their land may receive assistance through a variety of state and federal programs. Federal programs administered by the NRCS include the EQIP, with cost-share for erosion

control; WHIP, with cost-share for wildlife habitat, including riparian tree planting; and CRP, with cost-share for riparian forest buffers, including tree planting.

Minnesota's Forest Stewardship Program provides professional forestry advice and plans on management of nonindustrial private forest lands. More than one million acres of privately owned woods in Minnesota have been enrolled into the Forest Stewardship Program. The Stewardship Incentives Program provides cost-share for road design and other activities.

The State Cost-share Program, administered by the SWCDs, provides funding to landowners to offset the cost of installing erosion and sediment control practices.

Under an MOU between the MPCA and DNR, loggers are not required to apply for coverage under the NPDES General Stormwater Permit for Industrial Activity. This saves them the \$85 application fee and the \$210 annual permit fee.

2. Public Information/Education, and Technical/Related Assistance

DNR Forestry, the SWCDs, MES and MFA provide information and educational opportunities for landowners.

County based Private Woodlands Committees, made up of representatives of the NRCS, SWCDs, DNR Forestry and private woodland owners, sponsor logger workshops that promote the use of BMPs in logging, among other topics.

Annual logger workshops are organized by the MLEP and the University of Minnesota Center for Continuing Education, and supported by DNR Forestry, the MES, SWCDs, MFI, Timber Producers Association and Associated Contract Loggers. A continuing logger education committee has sponsored logger workshops since 1990. Topics for these workshops include changes to BMPs, erosion control and water quality protection.

Resource manager workshops, sponsored by DNR Forestry, are held periodically to provide an overview of field audit results, changes to BMPs and related issues.

Fertilizer and seed mixture recommendations for exposed soil can be obtained from the SWCDs, NRCS, USDA Forest Service, DNR Forestry and Minnesota Department of Transportation.

Minnesota's Forest Stewardship Program provides technical assistance on nonindustrial private forest lands. A Forest Stewardship Project has led to extensive tree planting and bioengineering in the 54,000-acre Knife River Watershed. Over the last 10 years, this project has led to the development of 95 Forest Stewardship Plans covering 7,200 acres in the Knife River Watershed, the planting of many thousands of trees along streambanks, and the use of bioengineering techniques to stabilize streambanks with live willow shoots.

D. Enforceable Policies and Mechanisms {2.h. Revegetation of Disturbed Areas}

1. State Permits and Licenses

Revegetation of disturbed areas is a condition of all DNR Protected Waters Permits. This therefore applies to stream crossings, which require a permit pursuant to **Minn. Rules 6115.0190 - 6115.0231 (M.S. 103G)**. Otherwise, Minnesota does not use state permits or licenses to implement this management measure.

2. Local Zoning

Minnesota does not rely on local zoning for implementation of this management measure.

3. Direct State Statutory Requirements

Minnesota's **Forest Management Act of 1982 (M.S. 89)** stipulates that: (1) the state shall strive to reforest annually an acreage at least equal to the acreage harvested that year, (2) additional reforestation be accomplished on areas previously harvested but not adequately reforested, and (3) poorly stocked state forest land, or forest land damaged by natural causes, be returned to a state of productivity.

E. Monitoring and Tracking {2.h. Revegetation of Disturbed Areas}

1. Existing and Planned Monitoring Efforts

Minnesota's former field auditing system and new monitoring system for forestry is described in the introduction to this chapter. More than 100 sites are visited each year for monitoring (formerly auditing). Site visits are conducted by DNR and/or MPCA staff if complaints are lodged either via the MFRC system or directly to the agencies.

Statewide monitoring of nonpoint source pollution is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan*.

2. Inspection, Tracking and Assessment Techniques

MFRC encourages citizens register concerns about timber harvesting and forest management practices by means of a toll free telephone Public Concerns Registration Line or on their Web site.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {2.h. Revegetation of Disturbed Areas}

DNR Forestry directs the statewide forestry water quality program in cooperation with the MPCA. Since the passage of **M.S. 89A**, the MFRC has served as a forum for regular communication, coordination and consensus building among a broad range of forestry interests. Minnesota's new forestry management guidelines reflect the involvement of more than 60 people over a period of two and one-half years.

M.S. 89A.09 requires the DNR to establish an Interagency Information Cooperative (IIC) to coordinate the development and use of forest resources data. The IIC is a partnership between DNR, MFRC, the Minnesota Association of County Land Commissioners, Minnesota Land Management Information Center, University of Minnesota, and USDA Forest Service. The IIC information is described on MFRC's Web site.

M.S. 89A establishes a system for forest planning at the landscape level. Those efforts are beginning in the northern part of the state, and are being led by MFRC.

In addition, MOUs are developed between implementing agencies, as needed. A number of these are included as examples in *Minnesota's Lake Superior Coastal Program and Final Environmental Impact Statement (MLSCP-FEIS)*, Appendix G.

2.i. Forest Chemical Management [Forestry]

A. Federal Description of Management Measure [Nationwide] {2.i. Forest Chemical Management}

Note: Text in italics, below, indicates that the state edited the wording in the original federal description of this management measure to make it more applicable to conditions and practices in Minnesota.

Use chemicals when necessary for forest management in accordance with the following to reduce NPS impacts due to the movement of forest chemicals off-site during and after application:

- (1) Conduct applications by skilled and, where required, licensed applicators according to the registered use, with special consideration given to impacts to nearby surface waters.
- (2) Carefully prescribe the type and amount of pesticides appropriate for the insect, fungus or herbaceous species.
- (3) Prior to applications of *pesticides*, inspect the mixing and loading process and the calibration of equipment, and identify the appropriate weather conditions, the spray area, and buffer areas for surface waters.
- (4) Establish and identify buffer areas for surface waters. (This is especially important for aerial applications).
- (5) Immediately report to the appropriate state agency accidental spills of *pesticides* into surface waters. Develop an effective spill contingency plan to contain spills.

Note: Fertilizers are not normally used in silviculture in Minnesota.

B. Applicability [Nationwide] {2.i. Forest Chemical Management}

This management measure, nationwide, applies to all *pesticide* applications (including biological agents) conducted as part of normal silvicultural activities.

Applicable State Programs and Practices

The Minnesota Department of Agriculture (MDA) is the lead state agency for the regulation of pesticides (**M.S. 18B**). This includes the registration, labeling, distribution, sale, handling, use, application, storage and disposal of pesticides.

The BMPs and guidelines include recommendations that will minimize the potential for chemical movement to surface water and groundwater. They encourage adoption of Integrated Pest Management (IPM) principles when evaluating pest control options to minimize the use of chemicals. Soil physical properties are identified as important considerations in the selection of pesticides. Guidance is also provided on responding to spills, maintaining adequate spill kits and utilizing caution when transporting, storing, mixing, loading and applying pesticides. Recommendations are provided for equipment cleanup and container and waste disposal.

Due to a moratorium, herbicide applications for site preparation and release have not been done for several years on national forest lands administered by the Superior National Forest.

C. Nonregulatory Approaches {2.i. Forest Chemical Management}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

MDA, in conjunction with MES, has developed innovative education and training programs associated with pesticide applicator licensing and certification. These programs address various topics including: water quality protection, endangered species protection, pesticide residues in food and water, worker protection, chronic toxicity, integrated pest management, waste pesticide and pesticide container disposal, etc. These programs are offered as part of a regulatory licensing and certification requirement, but the applicator workshops are also open to the public. Pesticide Applicator Training workshops are held at various locations and times throughout the state. Workshops are targeted to specific categories of applicators that include forestry. Minnesota Pesticide Information and Education, Inc., has also been involved in these trainings.

Additional information about IPM can be obtained from the Forest Pest Management Unit, USDA Forest Service State and Private Forestry program, Minnesota DNR regional insect and disease specialists, and MES. Additional information on proper pesticide use, including recommendations of the rates and applicability of various pesticides, and a list of dealers that recycle pesticide

containers, can be obtained from the MES, MDA and the University of Minnesota Forest Vegetation Management Cooperative.

Technical assistance for vegetation management is available through the University of Minnesota Forest Vegetation Management Cooperative. Assistance for insect and disease problems is available through the MES and DNR Forestry's regional insect and disease specialists.

D. Enforceable Policies and Mechanisms {2.i. Forest Chemical Management}

1. State Permits and Licenses

MDA requires persons who sell or distribute bulk pesticides or restricted use pesticides to obtain an MDA license. MDA requires pesticide applicators within the state to be licensed if they are commercial applicators (applying for hire) or apply restricted use pesticides as noncommercial applicators. They must be certified as private applicators if they apply restricted use pesticides to sites they own, rent or manage.

MDA requires that a construction permit be obtained for the construction of facilities that store pesticides in bulk. Permit requirements include safeguards (primary and secondary) to protect from product release.

2. Local Zoning

State law (**M.S. 18B.02**) preempts ordinances by local governments that prohibit or regulate any matter relating to the registration, labeling, distribution, sale, handling, use, application or disposal of pesticides.

3. Direct State Statutory Requirements

The MDA administers and enforces the **State Pesticide Control Law (M.S. 18B, M.S. 18C and M.S. 18D)**. This law provides the department the authority to regulate pesticides in Minnesota, including provisions for the protection of the environment. Pursuant to **M.S. 18B.045**, the state has developed a Pesticide Management Plan. The purpose of the plan is for the protection of ground and surface water from nonpoint source pesticide contamination. The goals of the plan are prevention, evaluation and mitigation.

<http://www.revisor.leg.state.mn.us/stats/18B/>

<http://www.revisor.leg.state.mn.us/stats/18C/>
<http://www.revisor.leg.state.mn.us/stats/18D/>

In the instance of a release or substantial threat of a release of a pollutant, contaminant or hazardous substance, MDA is authorized to take emergency action or order actions to protect the public health, welfare or the environment. The MDA is also authorized to order corrective actions where necessary.

The **Shoreland Management Act, M.S. 103F.201 - .221**, requires that fertilizers, pesticides and animal wastes in shorelands be applied properly.

E. Monitoring and Tracking {2.i. Forest Chemical Management}

1. Existing and Planned Monitoring Efforts

Rainwater was collected for pesticide analysis near Hoyt Lakes, which is within the Lake Superior Basin.

The University of Minnesota Forest Vegetation Management Cooperative annually surveys forest pesticide users across the state to determine the forest acreage treated and herbicides applied.

Minnesota's former field auditing system and new monitoring system for forestry is described in the introduction to this chapter. More than 100 sites are visited each year for monitoring (formerly auditing). Site visits are conducted by DNR and/or MPCA staff if complaints are lodged either via the MFRC system or directly to the agencies.

Statewide monitoring of nonpoint source pollution is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan*. It is available on the Internet.

2. Inspection, Tracking and Assessment Techniques

See the rainwater study and annual forest pesticide user survey, described in E 1, above.

MFRC encourages citizens register concerns about timber harvesting and forest management practices by means of a toll free telephone Public Concerns Registration Line or on their Web site.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {2.i. Forest Chemical Management}

M.S.18B.045, Pesticide Management Plan, states in **Subd. 2. Coordination**: “The pesticide management plan shall be coordinated and developed with other state agency plans and with other state agencies through the Environmental Quality Board. In addition, the University of Minnesota Extension Service, farm organizations, farmers, environmental organizations and industry shall be involved in the pesticide management plan development.”

Notification of all pesticide spills of five gallons or more must be reported to the Minnesota duty officer. The Minnesota duty officer, who is available by telephone 24 hours a day, is responsible for contacting the appropriate state agencies.

2.j. Wetlands Forest Management [Forestry]

A. Federal Description of Management Measure [Nationwide] {2.j. Wetlands Forest Management}

Plan, operate and manage normal, ongoing forestry activities (including harvesting, road design and construction, site preparation and regeneration, and chemical management) to adequately protect the aquatic functions of forested wetlands.

B. Applicability [Nationwide] {2.j. Wetlands Forest Management}

This management measure, nationwide, applies specifically to forest management activities in forested wetlands and supplements previous management measures by addressing the operational circumstances and management practices appropriate for forested wetlands.

Applicable State Programs and Practices

See Section II B: Purpose and Approach, and Chapter IV 6: Wetlands... for additional information on Minnesota's management and protection of wetlands.

Two of the central goals of **Minn. Rules 8420**, the **Wetland Conservation Act (WCA) of 1991**, were to: (1) achieve no net loss in the quantity, quality and biological diversity of Minnesota's existing wetlands, and (2) avoid direct and indirect impacts from activities that destroy or diminish the quantity, quality and biological diversity of wetlands. Where impacts are unavoidable and cannot be rectified or eliminated, the **WCA** requires replacement for unavoidable impacts by restoring or creating substitute wetland areas. However, the **WCA** provides specific exemptions to the requirements for developing a replacement plan. These exemptions include forestry, specifically temporary crossings or permanent forest roads whose primary purpose is silvicultural.

To operate under an exemption, a person must ensure that: (1) appropriate erosion control measures are taken to prevent sedimentation of water; (2) the activity does not block fish activity in a watercourse; and (3) the activity is conducted in compliance with all other applicable federal, state and local requirements, including BMPs and water resource protection requirements established under **M.S. 103H**. To comply with these caveats, BMPs were developed for wetlands in forested regions of the state. These provide forest managers, loggers and landowners with the tools to avoid or minimize potential adverse impacts to wetland functions and values. The principal outcome from applying these BMPs will be to protect normal water movement (i.e., hydrologic flow) within a wetland. These BMPs are also proposed as a means of maintaining water quality. With BMPs as an integral part of forest management, continuous commercial timber production on or near Minnesota's wetlands is feasible without compromising environmental quality.

C. Nonregulatory Approaches {2.j. Wetlands Forest Management}

1. Economic Incentives and Disincentives

Private landowners wishing to install conservation practices or retire their land may receive assistance through a variety of state and federal programs. Federal programs administered by the NRCS include the EQIP, with cost-share for erosion control; WHIP, with cost-share for wildlife habitat, including riparian tree planting; and CRP, with cost-share for riparian forest buffers, including tree planting.

Minnesota's Forest Stewardship Program provides professional forestry advice and plans on management of nonindustrial private forest lands. More than one million acres of privately owned woods in Minnesota have been enrolled into the Forest Stewardship Program. The Stewardship Incentives Program provides cost-share for road design and other activities.

The State Cost-share Program, administered by the SWCDs, provides funding to landowners to offset the cost of installing erosion and sediment control practices.

Under an MOU between the MPCA and DNR, loggers are not required to apply for coverage under the NPDES General Stormwater Permit for Industrial Activity. This saves them the \$85 application fee and the \$210 annual permit fee.

2. Public Information/Education, and Technical/Related Assistance

Information regarding forestry wetland BMPs has been incorporated into ongoing logger, resource manager and landowner educational efforts. LGUs are responsible for implementing the **WCA**. The DNR is the LGU for activities on DNR land. BWSR is the state administrative agency for the **WCA**. The SWCDs are a principal source of information about the **WCA**.

The BMPs for wetlands in forested regions of the state were incorporated into the forest management guidelines and are available to all sectors of the forestry community.

LGUs in the coastal area have been provided wetland delineation training and can provide advice on proposed projects. SWCDs are on the LGU Technical Evaluation Panels and are involved in the **WCA** decisions, including exemption certification. The **WCA** requires mitigation where impacts are unavoidable.

D. Enforcement Policies and Mechanisms {2.j. Wetlands Forest Management}

1. State Permits and Licenses

Permits are required under the U.S. Army Corps of Engineers 404 program for drain and fill activities. However, under state and federal requirements, an individual permit is not required for forestry activities when BMPs are implemented.

2. Local Zoning

Minnesota does not rely on local zoning for implementation of this management measure.

3. Direct State Statutory Requirements

The WCA is mandated under state law. If LGUs do not adopt it, there is a moratorium on wetland activities. On DNR state forest land, the BMPs are adopted as policy. Minnesota requires permits for working in the beds of public waters and public water wetlands (M.S. 103G).

E. Monitoring and Tracking {2.j. Wetlands Forest Management}

1. Existing and Planned Monitoring Efforts

Minnesota's former field auditing system and new monitoring system for forestry is described in the introduction to this chapter. More than 100 sites are visited each year for monitoring (formerly auditing). Not all of these sites include wetlands forests.

Site visits are conducted by DNR and/or MPCA staff if complaints are lodged either via the MFRC system or directly to the agencies.

2. Inspection, Tracking and Assessment Techniques

As described in the introduction to this chapter, DNR's monitoring and tracking system has evolved from the use of field audits conducted by integrated teams that evaluated site-specific compliance with BMPs, to a more randomized, scientific approach. The results in Table 15, below, are from Minnesota's Nonpoint Source (Section 319) Plan, which contains additional details.

Table 15. Minnesota's Wetland Forestry BMP Monitoring Results [Source: Table 12.4 in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan*].

Year	Number of Practices Rated	Application Meets or Exceeds BMP (%)
1995	352	87
1997	319	87
Total	671	87

The MFRC encourages citizens register concerns about timber harvesting and forest management practices by means of a toll-free telephone Public Concerns Registration Line or on their Web site.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {2.j. Wetlands Forest Management}

DNR Forestry directs the statewide forestry water quality program in cooperation with the MPCA. Since the passage of **M.S. 89A**, the MFRC has served as a forum for regular communication, coordination and consensus building among a broad range of forestry interests. Minnesota's new forestry management guidelines reflect the involvement of more than 60 people over a period of two and one-half years.

M.S. 89A.09 requires the DNR to establish an Interagency Information Cooperative (IIC) to coordinate the development and use of forest resources data. The IIC is a partnership between DNR, MFRC, the Minnesota Association of County Land Commissioners, Minnesota Land Management Information Center, University of Minnesota, and USDA Forest Service. The IIC information is described on MFRC's Web site.

M.S. 89A establishes a system for forest planning at the landscape level. Those efforts are beginning in the northern part of the state, and are being led by MFRC.

In addition, MOUs are developed between implementing agencies, as needed. A number of these are included as examples in *Minnesota's Lake Superior Coastal Program and Final Environmental Impact Statement (MLSCP-FEIS)*, Appendix G.

See Appendix A (Acronyms) and Appendix B (References Cited).

IV 3

**URBAN/RURAL
AREAS**

CHAPTER IV. MANAGEMENT MEASURES

SECTION 3. URBAN/RURAL AREAS

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Introduction

The Lake Superior Watershed is generally categorized by two major drainage basins, the St. Louis River Basin and the Lake Superior North Shore Basin. The St. Louis River drainage area is approximately 3,600 square miles. The North Shore drainage area is approximately 2,200 square miles. Figure 2 shows subwatersheds of the Lake Superior Basin and most of its coastal communities. The Lake Superior North and South division is an artificial division of the North Shore with many streams, in both

sections, flowing independently to Lake Superior. The Cloquet River is separated out in this map, but flows into the St. Louis River roughly 10 miles north-northwest of Cloquet. The Nemadji River, which is mostly in Minnesota, actually flows into Lake Superior on the Wisconsin side of St. Louis Bay, one-half mile from the Superior Entry, the bay's natural opening to Lake Superior.

The main stem St. Louis River flows about 179 miles through mostly forested land to its outlet into Lake Superior. Most of Minnesota's Lake Superior Basin is sparsely populated, consistent with the statewide characteristic: 60 percent of the land area has a density of less than 10 people per square mile. The principle land use features of northeastern Minnesota include the City of Duluth, state and national forests and park lands. Lake Superior and the region's numerous lakes and streams are key factors in the land use pattern. Abundant undeveloped areas and scenic wilderness are evidence of the low population density and high percentage of publicly owned land. County, township and municipal governments regulate zoning and land use within their respective jurisdictions. According to the *Duluth News-Tribune*, the population of Carlton County rose eight percent in the 2000 census. St. Louis County gained only one percent, but Duluth (in the county's coastal area) gained 1.7 percent. About 40 percent of St. Louis County's population resides in Duluth, which now has 86,918 people. Lake County gained six percent. Cook County had a large increase of 34 percent. Much of the gain has been concentrated in the coastal areas for both Lake and Cook counties. Lake County now has 11,058 residents and Cook County has 5,168.

Within the North Shore drainage basin, watersheds for 54 named streams terminate at Lake Superior. All but the Pigeon River are designated trout waters. Like the rest of the Lake Superior Watershed, the North Shore is predominately (91 percent) forested. Year-round and seasonal residential areas constitute three percent of the coastal area. Although 43 percent of the drainage basin is in public ownership, only four percent of the coastal zone is public land, mostly in state parks. Commercial and manufacturing areas are minor in extent (0.4 percent). The USDA Forest Service is the North Shore's largest landholder, overseeing approximately 40 percent of the land, with holdings in the Superior National Forest and the Boundary Waters Canoe Area Wilderness. Private land represents about 30 percent of the total area. State and county land holdings are 16 percent and 11 percent, respectively, of the drainage area (NRRI Technical Report, NRRI/TR-91/07, July 1991).

Table 16a. State Enforceable Authorities for Urban/Rural Runoff.

Management Measure	Applicable Minn. Statutes	Applicable Minn. Rules, Permits
Table 16a, Part 1: Urban/Rural Runoff		
a. New Developments	103B.231; 103B.235; 103B.311; 103B.325; 115; 116B; 116D	6120.2800; 6120.3300; 7001.1035; 7050.0180; 7050.0185 MN G 611000 MN R 110000
b. Watershed Protection	92.45; 103E; 103F; 103G; 394; 462	
c. Site Development	103B; 103F; 103G; 116B; 116D; 394	6120.2800; 6120.3300; 7050.0180; 7050.0185; MN R 110,000
Table 16a, Part 2: Construction Activities		
d. Construction Site Erosion and Sediment Control	103B; 103F; 103G; 116B; 116D	6115.0250; 7050.0180; 7050.0185
e. Construction Site Chemical Control	115.061; 103F	6120.3300; 7001.0520; 7001.3050; 7035.0700; 7035.0800
Table 16a, Part 3: Existing Development		
f. Existing Development	103F; 103G; 394	6115.0231; 7050.0180; 7050.0185; 7050.0210
Table 16a, Part 4: Onsite Disposal Systems/Individual Sewage Treatment Systems		
g. New Onsite Disposal Systems	103F	7080; 7080.0010
h. Operating Onsite Disposal Systems	103F	6120.3400; 7080; 7080.0130
Table 16a, Part 5: Pollution Prevention		
i. Pollution Prevention	115.07; 116B	7050.0180; 7050.0185

Table 16a, Part 6: Roads, Highways and Bridges		
j. Planning, Siting and Developing Roads and Highways	103B; 103F; 103G; 116B; 116D; 162.021, Subp.1	4410.4300; 4410.4400; 4410.4600; 6120.3300; 7050.0185; 8820.4010; MN R 100000
k. Bridges	103B; 103F; 103G; 116; 162.021, Subp.1	4410.4300; 4410.4400; 4410.4600; 8820.4010; MN G 611000; MN R 110000
l. Construction Projects	103B; 103F; 103G	6120.2800; 6120.3300; 6155.0250
m. Construction Site Chemical Control	115B-E; 115.061	7001.0520; 7001.3050; 7035.0700; 7035.0800
n. Operation and Maintenance	103F; 103G	6115.0190 - .0231
o. Runoff Systems	103B; 103F; 103G; 116; 162.021, Subp.1	4410.4300; 4410.4400; 4410.4600; 8820.4010; MN G 611000; MN R 110000

Table 16b. Names of State Statutes, Rules and Permits Cited for Urban/Rural Runoff.

Table 16b, Part 1: Statutes
103B: Water Planning and Project Implementation 103B.231: Watershed Plans 103B.235: Local Water Management Plans 103B.311: County Water Planning and Management 103B.325: Consistency of Local Plans/Controls with the Comprehensive Water Plan 103E: Drainage 103F: Protection of Water Resources 103F.101 - .155: Floodplain Management Act 103F.201 - .221: Shoreland Management Act 103G: Waters of the State [Protected Waters Program] 115: Water Pollution Control Act 115.061: Duty to Notify 115B: Environmental Response Liability 115C: Petroleum Tank Release Cleanup 115D: Toxic Pollution Prevention 115E: Oil and Hazardous Substance Discharge Preparedness 116: Pollution Control Agency 162.021: Natural Preservation Routes 394: Planning, Development, Zoning [County] 462: Housing, Redevelopment, Planning, Zoning [Municipal]

Table 16b, Part 2: Rules
4410: Environmental Review
4410.4300: Mandatory EAW Categories
4410.4400: Mandatory EIS Categories
4410.4600: Exemptions
6115: Public Waters
6115.0190: Filling Into Public Waters
6115.0200: Excavation of Public Waters
6115.0231: Specific Standards
6115.0250: Permit Review
6120: Shoreland and Floodplain Management
6120.2800: Shoreland and Floodplain Management
6120.3300: Zoning Provisions
6120.3400: Sanitary Provisions
7001: Permits and Certifications
7001.0520: Permit Requirements
7001.1035: Stormwater Permits
7001.3050: Permit Requirements
7035: Solid Waste
7035.0700: Storage of Solid Waste at Individual Properties
7035.0800: Collection and Transportation of Solid Waste
7050: Waters of the State [Water Quality Standards]
7050.180: Nondegradation for Outstanding Resource Value Waters
7050.185: Nondegradation for All Waters
7080: Onsite Septic Systems
7080.0010: Purpose and Intent
7080.0130: Sewage Tanks
8820: Local State-aid Route Standards, Financing
8820.4010: Natural Preservation Route Characteristics

Table 16b, Part 3: Permits
MN G 611000 and MN R 110000: Stormwater General Permits

Note: Minnesota's statutes and rules are available via the Internet two different ways. The information is the same either way.

1. Statutes and rules may be viewed by section on the Internet on Minnesota's Revisor of Statutes Web site at:

- *For administrative rules - <http://www.revisor.leg.state.mn.us/arule/>
[plus add number of specific rule]*
- *For statutes - <http://www.revisor.leg.state.mn.us/stats/>*

2. *Statutes and rules may be viewed or easily downloaded in their entirety from Minnesota's Legislative Web site at:
<http://www.leg.state.mn.us/leg/statutes.htm>.*

Specific Management Measure Evaluation

PART 1: URBAN/RURAL RUNOFF [URBAN/RURAL AREAS]

3.a. New Developments [Urban/Rural: Urban/Rural Runoff]

A. Federal Description of Management Measure [Nationwide] {3.a. New Developments}

- (1) By design or performance:
 - (a) After construction has been completed and the site is permanently stabilized, reduce average annual total suspended solid (TSS) loadings by 80 percent. For the purposes of this measure, an 80 percent TSS reduction is to be determined on an average annual basis*, or:
 - (b) Reduce the post development loadings of TSS so that average annual TSS loadings are no greater than predevelopment loadings, and
- (2) To the extent practicable, maintain post development peak runoff rate and average volume at levels that are similar to predevelopment levels. Sound watershed management requires that both structural and nonstructural measures be employed to mitigate the adverse impacts of storm water.

** Based on the average annual TSS loadings from all storms less than or equal to the two-year/24-hour storm. TSS loadings from storms greater than the two-year/24-hour storm are not expected to be included in the calculation of the average annual TSS loadings.*

B. Applicability [Nationwide] {3.a. New Developments}

This management measure, nationwide, applies to control urban runoff and treat associated pollutants generated from new development, redevelopment, new and relocated roads, highways and bridges. This management measure does not apply to stormwater discharges that are covered by Phase I and Phase II of the NPDES stormwater permit program.

Applicable State Programs and Practices

C. Nonregulatory Approaches {3.a. New Developments}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

Information initiatives related to new construction development have focused primarily on printed materials. Typically, advice is presented in the context of land stewardship or protection of lakes or streams. A section on new development is included in *A Citizens Guide to Lake Protection*. This booklet provides general guidance on structure placement and vegetation management for erosion control. Lake County offers shoreland owners a nonpoint pollution video series that was developed by the Arrowhead Water Quality Team (AWQT). The St. Louis River System Remedial Action Plan (RAP) has worked with schools to get storm sewers stenciled: “Do Not Dump, Drains to Lake Superior.”

Minnesota has a strong history of using cooperative and nonregulatory approaches to promote environmental protection and conservation. The three-state stormwater project undertaken by Minnesota, Michigan and Wisconsin exemplifies this approach. This project monitors stormwater quality in eleven municipalities, three of which are in Minnesota. Analysis emphasizes traditional water quality parameters and the nine priority pollutants identified by the Lake Superior Binational Program. Two Harbors (on Lake Superior) is in the process of developing a stormwater management plan with the help of a grant from Minnesota’s Lake Superior Coastal Program.

State agencies and others publish a variety of technical manuals as guidance for local and state government, contractors and developers. Two such reference books are: (1) *Minnesota Construction Site Erosion Control Planning Handbook* (Minnesota Board of Water and Soil Resources [BWSR], 1988), and (2) *Protecting Water in Urban Areas: Best Management Practices for Dealing with Storm Water Runoff from Urban, Suburban and Developing Areas of Minnesota* (Minnesota Pollution Control Agency [MPCA], 2000). The local Soil and Water Conservation Districts (SWCDs) and state agencies are the principal sources for the dissemination of this technical guidance. Some professional organizations and

universities also provide access to these and other manuals as part of their library services. MPCA has a Web page and fact sheets dealing with storm water. It has produced “Protecting Water Quality in Urban Areas: A Manual,” which is also available on the Web.

<http://www.pca.state.mn.us/water/stormwater.html>

<http://www.pca.state.mn.us/water/pubs/sw-bmpmanual.html>

D. Enforceable Policies and Mechanisms {3.a. New Developments}

1. Permitting and Licensing

Permit programs include both the Industrial and Construction Site Stormwater Permit Programs (General Permit Authorization to Discharge Stormwater Associated with a Construction Activity Under the National Pollutant Discharge Elimination System/State Disposal System Permit Program, Permit Number **MN R 110000**, **M.S. 115** and **M.S. 116**, as amended, and **Minn. Rules 7001**); also, General Permit Authorization to Discharge Stormwater Associated with Industrial Activity Under the National Pollutant Discharge Elimination System/State Disposal System Permit Program, Permit Number **MN G 611000**, **M.S. 115** and **116**, as amended, and **Minn. Rules 7001**). Other permit programs for new development exist as they relate to local zoning controls. Some examples of these programs are highlighted in the section that follows:

<http://www.revisor.leg.state.mn.us/arule/7001/>

<http://www.revisor.leg.state.mn.us/arule/7001/1035>

<http://www.revisor.leg.state.mn.us/stats/115/>

<http://www.revisor.leg.state.mn.us/stats/116/>

2. Local Zoning

All counties in the Lake Superior Basin have county water plans in force. There are also a number of local codes that apply to new development in the coastal zone. Typical is St. Louis County, which contains the largest urban center in the coastal area and has a number of authorities that address new development. St. Louis Co. **Zoning Ordinance 46, Article III, 5.03**, requires special provisions for the setbacks of structures in the red clay areas of the Lake Superior Watershed and along the streams in the Town of Midway. These standards are in place because of the potential for severe erosion and the consequential in-stream impacts to water quality and fisheries resources. This section establishes a bluff impact zone commencing at the ordinary high water level (OHWL) to the point where the slope

is six percent or less over a 100-foot distance. No water oriented accessory structures are allowed in this bluff impact zone. This ordinance addresses two of the urban management measures (3.a: New Developments, and 3.b: Watershed Protection) by restricting development close to water where soils are highly erodible. This added buffer area allows more time for water to soak into the ground and be filtered by a wider vegetated area, thus reducing total suspended solid loads and reducing site runoff.

St. Louis Co. **Zoning Ordinance 46, 11**, requires that all new development projects in Duluth and Lakewood townships meet additional standards because of the potential for severe erosion hazard areas. Applicants for permits are required to submit site plans to the director of planning with provisions for surface water runoff, subsurface runoff, vegetation removal and landscaping, proposed location and type of sewage treatment system, site topography, driveway location and type, and slope plans. Site plans shall also contain setback requirements and shoreline erosion control requirements. The issuance of permits is conditioned on the ability of the applicant to prove the suitability of the land for development.

St. Louis Co. **Zoning Ordinance 46, 3**, specifies that vegetation standards be met in shore and bluff impact zones on all lakes and rivers. With the exception of dead, diseased or storm damaged trees, this section limits removal of trees between the principal structure and the shoreline to 25 percent of what existed originally. Removal of trees shall also be provided for without the use of heavy equipment. Exemptions are granted under this section if trees are replaced with vegetation of similar value or where forestry represents the primary use. Where forestry is the principal use, the activity shall be required to follow best management practices (BMPs), as developed by the state.

Duluth has a stormwater ordinance (**Duluth City Ordinance 93.65**) requiring a city permit for construction activity disturbing 10,000 square feet of ground or more. Enforcement mechanisms have been worked out through a city permit.

3. Direct State Statutory Authorities

State laws provide a number of authorities that address urban management measure 3.a: New Developments. **M.S. 103B** specifies that all local government units (LGUs) provide water retention devices or areas for all new developments that create an impervious surface of one acre or larger, either singly or in aggregate. **M.S. 103B.231** requires municipalities to develop watershed plans for their city's watersheds. **M.S. 103B.235** requires LGUs having land use planning and regulatory responsibility for territory within the watershed to prepare or cause

to be prepared a local water management plan, capital improvement program and official controls as necessary to bring local water management into conformance with the watershed plan.

Counties are encouraged to develop water plans for all waters within their boundaries under **M.S. 103B.311**. Under **M.S. 103B.325**, LGUs shall amend existing water and related land resources plans and official controls as necessary to have them conform to the applicable, approved comprehensive water plan. LGUs are required to incorporate BMPs for new developments to: (1) minimize off-site runoff, (2) maximize overland flow in vegetated regions, (3) replicate pre-development hydrologic conditions, (4) minimize off-site discharge of pollutants to ground or surface water, and (5) replicate natural filtration functions to the degree possible.

<http://www.revisor.leg.state.mn.us/stats/103B/>
<http://www.revisor.leg.state.mn.us/stats/103B/231.html>
<http://www.revisor.leg.state.mn.us/stats/103B/235.html>
<http://www.revisor.leg.state.mn.us/stats/103B/311.html>
<http://www.revisor.leg.state.mn.us/stats/103B/325.html>

Minnesota's Antidegradation Policy, **Minn. Rules 7050.0185**, states: "It is the policy of the state of Minnesota to protect all waters from significant degradation from point and nonpoint sources and wetland alterations, and to maintain existing water uses, aquatic and wetland habitats, and the level of water quality necessary to protect these uses." **Minn. Rules 7050.0180**, Nondegradation for Outstanding Resource Value Waters, which includes Lake Superior, states: "The agency recognizes that the maintenance of existing high quality in some waters of outstanding resource value to the state is essential to their function as exceptional recreational, cultural, aesthetic or scientific resources. To preserve the value of these special waters, the agency will prohibit or stringently control new or expanded discharges from either point or nonpoint sources to outstanding resource value waters."

<http://www.revisor.leg.state.mn.us/arule/7050/0185.html>
<http://www.revisor.leg.state.mn.us/arule/7050/0180.html>

The **Minnesota Environmental Rights Act, M.S. 116B.03**, provides for any person residing in the state to maintain a civil action in the district court for declaratory or equitable relief in the name of the State of Minnesota against any person, for the protection of the air, water, land or other natural resources located within the state, whether privately or publicly owned, from pollution, impairment

or destruction. Where the subject of the action is conduct governed by an environmental quality standard, limitation, rule, order, license, stipulation agreement or permit promulgated or issued by the MPCA, Minnesota Department of Natural Resources (DNR), Minnesota Department of Health (MDH) or Department of Agriculture, the person taking the action must show evidence that the action violates or is likely to violate the environmental quality standard, limitation, rule, order, license, stipulation agreement or permit.

Legislative Policy: The legislature finds and declares that each person is entitled by right to the protection, preservation and enhancement of air, water, land and other natural resources located within the state and that each person has the responsibility to contribute to the protection, preservation and enhancement thereof. The legislature further declares its policy to create and maintain within the state conditions under which human beings and nature can exist in productive harmony in order that present and future generations may enjoy clean air and water, productive land and other natural resources with which this state has been endowed. Accordingly, it is in the public interest to provide an adequate civil remedy to protect air, water, land and other natural resources located within the state from pollution, impairment or destruction (Environmental Rights Act, Purpose - **M.S. 116B.01**: Purpose).

<http://www.revisor.leg.state.mn.us/stats/116B/>

The **Minnesota Environmental Policy Act (MEPA), M.S. 116D** is meant to see that state actions go through an environmental review process to determine potential environmental impacts and alternatives. No state action can be allowed or permitted if it is likely to cause pollution, impairment or destruction of the air, water, land or other natural resources if there is a prudent and feasible alternative. Economic considerations alone cannot be used to justify a decision.

<http://www.revisor.leg.state.mn.us/stats/116D/>

Minn. Rules 6120.3300, Subp. 11, requires that local governments incorporate stormwater management into all reviews, approvals and permit issuances under the **Shoreland Management Act, M.S. 103F.201 - M.S. 103F.221**. General standards include: (1) emphasis on the use of natural drainage ways, wetlands and vegetated soil surfaces to convey storm water, (2) development planned and accommodated in a manner that minimizes the extent of the impacted area and associated runoff and erosion problems, and (3) the provision of structural solutions where natural features are insufficient to accommodate increased stormwater runoff. Specific standards require that: (1) no more than 25 percent of the lot have an impervious

surface, (2) the design of stormwater facilities be consistent with the technical guidance of local SWCDs, and (3) skimming devices be installed on stormwater discharges to public waters. The North Shore Management Board (NSMB) administers the **Shoreland Management Act** for the Lake Superior coast from Duluth to the Canadian boarder. The NSMB has established zoning for the entire area along the lake. (See Figures 3, 4 and 5). Inland waters in the Lake Superior Basin have the **Shoreland Management Act** applied as minimum standards and criteria in local zoning, ordinances and water plans (**Minn. Rules 6120.2800**).

<http://www.revisor.leg.state.mn.us/arule/6120/3300.html>

<http://www.revisor.leg.state.mn.us/arule/6120/2800.html>

E. Monitoring and Tracking {3.a. New Developments}

1. Existing and Planned Monitoring Efforts

Future monitoring plans are identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan* (MPCA, 2001). This plan is featured in Chapter IV of this Coastal Nonpoint Program document, and is available in its entirety on MPCA's Web site.

<http://www.pca.state.mn.us/water/nonpoint/mplan.html>

A number of local and state efforts are already in place. MPCA did a spring snowmelt study on Duluth streams in 1999 and 2000. Funding will determine if this study continues.

Duluth is developing a stormwater management plan for the city. Plans for monitoring are included in this two-year effort, which began in 2000.

2. Inspection, Tracking and Assessment Techniques

The National Pollutant Discharge Elimination System (NPDES) stormwater permit program has a monitoring and tracking component for construction sites more than five acres in size. Both the Construction Site and Industrial Permits have components that potentially have the effect of reducing TSS loading. Appendix D of the Construction Site Stormwater Permit provides authorization to allow representatives from the "...agency, local permitting authorities, local SWCDs or municipality..." to inspect sites covered under the permit. Part IV.C. of the Industrial Stormwater Permit provides the same authorization as for the Construction Site Permit. Although citizen complaints often serve as the best

source of information for violations of environmental standards, all local units of government have the ability to monitor and track new development.

3. Management Measure Effectiveness

Minnesota has the tools needed and the ability to meet this management measure.

F. Agency Coordination and Linkages {3.a. New Developments}

Lake Superior Basin Planning efforts, facilitated by MPCA, will deal with nonpoint pollution issues, including those related to runoff from new developments. This involves the work of the Programmatic Work Group (PWG), which includes every conceivable resource management entity in the basin, at federal, state, tribal, county and municipal levels. The PWG also includes industry, environmental groups and private citizens.

3.b. Watershed Protection [Urban/Rural: Urban/Rural Runoff]

A. Federal Description of Management Measure [Nationwide] {3.b. Watershed Protection}

Develop a watershed protection program to:

- (1) Avoid conversion, to the extent practicable, of areas that are particularly susceptible to erosion and sediment loss;
- (2) Preserve areas that provide important water quality benefits and/or are necessary to maintain riparian and aquatic biota;
- (3) Develop sites, including roads, highways and bridges, to protect to the extent practicable the natural integrity of water bodies and natural drainage systems.

B. Applicability [Nationwide] {3.b. Watershed Protection}

This management measure, nationwide, applies to new development or redevelopment, including construction of new and relocated roads, highways and bridges that generate nonpoint source pollutants.

Applicable State Programs and Practices

C. Nonregulatory Approaches {3.b. Watershed Protection}

1. Economic Incentives and Disincentives

There are programs like the Conservation Reserve Program (CRP) and Reinvest in Minnesota (RIM) that provide economic opportunities for landowners interested in providing habitat or retiring highly erodible land. The DNR also has a conservation easement program that is frequently used to protect sensitive riparian areas from development and degradation. Private groups such as The Nature Conservancy also buy land and preserve the areas for fish and wildlife habitat, at the same time providing nonpoint source (NPS) pollution prevention and pollution reduction benefits.

2. Public Information/Education, and Technical/Related Assistance

Information about watershed planning can be obtained by contacting regional or area offices for the BWSR, MPCA and DNR. Specific information about regional and local water planning can also be obtained by contacting local government units, local SWCDs, Arrowhead Regional Development Commission (ARDC), local water plan coordinators and the St. Louis River System Remedial Action Plan Citizens Action Committee (CAC) coordinator.

The Minnesota Erosion Control Association (MECA) holds annual workshops and conferences featuring the latest and best erosion control techniques available.

Local water planning (**M.S. 103B**) is a mechanism being used by local government units to develop local citizen based water plans. The water planning process involves state land and water agency input, but the plan goals and objectives are identified by interested local citizens.

<http://www.revisor.leg.state.mn.us/stats/103B/>

The St. Louis River Management Plan, authorized under Minnesota Senate File Number 1490, creates a joint powers board consisting of Carlton, St. Louis and Lake counties. This plan and its creators facilitated the purchase from Minnesota Power of 22,000 acres of riparian lands on the St. Louis River. These lands are now permanently protected in public ownership.

D. Enforceable Policies and Mechanisms {3.b. Watershed Protection}

1. Permitting and Licensing

Minnesota requires permits for working in the beds of protected waters. The LGUs require land use permits and conditional use permits for activities that result in land subdivision, land use, grading, filling and vegetation removal (**M.S. 103G**, **M.S. 103E**, **M.S. 394** and **M.S. 462**).

<http://www.revisor.leg.state.mn.us/stats/103G/>

<http://www.revisor.leg.state.mn.us/stats/103F/>

<http://www.revisor.leg.state.mn.us/stats/394/>

<http://www.revisor.leg.state.mn.us/stats/462/>

M.S. 92.45 prevents lands that border on public waters and come into public ownership from being sold without special authorization by the state legislature.

<http://www.revisor.leg.state.mn.us/stats/92/45.html>

2. Local Zoning

The **State Shoreland Act (M.S. 103F)** requires that local units of government control use of shoreland areas in the state. Local units of government adopt and implement ordinances that control development density, limit development on steep slopes and bluff, limit impervious surface, limit vegetation removal, require the establishment of a bluff and shore impact zone, and encourage open space and cluster development. Subdivision standards require the identification of all unique site characteristics. All land that is approved for subdivision must be able to support reasonable use without the need for variances. Site planning is required, establishment of land use districts is mandatory, and the development of official zoning maps is encouraged (**M.S. 394** and **M.S. 462**).

<http://www.revisor.leg.state.mn.us/stats/103F/>

<http://www.revisor.leg.state.mn.us/stats/394/>

<http://www.revisor.leg.state.mn.us/stats/462/>

River Planning

The St. Louis River Management Plan, mentioned above, was developed to address the need for a comprehensive management plan that provides adequate protection to the river ecosystem in the areas of land use, forest management and

land acquisition. An important charge for this planning process was to address land use practices that affect water quality and to determine improvements needed to protect and enhance water quality. Once implemented into local zoning or land use ordinances, the recommendations contained in the St. Louis River Management Plan will result in increased lot sizes, a no-cut zone along the river corridor and mandated forest management plans. The plan has already resulted in the public purchase of 22,000 acres of riverfront land.

The plan encompasses more than 350 miles of the St. Louis, Whiteface and Cloquet rivers. The watershed drains approximately 3,500 square miles in five counties. The management plan covers approximately 62 percent of the Lake Superior Watershed.

The plan includes the classification of river stretches, which are shown on river classification maps. Stretches were classified according to the existing character of the river and long-range goals for protection and sustainable use. Unique Protection Areas are identified areas of unique, cultural, archaeological, historical, geologic, scientific, natural, ecological or scenic significance worthy of protection or preservation.

3. Direct State Statutory Authorities

See the state statutory authorities referenced above in this section.

E. Monitoring and Tracking {3.b. Watershed Protection}

1. Existing and Planned Monitoring Efforts

The North Shore Management Board (NSMB) has the responsibility for monitoring the implementation and administration of the North Shore Management Plan (NSMP) by LGUs. The NSMB will review permits, conditional use permits, variances and planned unit developments, and will also monitor development trends along Minnesota's Lake Superior North Shore. Outside of the NSMP area and within the Lake Superior Watershed, local government units monitor trends in land use. Considerable GIS information has been, and is rapidly being, developed in the basin by the counties, NRRI, ARDC, DNR and MPCA. In 2000, DNR Waters reviewed and corrected all Minnesota stream, watershed and minor watershed delineation data tributary to Lake Superior, except for the St. Louis River Watershed.

The North Shore Management Plan Boundary is shown in three maps earlier in this document. See Figures 3, 4 and 5.

The existing state monitoring effort is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan* (MPCA, 2001).

2. Inspection, Tracking and Assessment Techniques

Permits issued by either the local unit of government or the state agency are monitored for compliance. Analysis of GIS land use coverages and their changes will become a vital tool in assessing watershed protection for county, state and city governments. Of 34 grant applications submitted to Minnesota's Lake Superior Coastal Program in late 2000, 11 involved GIS work related to coastal resources.

3. Management Measure Effectiveness

Minnesota has the tools needed and the ability to meet this management measure.

F. Agency Coordination and Linkages {3.b. Watershed Protection}

State and local government units have formed a partnership with the development and implementation of local water plans. The BWSR provides funding and assists with coordinating water planning with the other state agencies. The DNR provides LGUs with technical and administrative assistance of shoreland and floodplain management. The MPCA provides assistance to LGUs with technical and administrative assistance in developing stormwater management plans and ISTS planning. The MPCA and DNR also work with lake associations and LGUs in developing comprehensive watershed plans. Basin planning, facilitated by MPCA, will function as a catalyst for information movement between management agencies and institutions at all levels, from city to federal government.

3.c. Site Development [Urban/Rural: Urban/Rural Runoff]

A. Federal Description of Management Measure [Nationwide] {3.c. Site Development}

Plan, design and develop sites to:

- (1) Protect areas that provide important water quality benefits and/or are particularly susceptible to erosion and sediment loss;
- (2) Limit increases of impervious areas, except where necessary;

- (3) Limit land disturbance activities, such as clearing and grading, and cut and fill, to reduce erosion and sediment loss;
- (4) Limit disturbance of natural drainage features and vegetation.

B. Applicability [Nationwide] {3.c. Site Development}

This management measure, nationwide, applies to all site development activities, including those associated with roads, highways and bridges.

Applicable State Programs and Practices

C. Nonregulatory Approaches {3.c. Site Development}

1. Economic Incentives and Disincentives

There are programs that provide compensation to landowners for retiring marginal lands or lands that are considered to have valuable habitat or natural features. Federal Conservation Reserve Program (CRP) dollars for set-aside acres, administered through NRCS, now has an emphasis on riparian lands. DNR can purchase conservation easements from willing landowners. Preserving these lands has direct benefits on controlling NPS pollution.

2. Public Information/Education, and Technical/Related Assistance

A packet of information called “Protecting Our Waters, Shoreland Best Management Practices” was developed for northeastern Minnesota by the AWQT. This set of 16 BMPs is available to assist shoreland property owners in protecting and preserving water quality. The series includes fact sheets such as Developing Shoreland Landscapes/Construction Activities, Stabilizing Your Shoreline to Prevent Erosion, Minimizing Runoff from Shoreland Property, etc. The AWQT, through the Lake County SWCD, also put out a video called, “Water Conservation, Managing Our Precious Liquid Asset, Shoreland Best Management Practices.”

Technicians from the local SWCDs provide guidance on site development. The SWCDs sponsor workshops, distribute information, meet on-site with property owners, and provide review and comments on state and local permits. At the federal level, NRCS can provide technical information. At the state level, the DNR hydrologist, BWSR conservationist and MPCA nonpoint staff can provide technical and administrative program information. At the local level, zoning

administrators, SWCD technicians, and local water plan coordinators can provide information on specific local ordinance controls, cost-share programs, and technical and administrative assistance. In addition, MECA holds a statewide conference and puts on local workshops with the latest erosion control techniques and technology.

A coastal grant proposal from MPCA will introduce the Nonpoint Education for Municipal Officials (NEMO) Project to the North Shore in 2001. NEMO uses computer modeling of watersheds with inputs for zoning, BMPs, soils and impervious surface. Inputs will reveal erosion and flooding issues resulting from potential local planning efforts and allow corrections before damage is done.

D. Enforceable Policies and Mechanisms {3.c. Site Development}

1. Permitting and Licensing

The DNR Protected Waters Permit Program requires erosion control measures. Examples include: placement of drop structures and riprap, establishment and maintenance of vegetation, sediment curtains when necessary for water projects, a 72-hour period for site stabilization, and required seeding and mulching (**M.S. 103G**).

<http://www.revisor.leg.state.mn.us/stats/103G/>

The MPCA's NPDES Construction Site Permit requires development of temporary erosion and sediment control plans to prevent/minimize off-site transport of sediment during the construction phase (Part I.A. of the permit).

Waterbodies can violate Minnesota's water quality standards, **Minn. Rules 7050**. There are currently three North Shore streams listed by Minnesota on the Clean Water Act (CWA) Section 303(d) list for turbidity. Natural tannins and the erosion of the red clay soils in the lower parts of the basin cause these water quality violations. TMDLs will need to be developed for these watersheds to control the turbidity. Other North Shore streams may have similar problems, but have not been tested for enough years to be evaluated for the Section 303(d) list.

<http://www.revisor.leg.state.mn.us/arule/7050/>

2. Local Zoning

The North Shore Management Plan (NSMP) is implemented along Lake Superior by LGUs. Site development must minimize soil erosion and maintain natural vegetation. A number of standards have been developed to insure minimal impact on surrounding lands and waters. The **Shoreland Management Act, M.S. 103F.201 - .221**, requires at a minimum that LGUs develop standards. Controls are required for vegetation removal, grading and filling, impervious surfaces and disturbances to natural drainage features and wetlands. These measures are consistent with this federal management measure.

Land subdivision provisions of **M.S. 103F** require the submittal of plans and information identifying soils, water features, topographic contours, extent of land alterations, near shore aquatic conditions and proposed methods for controlling stormwater runoff and erosion, both during and after construction. The LGU must make a land suitability determination. Duluth, Two Harbors and Grand Marais – the three largest cities in Minnesota’s coastal area – are all in the process of developing stormwater management plans.

<http://www.revisor.leg.state.mn.us/stats/103F/>

At the local level, land use permits and conditional-use permits are required for land alterations (**Minn. Rules 6120.3300, Subp. 4**). For example, plans showing the extent of site development are required for grading and filling that exceeds 10 cubic yards of material in the shore or bluff impact zone, or anywhere else in a shoreland area involving the movement of more than 50 cubic yards of material. Clustering, site fingerprinting, preserving natural drainage features and natural depressional storage areas, and minimizing imperviousness are addressed in site planning requirements and are specifically required in planned unit development site planning.

<http://www.revisor.leg.state.mn.us/arule/6120/3300.html>

3. Direct State Statutory Authorities

M.S. 103F applies to floodplain and shoreland areas. **M.S. 103B** is the **Comprehensive Local Water Management Act**. **M.S. 103G** applies to the public waters designation and use, wetlands and work affecting public waters. Authority to carry out county planning, development and zoning comes under **M.S. 394**.

<http://www.revisor.leg.state.mn.us/stats/103B/>

<http://www.revisor.leg.state.mn.us/stats/103F/>
<http://www.revisor.leg.state.mn.us/stats/103G/>
<http://www.revisor.leg.state.mn.us/stats/394/>

Backup authorities are the same as for urban management measure 3.a: New Developments. The Internet links follow.

<http://www.revisor.leg.state.mn.us/arule/7050/0185.html>
<http://www.revisor.leg.state.mn.us/arule/7050/0180.html>
<http://www.revisor.leg.state.mn.us/stats/116B/>
<http://www.revisor.leg.state.mn.us/stats/116D/>

E. Monitoring and Tracking {3.c. Site Development}

1. Existing and Planned Monitoring Efforts

LGUs monitor land use development trends through efforts of the NSMB, planning and zoning offices and local water plans. The state's existing and planned monitoring efforts are identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan* (MPCA, 2001).

2. Inspection, Tracking and Assessment Techniques

The BWSR Natural Resource Block Grant reporting system (the Local Government Annual Reporting System, or LARS) helps local governments quantify their accomplishments electronically, including information on permits for shoreland alteration, impacts of development on wetlands, and information on septic systems.

The NPDES Construction Site Permit authorizes representatives from the MPCA, local permitting authorities, local SWCDs or municipalities to inspect sites covered under the permit. In addition, the names of construction site owners and general contractors, as well as other pertinent information, are entered into computer files at MPCA to help track compliance with the permit program. Land use permits and zoning decisions are monitored by LGUs. The LGU and DNR monitor land use decisions within the shoreland management zone.

3. Management Measure Effectiveness

Minnesota's listed tools can meet the goals of this management measure.

F. Agency Coordination and Linkages {3.c. Site Development}

State agencies provide technical and administrative assistance to LGUs. DNR Protected Waters Permits are reviewed by the LGU and the local SWCD for consistency with local standards and adequate erosion control measures. The local SWCD provides technical assistance to the LGU on developing erosion control and stormwater management standards, and provisions on local land use permits. Basin planning, with all of its partners, will also look closely at this issue.

PART 2: CONSTRUCTION ACTIVITIES [URBAN/RURAL AREAS]

3.d. Construction Site Erosion and Sediment Control [Urban/Rural: Construction Activities]

A. Federal Description of Management Measure [Nationwide] {3.d. Construction Site Erosion and Sediment Control}

(1) Reduce erosion and, to the extent practicable, retain sediment on site during and after construction, and (2) Prior to land disturbance, prepare and implement an approved erosion and sediment control plan, or a similar administrative document that contains erosion and sediment control provisions.

B. Applicability [Nationwide] {3.d. Construction Site Erosion and Sediment Control}

This management measure, nationwide, applies to all construction activities on sites less than five acres in areas that do not have an NPDES permit. This measure does not apply to: (1) construction of a detached single family home on a site of one-half acre or more, or (2) construction that does not disturb more than 5,000 square feet of land on a site.

Applicable State Programs and Practices

C. Nonregulatory Approaches

{3.d. Construction Site Erosion and Sediment Control}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

A packet of information called “Protecting Our Waters, Shoreland Best Management Practices” was developed for northeastern Minnesota by the AWQT. This set of 16 BMPs is available to assist shoreland property owners in protecting and preserving water quality. The series includes fact sheets that include Developing Shoreland Landscapes/Construction Activities, Stabilizing Your Shoreline to Prevent Erosion, Minimizing Runoff from Shoreland Property, etc.

MECA holds annual workshops and conferences featuring the latest and best erosion control techniques and technologies available.

Technicians from local SWCDs provide guidance on site development. The SWCDs sponsor workshops, distribute information, meet on-site with property owners and provide review and comments on state and local permits. Information about erosion control and site planning can be obtained at three levels of government. At the federal level, NRCS can provide technical information. At the state level, DNR hydrologists, BWSR conservationists and MPCA nonpoint staff can provide technical and administrative program information. At the local level, zoning administrators, SWCD technicians and local water plan coordinators can provide information on specific local ordinance controls, cost-share programs, and technical and administrative assistance. MECA can also provide technical assistance on erosion issues.

D. Enforceable Policies and Mechanisms

{3.d. Construction Site Erosion and Sediment Control}

1. Permitting and Licensing

DNR Protected Waters Permits require that erosion control and sediment control practices be installed (**Minn. Rules 6115.0250, Subp. 3**).

<http://www.revisor.leg.state.mn.us/arule/6115/0250.html>

2. Local Zoning

The NSMP and local land use ordinances require erosion control and sediment control practices (**M.S. 103F**). The minimum standard in the NSMP area requires a vegetation management plan for total vegetation removal of more than 10,000 square feet or 25 percent of the lot area. Vegetation removal is restricted on bluffs, steep slopes and within the structure setback area. An erosion and sediment control plan is required for excavations exceeding 1,000 square feet or 100 cubic yards; fill exceeding 1,000 cubic yards; and any shoreland alteration exceeding 50 cubic yards within the structure setback area. Structure setbacks are 75 feet from the OHWL of an officially designated Protected Waters stream or 40 feet from the vegetation line of Lake Superior; lesser setbacks may be allowed in commercial/urban areas under specified circumstances.

<http://www.revisor.leg.state.mn.us/stats/103F/>

Duluth, Two Harbors and Grand Marais – the three largest coastal cities – are developing stormwater management plans to comply with federal Phase II stormwater regulations. These regulations will require permits for one acre of disturbed surface area.

3. Direct State Statutory Authorities

M.S. Chapter 103F applies to floodplain and shoreland areas. **M.S. 103B** is the **Comprehensive Local Water Management Act**. **M.S. 103G** applies to the public waters designation and use, wetlands and work affecting public waters. **MN R 11000** requires the preparation of an erosion control plan.

<http://www.revisor.leg.state.mn.us/stats/103B/>

<http://www.revisor.leg.state.mn.us/stats/103F/>

<http://www.revisor.leg.state.mn.us/stats/103G/>

Backup authorities are as follows:

<http://www.revisor.leg.state.mn.us/arule/7050/0185.html>

<http://www.revisor.leg.state.mn.us/arule/7050/0210.html>

<http://www.revisor.leg.state.mn.us/stats/116B/>

<http://www.revisor.leg.state.mn.us/stats/116D/>

E. Monitoring and Tracking

{3.d. Construction Site Erosion and Sediment Control}

1. Existing and Planned Monitoring Efforts

The NSMP reviews certain zoning decisions of cities, counties and townships, including variances, conditional use permits and approved planned unit developments. The DNR area hydrologist monitors DNR Protected Waters Permits.

The state's water quality monitoring strategy is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan* (MPCA, 2001).

2. Inspection, Tracking and Assessment Techniques

Inspections and tracking are performed locally by the planning and zoning staff. DNR hydrologists perform inspections of Protected Waters Permits. MPCA stormwater staff regularly inspect construction activities and also respond to citizen complaints about polluted runoff. All permits are recorded and tracked through a database and/or other methods.

3. Management Measure Effectiveness

The tools listed above for Minnesota are capable of meeting this management measure.

F. Agency Coordination and Linkages

{3.d. Construction Site Erosion and Sediment Control}

Protected Waters Permits are reviewed by the appropriate state and local units of governments, and SWCDs before issuance. DNR area hydrologists provide technical and administrative assistance to local units of government on shoreland issues. Within the NSMP area, all proposed federal and state government agency actions (permit decisions and plan approvals) are first reviewed by the NSMB to ensure consistency with the NSMP.

3.e. Construction Site Chemical Control **[Urban/Rural: Construction Activities]**

A. Federal Description of Management Measure [Nationwide] **{3.e. Construction Site Chemical Control}**

- (1) Limit the application, generation, and migration of toxic substances;
- (2) Ensure the proper storage and disposal of toxic materials;
- (3) Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface water.

B. Applicability [Nationwide] {3.e. Construction Site Chemical Control}

This management measure, nationwide, applies to construction sites less than five acres in size and to new, resurfaced, restored or reconstructed road, highway and bridge construction projects. This management measure does not apply to: (1) construction of a detached single family home on a site of one-half acre or more, or (2) construction that does not disturb more than 5,000 square feet of land on a site.

Applicable State Programs and Practices

C. Nonregulatory Approaches {3.e. Construction Site Chemical Control}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

Public information is available from local zoning offices, MPCA, Department of Agriculture (MDA), Minnesota Extension Service (MES), local water plan coordinators, and state and local health departments.

The Western Lake Superior Sanitary District (WLSSD) has a Household Hazardous Waste Program and a Clean Shop Program. These allow individuals to get rid of hazardous materials for free, and businesses to do the same for a minimal fee.

D. Enforceable Policies and Mechanisms {3.e. Construction Site Chemical Control}

1. Permitting and Licensing

A number of permit authorities directly or tangentially apply to construction site chemical control. These authorities are contained in **Minn. Rules 7001.0520** and **Minn. Rules 7001.3050**. No person may treat, store or dispose of hazardous waste under **Minn. Rules 7001.0520** without a permit. Under **Minn. Rules 7001.3050**, it is also illegal to treat, store or dispose of solid waste without a permit.

<http://www.revisor.leg.state.mn.us/arule/7001/0520.html>

<http://www.revisor.leg.state.mn.us/arule/7001/3050.html>

2. Local Zoning

Local zoning ordinances have developed standards for construction activities in compliance with the **Shoreland Management Act, M.S. 103F.201 - .221**, and in some areas have developed standards that are more restrictive than the state's minimum guidelines. The standards address nutrient management, storm water, erosion control and placement of facilities.

<http://www.revisor.leg.state.mn.us/stats/103F/>

3. Direct State Statutory Authorities

A number of authorities exist under Minnesota laws for construction site chemical control. The primary authority with regard to spills is vested in **M.S. 115.061**. Under this statute, it is the duty of every citizen to notify the MPCA and to take any action necessary and reasonable to recover and minimize spills that may cause pollution to state waters. Spills of less than five gallons are exempt from these reporting requirements.

<http://www.revisor.leg.state.mn.us/stats/115/061.html>

Individual property owners are directed under **Minn. Rules 7035.0700** as to the proper storage of solid wastes. Garbage and refuse must be stored in secure, watertight containers. Wastes that cannot be placed in containers must be stored so they do not create a public nuisance or pollution problem. Property owners are responsible for the collection and transportation of wastes in an acceptable manner as defined under **Minn. Rules 7035.0800** to a solid waste facility. Vehicles and

containers used to store wastes must be designed and moved so as to prevent spills. In the event that a spill occurs, it is the responsibility of the collector or transporter to clean up material and any area impacted by the spill.

<http://www.revisor.leg.state.mn.us/arule/7035/0700.html>

<http://www.revisor.leg.state.mn.us/arule/7035/0800.html>

The **Shoreland Management Act, M.S. 103F.201 - .221**, requires that fertilizers, pesticides and animal wastes used in shorelands be applied properly. Extractive machinery must meet setbacks and processing plants must address pollutant discharges consistent with **Minn. Rules 6120.3300**.

<http://www.revisor.leg.state.mn.us/stats/103F/>

<http://www.revisor.leg.state.mn.us/arule/6120/3300.html>

E. Monitoring and Tracking {3.e. Construction Site Chemical Control}

1. Existing and Planned Monitoring Efforts

The state's water quality monitoring strategy is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan* (MPCA, 2001).

2. Inspection, Tracking and Assessment Techniques

As a standard practice, MPCA investigates spills and records them in a computerized statewide reporting system called the "Spill and Leak Reporting Log." The agency also monitors contractors hired to carry out spill cleanup activities.

Solid and hazardous waste permits are input into a computerized database and monitored by MPCA. Solid waste permits are maintained on a computer database system called Solid Waste DELTA. Hazardous waste permits are administered on a database called Hazardous Waste DELTA.

3. Management Measure Effectiveness

Minnesota has the tools to meet this management measure.

F. Agency Coordination and Linkages {3.e. Construction Site Chemical Control}

Spills must be reported to the state's on-duty spills officer. From there, efforts are coordinated with emergency response teams made up of state and local staff identified in county emergency response plans.

PART 3: EXISTING DEVELOPMENT [URBAN/RURAL AREAS]

3.f. Existing Development **[Urban/Rural: Existing Development]**

A. Federal Description of Management Measure [Nationwide] **{3.f. Existing Development}**

Develop and implement watershed management programs to reduce runoff pollutant concentrations and volumes from existing development:

- (1) Identify priority local and/or regional watershed pollutant reduction opportunities, e.g., improvements to existing urban runoff control structures;
- (2) Contain a schedule for implementing appropriate controls;
- (3) Limit destruction of natural conveyance systems; and
- (4) Where appropriate, preserve, enhance or establish buffers along surface waterbodies and their tributaries.

B. Applicability [Nationwide] {3.f. Existing Development}

This management measure, nationwide, applies to existing development and urban areas within the coastal zone to minimize surface water pollutant loadings.

Applicable State Programs and Practices

C. Nonregulatory Approaches {3.f. Existing Development}

1. Economic Incentives and Disincentives

Minnesota DNR has a conservation easement program used to set aside important habitats, often including riparian areas, by contracting with landowners to not develop or farm these important habitats. The Reinvest In Minnesota (RIM)

program works in a similar manner to set aside important habitats, usually including riparian areas and/or highly erodible lands.

2. Public Information/Education, and Technical/Related Assistance

Local water plans have been developed in all counties in the Lake Superior Watershed. These locally developed plans have identified opportunities for reducing impacts to both surface water and groundwater quality.

Under the Lake Superior Binational Program, the states of Minnesota, Wisconsin and Michigan have undertaken a cooperative project to characterize storm water on the U.S. side of Lake Superior. The project is monitoring storm water in 11 communities and developing stormwater management plans in cooperation with local governments for three pilot communities. This project also targets the nasty nine chemicals identified by the Lake Superior Binational Program. These pollutants include: dioxin, octachlorostyrene, hexachlorobenzene, chlordane, dichlorodiphenyltrichloro-ethane (DDT), toxaphene, mercury and polychlorinated biphenyls (PCBs).

BMPs for landowners are available. The AWQT developed *Protecting Minnesota Waters, Shoreland Best Management Practices, for Northeastern Minnesota*. This set of 16 BMPs is available to assist shoreland property owners in protecting and preserving water quality. The series includes fact sheets such as Developing Shoreland Landscapes/Construction Activities, Stabilizing Your Shoreline to Prevent Erosion, Minimizing Runoff from Shoreland Property, etc. The AWQT, through the Lake County SWCD, also put out a video series called, "Water Conservation, Managing Our Precious Liquid Asset, Shoreland Best Management Practices." MES provides information for all kinds of BMPs and general help for better land management.

<http://www.shorelandmanagement.org/>

State and local units of government and special interest groups have formed a joint powers board to identify and prioritize solutions for the Miller Creek Watershed. Structural solutions and nonstructural alternatives will be evaluated and implemented as appropriate. There are also groups working with landowners in the Knife, Midway, Nemadji and Flute Reed river watersheds to solve nonpoint issues.

D. Enforceable Policies and Mechanisms {3.f. Existing Development}

1. Permitting and Licensing

The state's Antidegradation Policy, **Minn. Rules 7050.0185**, states: "It is the policy of the State of Minnesota to protect all waters from significant degradation from point and nonpoint sources and wetland alterations, and to maintain existing water uses, aquatic and wetland habitats, and the level of water quality necessary to protect these uses." **Minn. Rules 7050.0180**, Nondegradation for Outstanding Resource Value Waters, which includes Lake Superior, states: "The agency recognizes that the maintenance of existing high quality in some waters of outstanding resource value to the state is essential to their function as exceptional recreational, cultural, aesthetic or scientific resources. To preserve the value of these special waters, the agency will prohibit or stringently control new or expanded discharges from either point or nonpoint sources to outstanding resource value waters." **Minn. Rules 7050.0210** also applies here.

<http://www.revisor.leg.state.mn.us/arule/7050/0185.html>

<http://www.revisor.leg.state.mn.us/arule/7050/0180.html>

<http://www.revisor.leg.state.mn.us/arule/7050/0210.html>

DNR Protected Waters Permits are required for the construction, reconstruction, or relocation of all sewer outfall structures below the OHWL of Protected Waters. Modifications and retrofits are potential options for areas where there are NPS concerns (**Minn. Rules 6115.0231, B**).

<http://www.revisor.leg.state.mn.us/arule/6115/0231.html>

The MPCA's NPDES Industrial Stormwater Permit, Part I.A., requires development of stormwater pollution prevention plans to control contact between runoff and significant materials. The NPDES Construction Site Stormwater Permit, Part I.A.2, requires development of permanent erosion and sediment control plans to control sediment transport off site.

2. Local Zoning

Local land use ordinances and planning documents are incorporating regional and local planning efforts. For example, the City of Duluth's Miller Hill Corridor Plan identified and prioritized green space along the stream corridor. Further planning efforts for the protection of natural drainage ways will identify additional opportunities for watershed protection. A buffer zone has been identified in the

Shoreland Management Act, M.S. 103F.201 - .221. Preservation and protection of the zone is required.

<http://www.revisor.leg.state.mn.us/stats/103F/>

3. Direct State Statutory Authorities

The **Shoreland and Floodplain Management Acts (M.S. 103F)** have standards for protection and preservation of unique and sensitive areas. The state's "antidegradation policy" cited above also applies here, as does **Minn. Rules 7050.0210**, which refers to nuisance water conditions.

<http://www.revisor.leg.state.mn.us/stats/103F/>

<http://www.revisor.leg.state.mn.us/arule/7050/0210.html>

E. Monitoring and Tracking {3.f. Existing Development}

1. Existing and Planned Monitoring Efforts

State and local permits have the authorities in place to require monitoring and tracking of stormwater facilities. They are found in **M.S. 103G** and **M.S. 394**. The state's monitoring strategy has been identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan* (MPCA, 2001).

<http://www.revisor.leg.state.mn.us/stats/103G/>

<http://www.revisor.leg.state.mn.us/stats/394/>

2. Inspection and Tracking Techniques

Permits issued by the state or the LGU can be inspected and tracked for compliance with standards and conditions that protect surface water quality.

3. Management Measure Effectiveness

Minnesota can meet this measure using the resources listed.

F. Agency Coordination and Linkages {3.f. Existing Development}

State and local units of government have formed partnerships to develop comprehensive watershed plans that identify strategies for protecting existing sensitive areas and improving water quality in areas where impacts are occurring

or have the potential to occur. Basin planning will help coordinate priorities from various planning efforts.

PART 4: OSDS/ISTS [URBAN/RURAL AREAS]

3.g. New Onsite Disposal Systems [Urban/Rural: OSDS/ISTS]

A. Federal Description of Management Measure [Nationwide] {3.g. New Onsite Disposal Systems}

- (1) Ensure that new Onsite Disposal Systems (OSDS), *hereafter referred to as Individual Sewage Treatment Systems (ISTS), to coincide with Minnesota's regulatory verbiage* are located, designed, installed, operated, inspected and maintained to prevent the discharge of pollutants to the surface of the ground and to the extent practicable reduce the discharge of pollutants into ground waters that are closely hydrologically connected to surface waters. Where necessary to meet these objectives: (a) discourage installation of garbage disposals to reduce hydraulic and nutrient loadings; and (b) where low volume plumbing fixtures have not been installed in new developments or redevelopments, reduce total hydraulic loadings to ISTS by 25 percent. Implement ISTS inspection schedules for preconstruction, construction and post construction.
- (2) Direct placement of ISTS away from unsuitable areas. Where placement of ISTS in suitable areas is not practicable, ensure that the ISTS is designed or sited at a density so as not to adversely affect surface waters or ground water that is hydrologically connected to surface water. Unsuitable areas include, but are not limited to, areas with poorly or excessively drained soils; areas with shallow water tables or areas with seasonally high water tables; areas overlaying fractured bedrock that drain directly to ground water; areas within floodplains; or areas where nutrient and/or pathogen concentrations in the effluent cannot be sufficiently treated or reduced before the effluent reaches sensitive water bodies.
- (3) Establish protective setbacks from surface waters, wetlands and floodplains for conventional as well as alternative ISTS. The lateral setbacks should be based on soil type, slope, hydrologic factors and type of ISTS. Where uniform protective setbacks cannot be achieved, site development with ISTS should not adversely affect waterbodies and/or to contribute to a public health nuisance.

- (4) Establish protective separation distances between ISTS system components and groundwater that is closely hydrologically connected to surface waters. The separation distances should be based on soil type, distance to ground water, hydrologic factors and type of ISTS.
- (5) Where conditions indicate that nitrogen limited surface waters may be adversely affected by excess nitrogen loadings from ground water, require the installation of ISTS that reduce total nitrogen loadings by 50 percent to ground water that is closely hydrologically connected to surface water.

B. Applicability [Nationwide] {3.g. New Onsite Disposal Systems}

This management measure, nationwide, applies to all new ISTS facilities, including package plants and small-scale or regional treatment facilities not covered by NPDES permits.

Applicable State Programs and Practices

C. Nonregulatory Approaches {3.g. New Onsite Disposal Systems}

1. Economic Incentives and Disincentives

Most lending institutions require that septic systems be inspected for home mortgage approval. Homeowners are then required to make any necessary repairs prior to mortgage closing. Residents outside the Minneapolis/St. Paul metropolitan area are eligible to apply for grants and low interest loans to repair nonfunctional septic systems. Prospective funding sources include Community Development Block Grants, which are administered by the St. Louis County Community Development Division, and the Farmers Home Administration (FHA). Cook County and Lake County also have access to FHA programs.

2. Public Information/Education, and Technical/Related Assistance

Considerable effort has been expended by agencies and individuals to provide public information and educational materials about the proper use and maintenance of onsite septic systems. One such effort spearheaded by MES produced a series of BMP fact sheets for property owners. "Maintaining Your Septic System" provides advice on how to determine the system's condition, how to keep everything functioning properly, and how to employ water conservation techniques. A number of other references are also available that augment or

compliment this fact sheet. These publications include: (1) *Understanding Your Septic System*, (2) *Waste Is a Water Problem*, and (3) *Reducing the Risk of Groundwater Contamination by Improving Your Wastewater Treatment*. These publications are available from MES offices. MES also has a Web site with featuring BMPs and information, including ISTS information, for better land management.

<http://www.shorelandmanagement.org/>

State standards for onsite sewage treatment systems in **Minn. Rules 7080** have been adopted in the North Shore Management Plan and in North Shore zoning ordinances. These standards outline site evaluation procedures; sewage tank specifications and capacities; drain field distribution design and size requirements; specifications for trench and mound type systems; and guidelines for alternative treatment techniques. MES also has a Web site with BMPs and general help for better riparian land management for the public, including ISTS information; see the “Minnesota Shoreland Management Resource Guide,” cited above.

<http://www.revisor.leg.state.mn.us/arule/7080>

D. Enforceable Policies and Mechanisms {3.g. New Onsite Disposal Systems}

1. Permitting and Licensing

St. Louis County specifies in **Ordinance Number 46** that all shoreland septic systems and parcels less than 2.5 acres in size in non-shoreland areas be evaluated for condition before issuance of permits for building or other land uses.

Ordinance Number 55, effective August 1, 2000, has 90 pages devoted entirely to ISTS issues. Failing onsite septic systems must be brought up to standards and inspected before permits will be granted or the property can be sold. All LGUs implement an enforceable permit program for ISTS. Lake, Cook and Carlton counties all have similar programs, which are compliant with the **Shoreland Management Act, M.S. 103F.201 - .221**, and **Minn. Rules 7080**.

<http://www.revisor.leg.state.mn.us/arule/7080>

<http://www.revisor.leg.state.mn.us/stats/103F/>

2. Local Zoning

LGUs have been implementing ISTS permit programs through locally developed land use ordinances. ISTS systems are required to be compliant with **Minn. Rules**

7080. (See **M.S. 103F**). The DNR **Shoreland Management Rule** identifies setback requirements and minimum separation distances from surface water, groundwater and floodplains. Under **M.S. 103F**, St. Louis County's adoption of **Minn. Rules 7080**, for example, is in **County Ordinance 55**, which can be found on St. Louis County's Web site.

http://www.co.st-louis.mn.us/publichealth/Environmental/EHISTS_Ordinance55_7-6-00.pdf

3. Direct State Statutory Authorities

The state generally believes that LGUs are best positioned to enforce onsite sewage treatment standards. The rationale for this is that land use decisions are essentially a local responsibility. Local land use decisions and building permits provide an appropriate administrative mechanism and linkage for the adherence to onsite sewage system standards. **Minn. Rules 7080** has evolved from guidelines to minimum standards that counties must adopt as the basis for their programs. **Minn. Rules 7080** was revised in 1995, making it mandatory. **Minn. Rules 7080.0010** gives the purpose and intent of this rule.

<http://www.revisor.leg.state.mn.us/arule/7080/>
<http://www.revisor.leg.state.mn.us/arule/7080/0010.html>

The state also has the authority to supplement or to indirectly enforce provisions of **Minn. Rules 7080** through the NPDES permit program. All discharges to the ground or surface waters require a State Disposal System or NPDES permit.

E. Monitoring and Tracking {3.g. New Onsite Disposal Systems}

1. Existing and Planned Monitoring Efforts

The counties inspect ISTS systems before any type of building permit is issued or sale of the property can go forward. This is spelled out in St. Louis County's **Ordinance 55**, cited above.

2. Inspection and Tracking Techniques

Under the auspices of the North Shore Management Board, a study was undertaken to identify failing onsite septic systems in the coastal zone. As a part of the study, thirty-five miles of shoreline were photographed with oblique, visible and infrared aerial photography. A skilled photo interpreter then inspected the

photography for unusual vegetation growth around onsite sewage treatment systems or high concentrations of chlorophyll-a in receiving waters. The results of this study are summarized in “North Shore Wastewater Treatment Survey.”

3. Management Measure Effectiveness

Minnesota can meet this measure using the resources listed.

F. Agency Coordination and Linkages {3.g. New Onsite Disposal Systems}

North Shore septic issues are also being addressed by multi-agency/citizen groups looking at sewerage five areas of the North Shore where septic failures are an issue. These issues will also be a part of the Lake Superior Basin Plan.

3.h. Operating Onsite Disposal Systems **[Urban/Rural: OSDS/ISTS]**

A. Federal Description of Management Measure [Nationwide] **{3.h. Operating OSDS/ISTS}**

- (1) Establish and implement policies and systems to ensure that existing ISTS are operated and maintained to prevent the discharge of pollutants to the surface of the ground and to the extent practicable reduce the discharge of pollutants to ground waters that are closely hydrologically connected to surface waters. Where necessary to meet these objectives, encourage the reduced use of garbage disposals, encourage the use of low volume plumbing fixtures, reduce total phosphorous loadings to the ISTS by 15 percent (if the use of low phosphate detergents has not been required or widely adopted by ISTS users). Establish and implement policies that require an ISTS to be repaired, replaced or modified where the ISTS fails, or threatens or impairs surface waters.
- (2) Inspect ISTS at a frequency adequate to ascertain whether ISTS are failing.
- (3) Consider replacing or upgrading ISTS to treat effluent so that total nitrogen loadings in the effluent are reduced by 50 percent. This provision applies only: (a) where conditions indicate that nitrogen limited surface waters may be adversely affected by significant groundwater nitrogen loadings from ISTS, and (b) where nitrogen loadings from ISTS are delivered to ground water that is closely hydrologically connected to surface water.

B. Applicability [Nationwide] {3.h. Operating OSDS/ISTS}

This management measure, nationwide, applies to all operating onsite sewage treatment systems. This measure does not apply to systems that meet all of the following criteria: (a) they treat wastewater from a single home, (b) they are situated where the ISTS density is less than or equal to one ISTS per 20 acres, and (c) the ISTS is located at least 1,250 feet from surface waters.

Applicable State Programs and Practices

C. Nonregulatory Approaches {3.h. Operating OSDS/ISTS}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

There are a variety of public information pamphlets and reference materials in circulation that address onsite sewage treatment system maintenance and placement. Samples of some titles are listed under urban management measure g: New Onsite Disposal Systems. MES's shoreland management Web site has five fact sheets on ISTS. St. Louis County's **Ordinance 55**, found on their Web site, contains the information needed for siting, permitting and installing ISTS, plus a list of people certified for installation, maintenance and inspections.

<http://www.shorelandmanagement.org/>

<http://www.co.st->

[louis.mn.us/publichealth/Environmental/EHISTS_Ordinance55_7-6-00.pdf](http://www.co.st-louis.mn.us/publichealth/Environmental/EHISTS_Ordinance55_7-6-00.pdf)

Technical assistance is provided by a number of state and local government units such as the MPCA, DNR, MES, county and city zoning offices, SWCDs and regional sanitary districts.

D. Enforceable Policies and Mechanisms {3.h. Operating OSDS/ISTS}

1. Permitting and Licensing

LGUs issue permits for ISTS within their jurisdictions. They must, at a minimum, follow state standards set under **Minn. Rules 7080**.

<http://www.revisor.leg.state.mn.us/arule/7080>

2. Local Zoning

Pursuant to **M.S. 103F** and **Minn. Rules 6120.3400**, local governments must develop and implement programs to identify and upgrade sewage treatment systems that are inconsistent with **Minn. Rules 7080**. Local zoning sets lot sizes and tank sizes needed for ISTS, setbacks from waters, soil and other requirements for siting. St. Louis County's **Ordinance 55** is very comprehensive.

<http://www.revisor.leg.state.mn.us/stats/103F/>

<http://www.revisor.leg.state.mn.us/arule/6120/3400.html>

<http://www.revisor.leg.state.mn.us/arule/7080>

<http://www.co.st->

[louis.mn.us/publichealth/Environmental/EHISTS_Ordinance55_7-6-00.pdf](http://www.co.st-louis.mn.us/publichealth/Environmental/EHISTS_Ordinance55_7-6-00.pdf)

3. Direct State Statutory Authorities

The maintenance of onsite sewage treatment systems is covered under **Minn. Rules 7080.0130** and **Minn. Rules 6120.3400**. Inspections and maintenance of onsite sewage treatment systems are required at intervals of three years or less.

<http://www.revisor.leg.state.mn.us/arule/6120/3400.html>

<http://www.revisor.leg.state.mn.us/arule/7080/0130.html>

The **Individual Sewage Treatment System (ISTS) Act** (1994) requires that LGUs adopt the minimum ISTS standards promulgated by the state in **Minn. Rules 7080**. They must establish minimum treatment criteria, construction standards and requirements for failing system replacement, property disclosure information and licensing. The law required adoption of **Minn. Rules 7080** by 1996 for all units of government with ISTS ordinances. Under this law, all municipalities and counties must adopt **Minn. Rules 7080** in its entirety.

<http://www.revisor.leg.state.mn.us/arule/7080/>

E. Monitoring and Tracking {3.h. Operating OSDS/ISTS}

1. Existing and Planned Monitoring Efforts

The ISTS law also creates a mechanism for identifying noncomplying septic systems. The LGUs are required to provide certifications or inspections of compliance for septic systems. Any ISTS identified as creating an imminent threat to public health or safety must cease to be used, be upgraded or be replaced within 10 months of identification.

2. Inspection and Tracking Techniques

Under the auspices of the NSMB, a study was undertaken to identify failing onsite septic systems in the coastal zone. As a part of the study, 35 miles of shoreline were photographed with oblique visible and infrared aerial photography. A skilled photo interpreter then inspected the photography for unusual vegetation growth around onsite sewage treatment systems or for high concentrations of chlorophyll-a in receiving waters. The results of this study are summarized in “North Shore Wastewater Treatment Survey.”

3. Management Measure Effectiveness

Minnesota can meet this measure using the resources listed

F. Agency Coordination and Linkages {3.h. Operating OSDS/ISTS}

Cooperative sewer districts have been formed along the North Shore to deal with septic and sewerage issues. State agencies, counties, townships and the WLSSD have been and are taking part in these efforts. The Lake Superior Basin Plan will also look at ISTS issues, bringing to the discussion a wide spectrum of players representing governments at many levels – from federal to local.

PART 5: POLLUTION PREVENTION [URBAN/RURAL AREAS]

3.i. Pollution Prevention [Urban/Rural: Pollution Prevention]

A. Federal Description of Management Measure [Nationwide] {3.i. Pollution Prevention}

Implement pollution prevention and education programs to reduce nonpoint source pollutants generated from the following activities, where applicable.

- (1) The improper storage, use and disposal of household hazardous chemicals, including automobile fluids, pesticides, paints, solvents, etc.;
- (2) Lawn and garden activities, including the application and disposal of lawn and garden care products, and the improper disposal of leaves and yard trimmings;
- (3) Turf management on golf courses, parks and recreational areas;
- (4) Improper operation and maintenance of onsite sewage disposal systems;
- (5) Discharge of pollutants into storm drains, including floatables, waste oil and litter;
- (6) Commercial activities, including parking lots, gas stations and other entities not under NPDES purview; and
- (7) Improper disposal of pet excrement.

B. Applicability [Nationwide] {3.i. Pollution Prevention}

This management measure, nationwide, is intended to reduce the generation of nonpoint source pollution from all areas with the Section 6217 management area.

Applicable State Programs and Practices

C. Nonregulatory Approaches {3.i. Pollution Prevention}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

The MPCA and others provide information on household hazardous waste management. MPCA publishes a series of fact sheets on proper use, recycling and disposal of household hazardous waste. Another series of fact sheets provides advice on nontoxic substitutes for commonly used products. The WLSSD also

provides information on handling and proper disposal of hazardous materials. The AWQT has a number of BMP fact sheets related to pollution prevention.

<http://www.shorelandmanagement.org/>

A number of state and local government units provide technical assistance including MES, water plan coordinators, BWSR, MDH, DNR, Minnesota Sea Grant, county health departments, local planning and zoning offices and SWCDs. The WLSSD has a Household Hazardous Waste Program and a Clean Shop Program that allow the public to get rid of hazardous materials free and businesses to do the same at a minimal fee. The MPCA has a Lake Superior Initiative program supplying technical assistance to very small quantity hazardous waste generators, because small generators do not have specialized staff to deal with hazardous waste issues.

All counties have recycling facilities strategically located for the convenience of residents.

D. Enforceable Policies and Mechanisms {3.i. Pollution Prevention}

1. Permitting and Licensing

The MPCA's NPDES Industrial Stormwater Permit requires that a pollution prevention plan be developed by permittees.

2. Local Zoning

Minnesota does not rely on local zoning for implementation of this management measure.

3. Direct State Statutory Authorities

Minnesota strongly supports the concept of pollution prevention. The state enacted a law in 1990 commonly known as the **Toxic Pollution Prevention Act**. It establishes an assistance program to assemble information on pollution prevention, provides for technical research and assistance and promotes outreach and education. Under **M.S. 115.07**, persons who operate a facility under U.S. Code, Title 42, Section 11023, are required to prepare a toxic pollution prevention plan. This plan must establish a program to identify economically and technically feasible steps to eliminate or to reduce the release or generation of toxic pollutants. The contents of the plan must be certified by the facility manager and an officer of

the company. Annual reports are also required of all persons who develop pollution prevention plans.

<http://www.revisor.leg.state.mn.us/stats/115/07.html>

The state's Antidegradation Policies, **Minn. Rules 7050.0185** and **Minn. Rules 7050.0180**, applies to all significant point or nonpoint sources of pollution. **M.S. 103F** also applies to many of these management measures in shoreland areas. The Minnesota Environmental Rights Act (**MERA, M.S. 116B**), also allows any citizen of the state to take legal action for the protection of the air, water, land or other natural resources located within the state. **Minn. Rules 7050.0210** also apply here.

<http://www.revisor.leg.state.mn.us/arule/7050/0185.html>

<http://www.revisor.leg.state.mn.us/arule/7050/0180.html>

<http://www.revisor.leg.state.mn.us/arule/7050/0210.html><http://www.revisor.leg.state.mn.us/stats/116B/>

E. Monitoring and Tracking of Management Measure Effectiveness {3.i. Pollution Prevention}

Minnesota can meet this measure with strong technical assistance and public information components, followed up by the backup authorities listed above.

F. Agency Coordination and Linkages {3.i. Pollution Prevention}

The Minnesota Office of Environmental Assistance (OEA) works closely with the WLSSD, schools and counties on recycling and waste reduction. Basin planning efforts will also provide coordination on these measures, as needed.

PART 6: ROADS, HIGHWAYS AND BRIDGES [URBAN/RURAL AREAS]

3.j. Planning, Siting and Developing Roads and Highways [Urban/Rural: Roads, Highways and Bridges]

A. Federal Description of Management Measure [Nationwide] {3.j. Planning, Siting and Developing Roads and Highways}

Plan, site, and develop roads and highways to:

- (1) Protect areas that provide important water quality benefits or are particularly susceptible to erosion or sediment loss;
- (2) Limit land disturbance such as clearing and grading and cut and fill to reduce erosion and sediment loss;
- (3) Limit disturbance of natural drainage features and vegetation.

B. Applicability [Nationwide] {3.j. Planning, Siting and Developing Roads and Highways}

This management measure, nationwide, applies to site development and land disturbing activities for new, relocated and reconstructed (widened) roads (including residential streets) and highways in order to reduce the generation of NPS pollutants and to mitigate the impacts of urban runoff and associated pollutants from such activities.

Applicable State Programs and Practices

C. Nonregulatory Approaches {3.j. Planning, Siting and Developing Roads and Highways}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

The Minnesota Department of Transportation (MnDOT) Office of Environmental Services provides environmental planning, siting and development services. MnDOT also provides their new specifications manual for erosion control.

MnDOT developed rules for Natural Preservation Routes. The rules allow counties to establish “natural preservation routes” based on “particular scenic, environmental, pastoral or historical characteristics such as but not limited to routes along lakes, rivers, wetlands, floodplains or through forests or hilly, rocky or bluff terrain” (**Minn. Rules 8820.4010, Subp. 1**).

<http://www.revisor.leg.state.mn.us/arule/8820/4010.html>

D. Enforceable Policies and Mechanisms

{3.j. Planning, Siting and Developing Roads and Highways}

1. Permitting and Licensing

Permits are required for bridge crossings, filling and excavation for public/private transportation systems that affect DNR Protected Waters. Stormwater management, erosion, and sediment control is regulated by the state’s NPDES general permit **MN R 110000**. The CWA Section 404 program regulates filling and excavation of waters. The MPCA maintains Section 401 water quality certification for USCOE Section 404 permits to ensure that the project will not violate state water quality standards in **Minn. Rules 7050**.

<http://www.revisor.leg.state.mn.us/arule/7050/>

2. Local Zoning

Under the auspices of the **Shoreland Management Act, M.S. 103F.201 - .221**, local zoning controls manage the placement and design of local public and private roads, driveways and parking areas. Roads must be designed and constructed to minimize and control erosion to public waters consistent with the field office technical guides of the local SWCD, or other technical materials. Roads must meet structure setbacks and must not be placed in within bluff and shore impact zones when other reasonable and feasible placement exists (**Minn. Rules 6120.3300, Subp. 5**).

<http://www.revisor.leg.state.mn.us/stats/103F/>

<http://www.revisor.leg.state.mn.us/arule/6120/3300.html>

3. Direct State Statutory Authorities

The Minnesota Environmental Quality Board (EQB) has established a guide to the rules regulating Environmental Assessment. **M.S. 116, Minn. Rules 4410.4300, Minn. Rules 4410.4400 and Minn. Rules 4410.4600** identify categories for mandatory Environmental Assessment Worksheets (EAW), Environmental Impact Statements (EIS) and exemptions. Environmental review is also implemented and coordinated by MnDOT and county highway departments for all federal and state aid projects. Project reports are prepared and reviewed by MnDOT and the Federal Highway Administration for impacts to floodplains, wetlands and other sensitive resources.

<http://www.revisor.leg.state.mn.us/stats/116/>
<http://www.revisor.leg.state.mn.us/arule/4410/>

M.S. 103F applies to floodplain and shoreland areas. **M.S. 103B** is the **Comprehensive Local Water Management Act**. **M.S. 103G** applies to the public waters designation and use, wetlands and work affecting public waters.

<http://www.revisor.leg.state.mn.us/stats/103B/>
<http://www.revisor.leg.state.mn.us/stats/103F/>
<http://www.revisor.leg.state.mn.us/stats/103G/>

M.S. 162.021, Subp. 1, is the authority to adopt rules establishing minimum construction and reconstruction standards for a natural preservation routes category within the County State Aid Highway (CSAH) system. This allows counties to ask for this state designation to allow slower speed limits on roads that meander around wetlands, steep hills and scenic natural features, instead of straightening, cutting and filling to meet faster speed-limit specifications.

<http://www.revisor.leg.state.mn.us/stats/162/021.html>

Previously listed backup authorities (Minnesota's "antidegradation policy," **Minn. Rules 7050.0185**; and **MEPA, M.S. 116D**) are more likely to come into play on major road projects. In addition, **MERA (M.S. 116B)** allows any citizen of the state to take legal action for the protection of the air, water, land or other natural resources located within the state.

<http://www.revisor.leg.state.mn.us/arule/7050/0185.html>

<http://www.revisor.leg.state.mn.us/stats/116D/>
<http://www.revisor.leg.state.mn.us/stats/116B/>

E. Monitoring and Tracking
{3.j. Planning, Siting and Developing Roads and Highways}

1. Existing and Planned Monitoring Efforts

The state's monitoring plans are identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan* (MPCA, 2001).

2. Inspection and Tracking Techniques

Permits are monitored by the issuing regulatory agency. The road authority inspects bridge, highway and roadway projects.

3. Management Measure Effectiveness

Minnesota can meet this measure using the resources listed.

F. Agency Coordination and Linkages
{3.j. Planning, Siting and Developing Roads and Highways}

MnDOT questionnaires are routed through the environmental review process. The questionnaires relate to early coordination efforts on MnDOT projects, before they reach formal environmental review or permitting phases. The DNR area hydrologist identifies potential water resource impacts. MPCA staff review environmental assessments under MEPA. Comments are returned to the MnDOT project manager. Issue resolution is addressed early in the project.

3.k. Bridges [Urban/Rural: Roads, Highways and Bridges]

A. Federal Description of Management Measure [Nationwide] {3.k. Bridges}

Site, design and maintain bridge structures so that sensitive and valuable aquatic ecosystems and areas providing important water quality benefits are protected from adverse impacts.

B. Applicability [Nationwide] {3.k. Bridges}

This management measure, nationwide, applies to new, relocated and rehabilitated bridge structures in order to control erosion, streambed scouring, and surface runoff from such activities.

Applicable State Programs and Practices

C. Nonregulatory Programs {3.k. Bridges}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Education/Education, and Technical/Related Assistance

The MnDOT Office of Environmental Services provides environmental planning, siting and development services.

MnDOT developed rules for Natural Preservation Routes. The rules allow counties to establish natural preservation routes based on particular scenic, environmental, pastoral or historical characteristics such as but not limited to routes along lakes, rivers, wetlands, floodplains or through forests or hilly, rocky or bluff terrain (**Minn. Rules 8820.4010, Subp. 1 and M.S. 162.021**).

<http://www.revisor.leg.state.mn.us/arule/8820/4010.html>

<http://www.revisor.leg.state.mn.us/stats/162/021.html>

The use of scupper drains on short bridges is not practiced. Bridges over sensitive streams are reviewed for the need for retention ponds to collect bridge runoff from a bridge. When necessary, retention ponds are sized to conform to MPCA's NPDES Construction Stormwater Permit.

D. Enforceable Policies and Mechanisms {3.k. Bridges}

1. Permitting and Licensing

Permits are required for bridge crossings, filling, and excavation for public/private transportation systems that affect DNR Protected Waters. Stormwater

management, erosion and sediment control is regulated by the state's NPDES General Permit Number **MN R 110000**. The CWA Section 404 program regulates filling and excavation of waters. MPCA provides water quality certification through Section 401 of CWA. MnDOT also has specifications for stormwater controls for bridge design. The USCOE administers Section 10 of the 1899 Rivers and Harbors Act.

2. Local Zoning

Local zoning controls manage the placement and design of public and private roads, driveways and parking areas. Roads must be designed and constructed to minimize and control erosion to public waters consistent with the field office technical guides of the local SWCD or other technical materials (**Minn. Rules 6120.3300, Subp. 5**).

3. Direct State Statutory Authorities

The EQB has established a guide to the rules regulating environmental assessment. **M.S. 116D.04 (MEPA), M.S. 116B (MERA), Minn. Rules 4410.4300, Minn. Rules 4410.4400 and Minn. Rules 4410.4600** identify categories for mandatory EAW, EIS and exemptions. These authorities limit actions where there is a likelihood of negative impact on the environment, and require that feasible alternatives be explored.

<http://www.revisor.leg.state.mn.us/stats/116D/04.html><http://www.revisor.leg.state.mn.us/stats/116B/>

<http://www.revisor.leg.state.mn.us/arule/4410/4300.html>

<http://www.revisor.leg.state.mn.us/arule/4410/4400.html>

<http://www.revisor.leg.state.mn.us/arule/4410/4600.html>

M.S. Chapter 103F applies to floodplain and shoreland areas. **M.S. 103B** is the **Comprehensive Local Water Management Act**. **M.S. 103G** applies to the public waters designation and use, wetlands and work affecting public waters.

<http://www.revisor.leg.state.mn.us/stats/103B/>

<http://www.revisor.leg.state.mn.us/stats/103F/>

<http://www.revisor.leg.state.mn.us/stats/103G/>

M.S. 162.021, Subp. 1, is the authority to adopt rules establishing minimum construction and reconstruction standards for a natural preservation routes category within the CSAH system.

<http://www.revisor.leg.state.mn.us/stats/162/021.html>

E. Monitoring and Tracking {3.k. Bridges}

1. Existing and Planned Monitoring Efforts

The state's existing monitoring strategy is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan* (MPCA, 2001).

2. Inspection and Tracking Techniques

Permits are inspected and tracked by the appropriate issuing regulatory agency. The appropriate road authority inspects bridge and highway projects.

3. Management Measure Effectiveness

Minnesota meets this measure using the resources listed.

F. Agency Coordination and Linkages {3.k. Bridges}

MnDOT questionnaires are routed through the environmental review process. The questionnaires relate to early coordination efforts on MnDOT projects, before they reach formal environmental or permitting phases. The DNR area hydrologist identifies potential water resource impacts. Comments are returned to the MnDOT project manager. Issue resolution is addressed early in the project. MPCA staff reviews bridge and highway projects and makes recommendations on stormwater management.

3.I. Construction Projects

[Urban/Rural: Roads, Highways and Bridges]

A. Federal Description of Management Measure [Nationwide] {3.I. Construction Projects}

- (1) Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction; and
- (2) Prior to land disturbance, prepare and implement an approved erosion control plan or similar administrative document that contains erosion and sediment control provisions.

B. Applicability [Nationwide] {3.I. Construction Projects}

This management measure, nationwide, applies to new, replaced, restored and rehabilitated road, highway and bridge construction projects in order to control erosion and off site movement of sediment from such activities.

Applicable State Programs and Practices

C. Nonregulatory Approaches

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

Workshops are sponsored by the MPCA's Water Quality Division, University of Minnesota, MECA and BWSR. Examples of workshops include: Construction Site Erosion and Sediment Control Plan Design, and Stormwater Quality Management through the Use of Detention Basins.

The MnDOT Office of Environmental Services provides environmental planning, siting and development services. County and local government units are given technical assistance by staff who are trained and educated in environmental compliance. MnDOT also provides their new specifications manual for erosion control. MECA holds annual workshops and conferences on the latest and best available erosion control techniques and technologies.

D. Enforceable Policies and Mechanisms {3.I. Construction Projects}

1. Permitting and Licensing

DNR Protected Waters Permits require that erosion control and sediment control practices be installed (**Minn. Rules 6155.0250, Subp. 3**).

MPCA's NPDES Construction Site Stormwater Permit (Phase I) is required for erosion and sediment control at construction sites larger than five acres. The state

is working to implement the coming Phase II Stormwater Program, which will require permits for disturbing more than one acre of land.

2. Local Zoning

The NSMP and local land use ordinances require erosion and sediment control practices. The minimum standard in the NSMP area requires a vegetation management plan for total vegetation removal of more than 10,000 square feet or 25 percent of the lot area. Vegetation removal is restricted on bluffs, steep slopes and within the structure setback area. An erosion and sediment control plan is required for excavations exceeding 1,000 square feet or 100 cubic yards, fill exceeding 1,000 cubic yards, and any shoreland alteration exceeding 50 cubic yards within the structure setback area.

Minn. Rules 6120.2800 applies to all state shorelands of public waters that are subject to local government land use controls. **Minn. Rules 6120.2800, Subp. 1a**, applies to the NSMB and the communities and LGUs within the NSMP boundaries. **Minn. Rules 6120.3300** applies to all state public waters shorelands, which are subject to local government land use controls. **Minn. Rules 6120.3300, Subp. 5**, applies to placement and erosion control for roads, driveways and parking lots.

<http://www.revisor.leg.state.mn.us/arule/6120/2800.html>

<http://www.revisor.leg.state.mn.us/arule/6120/3300.html>

3. Direct State Statutory Authorities

Protection of Water Resources, **M.S. 103F**, applies to floodplain and shoreland areas. **M.S. 103B** is Water Planning and Project Implementation. The **Comprehensive Local Water Management Act. M.S. 103G** applies to the public waters designation and use, wetlands and work affecting public waters. **MERA, (M.S. 116B)** allows any person, including the state to bring civil action for the protection of the air, water, land or other natural resources located within the state, whether publicly or privately owned, from pollution, impairment or destruction. This includes even actions “likely” to adversely affect the environment.

<http://www.revisor.leg.state.mn.us/stats/103B/>

<http://www.revisor.leg.state.mn.us/stats/103F/>

<http://www.revisor.leg.state.mn.us/stats/103g/>

<http://www.revisor.leg.state.mn.us/stats/116B/>

MnDOT has developed special provisions for all construction plans. Contract language requires the contractor to implement special provisions and comply with air and water quality rules (**Standards, Specifications and Provisions for Construction, 1717**). MnDOT has also developed Integrated Roadside Vegetation Management that is intended to reduce erosion.

E. Monitoring and Tracking {3.1. Construction Projects}

1. Existing and Planned Monitoring Efforts

The NSMB will review zoning decisions of cities, counties and townships, including variances, conditional use permits and approved planned unit development.

The DNR area hydrologist monitors DNR Protected Waters Permits.

The state's water quality monitoring strategy is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan*.

2. Inspection and Tracking Techniques

Inspections and tracking are performed locally by the planning and zoning staff. DNR area hydrologists perform inspections of Protected Waters Permits. All permits are recorded and tracked through a database and/or other methods. Bridge and highway projects are inspected and monitored for compliance by the appropriate road authority. MPCA may inspect sites to insure that water quality is not impacted by the activities. Complaints will trigger a site visit.

3. Management Measure Effectiveness

Minnesota can meet this measure using the resources listed.

F. Agency Coordination and Linkages {3.1. Construction Projects}

Protected Waters Permits are reviewed by the appropriate LGU and SWCD before issuance. DNR area hydrologists provide technical and administrative assistance to LGUs on shoreland issues. Within the NSMP area, all proposed federal and state government agency actions (permit decisions and plan approvals) are first reviewed by the NSMB to ensure consistency with the NSMP.

MnDOT's Office of Environmental Services coordinates projects in sensitive areas with the MPCA, DNR and LGUs.

3.m. Construction Site Chemical Control **[Urban/Rural: Roads, Highways and Bridges]**

A. Federal Description of Management Measure [Nationwide] {3.m. Construction Site Chemical Control}

- (1) Limit the application, generation and migration of toxic substances;
- (2) Ensure the proper storage and disposal of toxic materials;
- (3) Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface water.

B. Applicability [Nationwide] {3.m. Construction Site Chemical Control}

This management measure, nationwide, applies to new, resurfaced, restored and rehabilitated road, highway and bridge construction projects in order to reduce toxic and nutrient loadings from such project sites.

Applicable State Programs and Practices

C. Nonregulatory Approaches {3.m. Construction Site Chemical Control}

1. Economic Incentives and Disincentives

The WLSSD has a Clean Shop Program that allows businesses, including construction companies, to get rid of hazardous materials for a minimal fee.

M.S. 115B.04 defines liability for spill or release of toxic materials and associated natural resource damages and cleanup costs.

<http://www.revisor.leg.state.mn.us/stats/115B/04.html>

2. Public Information/Education, and Technical/Related Assistance

The MPCA and WLSSD have fact sheets, and periodically hold workshops, on the proper handling and storage of toxic or hazardous materials.

The MPCA and WLSSD provide technical assistance for dealing with toxic materials. **M.S. 115D.04** establishes technical assistance for pollution prevention, primarily for toxic materials.

<http://www.revisor.leg.state.mn.us/stats/115D/04.html>

MnDOT maintenance yards are equipped with proper storage and disposal facilities.

D. Enforceable Policies and Mechanisms {3.m. Construction Site Chemical Control}

1. Permitting and Licensing

A number of permit authorities directly or tangentially apply to construction site chemical control. These authorities are contained in **Minn. Rules 7001.0520** and **Minn. Rules 7001.3050**. No person may treat, store or dispose of hazardous waste under **Minn. Rules 7001.0520** without a permit. Under **Minn. Rules 7001.3050**, it is also illegal to treat, store or dispose of solid waste without a permit.

<http://www.revisor.leg.state.mn.us/arule/7001/0520.html>

<http://www.revisor.leg.state.mn.us/arule/7001/3050.html>

2. Local Zoning

Minnesota does not rely on local zoning for implementation of this management measure.

3. Direct State Statutory Authorities

A number of authorities exist under Minnesota law for construction site chemical control. The primary authority with regard to spills is vested in **M.S. 115E**. Under **M.S. 115.061**, it is the duty of every citizen to notify MPCA and to take any action necessary and reasonable to recover and minimize spills that may cause pollution to state waters. Petroleum spills of less than five gallons are exempt from these reporting requirements.

<http://www.revisor.leg.state.mn.us/stats/115B/>

<http://www.revisor.leg.state.mn.us/stats/115/061/>

Individual property owners are directed under **Minn. Rules 7035.0700** about the proper storage of solid wastes. Garbage and refuse must be stored in secure, watertight containers. Wastes that cannot be placed in containers must be stored so as to not create a public nuisance or pollution problem. Property owners are responsible for the collection and transportation of wastes in an acceptable manner, as defined under **Minn. Rules 7035.0800**, to a solid waste facility. Vehicles and containers used to store wastes must be designed and moved so as to prevent spills. In the event that a spill occurs, it is the collector or transporter's responsibility to clean up material and any area impacted by the spill.

<http://www.revisor.leg.state.mn.us/arule/7035/0700.html>

<http://www.revisor.leg.state.mn.us/arule/7035/0800.html>

E. Monitoring and Tracking {3.m. Construction Site Chemical Control}

1. Existing and Planned Monitoring Efforts

As a standard practice, MPCA investigates spills and records them in a computerized statewide reporting system called the "Spill and Leak Reporting Log." The agency also monitors contractors hired to carry out spill cleanup activities.

2. Inspection and Tracking Techniques

Solid and hazardous waste permits are input into a computerized database and monitored by MPCA. Solid waste permits are maintained on a computer database system called Solid Waste DELTA. Hazardous waste permits are administered on a database called Hazardous Waste DELTA.

3. Management Measure Effectiveness

Minnesota can meet this measure using the resources listed.

F. Agency Coordination and Linkages {3.m. Construction Site Chemical Control}

The state duty officer takes calls for all reportable spills and contacts the emergency response teams that are most appropriate to respond.

3.n. Operation and Maintenance **[Urban/Rural: Roads, Highways and Bridges]**

A. Federal Description of Management Measure [Nationwide] {3.n. Operation and Maintenance}

Incorporate water quality assurance procedures into the operation and maintenance of roads, highways and bridges to reduce pollutant loadings to surface waters.

B. Applicability [Nationwide] {3.n. Operation and Maintenance}

This management measure applies to existing, restored and rehabilitated roads, highways and bridges.

Applicable State Programs and Practices

C. Nonregulatory Approaches {3.n. Operation and Maintenance}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

MnDOT and local road authorities are responsible for operation and maintenance of roads, highways and bridges. Many educational, technical and informational practices are implemented at both the local and state level to address operation and maintenance:

- Within the City of Duluth, both private and public entities have programs to sweep, vacuum and wash residential/urban streets and parking lots. The St. Louis County Public Works Department performs street sweeping within the City of Duluth as described in a memorandum of understanding.
- Erosion control through the use of seeding, fertilization, mulch and/or placement of sod along damaged areas and slopes is a common practice with MnDOT and county highway departments.
- MnDOT and St. Louis County have established Integrated Roadside Vegetation Management in order to address chemical and herbicide use, erosion and plant diversity, and provide wildlife habitat.

- Road debris and trash/litter are removed from streets and highways. MnDOT and St. Louis County have established an Adopt a Highway Program.
- Salt storage piles are covered and located outside areas susceptible to flooding. “Salt domes” have been installed at all St. Louis County Public Works division stations.
- Inspection programs are established at both the state and local level in order to identify necessary road repairs, litter and debris control, plus pollution control facilities, energy dissipaters and velocity controls to minimize erosion.
- Tarps and booms are used as necessary to control delivery to surface water of pollutants such as paint, solvents and scrapings.
- MnDOT does not use lead paints for striping.

The use of deicing salt is a common practice in the Lake Superior Watershed. Existing practices being employed to reduce overuse of salt include the use of “ground oriented spreaders,” road sensors to determine road temperatures, the application of Calcium Magnesium Acetate (CMA) in areas sensitive to NPS pollution, and the use of special gages in spreading equipment to further reduce overuse. Prewetting and ice scraping blades and brushes are additional practices being implemented and tested.

MnDOT has been an active leader in developing alternatives to deicing salts. These alternatives have less potential for impacting surface waters. Ongoing research using CMA, Potassium Acetate, and mixtures of sand, salt and CMA, is being done to determine the cost/benefit ratio to eliminating salt as the major deicer. Other research includes the use of liquid solutions, prewetting applications and additives manufactured by Cargill. As long as the cost of salt remains low (\$20/ton), the use of CMA (\$700/ton) is limited. The temperature effectiveness of alternative agents is also limited. Application of alternatives is a problem if motorist safety is jeopardized.

D. Enforceable Policies and Mechanisms {3.n. Operation and Maintenance}

1. Permitting and Licensing

The DNR requires Protected Waters Permits for work to install, maintain or repair roads, highways or bridges that are on Protected Waters (**Minn. Rules 6115.0190 - 6115.0231**).

<http://www.revisor.leg.state.mn.us/arule/6115/0190.html>

<http://www.revisor.leg.state.mn.us/arule/6115/0231.html>

2. Local Zoning

The **Shoreland Management Act, M.S. 103F.201 - .221**, is administered and implemented at the local level. Local zoning standards are developed to address NPS pollution from parking lots and impervious surfaces. Standards in place cover sweeping and litter control, deicing restrictions, placement of accumulated snow, erosion control and vegetation plans.

3. Direct State Statutory Authorities

The Protected Waters Permit Program is authorized by **M.S. 103G**. The **Shoreland Management Act** is authorized by **M.S. 103F**. **MERA (M.S. 116B)** allows any citizen of the state to take legal action for the protection of the air, water, land or other natural resources located within the state.

<http://www.revisor.leg.state.mn.us/stats/103F/>

<http://www.revisor.leg.state.mn.us/stats/103G/>

<http://www.revisor.leg.state.mn.us/stats/116B/>

E. Monitoring and Tracking {3.n. Operation and Maintenance}

1. Existing and Planned Monitoring Efforts

The NSMP reviews zoning decisions of cities, counties and townships, including variances, conditional use permits and approved planned unit development.

The DNR area hydrologist monitors DNR Protected Waters Permits.

The state's water quality monitoring strategy is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan*.

2. Inspection and Tracking Techniques

Inspections and tracking are performed locally by the planning and zoning staff. DNR hydrologists perform inspections of Protected Waters Permits. All permits are recorded and tracked through a database and/or other methods. Bridge and highway projects are inspected and monitored for compliance by the appropriate road authority.

3. Management Measure Effectiveness

Minnesota can meet this measure using the resources listed.

F. Agency Coordination and Linkages {3.n. Operation and Maintenance}

Protected Waters Permits are reviewed by the appropriate LGU and SWCD before issuance. DNR area hydrologists provide technical and administrative assistance to LGUs on shoreland issues. Within the NSMP area, all proposed federal and state government agency actions (permit decisions and plan approvals) are first reviewed by the NSMB to ensure consistency with the NSMP.

3.o. Road, Highway and Bridge Runoff Systems **[Urban/Rural: Roads, Highways and Bridges]**

A. Federal Description of Management Measure [Nationwide] **{3.o. Road, Highway and Bridge Runoff Systems}**

Develop and implement runoff management systems for existing roads, highways and bridges to reduce runoff pollutant concentrations and volumes entering surface waters.

- (1) Identify priority and watershed pollutant reduction opportunities (e.g., improvements to existing urban runoff control structures); and
- (2) Establish schedules for implementing appropriate controls.

B. Applicability [Nationwide] {3.o. Road, Highway and Bridge Runoff Systems}

This management measure, nationwide, applies to existing, resurfaced, restored and rehabilitated roads, highways and bridges that contribute to adverse effects in surface waters. The management measures are applied to new and reconstructed highways and bridges that contribute to adverse effects in surface waters.

Applicable State Programs and Practices

The existing state effort is to develop and implement runoff management systems for new highways, reconstructed highways and bridges to reduce runoff pollutant concentrations and volumes entering surface waters.

C. Nonregulatory Programs {3.o. Road, Highway and Bridge Runoff Systems }

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Education/Education, and Technical/Related Assistance

The MnDOT Office of Environmental Services provides environmental planning, siting and development services.

MnDOT developed rules for Natural Preservation Routes. The rules allow counties to establish natural preservation routes based on particular scenic, environmental, pastoral or historical characteristics such as but not limited to routes along lakes, rivers, wetlands, floodplains or through forests or hilly, rocky or bluff terrain (**Minn. Rules 8820.4010, Subp. 1, and M.S. 162.021**).

<http://www.revisor.leg.state.mn.us/arule/8820/4010.html>

<http://www.revisor.leg.state.mn.us/stats/162/021.html>

D. Enforceable Policies and Mechanisms {3.o. Road, Highway and Bridge Runoff Systems }

1. Permitting and Licensing

Permits are required for bridge crossings, filling, and excavation for public/private transportation systems that affect DNR Protected Waters. Stormwater management, erosion and sediment control is regulated by the state's NPDES General Permit Number **MN R 110000**. The CWA Section 404 program regulates filling and excavation of waters. The MPCA provides water quality certification through Section 401 of CWA. MnDOT also has specifications for stormwater controls for bridge design. The USCOE administers Section 10 of the 1899 Rivers and Harbors Act.

2. Local Zoning

Local zoning controls manage the placement and design of public and private roads, driveways and parking areas. Roads must be designed and constructed to minimize and control erosion to public waters consistent with the field office

technical guides of the local SWCD or other technical materials (**Minn. Rules 6120.3300, Subp. 5**).

3. Direct State Statutory Authorities

The EQB has established a guide to the rules regulating environmental assessment. **M.S. 116, Minn. Rules 4410.4300, Minn. Rules 4410.4400 and Minn. Rules 4410.4600** identify categories for mandatory EAW, EIS and exemptions.

<http://www.revisor.leg.state.mn.us/stats/116/>
<http://www.revisor.leg.state.mn.us/arule/4410/4300.html>
<http://www.revisor.leg.state.mn.us/arule/4410/4400.html>
<http://www.revisor.leg.state.mn.us/arule/4410/4600.html>

M.S. Chapter 103F applies to floodplain and shoreland areas. **M.S. 103B** is the **Comprehensive Local Water Management Act**. **M.S. 103G** applies to the public waters designation and use, wetlands and work affecting public waters.

<http://www.revisor.leg.state.mn.us/stats/103B/>
<http://www.revisor.leg.state.mn.us/stats/103F/>
<http://www.revisor.leg.state.mn.us/stats/103G/>

M.S. 162.021, Subp. 1, is the authority to adopt rules establishing minimum construction and reconstruction standards for a natural preservation routes category within the CSAH system.

<http://www.revisor.leg.state.mn.us/stats/162/021.html>

E. Monitoring and Tracking {3.o. Road, Highway and Bridge Runoff Systems }

1. Existing and Planned Monitoring Efforts

The state's existing monitoring strategy is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan* (MPCA, 2001).

2. Inspection and Tracking Techniques

Permits are inspected and tracked by the appropriate issuing regulatory agency. The appropriate road authority inspects bridge and highway projects.

3. Management Measure Effectiveness

Minnesota can meet this management measure using these tools.

F. Agency Coordination and Linkages

{3.o. Road, Highway and Bridge Runoff Systems }

MnDOT questionnaires are routed through the environmental review process. The questionnaires relate to early coordination efforts on MnDOT projects, before they reach formal environmental or permitting phases. The DNR area hydrologist identifies potential water resource impacts. Comments are returned to the MnDOT project manager. Issue resolution is addressed early in the project. MPCA staff review bridge and highway projects and makes recommendations on stormwater management.

See Appendix A (Acronyms) and Appendix B (References Cited).

IV 4

**MARINAS AND
RECREATIONAL
BOATING**

CHAPTER IV: MANAGEMENT MEASURES

SECTION 4. MARINAS AND RECREATIONAL BOATING

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Introduction [Marinas and Recreational Boating]

Along the Lake Superior shoreline, there are nine marinas and one harbor of refuge (Table 17), plus 11 public boat launches, a protected access at Twin Points and a semi-protected access at Tofte. All of these are potential contributors to nonpoint source (NPS) pollution.

Table 17. Marinas and Selected Related Facilities Located in Minnesota's Lake Superior Basin (from the Duluth area, heading northeast). [Based, in part, upon information provided by the U.S. Coast Guard].

Name of Facility	Location	Slips	Fuel	Pump Out	Phone Number
Spirit Lake Marina and Launch	Spirit Lake, Duluth	100	Yes	Yes	218-628-3578
Waterfront Plaza Marina	Meierhoff Slip, Duluth Harbor Basin	12	No	No	218-722-0571
Lakehead Boat Basin, Inc.	Duluth Harbor Basin	117	Yes	Yes	218-722-1757
Harbor Cove Marina	Duluth Harbor Basin	108	No	No	218-624-1973
Knife River Marina	Knife River	100	Yes	Yes	218-834-5235
Silver Bay Marina	Silver Bay	64*	Yes	Yes	218-226-3121
Taconite Harbor of Refuge	Taconite Harbor	0	No	No	218-834-6626
Grand Marais Recreation Park Marina	Grand Marais Harbor	24	Yes	Yes	218-387-1712
Grand Portage Marina	Grand Portage Bay	30	Yes	No	218-475-2476

* The Silver Bay Marina has room for 164 slips; only 64 slips exist as of July 2001.

The development of facilities such as these is regulated and addressed at the federal, state and local levels. At the federal level, the U.S. Army Corps of Engineers (USCOE) is responsible for administering Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. The U.S. Environmental Protection Agency (USEPA) has delegated 401 certification authority for section 404 permits to the Minnesota Pollution Control Agency (MPCA).

Also at the federal level, the U.S. Fish and Wildlife Service (USFWS) administers a federal grant program of the Clean Vessel Act that awards money to states for

developing pump out and dump stations. DNR Trails and Waterways administers the program at the state level. The U.S. Coast Guard (USCG) conducts pollution investigations under the Federal Water Pollution Control Act, as amended (33 USC 1321 (b)), and provides education on pollution prevention through the Coast Guard Sea Partners Program. The Coast Guard Auxiliary teaches boating safety courses, conducting harbor pollution patrols and performs marine environmental support activities to foster public understanding and compliance with federal and state laws. The U.S. Power Squadron (a private, member supported organization) conducts boating safety classes several times a year that also focus on pollution prevention.

Applicable State Programs and Practices [Marinas and Recreational Boating]

The Minnesota Environmental Quality Board (EQB) administers the Minnesota Environmental Protection Act (MEPA), and the state environmental review (ER) program. **Minn. Rules 4410.4300, Subp. 25**, requires an Environmental Assessment Worksheet (EAW) for the construction or cumulative expansion of a marina or harbor project that results in a total of 20,000 or more square feet of temporary or permanent water surface area used for docks, docking or maneuvering of watercraft. “Cumulative expansion” means that any increase in size requires review once the marina reaches 20,000 square feet.

The procedures for preparation of an EAW and information and data required in an EAW are described in: *Guide to Minnesota Environmental Review Rules*, Minnesota Planning: Environmental Quality Board, 1998. The document is available on the State Planning Web site.

<http://www.mnplan.state.mn.us/cgi-bin/byteserver.pl/pdf/rulguid3.pdf>

The following items must be addressed in the EAW:

Project location/description, project magnitude data, permits and approvals required, land use, cover types; fish, wildlife and ecologically sensitive resources; physical impact on water resources, water use, water related land use management districts, water surface use, soils, erosion and sedimentation, water quality (surface water runoff and wastewaters), ground water (potential for contamination), solid waste, hazardous waste, storage tanks, traffic, vehicle-related air emissions, stationary source air emissions, dust, odors, noise, sensitive resources, visual impacts; compatibility with plans, infrastructure and public services; related developments; cumulative impacts, other potential environmental impacts.

DNR requires permits for filling, excavation and structure placement in all state designated Protected Waters (**Minn. Rules 6115.0010 - 6115.0810**). This addresses new and expanding marina development. A marina is defined as “either an inland or offshore structure for the concentrated mooring of five or more watercraft wherein facilities are provided for ancillary services such as boat mooring, storage, fueling, launching, mechanical repairs, sanitary pump out and restaurant services.”

The rules are the public waters work permit program rules, which are the standards and criteria that projects must meet in order to be approved. The specific rules, standards and criteria are summarized for each management measure in this chapter. The rules address environmental health, generally, and also identify specific types of impacts caused by the following marina and boating related activities:

Filling for navigational access, port development and improvement, excavation for navigation related purposes, harbors and boat slips, docks, wharves, breakwaters and marinas, boat launching ramps and other facilities.

The Minnesota Board of Water and Soil Resources (BWSR), Department of Natural Resources (DNR), MPCA, and the Department of Health (MDH) implement programs that guide the development of public and private facilities, and recreational boating. These programs range from regulatory to nonregulatory, and include technical assistance, public information and education.

DNR Trails and Waterways provides technical and financial assistance to local government units (LGUs) that are interested in implementing the *North Shore Harbor Plan* (NSHP). (See Local Programs, below).

The MPCA provides oversight for a number of programs relating to marina and recreational boating facilities, including above ground tank storage (**Minn. Rules 7001.0020, M.S. 115.03**).

Federal and state regulations require that marinas have a National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Stormwater Permit for Industrial Activity. Marinas fall under Standard Industrial Classification (SIC) Code 4493 - Marina Operation, and an NPDES/SDS permit is mandatory, per 40 CFR 122.26(b)(14)(viii).

MDH has responsibility for sewage waste from marine toilets and collection facilities (**Minn. Rules 4717.4500**).

Minnesota has a “nuisance condition prohibition,” **Minn. Rules 7050.0210, Subp. 2**, as well as an “antidegradation policy,” **Minn. Rules 7050.0185**, in its water quality standards. The nuisance provision says: “No sewage, industrial waste or other wastes shall be discharged from either point or nonpoint sources into any waters of the state so as to cause any nuisance conditions such as the presence of significant amounts of floating solids, scum, visible oil film, excessive suspended solids, material discoloration, obnoxious odors, gas ebullition, deleterious sludge deposits, undesirable slimes or fungus growths, aquatic habitat degradation, excessive growths of aquatic plants or other offensive or harmful effects.”

Under the **Minnesota Environmental Rights Act (MERA), M.S. 116B**, Minnesota allows state residents to take civil action against any person for the protection of the air, water, land or other natural resources located within the state, whether privately or publicly owned, from pollution, impairment or destruction (**M.S. 116B.03**).

Local Programs [Marinas and Recreational Boating]

At the local level, the North Shore Management Board (NSMB) and LGUs administer both regulatory and nonregulatory programs. The NSMB, a joint powers board consisting of county, city and township government, which was created to direct development of a *North Shore Management Plan* (NSMP). The NSMB also developed the NSHP, which evaluated the physical location and feasibility of nine potential recreational boating safe harbors and public access sites on Minnesota’s Lake Superior North Shore. The NSHP (p. 11) identified a list of siting criteria for developing harbor facilities and public access sites along the shore. A key consideration for evaluating each location is that harbor development be sensitive to environmental concerns, natural resource areas and areas of natural or historic interest. Additional analysis of each location placed great emphasis on potential aesthetic and environmental impacts.

Local ordinances have been amended to include provisions of the **Shoreland Management Act** that regulate water access and mooring within commercial and residential planned unit developments with concentrated mooring of five or more watercraft. LGUs administer these ordinances. The state **Shoreland Management Act** also addresses controlled access lots for docking and mooring (**Minn. Rules 6120.3300, Subp. 2**).

The coastal nonpoint management measures are intended to control impacts to water quality and habitat from marina siting, construction (both new and expansion), and

operation and maintenance, as well as boat operation and maintenance. The management measures are applicable to the facilities and their associated shore based services that support recreational boats and boats for hire. The following operations/facilities are covered:

- (1) Any facility that contains 10 or more slips, piers where 10 or more boats may tie up, or any facility where a boat for hire is docked;
- (2) Boat maintenance or repair yards that are adjacent to the water;
- (3) Any federal, state or local facility that involves recreational boat maintenance or repair that is on or adjacent to the water;
- (4) Public or commercial boat ramps;
- (5) Any residential or planned community marina with 10 or more slips; and
- (6) Any mooring field where 10 or more boats are moored.

Table 18a. State Enforceable Authorities for Marinas and Recreational Boating.

Management Measure	Applicable Minn. Statutes	Applicable Minn. Rules
Table 18a, Part 1: Marina Siting and Design		
a. Marina Flushing	86A.20; 97A.141; 103G	6115
b. Water Quality Assessment	86A.20; 97A.141; 103F; 103G	6115
c. Habitat Assessment	86A.20; 97A.141; 103G	6115
d. Shoreline Stabilization	103F; 103G; 394; 462	6115; 8420
e. Stormwater Runoff	103B; 103F; 115; 116	6120.3300; 7001.1035
f. Fueling Station Design	299; 299F.011	7510.3440; 7510.3650
g. Sewage Facility	115	4717; 7050

Table 18a, Part 2: Marina and Boat Operation and Maintenance		
h. Solid Waste	115; 400	7045; 7050
i. Fish Waste	115I; 116; 400; 609.68	7045; 7050
j. Liquid Material Handling	97C.065; 115	7001; 7045; 7046; 7100
k. Petroleum Control	115; 116; 609	7045; 7050.0185; 7050.0210

Table 18a, Part 2: Marina and Boat Operation and Maintenance		
l. Boat Cleaning	115; 116; 609	7045; 7050; 7100
m. Public Education	Enforceable Policies Not Required	
n. Sewage Facilities	86B.325; 115; 116B	4717; 7050.0185; 7050.0210
o. Boat Operation	86B.201; 86B.313; 97C.025; 97C.061	

Table 18b. Names of State Statutes, Rules and Executive Orders Cited for Marinas and Recreational Boating.

Table 18b, Part 1: Statutes
<p>86A.20: Definitions</p> <p>86B: Water Safety, Watercraft and Watercraft Titling</p> <p> 86B.201: State Law and Local Ordinance Authority</p> <p> 86B.313: Personal Watercraft Regulations</p> <p> 86B.325: Discharge from Marine Toilets Prohibited</p> <p>97A.141: Public Water Access Sites</p> <p>97C: Fishing</p> <p> 97C.025: Fishing and Motorboats Prohibited in Certain Areas</p> <p> 97C.061: Dragging a Weight or Anchor through Vegetation</p> <p> 97C.065: Pollutants in Waters</p> <p>103F: Protection of Water Resources</p> <p> 103F.101 - .155: Floodplain Management Act</p> <p> 103F.201 - .221: Shoreland Management Act</p> <p>103G: Waters of the State [Protected Waters Program]</p> <p>115: Water Pollution Control; Sanitary Districts</p> <p>116: Pollution Control Agency</p> <p>116B: Minnesota Environmental Rights Act (MERA)</p> <p>299: Public Safety</p> <p> 299F.011: Uniform Fire Code</p> <p>394: Planning, Development, Zoning [County Zoning]</p> <p>400: Solid Waste Management</p> <p>462: Planning and Development</p> <p>609: Crimes, Criminals</p>

Table 18b, Part 2: Rules
<p>4717: Environmental Health</p> <p>6115: Public Waters</p> <p> 6115.0090: Filling into Public Waters</p>

Table 18b, Part 2: Rules
6115:0190: Specific Standards
6115.0200: Excavation of Public Waters
6115.0201: Specific Standards
6115.0210: Structures in Public Waters
6120: Shoreland and Floodplain Management
6120.3300: Zoning Provisions
7001: NPDES/State Disposal Permits; Air Emission Permits
7001.1035: Storm Water Permits
7045: Hazardous Waste
7046: Facility and Generator Fees
7050: Water Quality Standards
7050.0185: Nondegradation for All Waters [“Antidegradation Policy”]
7050.0210: General Standards for Dischargers [“Nuisance Condition Prohibition”]
7100: Oil and Hazardous Substances
7510: Fire Safety
7510.3440: Uniform Fire Code
7510.3650: Flammable and Combustible Liquids
8420: Wetlands Conservation Act (WCA)

Table 18b, Part 3: Executive Orders
20-02: No Net Loss of Wetlands

Note: Minnesota’s statutes and rules are available via the Internet two different ways. The information is the same either way.

1. *Statutes and rules may be viewed by section on the Internet on Minnesota’s Revisor of Statutes Web site at:*
 - *For administrative rules - <http://www.revisor.leg.state.mn.us/arule/> [plus add number of specific rule]*
 - *For statutes - <http://www.revisor.leg.state.mn.us/stats/>*
2. *Statutes and rules may be viewed or easily downloaded in their entirety from Minnesota’s Legislative Web site at:*
<http://www.leg.state.mn.us/leg/statutes.htm>.

Specific Evaluation of Marina Management Measures

PART 1: MARINA SITING AND DESIGN [MARINAS/RECREATIONAL BOATING]

Please see the detailed discussion about state control of the siting and design of new and expanding marinas in the introduction to this chapter. That discussion applies to all of Part 1: Marina Siting and Design (marina management measures 4.a. through 4.g.).

4.a. Marina Flushing [Marinas/Recreational Boating: Marina Siting and Design]

A. Federal Description of Management Measure [Nationwide] {4.a. Siting: Marina Flushing}

Site and design marinas so that tides and/or currents will aid in flushing of the site or renewing its water regularly.

B. Applicability [Nationwide] {4.a. Siting: Marina Flushing}

This management measure, nationwide, applies to new and expanding marinas.

Applicable State Programs and Practices

C. Nonregulatory Approaches {4.a. Siting: Marina Flushing}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

Information is available from the DNR area offices. Copies of the NSHP can be obtained by contacting the Arrowhead Regional Development Commission (ARDC). Local planning and zoning offices are the point of contact for local land use requirements.

Technical assistance for marina and harbor development is provided by the USCOE, DNR, MPCA, BWSR, LGUs and NSMB.

D. Enforceable Policies and Mechanisms {4.a. Siting: Marina Flushing}

1. State Permits and Licenses

Under **Minn. Rules 6115**, a Public Waters Permit is required from the DNR for any project that alters the course, current or cross-section of public waters (except for five exceptions that are regulated under other Minn. Rules). **Minn. Rules 6115.0210** regulates the placement of structures in protected waters. **Minn. Rules 6115.0200 - 6115.0201** guide the DNR in issuing permits for the excavation of harbors and boat slips. Specifically, **Minn. Rules 6115.0201, Subp. 5, Item E**, requires projects to address “water stagnancy problems including the capability of being flushed or drained.”

Minn. Rules 6115.0201, Subp. 4, identifies requirements for access channels. **Subp. 5, Item E**, identifies requirements for development of inland harbors. The requirements prohibit branches or connecting channels extending laterally outward from inland harbors. Permit applications must contain maps, plans and supporting data regarding water quality and drainage including:

- (a) Quantity and quality of stream flow and local drainage at the proposed project site;
- (b) Potential interference with stream flow or longshore drift;
- (c) Adequate entrance openings;
- (d) Need for and feasibility of maintenance dredging;
- (e) Bank stabilization by appropriate erosion control measures.

2. Local Zoning

Local zoning ordinances control shoreland uses and development.

3. Direct State Statutory Authorities

- **M.S. 86A.20:** Outdoor Recreation Act (including authority for the Lake Superior Safe Harbors Program);
- **M.S. 97A.141:** Public Water Access Sites;
- **M.S. 103F.101 - .155:** Shoreland Management Act;
- **M.S. 103F.201 - .221:** Floodplain Management Act;
- **M.S. 103G:** Protected Waters Program.

E. Monitoring and Tracking {4.a. Siting: Marina Flushing}

1. Existing and Planned Monitoring Efforts

Statewide monitoring of nonpoint source pollution is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan*. The monitoring chapter is available on the Internet.

<http://www.pca.state.mn.us/water/nonpoint/nsmpp-ch5.pdf>

2. Inspection, Tracking and Assessment Techniques

Permits are tracked and inspected/monitored for compliance by the appropriate issuing agency. Monitoring for water quality can be required, if necessary.

Permits issued under DNR's Protected Waters Program are assigned an application number and tracked in a database. DNR hydrologists perform inspections of work done under approved permits, as needed. Permit conditions can be enforced by the DNR conservation officers (COs). Cases can be tried either civilly or criminally, with the county attorney or the DNR initiating court proceedings.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {4.a. Siting: Marina Flushing}

A combined joint notification form – the Minnesota Local/State/Federal Application Forms for Water/Wetland Projects – has been developed for use by the DNR, BWSR, MPCA, SWCD and USCOE, in cooperation with the LGU. The

form enables regulatory agencies to determine jurisdictional authority over a proposed project. The agencies then notify the applicant of their jurisdictional interest, and the need for any additional application forms, project information and fees.

According to **M.S. 103G.105**, state and local officials must cooperate in enforcement. Personnel from MPCA, the Department of Health (MDH) and county and municipal governments must cooperate with the DNR in monitoring and enforcing water permits. County attorneys, sheriffs, other peace officers and other officers having enforcement authority must take all action to the extent of their authority, respectively, that may be necessary or proper for the enforcement of the provisions, rules, standards, orders or permits specified in **M.S. 103G** and **M.S. 103F**.

4.b. Water Quality Assessment **[Marinas/Recreational Boating: Marina Siting and Design]**

A. Federal Description of Management Measure [Nationwide] **{4.b. Siting: Water Quality Assessment}**

This management measure assesses water quality as part of marina siting and design.

B. Applicability [Nationwide] {4.b. Siting: Water Quality Assessment}

This management measure, nationwide, applies to new and expanding marinas.

Applicable State Programs and Practices

C. Nonregulatory Approaches {4.b. Siting: Water Quality Assessment}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

Information is available from the DNR area offices. Copies of the NSHP can be obtained by contacting the ARDC. Local planning and zoning offices are the point of contact for local land use requirements.

Technical assistance for marina and harbor development is provided by the USCOE, DNR, MPCA, BWSR, LGUs and NSMB.

D. Enforceable Policies and Mechanisms {4.b. Siting: Water Quality Assessment}

1. State Permits and Licenses

Under **Minn. Rules 6115**, a Public Waters Permit is required from the DNR for any project that alters the course, current or cross-section of public waters. Water quality assessment and protection is required before a DNR permit can be issued for marina construction or expansion. **Minn. Rules 6115.0201, Subp. 5, Item E (2)**, requires an application for a permit to include supporting data regarding water quality; this is indicated in items (a) through (n), as follows:

An application for a permit shall contain plans, maps, and supporting data regarding proposed excavation site soil borings, ground water levels and characteristics, water quality, topography, drainage, and vegetation which shall substantiate that the proposed project must be reasonable and practical based upon geologic and hydrologic conditions including: (a) quantity and quality of stream flow and local drainage at the proposed project site; (b) water stagnancy problems including the capability of being flushed or drained; (c) interference with stream flow or longshore drift; (d) type of soil strata and underground formations in the project vicinity; (e) protection of the water body itself in terms of reduced water supply, increased seepage or drainage, pollution, increased flooding, and other adverse hydrological impacts; (f) adequate entrance openings; (g) ample turning radius; (h) adequate depth and size for the anticipated watercraft usage; (i) adequate reduction of wave heights in mooring areas; (j) proper harbor shape to reduce wave resonance; (k) need for and feasibility of maintenance dredging; (l) adequate height of perimeter wall; (m) need for wave absorbers within the harbor; and (n) bank stabilization by appropriate erosion control measures.

Special conditions can be added to a permit, requiring water quality monitoring to ensure that state water quality standards are being met. **Minn. Rules 6115.0090**

allows fees to be charged for monitoring and allows permits to be modified for monitoring, should the need be identified.

Operation and maintenance of the marina could require a maintenance dredging permit from the MPCA in order to maintain an appropriate depth for vessels.

2. Local Zoning

Minnesota does not rely on local zoning for implementation of this management measure.

3. Direct State Statutory Authorities

- **M.S. 86A.20:** Outdoor Recreation Act (including the authority for the Lake Superior Safe Harbors Program);
- **M.S. 97A.141:** Public Water Access Sites;
- **M.S. 103F.101 - .155:** Shoreland Management Act;
- **M.S. 103G:** Protected Waters Program;
- **M.S. 115:** Water Quality Standards.

E. Monitoring and Tracking {4.b. Siting: Water Quality Assessment}

1. Existing and Planned Monitoring Efforts

Statewide monitoring of nonpoint source pollution is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan*. It is available on the Internet.

2. Inspection, Tracking and Assessment Techniques

Permits are tracked and inspected/monitored for compliance by the appropriate issuing agency. Monitoring for water quality can be required, if necessary.

Permits issued under DNR's Protected Waters Program are assigned an application number and tracked in a database. DNR hydrologists perform inspections of work done under approved permits, as needed. Permit conditions can be enforced by the DNR COs. Cases can be tried either civilly or criminally, with either the county attorney or DNR initiating court proceedings.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {4.b. Siting: Water Quality Assessment}

Depending on the size and the type of wetland or water basin affected by a proposed action, a number of regulatory agencies are involved. To address this issue, a combined joint notification form – the Minnesota Local/State/Federal Application Forms for Water/Wetland Projects – has been developed for use by the DNR, BWSR, MPCA, SWCD and USCOE, in cooperation with the LGU. The form enables regulatory agencies to determine jurisdictional authority over a proposed project. The agencies then notify the applicant of their jurisdictional interest, and the need for any additional application forms, project information and fees.

According to **M.S. 103G.105**, state and local officials must cooperate in enforcement. Personnel from the MPCA, MDH and county and municipal governments must cooperate with the DNR in monitoring and enforcing water permits. County attorneys, sheriffs, other peace officers and other officers having enforcement authority must take all action to the extent of their authority, respectively, that may be necessary or proper for the enforcement of the provisions, rules, standards, orders or permits specified in **M.S. 103G** and **M.S. 103F**.

4.c. Habitat Assessment [Marinas/Recreational Boating: Marina Siting and Design]

A. Federal Description of Management Measure [Nationwide] {4.c. Siting: Habitat Assessment}

Site and design marinas to protect against adverse effects on fisheries resources, wetlands, submerged aquatic vegetation and other important riparian and aquatic habitat areas as designated by local, state or federal governments.

B. Applicability [Nationwide] {4.c. Siting: Habitat Assessment}

This management measure, nationwide, applies to new and expanding marinas where site changes may impact wetlands, aquatic vegetation or other important habitats.

Applicable State Programs and Practices

C. Nonregulatory Approaches {4.c. Siting: Habitat Assessment}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

The NSMB developed a NSHP that identified existing and potential facility sites. Strong opposition to locating facilities in sensitive areas was a major factor in determining possible site selection. One of the goals of the plan is to encourage redevelopment and expansion of existing marinas and harbors. The plan identified a number of criteria that must be incorporated into siting, including: fish and wildlife habitat, wetlands and other environmental concerns (NSHP, p. 11). A number of surveys were conducted, and a steering committee evaluated the need for and potential placement of harbors and facilities. The NSMB and the NSMB's Citizens Advisory Committee (CAC) continues to provide leadership in implementing the plan. DNR Trails and Waterways provided assistance in developing the plan and is assisting in implementing the plan by providing technical and financial assistance.

The DNR, U.S. Geological Survey (USGS) and the University of Minnesota's Natural Resources Research Institute (NRRI) identified lake-trout spawning habitat along Minnesota's Lake Superior shore. ("Predicting Lake Trout Spawning Habitat along the North Shore of Lake Superior using Side-scan Sonar," NRRI, 1998). This work will ensure that marinas are not inadvertently sited on lake trout spawning beds. This project was funded by an environmental fine administered by MPCA.

Technical assistance for marina and harbor development is provided by the USCOE, DNR, MPCA, BWSR and LGUs. The NSMB, with assistance from the DNR, has developed a site planning instruction manual.

D. Enforceable Policies and Mechanisms {4.c. Siting: Habitat Assessment}

1. State Permits and Licenses

Under **Minn. Rules 6115**, a Public Waters Permit is required from the DNR for any project that alters the course, current or cross-section of public waters. **Minn. Rules 6115.0200, Subp. 3**, does not allow excavation, filling or structure placement when the activity “will be detrimental to significant fish and wildlife habitat or protected vegetation and there are no feasible, practical or ecologically acceptable means to mitigate the effects.”

Minn. Rules 6115.0210, Subp. 3, states, in part: “Placement of structures such as docks and boat ramps is not permitted where the structure: **B**. Will be detrimental to significant fish and wildlife habitat or protected vegetation. Construction is prohibited in posted fish spawning areas.”

Excavation as it applies to marina and recreational boating is not permitted in the following cases, pursuant to **Minn. Rules 6115.0200, Subp. 3: A**. “Where it is intended to gain access to navigable water depths when such access can be reasonably attained by alternative means which would result in less environmental impact; **C**. Where the proposed excavation will be detrimental to significant fish and wildlife habitat, or protected vegetation and there are no feasible, practical or ecologically acceptable means to mitigate the effects.”

Filling, as it applies to marina and facilities development, is controlled by **Minn. Rules 6115.0190, Subp. 3, Item A** through **Item F**. It is not permitted for the purpose of achieving vegetation control, creating upland areas to stabilize the beds of protected waters that cannot support fill materials. **Minn. Rules 6115.0190, Subp. 3, Item G**, states that the filling of posted fish spawning areas is prohibited.

One of the goals of **Minn. Rules 6115.0190, Subp. 1**, is to “preserve the natural character of protected waters and their shorelands, in order to minimize encroachment, change or damage to the environment.”

Operation and maintenance of the marina could require a maintenance dredging permit from the MPCA in order to maintain an appropriate depth for vessels.

2. Local Zoning

Local land use ordinances have identified areas or districts where recreational based uses are allowed that are in keeping with local customs and traditions. They also have developed standards by which certain activities are regulated, including the disturbance of sensitive areas such as wetlands.

3. Direct State Statutory Authorities

- **M.S. 86A.20:** Outdoor Recreation Act (including authority for the Lake Superior Safe Harbors Program);
- **M.S. 97A.141:** Public Water Access Sites;
- **M.S. 103F.101 - .155:** Shoreland Management Act;
- **M.S. 103G:** Protected Waters Program.

E. Monitoring and Tracking {4.c. Siting: Habitat Assessment}

1. Existing and Planned Monitoring Efforts

Statewide monitoring of nonpoint source pollution is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan*. It is available on the Internet.

2. Inspection, Tracking and Assessment Techniques

Permits are tracked and inspected/monitored for compliance by the appropriate issuing agency. Monitoring for water quality can be required, if necessary.

Permits issued under DNR's Protected Waters Program are assigned an application number and tracked in a database. DNR hydrologists perform inspections of work done under approved permits as needed. Permit conditions can be enforced by the DNR COs.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {4.c. Siting: Habitat Assessment}

A combined joint notification form – the Minnesota Local/State/Federal Application Forms for Water/Wetland Projects – has been developed for use by the DNR, BWSR, MPCA, SWCD and USCOE, in cooperation with the LGU. The form enables regulatory agencies to determine jurisdictional authority over a proposed project.

According to **M.S. 103G.105**, state and local officials must cooperate in enforcement. Personnel from the MPCA, MDH and county and municipal governments must cooperate with the DNR in monitoring and enforcing water permits. County attorneys, sheriffs, other peace officers and other officers having enforcement authority must take all action to the extent of their authority, respectively, that may be necessary or proper for the enforcement of the provisions, rules, standards, orders or permits specified in **M.S. 103G** and **M.S. 103F**.

4.d. Shoreline Stabilization
[Marinas/Recreational Boating: Marina Siting and Design]

A. Federal Description of Management Measure [Nationwide]
{4.d. Siting: Shoreline Stabilization}

Where shoreline erosion is a nonpoint source pollution problem, shorelines should be stabilized. Vegetative methods are strongly preferred, unless structural methods are more cost effective considering the severity of wave and wind erosion, offshore bathymetry and the potential adverse impact on other shorelines and offshore areas.

B. Applicability [Nationwide] {4.d. Siting: Shoreline Stabilization}

This management measure, nationwide, applies to new and expanding marinas where site changes may result in shoreline erosion.

Applicable State Programs and Practices

C. Nonregulatory Approaches {4.d. Siting: Shoreline Stabilization}

1. Economic Incentives and Disincentives

The State Cost-share Program, including Special Project Cost-share, is administered at the state level by BWSR and at the local level by the SWCDs. Private landowners can get up to a 75 percent cost-share to fix erosion and water quality problems. Local water planning challenge grant funding administered by BWSR can also be used to help implement high priority erosion and water quality projects.

2. Public Information/Education, and Technical/Related Assistance

A number of technical brochures and fact sheets have been developed by the USCOE, DNR, BWSR and the Arrowhead Water Quality Team. This information describes both structural and non-structural methods for controlling erosion.

The SWCDs provide technical assistance and cost-share funding to citizens and LGUs along the Lake Superior shore. Technical assistance consists of planning, design and implementation of shoreline protection projects. BWSR's Lakeshore Engineer provides technical assistance in cooperation with the SWCDs.

D. Enforceable Policies and Mechanisms {4.d. Siting: Shoreline Stabilization}

1. State Permits and Licenses

Under **Minn. Rules 6115**, a Public Waters Permit is required from the DNR for any project that alters the course, current or cross-section of public waters. Shoreline stabilization is required for issuance of a protected waters permit for excavation or placement of harbors, marinas, boat slips and accesses (**Minn. Rules 6115.0201, Subp. 5, Item E (2)(n)**). Vegetation and natural rock are preferred due to their low cost and more natural appearance. The construction of retaining walls is discouraged because their appearance is generally not consistent with the natural environment, and they generally cost more to construct and maintain than rock riprap. The placement of retaining walls and erosion and sedimentation control structures is regulated in **Minn. Rules 6115.0211, Subp. 5**.

Permits issued for filling must meet the requirement for erosion protection and site stabilization found in **Minn. Rules 6115.0190, Subp. 5, Item D**, which follows.

“**Subp. 5**, Permits required: Permits shall be required for the placement of fill in public waters, except as provided under Subparts 3 and 4, and shall meet all of the following requirements: ... **Item D**: where erosion protection is deemed necessary by the commissioner, the site conditions and fill material are capable of being stabilized by an approved erosion control method such as riprap, retaining wall or other method which is consistent with existing land uses on the affected public water.”

Operation and maintenance of the marina could require a maintenance dredging permit from the MPCA in order to maintain an appropriate depth for vessels.

The management practices for erosion control and site stabilization are identified and discussed in more detail in Chapter IV 5 (Hydromodification), and Chapter IV 6 (Wetlands, Riparian Areas and Vegetated Treatment Systems, which includes streambanks and shoreline erosion, riparian areas and vegetated treatment).

2. Local Zoning

M.S. 103F requires designated local units of government to adopt shoreland, floodplain and wild-and-scenic river zoning ordinances. DNR Waters has direct approval authority of ordinances adopted by LGUs and has oversight authority over local zoning decisions within shoreland, floodplain and wild-and-scenic river districts. In addition, the shoreland district of Lake Superior is governed by the North Shore Management Plan (NSMP), a shoreland management document that was developed cooperatively by the DNR and LGUs and stands as the state rule for the Lake Superior shoreland area, outside Duluth. The NSMP contains special setback requirements for new construction within erosion hazard areas. It has been adopted and is being administered through local zoning controls. Within the City of Duluth, **Water Resources Management Ordinance, City Code, Chapter 51** manages development in the shoreland areas.

The **Wetland Conservation Act (WCA, Minn. Rules 8420)** has been incorporated into local zoning ordinances by the City of Duluth, and Carlton, Cook and Lake counties. LGUs have the option of incorporating the **WCA** or adopting it by reference. The **Shoreland Management Act** requires the designation of land use districts based on the considerations of preserving natural areas, shore impact zones and other sensitive areas. Special Protection Districts are intended to limit and properly manage development in areas unsuitable for development. Before authorizing any grading or filling activity, local officials must consider how extensively the proposed activity would affect the functional qualities of wetlands.

3. Direct State Statutory Authorities

The authority for the **Shoreland Management Act** is found in **M.S. 103F**. The authority for Protected Waters Permits is found in **M.S. 103G**. The authority for county and municipal planning and zoning is found in **M.S. 462** and **M.S. 394**.

The **WCA** is mandated by state statute. If LGUs do not adopt it, there is a moratorium on wetland activities. All “public waters” of the state are protected and regulated (**M.S. 103G**).

The **Shoreland Management Act** is mandated by state statute, and applies to shorelands of public waters that are subject to local government land use controls (**M.S. 103F**).

E. Monitoring and Tracking {4.d. Siting: Shoreline Stabilization}

1. Existing and Planned Monitoring Efforts

Existing monitoring efforts are conducted locally by the NSMB, BWSR and DNR. Future water quality monitoring efforts are also identified in *Minnesota’s 2001-2005 Nonpoint Source Management Program Plan*.

Monitoring of wetland mitigation is required by the **WCA**. LGUs are required to monitor replacement wetland sites for five years. Wetland mitigation sites are also protected from future alteration by a conservation easement.

BWSR monitors the LGUs’ implementation of the **WCA**. BWSR requires annual reporting on implementation of the **WCA**. The BWSR Board has adopted a **WCA** Corrective Action/Oversight policy for use when LGUs have deficiencies in implementing the **WCA**.

DNR monitors protected waters permits for compliance with permit conditions. All permits are assigned an application number and are tracked in a permits database.

Executive Order 20-02, which requires “no net loss,” and the **WCA** require that the DNR and BWSR report to the governor and the legislature on the implementation status of wetland regulations. All state agencies are required to monitor and record all wetland impacts, wetland mitigation, wetlands restored or

created other than for mitigation, and the acreage of wetlands acquired or removed from state ownership or administration.

2. Inspection, Tracking and Assessment Techniques

Enforcement of the **WCA** is handled by DNR Conservation Officers or local peace officers. Cease and desist orders can be issued for non-approved activities.

Violation of a cease and desist order is a misdemeanor punishable by a \$200 fine and/or 90 days in jail. Contractors have responsibility under the **WCA** to obtain a signed statement from the landowner. The signed statement indicates that a wetland replacement plan has been obtained (or is not required) by the landowner.

Permits issued under DNR's Protected Waters Program are assigned an application number and tracked in a database. DNR hydrologists perform inspections of work done under approved permits as needed. Permit conditions can be enforced by the DNR COs.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {4.d. Siting: Shoreline Stabilization}

A combined joint notification form – the Minnesota Local/State/Federal Application Forms for Water/Wetland Projects – has been developed for use by the DNR, BWSR, MPCA, SWCD and USCOE, in cooperation with the LGU. The form enables regulatory agencies to determine jurisdictional authority over a proposed project.

According to **M.S. 103G.105**, state and local officials must cooperate in enforcement. Personnel from the MPCA, MDH and county and municipal governments must cooperate with the DNR in monitoring and enforcing water permits. County attorneys, sheriffs, other peace officers and other officers having enforcement authority must take all action to the extent of their authority that may be necessary or proper for the enforcement of the provisions, rules, standards, orders or permits specified in **M.S. 103G** and **M.S. 103F**.

4.e. Stormwater Runoff
[Marinas/Recreational Boating: Marina Siting and Design]

A. Federal Description of Management Measure [Nationwide]
{4.e. Siting: Stormwater Runoff}

Implement effective runoff control strategies which include the use of pollution prevention activities and the proper design of hull maintenance areas. Reduce the average annual loadings of total suspended solids (TSS) in runoff from hull maintenance areas by 80 percent. For the purposes of this measure, an 80 percent reduction of TSS is to be determined on an average annual basis.

B. Applicability [Nationwide] {4.e. Siting: Stormwater Runoff}

This management measure, nationwide, applies to new and expanding marinas, and to existing marinas for at least the hull maintenance areas. If boat bottom scraping, sanding, and/or painting is done in areas other than those designated as hull maintenance, the management measure applies to those areas, as well. This management measure does not apply to runoff that enters the marina property from upland sources.

Applicable State Programs and Practices

C. Nonregulatory Approaches {4.e. Siting: Stormwater Runoff}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

State agencies such as MPCA, DNR, BWSR and the City of Duluth are contacts for information and education regarding stormwater management. Workshops, training sessions and publications are used to inform and educate. At the local level, planning and zoning, the SWCDs and local county water planning are tools used to provide information and education about stormwater management.

D. Enforceable Policies and Mechanisms {4.e. Siting: Stormwater Runoff}

1. State Permits and Licenses

Federal and state regulations require that marinas have a National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Stormwater Permit for Industrial Activity. Marinas fall under Standard Industrial Classification (SIC) Code 4493 - Marina Operation, and an NPDES/SDS permit is mandatory, per 40 CFR 122.26(b)(14)(viii).

2. Local Zoning

Local zoning ordinances have developed standards for stormwater management in areas adjacent to surface waters of the state. In the NSMP area, impervious surface coverage of more than 30 percent requires a surface water runoff plan, and no more than 50 percent impervious surface is allowed.

3. Direct State Statutory Authorities

- **M.S. 103B:** Requires stormwater retention for development and construction of projects that create one or more acres of impervious surface;
- **M.S. 103F:** Requires LGUs to “consider proper stormwater management in all reviews, approvals and permit issuances under shoreland management controls”;
- **M.S. 115:** Water Pollution Control Act;
- **M.S. 116:** Pollution Control Agency;
- **Minn. Rules 6120.3300, Subp. 11:** Identifies specific standards;
- **Minn. Rules 7001.1035:** Stormwater Permits.

E. Monitoring and Tracking {4.e. Siting: Stormwater Runoff}

1. Existing and Planned Monitoring Efforts

Statewide monitoring of nonpoint source pollution is identified in *Minnesota’s 2001-2005 Nonpoint Source Management Program Plan*. It is available on the Internet.

2. Inspection, Tracking and Assessment Techniques

Permits are tracked and inspected/monitored for compliance by the appropriate issuing agency. Monitoring for water quality can be required, if necessary.

Permits issued under DNR's Protected Waters Program are assigned an application number and tracked in a database. DNR hydrologists perform inspections of work done under approved permits as needed. Permit conditions can be enforced by the DNR COs.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {4.e. Siting: Stormwater Runoff}

A combined joint notification form – the Minnesota Local/State/Federal Application Forms for Water/Wetland Projects – has been developed for use by the DNR, BWSR, MPCA, SWCD and USCOE, in cooperation with the LGU. The form enables regulatory agencies to determine jurisdictional authority over a proposed project.

According to **M.S. 103G.105**, state and local officials must cooperate in enforcement. Staff from the MPCA, MDH and county and municipal governments must cooperate with the DNR in monitoring and enforcing water permits. County attorneys, sheriffs, other peace officers and other officers having enforcement authority must take all action to the extent of their authority that may be necessary or proper for the enforcement of the provisions, rules, standards, orders or permits specified in **M.S. 103G** and **M.S. 103F**.

4.f. Fueling Station Design
[Marinas/Recreational Boating: Marina Siting and Design]

A. Federal Description of Management Measure [Nationwide]
{4.f. Siting: Fueling Station Design}

Design fueling stations to allow for ease in cleanup of spills.

B. Applicability [Nationwide] {4.f. Siting: Fueling Station Design}

This management measure, nationwide, applies to new and expanding marinas where fueling stations are to be added or moved.

Applicable State Programs and Practices

Minnesota has six marinas with fuel stations. They have 435 slips. (See Table 17).

C. Nonregulatory Approaches {4.f. Siting: Fueling Station Design}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

The U.S. Coast Guard Marine Safety Office (USCG-MSO) Duluth Sea Partners Program is the Coast Guard's environmental outreach program. Sea Partners is a proactive, innovative aspect of the Coast Guard's compliance mission under the Marine Safety and Environmental Protection Program. Sea Partners is an effort to reach waterways users such as boaters, anglers, marina operators, the marine industry and general public with information about protecting the marine environment. In addition, the Coast Guard Auxiliary provides efforts in teaching boating safety courses, conducting harbor pollution patrols, and performing marine environmental support activities to foster public understanding and compliance with federal and state laws. The U.S. Power Squadron (a private, member supported organization) conducts boating safety classes several times a year that also focus on pollution prevention issues.

MPCA provides information about fuel tanks in brochures and on its Web site.

<http://www.pca.state.mn.us/cleanup/tanks.html>

Additional information is available from the Department of Public Safety (State Fire Marshal Division).

D. Enforceable Policies and Mechanisms {4.f. Siting: Fueling Station Design}

1. State Permits and Licenses

MPCA's Aboveground Storage Tank Program requires all petroleum tanks over 110 gallons to be registered. Petroleum tanks over 1,100 gallons must have secondary containment that will hold 110 percent of the tank's capacity.

2. Local Zoning

The 1991 Uniform Fire Code (**M.S. 299F.011**) can be administered and implemented by LGUs.

3. Direct State Statutory Authorities

- **Uniform Fire Code, Section 79.903:** Regulates the placement and design of above ground tanks, including the safeguard of tanks and piping from spillage;
- **M.S. 299F.011:** Regulates the construction of fueling stations;
- **Minn. Rules 7510.3440; Uniform Fire Code, Section 79.101:** The Minnesota Department of Public Safety, State Fire Marshal Division, requires plan review and approval of any construction or new or additional installation for the storage, handling or use of flammable liquids in bulk plants, service stations, etc.

Minnesota has a "nuisance condition prohibition," **Minn. Rules 7050.0210, Subp. 2**, as well as an "antidegradation policy," **Minn. Rules 7050.0185**, in its water quality standards. The nuisance provision says: "No sewage, industrial waste or other wastes shall be discharged from either point or nonpoint sources into any waters of the state so as to cause any nuisance conditions such as the presence of significant amounts of floating solids, scum, visible oil film, excessive suspended solids, material discoloration, obnoxious odors, gas ebullition, deleterious sludge

deposits, undesirable slimes or fungus growths, aquatic habitat degradation, excessive growths of aquatic plants or other offensive or harmful effects.”

E. Monitoring and Tracking {4.f. Siting: Fueling Station Design}

1. Existing and Planned Monitoring Efforts

Statewide monitoring of nonpoint source pollution is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan*. It is available on the Internet.

2. Inspection, Tracking and Assessment Techniques

Permits issued under DNR's Protected Waters Program are assigned an application number and tracked in a database. DNR hydrologists perform inspections of work done under approved permits as needed. Permit conditions can be enforced by the DNR COs.

Permits are tracked and inspected/monitored for compliance by the appropriate issuing agency. Monitoring for water quality can be required, if necessary.

The MPCA general permit requires that tanks be monitored at least once per month for leaks or other problems, and that the results of this monitoring be documented.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {4.f. Siting: Fueling Station Design}

A combined joint notification form – the Minnesota Local/State/Federal Application Forms for Water/Wetland Projects – has been developed for use by the DNR, BWSR, MPCA, SWCD and USCOE, in cooperation with the LGU. The form enables regulatory agencies to determine jurisdictional authority over a proposed project. The agencies then notify the applicant of their jurisdictional interest, and the need for any additional application forms, project information and fees.

According to **M.S. 103G.105**, state and local officials must cooperate in enforcement. Personnel from the MPCA, MDH and county and municipal

governments must cooperate with the DNR in monitoring and enforcing water permits. County attorneys, sheriffs, other peace officers and other officers having enforcement authority must take all action to the extent of their authority, respectively, that may be necessary or proper for the enforcement of the provisions, rules, standards, orders or permits specified in **M.S. 103G** and **M.S. 103F**.

4.g. Sewage Facilities

[Marinas/Recreational Boating: Marina Siting and Design]

A. Federal Description of Management Measure [Nationwide] {4.g. Siting: Sewage Facilities}

Install pump out, dump station and restroom facilities where needed at new and expanding marinas to reduce the release of sewage to surface waters. Design these facilities to allow ease of access, and post signage to promote use by the boating public.

B. Applicability [Nationwide] {4.g. Siting: Sewage Facilities}

This management measure, nationwide, applies to new and expanding marinas in areas where adequate marine sewage collection systems do not exist. Marinas that do not provide services for vessels that have marine sanitation devices do not need to have pump outs, although dump stations for portable toilets and restrooms should be available. This measure does not address direct discharge from vessels covered under Section 312 of the Clean Water Act.

Applicable State Programs and Practices

C. Nonregulatory Approaches {4.g. Siting: Sewage Facilities}

1. Economic Incentives and Disincentives

A federal grant program established under the Clean Vessel Act (CVA), administered by USFWS, awards money to states for construction of pump out and dump stations. Grants are awarded competitively. States can also apply for grants to conduct surveys and develop plans. DNR Trails and Waterways administers the program at the state level.

2. Public Information/Education, and Technical/Related Assistance

The U.S. Coast Guard Marine Safety Office (USCG-MSO) Duluth Sea Partners Program is the Coast Guard's environmental outreach program. Sea Partners is a proactive, innovative aspect of the Coast Guard's compliance mission under the Marine Safety and Environmental Protection Program. Sea Partners is an effort to reach waterways users such as boaters, anglers, marina operators, the marine industry and general public with information about protecting the marine environment. In addition, the Coast Guard Auxiliary provides efforts in teaching boating safety courses, conducting harbor pollution patrols, and performing marine environmental support activities to foster public understanding and compliance with federal and state laws. The U.S. Power Squadron (a private, member supported organization) conducts boating safety classes several times a year that also focus on pollution prevention issues.

Technical assistance is provided by USCG-MSO Duluth, as necessary. Under the CVA, USFWS administers a federal grant program for construction of pump out facilities. Federal funds provide up to 75 percent of the project cost, with remaining funds coming from states or marinas. At the state level, DNR Trails and Waterways has administered CVA funds, and has given grants of up to \$10,000 per installation for acceptable, authorized installations that passed the inspections. CVA funds were used for pump out facilities at Grand Marais, Knife River, Silver Bay and Voyageurs marinas. (The latter recently became part of the Grand Portage Marina). Technical guidelines outline instructions on developing surveys, conducting educational programs and planning for the construction of pump out and dump stations at marinas. The guidelines also identify the waters most likely to be impacted by sewage from vessels, define what constitutes adequate and reasonably available facilities, and outline appropriate types and locations of facilities.

D. Enforceable Policies and Mechanisms {4.g. Siting: Sewage Facilities}

1. State Permits and Licenses

MPCA requires permits for sewage facilities other than individual Onsite Disposal Systems (Individual Sewage Treatment Systems).

2. Local Zoning

Local permits are required by LGUs for construction of sewage facilities.

3. Direct State Statutory Authorities

The MDH is responsible for administration of **Minn. Rules 4717**, “On Land Disposal Facilities for Sewage and Other Wastes from Marine Toilets Equipped with Retention Devices.” It requires that facility plans be submitted to and approved by MDH. See details below.

Minn. Rules 4717.4500 Plan Approval: Subp. 1: Plans submitted. Two sets of plans and specifications for the proposed construction of new, or modification of existing on land disposal facilities for the receipt of sewage or other wastes from watercraft or other marine conveyances equipped with marine toilets and retention devices shall be submitted to the MDH. The proposed modification or construction of the on land disposal facilities shall not commence until the plans and specifications are approved, in writing, by the MDH. If the disposal system is designed to discharge an effluent to the waters of the state, or involves a sewer extension from a municipal sewer system, plan approval and a permit shall also be obtained from the MPCA.

Subp. 2: Content of plans. At a minimum, plans and specifications shall cover in detail the materials to be used, the pump characteristics, and the water supply system. Where applicable, the connection to the public sewer or the private disposal system, the size and construction details of the septic or holding tank, results of soil percolation tests and soil borings and the construction details of the soil absorption system shall be included. Location of all wells within 100 feet of the absorption system, the surface water high water level and the general topography of the area shall be shown on the plans.

Subp. 3: Plan approval. Plans and specifications will not be reviewed for approval until they are submitted in sufficient detail to permit proper evaluation for compliance with **M.S. 361.29**, and these and all other applicable rules. The plan approval required by this section shall be in addition to any other permit, approval or license required by federal, state or local law.

M.S. 115, M.S. 116, M.S. 609, Minn. Rules 7045 and Minn. Rules 7050 make it unlawful to dispose of any waste into public waters of the state. State law prohibits depositing or leaving refuse in or upon the waters of the state, or at public water access areas. Violation is punishable as a misdemeanor. It is unlawful to deposit garbage, rubbish, poisonous substances or chemicals harmful to aquatic life into public waters, onto public ice or onto public lands.

Minn. Rules 7050.0210, Subp. 1: Prohibits untreated sewage from being discharged into any waters of the state (**M.S. 115**). Statutory authority for marine toilets can also be found in **M.S. 86B.325**, which reads: Discharge from marine toilets prohibited:

(a) A person owning or operating a watercraft or other marine conveyance on the waters of the state may not use, operate or allow the use or operation of a marine toilet or similar device for the disposition of sewage or other wastes unless the toilet wastes are retained for disposition on land by means of facilities constructed and operated in accordance with rules adopted by the state commissioner of health and approved by the MPCA.

(b) A person may not: (1) discharge sewage or other wastes into the waters of the state directly or indirectly from a watercraft or other marine conveyance; or (2) place, leave, discharge or cause to be placed, left or discharged a container of sewage or other wastes into waters of this state by a person whether or not the owner, operator, guest or occupant of a watercraft or other marine conveyance.

(c) Toilets must be sealed or otherwise rendered inoperative so that human or other waste cannot be discharged from the toilet into waters of this state.

Thus, DNR boating laws require toilets aboard watercraft to be no discharge, U.S. Coast Guard Certified Type III (holding tank) Marine Sanitation Devices (MSDs). Portable toilets are acceptable as long as waste is retained for proper disposal on shore.

The U.S. Coast Guard requires that no person may operate any vessel equipped with installed toilet facilities unless it is equipped with: (a) an operable Type II or Type III device that has a label on it as per Coast Guard regulations, or is certified as per Coast Guard regulations, or (b) an operable Type I device that has a label on it, or is certified as per Coast Guard regulations, if the vessel is 65 feet or less in length.

Type I devices produce an effluent with fecal coliform bacteria count not greater than 1,000 per 100 milliliters and no visible floating solids. Type II devices produce an effluent with fecal coliform bacteria count not greater than 200 per 100 milliliters and suspended solids not greater than 150 milligrams per liter. Type III

devices are holding tanks that are designed to prevent the overboard discharge of treated or untreated sewage, or any waste derived from sewage.

As a result of federal preemption of state law, Type I and Type II (treatment-discharge) MSDs can be legally used on Lake Superior (including the Duluth Harbor Basin and the St. Louis River upstream to Fond Du Lac). Federal regulations allow Type I MSDs only on boats not exceeding 65 feet in length.

E. Monitoring and Tracking {4.g. Siting: Sewage Facilities}

1. Existing and Planned Monitoring Efforts

The USCG-MSO Duluth, with assistance from the U.S. Coast Guard Auxiliary, monitors harbors and marinas for compliance with federal pollution prevention regulations.

2. Inspection, Tracking and Assessment Techniques

The USCG-MSO Duluth conducts pollution investigations under the Federal Water Pollution Control Act, as amended (33 USC 1321 (b)) and MARPOL Annex V. It also inspects and tracks permits issued by state agencies or LGUs, as necessary.

Permits issued under DNR's Protected Waters Program are assigned an application number and tracked in a database. DNR hydrologists perform inspections of work done under approved permits as needed. Permit conditions can be enforced by the DNR COs.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {4.g. Siting: Sewage Facilities}

A combined joint notification form – the Minnesota Local/State/Federal Application Forms for Water/Wetland Projects – has been developed for use by the DNR, BWSR, MPCA, SWCD and USCOE, in cooperation with the LGU. The form enables regulatory agencies to determine jurisdictional authority over a proposed project.

According to **M.S. 103G.105**, state and local officials must cooperate in enforcement. Personnel from the MPCA, MDH and county and municipal governments must cooperate with the DNR in monitoring and enforcing water permits. County attorneys, sheriffs, other peace officers and other officers having enforcement authority must take all action to the extent of their authority that may be necessary or proper for the enforcement of the provisions, rules, standards, orders or permits specified in **M.S. 103G** and **M.S. 103F**.

DNR coordinates the Clean Vessel Act in Minnesota. DNR works with interested parties in developing grant applications for design, surveys and installation.

PART 2: MARINA AND BOAT OPERATION AND MAINTENANCE [MARINAS/RECREATIONAL BOATING]

4.h. Solid Waste [Marinas/Recreational Boating: Marina and Boat Operation and Maintenance]

A. Federal Description of Management Measure [Nationwide] {4.h. O&M: Solid Waste}

Properly dispose of solid wastes produced by the operation, cleaning, maintenance and repair of boats to limit the entry of solid wastes to surface waters.

B. Applicability [Nationwide] {4.h. O&M: Solid Waste}

This management measure, nationwide, applies to new and expanding marinas.

Applicable State Programs and Practices

C. Nonregulatory Approaches {4.h. O&M: Solid Waste}

1. Economic Incentives and Disincentives

Counties levy property taxes and charge fees for solid waste purposes.

2. Public Information/Education, and Technical/Related Assistance

The U.S. Coast Guard Marine Safety Office (USCG-MSO) Duluth Sea Partners Program is the Coast Guard's environmental outreach program. Sea Partners is a proactive, innovative aspect of the Coast Guard's compliance mission under the Marine Safety and Environmental Protection Program. Sea Partners is an effort to reach waterways users such as boaters, anglers, marina operators, the marine industry and general public with information about protecting the marine environment. In addition, the Coast Guard Auxiliary teaches boating safety courses, conducts harbor pollution patrols, and performs marine environmental support activities to foster public understanding and compliance with federal and state laws. The U.S. Power Squadron (a private, member supported organization) conducts boating safety classes several times a year that also focus on pollution prevention issues.

Several other programs provide educational materials and outreach activities related to solid waste. The USCG-MSO Duluth participates in the National Beach Cleanup and distributes information on preventing littering and garbage dumping. The Great Lakes Aquarium organizes an annual Beach Sweep cleanup event.

The Western Lake Superior Sanitary District (WLSSD) provides a lot of information on the reduction and proper disposal of solid waste, hazardous waste, recycling, etc. Although WLSSD focuses on the lower St. Louis River Watershed, they also provide information and technical assistance to communities over a larger part of the Lake Superior Basin.

D. Enforceable Policies and Mechanisms {4.h. O&M: Solid Waste}

1. State Permits and Licenses

Minnesota does not use state permits or licenses to implement this management measure.

2. Local Zoning

Minnesota does not rely on local zoning for implementation of this management measure.

3. Direct State Statutory Authorities

M.S. 115, M.S. 116, M.S. 609, Minn. Rules 7045 and Minn. Rules 7050 make it unlawful to dispose of any waste into public waters of the state. State law prohibits depositing or leaving refuse in or upon the waters of the state, or at public water access areas. Violation is punishable as a misdemeanor. It is unlawful to deposit garbage, rubbish, poisonous substances or chemicals harmful to aquatic life into public waters, onto public ice or onto public lands.

M.S. 458D created the WLSSD, which handles sewage, solid waste, hazardous waste and recycling for the Duluth area. This area includes four of the nine marinas, and 337 of the 555 boat slips on Minnesota's Lake Superior shore and its adjoining waters. (See Table 17).

Counties conduct solid-waste management programs under **MS 400**.

E. Monitoring and Tracking {4.h. O&M: Solid Waste}

1. Existing and Planned Monitoring Efforts

In 1989, the Minnesota Legislature adopted comprehensive waste reduction and recycling legislation based on the recommendations of the Governor's Select Committee on Recycling and the Environment. This set of laws, commonly referred to as SCORE, is a part of Minnesota's **Waste Management Act (WMA)**. The SCORE legislation has provided counties with a funding source to develop effective waste reduction, recycling and solid waste management programs. Ambitious goals for recycling and waste reduction were set for Minnesota counties. These have typically been met, and often exceeded.

The SCORE Report is an annual evaluation of Minnesota's recycling and waste management programs. The most recent edition is available on the Internet.

<http://www.moea.state.mn.us/lc/score99.cfm>

2. Inspection, Tracking and Assessment Techniques

The USCG-MSO Duluth conducts pollution investigations under the Federal Water Pollution Control Act, as amended (33 USC 1321 (b)), and MARPOL Annex V.

Counties and sanitary districts that collect waste materials submit annual reports to the MPCA.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {4.h. O&M: Solid Waste}

MPCA, the Minnesota Office of Environmental Assistance (OEA) and the counties work closely together on issues related to solid waste, including hazardous waste and recycling. They work together to develop the SCORE Report, the annual evaluation of Minnesota's recycling and waste management programs, which is described above.

4.i. Fish Waste [Marinas/Recreational Boating: Marina and Boat Operation and Maintenance]

A. Federal Description of Management Measure [Nationwide] {4.i. O&M: Fish Waste}

Promote sound fish waste management through a combination of fish cleaning restrictions, public education and proper disposal of fish waste.

B. Applicability [Nationwide] {4.i O&M: Fish Waste}

This management measure, nationwide, applies to marinas where fish waste is determined to be a source of water pollution.

Applicable State Programs and Practices

Three species of fish are harvested for commercial sale from the Minnesota waters of Lake Superior. In the year 2000, the total harvest was 501,300 pounds. This was comprised of 450,000 pounds of lake herring, 44,300 pounds of rainbow smelt and 7,000 pounds of chubs. Herring, which accounted for 90 percent of the catch, are typically sold whole. Commercial harvesters tend to work from their own private property, and dispose of fish waste on-site.

The Waterfront Plaza Marina, in the Meierhoff Slip near downtown Duluth, is the headquarters for most of the charter fishing boats in the Minnesota waters of Lake Superior. The charter captains pay commercial haulers to empty fish waste containers frequently.

Fish waste has not been identified as a major source of water pollution in the Minnesota waters of Lake Superior.

C. Nonregulatory Approaches {4.i. O&M: Fish Waste}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

The Minnesota Sea Grant Extension Program works with Lake Superior charter fishing captains on a variety of topics, including the proper disposal of fish waste. Minnesota Sea Grant conducted a demonstration project on composting fish waste at the Knife River Marina, and has made the results available in a booklet.

Informational signs are typically posted by the managers of marinas and boat landings, telling anglers how to properly dispose of fish waste.

D. Enforceable Policies and Mechanisms {4.i. O&M: Fish Waste}

1. State Permits and Licenses

Minnesota does not use state permits or licenses to implement this management measure.

2. Local Zoning

Minnesota does not rely on local zoning for implementation of this management measure.

3. Direct State Statutory Authorities

M.S. 115, M.S. 116, M.S. 609, Minn. Rules 7045 and Minn. Rules 7050 make it unlawful to dispose of any waste into public waters of the state. **M.S. 609.68**

states: “Whoever unlawfully deposits garbage, rubbish, offal, or the body of a dead animal, or other litter in or upon any public highway, public waters or the ice thereon, shoreland areas adjacent to rivers or streams as defined by **M.S. 103F.205**, public lands, or, without the consent of the owner, private lands or water or ice thereon, is guilty of a misdemeanor.”

Counties conduct solid waste management programs under **M.S. 400**.

E. Monitoring and Tracking {4.i. O&M: Fish Waste}

1. Existing and Planned Monitoring Efforts

The USCG-MSO Duluth, with assistance from the U.S. Coast Guard Auxiliary, monitors harbors and marinas for compliance with federal pollution-prevention regulations.

2. Inspection, Tracking and Assessment Techniques

The USCG-MSO Duluth conducts pollution investigations under the Federal Water Pollution Control Act, as amended (33 USC 1321 (b)), and MARPOL Annex V.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {4.i. O&M: Fish Waste}

MPCA, the Minnesota Office of Environmental Assistance (OEA) and the counties work closely together on issues related to solid waste, including hazardous waste and recycling. They work together to develop the SCORE Report, the annual evaluation of Minnesota’s recycling and waste management programs, which is described above.

4.j. Liquid Material Handling [Marinas/Recreational Boating: Marina and Boat Operation and Maintenance]

A. Federal Description of Management Measure [Nationwide] {4.j. O&M: Liquid Material Handling}

Provide and maintain appropriate storage, transfer, containment and disposal facilities for liquid material, such as oil, harmful solvents, antifreeze and paints, and encourage recycling of these materials.

B. Applicability [Nationwide] {4.j. O&M: Liquid Material Handling}

This management measure, nationwide, applies to marinas where liquid materials used in maintenance, repair or operation of boats are stored.

Applicable State Programs and Practices

C. Nonregulatory Approaches {4.j. O&M: Liquid Material Handling}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

The MPCA Hazardous Waste Division provides free on-site consultation and education through programs and presentations on hazardous waste rules compliance. This includes identification, reduction, storage, disposal and record keeping of wastes. DNR and MPCA also provide environmental information to boaters regarding the proper handling of oil, gasoline and antifreeze.

MPCA provides technical assistance to identify hazardous wastes. This includes interpreting and explaining hazardous waste regulations, and suggesting methods of handling waste.

D. Enforceable Policies and Mechanisms {4.j. O&M: Liquid Material Handling}

1. State Permits and Licenses

Every business that generates a hazardous waste is required to have an identification number from the USEPA and a hazardous waste generator's license from MPCA.

2. Local Zoning

Minnesota does not rely on local zoning for implementation of this management measure.

3. Direct State Statutory Authorities

Minn. Rules 7001, Minn. Rules 7045 and Minn. Rules 704 contains the authority for hazardous waste management. **Minn. Rules 7100** contains the authority for storing or keeping oil and other liquid substances. It is illegal to discharge either oil or gasoline into the water.

M.S. 97C.065, Pollutants in Waters, states "A person may not dispose of any substance in state waters, or allow any substance to enter state waters, in quantities that injure or are detrimental to the propagation of wild animals or taint the flesh of wild animals. Each day of violation is a separate offense. An occurring or continuous violation is a public nuisance. An action may be brought by the attorney general to enjoin and abate nuisance upon request of the commissioner."

E. Monitoring and Tracking {4.j. O&M: Liquid Material Handling}

1. Existing and Planned Monitoring Efforts

The USCG-MSO Duluth, with assistance from the U.S. Coast Guard Auxiliary, monitors harbors and marinas for compliance with federal pollution-prevention regulations.

2. Inspection, Tracking and Assessment Techniques

The USCG-MSO Duluth conducts pollution investigations under the Federal Water Pollution Control Act, as amended (33 USC 1321 (b)), and MARPOL Annex V.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {4.j. O&M: Liquid Material Handling}

Notification of all spills of five gallons or more of liquid material such as oil, harmful solvents, antifreeze and paints, must be reported to the Minnesota duty officer. The Minnesota duty officer, who is available by telephone 24 hours a day, is responsible for coordinating with the appropriate state agencies.

4.k. Petroleum Control [Marinas and Recreational Boating: Marina and Boat Operation and Maintenance]

A. Federal Description of Management Measure [Nationwide] {4.k. O&M: Petroleum Control}

Reduce the amount of fuel and oil from boat bilges and fuel tank air vents entering marina and surface waters.

B. Applicability [Nationwide] {4.k. O&M: Petroleum Control}

This management measure applies to boats that have inboard fuel tanks.

Applicable State Programs and Practices

C. Nonregulatory Approaches {4.k. O&M: Petroleum Control}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

DNR Boat and Water Safety produces information and education on boating safety in the state. Information on proper fueling is included in boater education

materials. MPCA also provides information and releases boater tips (BMPs). The USCG and the U.S. Coast Guard Auxiliary provide information, as well.

D. Enforceable Policies and Mechanisms {4.k. O&M: Petroleum Control}

1. State Permits and Licenses

Minnesota does not use state permits or licenses to implement this management measure.

2. Local Zoning

Minnesota does not rely on local zoning for implementation of this management measure.

3. Direct State Statutory Authorities

M.S. 115, M.S. 116, M.S. 609, Minn. Rules 7045 and Minn. Rules 7050 contain the authority making it unlawful to dispose of any waste into public waters of the state.

Minnesota has a “nuisance condition prohibition,” **Minn. Rules 7050.0210, Subp. 2**, as well as an “antidegradation policy,” **Minn. Rules 7050.0185**, in its water quality standards. The nuisance provision says: “No sewage, industrial waste or other wastes shall be discharged from either point or nonpoint sources into any waters of the state so as to cause any nuisance conditions such as the presence of significant amounts of floating solids, scum, visible oil film, excessive suspended solids, material discoloration, obnoxious odors, gas ebullition, deleterious sludge deposits, undesirable slimes or fungus growths, aquatic habitat degradation, excessive growths of aquatic plants or other offensive or harmful effects.”

Under the **Minnesota Environmental Rights Act (MERA), M.S. 116B**, Minnesota allows state residents to take civil action against any person for the protection of the air, water, land or other natural resources located within the state, whether privately or publicly owned, from pollution, impairment or destruction.

E. Monitoring and Tracking {4.k. O&M: Petroleum Control}

1. Existing and Planned Monitoring Efforts

The USCG-MSO Duluth, with assistance from the U.S. Coast Guard Auxiliary, monitors harbors and marinas for compliance with federal pollution-prevention regulations.

2. Inspection, Tracking and Assessment Techniques

The USCG-MSO Duluth conducts pollution investigations under the Federal Water Pollution Control Act, as amended (33 USC 1321 (b)), and MARPOL Annex V.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {4.k. O&M: Petroleum Control}

Notification of all spills of five gallons or more of liquid material such as oil, harmful solvents, antifreeze and paints, must be reported to the Minnesota duty officer. The Minnesota duty officer, who is available by telephone 24 hours a day, is responsible for coordinating with the appropriate state agencies.

4.I. Boat Cleaning [Marinas/Recreational Boating: Marina and Boat Operation and Maintenance]

A. Federal Description of Management Measure [Nationwide] {4.I. O&M: Boat Cleaning}

For boats that are in the water, perform cleaning operations to minimize, to the extent practicable, the release to surface waters of: (a) harmful cleaners and solvents and (b) paint from in-water hull cleaning.

B. Applicability [Nationwide] {4.I. O&M: Boat Cleaning}

This management measure, nationwide, applies to marinas where boat topsides are cleaned, and marinas where hull scrubbing in the water has been shown to result in water or sediment quality problems.

Applicable State Programs and Practices

In-water hull cleaning or scrubbing is not a problem in northeastern Minnesota, which has a very short boating season. Boats that are lifted out of the water by marina staff each fall are typically rinsed at lift out with a pressure hose, and are washed and/or hull polished and/or bottom painted in the spring in a hull maintenance area that is set back from the water's edge. Minnesota's entire Lake Superior Basin has only four relatively "large" marinas, which have 100-117 boat slips each.

C. Nonregulatory Approaches {4.I. O&M: Boat Cleaning}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

The U.S. Coast Guard Marine Safety Office (USCG-MSO) Duluth Sea Partners Program is the Coast Guard's environmental outreach program. Sea Partners is a proactive, innovative aspect of the Coast Guard's compliance mission under the Marine Safety and Environmental Protection Program. Sea Partners is an effort to reach waterways users such as boaters, anglers, marina operators, the marine industry and general public with information about protecting the marine environment. In addition, the Coast Guard Auxiliary provides efforts in teaching boating safety courses, conducting harbor pollution patrols, and performing marine environmental support activities to foster public understanding and compliance with federal and state laws. The U.S. Power Squadron (a private, member supported organization) conducts boating safety classes several times a year that also focus on pollution prevention issues.

D. Enforcement Policies and Mechanisms {4.I. O&M: Boat Cleaning}

1. State Permits and Licenses

Minnesota does not use state permits or licenses to implement this management measure.

2. Local Zoning

Minnesota does not rely on local zoning for implementation of this management measure.

3. Direct State Statutory Authorities

M.S. 115, M.S. 116, M.S. 609, Minn. Rules 7045 and Minn. Rules 7050 contain the authority making it unlawful to dispose of any waste into public waters of the state.

Minn. Rules 7100.0150 - 7100.0230 limit the level of phosphorus allowed in cleaning products sold within the state. Household cleaning agents, except for dishwashing detergents, cannot exceed 0.5 percent phosphorus, by weight.

E. Monitoring and Tracking {4.I. O&M: Boat Cleaning}

1. Existing and Planned Monitoring Efforts

The USCG-MSO Duluth, with assistance from the U.S. Coast Guard Auxiliary, monitors harbors and marinas for compliance with federal pollution prevention regulations.

2. Inspection, Tracking and Assessment Techniques

The USCG-MSO Duluth conducts pollution investigations under the Federal Water Pollution Control Act, as amended (33 USC 1321 (b)), and MARPOL Annex V.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {4.l. O&M: Boat Cleaning}

The USCG-MSO Duluth and the MPCA coordinate their activities and roles with regard to cleaning products and similar pollutants that can be a by product of recreational boating.

**4.m. Public Education [Marinas and Recreational Boating:
Marina and Boat Operation and Maintenance]**

**A. Federal Description of Management Measure [Nationwide]
{4.m. O&M: Public Education}**

Public education/outreach/training programs should be instituted for boaters, as well as marina owners and operators, to prevent improper disposal of polluting material.

B. Applicability [Nationwide] {4.m. O&M: Public Education}

This management measure, nationwide, applies to all environmental control authorities in areas where marinas are located.

Note: Enforceable policies are not required for this management measure.

Applicable State Programs and Practices

C. Nonregulatory Approaches {4.m. O&M: Public Education}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

There are numerous educational and outreach efforts being conducted in the Lake Superior basin by federal, state and local units of government, agencies and organizations. These include the following:

- (a) U.S. Coast Guard Marine Safety Office Duluth and its Sea Partners Program;
- (b) USFWS and DNR Trails and Waterways, under the Clean Vessel Act;

- (c) DNR;
- (d) MPCA;
- (e) North Shore Management Board;
- (f) Minnesota Sea Grant Extension Program;
- (g) Arrowhead Water Quality Team.

The Minnesota Sea Grant Extension Program, which is part of the Minnesota Extension Service (MES), has outreach education specialists in tourism, fisheries and water quality. An additional water quality outreach education position is shared between BWSR and MES. All of these positions are based in Duluth.

DNR Trails and Waterways posts signs at boat launches, with educational messages for boaters such as how to avoid spreading exotic plant and animal species.

The counties, WLSSD and marina operators provide information on the proper disposal of solid waste. The USCG-MSO Duluth provides information about keeping boat related pollutants out of the water.

OEA's Education Clearinghouse provides information and assistance on solid waste and other environmental issues. Callers and visitors can have questions answered or obtain research help, get appropriate printed or audio-visual materials, and receive timely referrals for additional information. The clearinghouse is available on the Internet.

<http://www.moea.state.mn.us/ee/clearghs.cfm>

Sharing Environmental Education Knowledge (SEEK) is Minnesota's interactive directory of environmental education resources, which has information about curricula, videos, programs, events and more. Resources from over 100 organizations can be located on SEEK's database, which is available on the Internet.

<http://www.seek.state.mn.us/>

D. Enforceable Policies and Mechanisms {4.m. O&M: Public Education}

1. State Permits and Licenses

Minnesota does not use state permits or licenses to implement this management measure.

2. Local Zoning

Minnesota does not rely on local zoning for implementation of this management measure.

3. Direct State Statutory Authorities

Educational activities are typically undertaken by agencies in an effort to make their programs more successful. In addition, Great Lakes outreach education is the mission of the Minnesota Sea Grant Extension Program.

E. Monitoring and Tracking {4.m. O&M: Public Education}

1. Existing and Planned Monitoring Efforts

Representatives of the DNR, MPCA, Sea Grant, USCG-MSO Duluth, Sea Partners, Coast Guard Auxiliary and U.S. Power Squadron visit area marinas and do visual surveys of operations and educational signage.

2. Inspection, Tracking and Assessment Techniques

The agencies and organizations listed above conduct site visits and surveys.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the programs and activities cited above.

F. Agency Coordination and Linkages {4.m. O&M: Public Education}

The best example of coordination among educational efforts can be seen in the Arrowhead Water Quality Team. This group, consisting of outreach educators from the Minnesota Sea Grant Program, DNR, MPCA, BWSR, SWCDs, county water plan coordinators, LGUs, nonprofits, University of Minnesota Extension Service, tribal environmental services, and environmental consultants, meets regularly. They develop educational materials (e.g., a packet of publications on shoreland BMPs, shoreland management videos, a newsletter for shoreland property owners) that are distributed by all of the partners. The shoreland BMP series, which includes information on boating related pollution.

4.n. Maintenance of Sewage Facilities [Marinas/Recreational Boating: Marina and Boat Operation and Maintenance]

A. Federal Description of Management Measure [Nationwide] {4.n. O&M: Maintenance of Sewage Facilities}

Ensure that sewage pump out facilities are maintained in operational condition and encourage their use.

B. Applicability [Nationwide] {4.n. O&M: Maintenance of Sewage Facilities}

This management measure applies to marinas where marine sewage disposal facilities exist.

Applicable State Programs and Practices

C. Nonregulatory Approaches {4.n. O&M: Maintenance of Sewage Facilities}

1. Economic Incentives and Disincentives

A federal grant program established under the CVA, administered by USFWS, awards money to states for construction of pump out and dump stations. Grants are awarded competitively. States can also apply for grants to conduct surveys and develop plans. DNR Trails and Waterways administers the program at the state level.

2. Public Information/Education, and Technical/Related Assistance

The U.S. Coast Guard Marine Safety Office (USCG-MSO) Duluth Sea Partners Program is the Coast Guard's environmental outreach program. Sea Partners is a proactive, innovative aspect of the Coast Guard's compliance mission under the Marine Safety and Environmental Protection Program. Sea Partners is an effort to reach waterways users such as boaters, anglers, marina operators, the marine industry and general public with information about protecting the marine environment. In addition, the Coast Guard Auxiliary teaches boating safety courses, conducts harbor pollution patrols, and performs marine environmental support activities to foster public understanding and compliance with federal and state laws. The U.S. Power Squadron (a private, member supported organization)

conducts boating safety classes several times a year that also focus on pollution prevention issues.

DNR Boat and Water Safety provides public information and education.

Technical assistance is provided by USCG-MSO Duluth, as necessary. Under the CVA, USFWS administers a federal grant program for construction of pump out facilities. Federal funds provide up to 75 percent of the project cost, with remaining funds coming from states or marinas. At the state level, DNR Trails and Waterways has administered CVA funds, and has given grants of up to \$10,000 per installation for acceptable, authorized installations that passed the inspections. CVA funds were used for pump out facilities at Grand Marais, Knife River, Silver Bay and Voyageurs marinas. (The latter recently became part of the Grand Portage Marina). Technical guidelines outline instructions on developing surveys, conducting educational programs and planning for the construction of pump out and dump stations at marinas. The guidelines also identify the waters most likely to be impacted by sewage from vessels, define what constitutes adequate and reasonably available facilities, and outline appropriate types and locations of facilities.

D. Enforceable Policies and Mechanisms
{4.n. O&M: Maintenance of Sewage Facilities}

1. State Permits and Licenses

Minnesota does not use state permits or licenses to implement this management measure.

2. Local Zoning

Minnesota does not rely on local zoning for implementation of this management measure.

3. Direct State Statutory Authorities

The MDH is responsible for administration of **Minn. Rules 4717**, “On Land Disposal Facilities for Sewage and Other Wastes from Marine Toilets Equipped with Retention Devices.” It requires that facility plans be submitted to and approved by MDH. (See additional details under marina management measure 4.g: Sewage Facility.

M.S. 115, M.S. 116, M.S. 609, Minn. Rules 7045 and Minn. Rules 7050 make it unlawful to dispose of any waste into public waters of the state. State law prohibits depositing or leaving refuse in or upon the waters of the state, or at public water access areas. Violation is punishable as a misdemeanor. It is unlawful to deposit garbage, rubbish, poisonous substances or chemicals harmful to aquatic life into public waters, onto public ice or onto public lands.

Minn. Rules 7050.0210, Subp. 1: Prohibits untreated sewage from being discharged into any waters of the state (**M.S. 115**). Minnesota has a “nuisance condition prohibition,” **Minn. Rules 7050.0210, Subp. 2**, as well as an “antidegradation policy,” **Minn. Rules 7050.0185**, in its water quality standards. The nuisance provision says: “No sewage, industrial waste or other wastes shall be discharged from either point or nonpoint sources into any waters of the state so as to cause any nuisance conditions such as the presence of significant amounts of floating solids, scum, visible oil film, excessive suspended solids, material discoloration, obnoxious odors, gas ebullition, deleterious sludge deposits, undesirable slimes or fungus growths, aquatic habitat degradation, excessive growths of aquatic plants or other offensive or harmful effects.”

Under the **Minnesota Environmental Rights Act (MERA), M.S. 116B**, Minnesota allows state residents to take civil action against any person for the protection of the air, water, land or other natural resources located within the state, whether privately or publicly owned, from pollution, impairment or destruction (**M.S. 116B.03**).

Statutory authority for marine toilets can also be found in **M.S. 86B.325**, which reads: Discharge from marine toilets prohibited:

(a) A person owning or operating a watercraft or other marine conveyance on the waters of the state may not use, operate or allow the use or operation of a marine toilet or similar device for the disposition of sewage or other wastes unless the toilet wastes are retained for disposition on land by means of facilities constructed and operated in accordance with rules adopted by the state commissioner of health and approved by the MPCA.

(b) A person may not: (1) discharge sewage or other wastes into the waters of the state directly or indirectly from a watercraft or other marine conveyance; or (2) place, leave, discharge or cause to be placed, left or discharged a container of sewage or other wastes into waters of this state by a person whether or not

the owner, operator, guest or occupant of a watercraft or other marine conveyance.

(c) Toilets must be sealed or otherwise rendered inoperative so that human or other waste cannot be discharged from the toilet into waters of this state.

Thus, DNR boating laws require toilets aboard watercraft to be no discharge, U.S. Coast Guard Certified Type III (holding tank) Marine Sanitation Devices (MSDs). Portable toilets are acceptable as long as waste is retained for proper disposal on shore.

The U.S. Coast Guard requires that no person may operate any vessel equipped with installed toilet facilities unless it is equipped with: (a) an operable Type II or Type III device that has a label on it as per Coast Guard regulations, or is certified as per Coast Guard regulations, or (b) an operable Type I device that has a label on it, or is certified as per Coast Guard regulations, if the vessel is 65 feet or less in length.

Type I devices produce an effluent with fecal coliform bacteria count not greater than 1,000 per 100 milliliters and no visible floating solids. Type II devices produce an effluent with fecal coliform bacteria count not greater than 200 per 100 milliliters and suspended solids not greater than 150 milligrams per liter. Type III devices are holding tanks that are designed to prevent the overboard discharge of treated or untreated sewage, or any waste derived from sewage.

As a result of federal preemption of state law, Type I and Type II (treatment-discharge) MSDs can be legally used on Lake Superior (including the Duluth Harbor Basin and the St. Louis River upstream to Fond Du Lac). Federal regulations allow Type I MSDs only on boats not exceeding 65 feet in length.

E. Monitoring and Tracking {4.n. O&M: Maintenance of Sewage Facilities}

1. Existing and Planned Monitoring Efforts

The USCG-MSO Duluth, with assistance from the U.S. Coast Guard Auxiliary, monitors harbors and marinas for compliance with federal pollution prevention regulations.

2. Inspection, Tracking and Assessment Techniques

Permits are tracked and inspected/monitored for compliance by the appropriate issuing agency. Monitoring for water quality can be required, if necessary.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages

{4.n. O&M: Maintenance of Sewage Facilities}

The USCG, MCPA and the MDH work together to ensure that sewage facility maintenance practices are not causing water quality problems.

4.o. Boat Operation [Applies to Recreational Boating Only]

A. Federal Description of Management Measure [Nationwide]

{4.o. O&M: Boat Operation}

Restrict boating activities where necessary to decrease turbidity and physical destruction of shallow water habitat.

B. Applicability [Nationwide] {4.o. O&M: Boat Operation}

This management measure applies, nationwide, in non-marina surface waters where evidence indicates that boating activities are impacting shallow water habitats.

Applicable State Programs and Practices

C. Nonregulatory Approaches {4.o. O&M: Boat Operation}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

DNR Boat and Water Safety provides information and education to boaters in the state. DNR Fisheries establishes and posts fish spawning areas and sanctuaries.

D. Enforceable Policies and Mechanisms {4.o. O&M: Boat Operation}

1. State Permits and Licenses

All motorized and non-motorized watercraft must be licensed by the DNR. The types of watercraft that must be licensed include, but are not limited to, motorboats, rowboats, sailboats, sailboards, canoes, kayaks, paddle boats, rowing shells or sculls, all-terrain vehicles used in the water, and inflatable craft.

Applying chemicals or cutting to control vegetation in any public waters requires a permit from a DNR regional fisheries manager.

2. Local Zoning

DNR Boat and Water Safety deals with water surface-use zoning, and approves all local ordinances (**M.S. 86B.201 - .211**). Assistance is given to LGUs in determining what restrictions are necessary.

3. Direct State Statutory Authorities

M.S. 97C governs fishing, and prohibits the following actions:

- **M.S. 97C.025**: Fishing or driving a motorboat through a posted fish spawning area or sanctuary, except that an owner of riparian land adjacent to a posted area may operate a motorboat through the area by the shortest direct route at a speed of not more than five miles per hour.
- **M.S. 97C.061**: Use a motorboat to drag an anchor or other weight through aquatic vegetation.

M.S. 86B.313, Personal Watercraft Regulations, prohibits the following actions on a personal watercraft (i.e., “jet skis”):

- Traveling at greater than a “slow, no-wake” speed, within 150 feet of any shoreline. (“Slow, no-wake” is defined as the operation of a watercraft at the slowest possible speed necessary to maintain steerage, but in no case greater than five miles per hour).
- Chasing or harassing wildlife.

- Traveling through emergent or floating vegetation at greater than a “slow, no-wake” speed.
- Operating a personal watercraft without a personal watercraft rules decal attached within full view of the operator.

E. Monitoring and Tracking {4.o. O&M: Boat Operation}

1. Existing and Planned Monitoring Efforts

The USCG-MSO Duluth, with assistance from the U.S. Coast Guard Auxiliary, monitors harbors and marinas for compliance with federal pollution prevention regulations.

2. Inspection, Tracking and Assessment Techniques

DNR Fisheries inspects sites before issuing permits for aquatic vegetation removal. DNR Fisheries conducts annual fisheries surveys; these include documentation of vegetation types. DNR’s Lake Advocacy Program and lake association groups routinely document vegetation growth patterns. DNR COs and local law officials enforce laws dealing with the use of surface waters.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {4.o. O&M: Boat Operation}

DNR COs and local law officials coordinate and cooperate together to enforce the laws regulating the use of surface waters.

See Appendix A (Acronyms) and Appendix B (References Cited).

IV 5

**HYDRO-
MODIFICATION**

CHAPTER IV: MANAGEMENT MEASURES

SECTION 5. HYDROMODIFICATION

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Introduction [Hydromodification]

Projects involving channelization, channel modification, dams, streambanks and shoreline erosion are regulated by various state and local programs in Minnesota. Programs are a combination of both regulatory and nonregulatory approaches to erosion and sediment control and water quality management.

The Minnesota Environmental Quality Board (EQB) administers the **Minnesota Environmental Protection Act (MEPA) (M.S. 116D)** and the state's environmental review (ER) program. Based on the scope or size of a proposed project, environmental review and permitting may be required, prior to additional permitting and construction. The purpose of ER is to develop a better understanding of the potential impacts of a project and use the information in decisions by units of government. These could include permit decisions. The following coastal nonpoint hydromodification activities are subject to the state's Environmental Review program:

(a) Stream Diversion and Channelization

Minn. Rules 4410.4300, Subp. 26, requires a mandatory Environmental Assessment Worksheet (EAW) for "diversion or channelization of a natural watercourse with a total watershed of ten or more square miles or on a designated trout stream." **Minn.**

Rules 4410.4600, Subp. 14, Item E, and Subp. 17 provide an exemption if it is “within the right-of-way of an existing public roadway associated with bridge or culvert replacement.”

(b) Impoundments (Dams)

Pursuant to **Minn. Rules 4410.4300, Subp. 24, Item B and Item C**, an EAW is required for “a new or additional permanent impoundment of water creating a water surface of 160 or more acres,” and an EAW is required for “construction of a Class II dam.” **Minn. Rules 4410.4400, Subp. 18**, requires the preparation of an EIS for the construction of a Class I dam. The Department of Natural Resources (DNR) is the RGU for these project types. **Minn. Rules 4410.4600, Subp. 15**, provides an exemption from environmental review for “a new or additional permanent impoundment of water creating a water surface of less than ten acres.”

A “Class I dam” is one for which failure would probably result in loss of life, serious hazard, damage to health, damage to main highways, damage to high-value industrial or commercial properties, damage to major public utilities, or serious economic loss to the public.

A “Class II dam” is one where failure would probably result in a possible health hazard, loss of high-value property; damage to secondary highways, railroads or other public utilities; or limited economic loss to the public.

(c) Projects that Would Affect Wetlands and Protected Waters

Projects that will change or diminish the course, current or cross-section of one acre or more of any protected water or protected wetland, except for those to be drained without a permit pursuant to **M.S. 103G**, require an EAW. Projects that will change or diminish the course, current or cross-section of 40 percent or more, or five or more acres, of types 3 through 8 wetland of 2.5 acres or more, excluding protected wetlands, if any part of the wetland is within a water related land use management district, require an EAW (**Minn. Rules 4410.4300, Subp. 27**).

Projects that will eliminate a protected water or protected wetland except for those to be drained without a permit pursuant to **M.S.103G** require the preparation of an EIS (**Minn. Rules 4410.4400, Subp. 20**).

Routine maintenance or repair of a drainage ditch within the limits of its original construction flow capacity, performed within 20 years of construction or major repair, is exempt from either an EAW or EIS (**Minn. Rules, Subp. 17**).

The LGU is the Responsible Government Unit (RGU) for the purposes of determining the adequacy of the EAW and the need for additional environmental review, including the possibility of an EIS.

The procedures for preparation of an EAW and information and data required in an EAW are described in: *Guide to Minnesota Environmental Review Rules*, Minnesota Planning: Environmental Quality Board, 1998. The document is available on the State Planning Web site.

<http://www.mnplan.state.mn.us/cgi-bin/byteserver.pl/pdf/rulguid3.pdf>

Water Protection and Regulation

For a thorough discussion of water regulation in Minnesota, see Section II B: Purpose and Approach.

The primary state agencies involved in the protection and regulation of Minnesota's water resources are the DNR, Board of Water and Soil Resources (BWSR), Minnesota Pollution Control Agency (MPCA), Department of Agriculture and Department of Health. The DNR administers the Protected Waters Permit Program for activities that will alter the course, current or cross-section of Minnesota's public waters and wetlands. Under the **Wetland Conservation Act (WCA)**, BWSR oversees LGUs, which regulate wetland areas that are outside of the DNR's jurisdiction. Projects conducted under **WCA** require mitigation to compensate for wetland losses.

The standards and criteria used to regulate hydromodification projects under the DNR Protected Waters Permit Program are described in greater detail in this document under each management measure, below. The standards and criteria for projects that impact wetlands under the **Wetlands Conservation Act (WCA)** are also described in this document for those wetland management measures in Chapter IV, Section 6. When **WCA** regulations apply to channelization, channel modification and dams in this section, they are described or summarized under each management measure.

Minnesota relies on **M.S. 103E, Drainage**, and **M.S. 103D, Watershed Districts**, to manage ditch repair and improvements. The *Minnesota Public Drainage Manual, 1991*, provides guidance on state and federal regulatory and resource protection programs, engineering and environmental review criteria, and the scope of the DNR commissioner's preliminary and final advisory reports for drainage projects. The

extent of drainage and repair and/or improvements to public ditches in the Lake Superior Watershed is not significant.

MPCA issues certification for the federal Clean Water Act (Section 401) and state certification (**Minn. Rules 7050**) for activities that will result in the discharge of dredge or fill materials into waters of the state. The Section 401 authority of MPCA includes Section 404 (CWA) permits, Section 10 (Rivers and Harbors Act) permits and Hydropower (FERC) licensing permits.

MPCA also regulates fuel handling and storage facilities, and the response plans for clean up in the event of fuel spills on construction sites. Under the Hazardous Waste Management Program (U.S. Resource Conservation and Recovery Act; **Minn. Rules 7001** and **Minn. Rules 7045**), MPCA provides a tracking system for hazardous wastes. The program tracks materials from the point at which the wastes are generated, and ensures that at all times the wastes are stored, handled and disposed of safely. Under the **Solid Waste Disposal Program (M.S. 115, M.S. 115A, M.S. 116, Minn. Rules 7001** and **Minn. Rules 7035**), MPCA requires permits for most categories of solid waste disposal, storage and transfer facilities. Under the **Underground Disposal Control Program (M.S.103H, Minn. Rules 7001** and **Minn. Rules 7060**), MPCA regulates the use of on-site sewage treatment systems for disposal of industrial and commercial wastewaters.

Through the **Leaking Underground Storage Tank (UST) Program** (U.S. Resource Conservation and Recovery Act, Subtitle 1, and **Minn. Rules 7150**), MPCA guides owners and operators of leaking underground storage tanks USTs through the remediation process and assists in recovering remediation costs. Through the **Nonpoint Source Pollution Management Program** (Clean Water Act Section 319), **M.S. 115, M.S. 116, M.S. 103H, Minn. Rules 7076, Minn. Rules 7020** and **Minn. Rules 7080**), MPCA carries out a number of activities to assess and reduce pollution of surface and ground water from nonpoint sources. Through the **Spills Response Program (M.S. 115, Minnesota Environmental Response and Liabilities Act [MERA])**, U.S. Oil Pollution Act and U.S. Comprehensive Environmental Response and Liability Act (CERCLA), MPCA oversees and ensures cleanup of hazardous materials spills, leaks and other catastrophic occurrences. Both federal and state law require those who are responsible for pollution to clean it up.

MERA (M.S. 116B) also allows Minnesota residents to take civil action against any person for the protection of the air, water, land or other natural resources located within the state, whether privately or publicly owned, from pollution, impairment or destruction (**M.S. 116B.03**).

Minnesota has a “nuisance condition prohibition,” **Minn. Rules 7050.0210, Subp. 2**, as well as an “antidegradation policy,” **Minn. Rules 7050.0185**, in its water quality standards. The nuisance provision says: “No sewage, industrial waste or other wastes shall be discharged from either point or nonpoint sources into any waters of the state so as to cause any nuisance conditions such as the presence of significant amounts of floating solids, scum, visible oil film, excessive suspended solids, material discoloration, obnoxious odors, gas ebullition, deleterious sludge deposits, undesirable slimes or fungus growths, aquatic habitat degradation, excessive growths of aquatic plants or other offensive or harmful effects.”

MDA regulates storage, use and emergency response plans for certain chemicals and pesticides that could be used on hydromodification project sites. Under the **Agricultural Chemicals Spills Response Program (M.S. 18D.103 and M.S. 18D.105)**, MDA requires that spills of agricultural chemicals (pesticides or fertilizers) be immediately reported to MDA for investigation, remediation, etc. Under the **Statewide Surface Water Quality Monitoring for Pesticides Program (M.S. 18B.04)**, MDA monitors and defines the long-term impacts of normal agricultural pesticide applications. MDH regulates sanitary provisions and water supplies for a wide range of activities.

At the local level, Soil and Water Conservation Districts (SWCDs), under **M.S. 103C**, assist landowners in the implementation of plans to conserve and protect soil and water resources. SWCDs can provide cost-share assistance to landowners for implementing soil and erosion control best management practices and projects.

Within Minnesota, control over the use of lands adjacent to lakes and rivers is accomplished by implementation of the minimum standards by LGUs via zoning ordinances. See Section II B: Purpose and Approach, for details. In addition, the state has responsibility for oversight of LGU’s control of lands located in the flood plain. The **Shoreland Management Act (M.S. 103G)** applies to all lands within 300 feet from the top of the bank of a stream and lands within 1000 feet from the ordinary high water level (OHWL) of a lake or flowage. LGUs can develop standards more restrictive than the minimum statewide standards. Along the shoreline of Lake Superior, the North Shore Management Board (NSMB), an LGU joint powers board, established minimum standards for development adjacent to Lake Superior, in the North Shore Management Plan (NSMP).

Counties (under **M.S. 394**) and municipalities (under **M.S. 462**) have implemented shoreland, floodplain and wetland ordinances, in addition to their own building and zoning codes, to control development and protect the environment. An integral part of all local zoning regulations is the requirement for erosion and sediment control plans

for construction and/or land disturbance activities, especially in shoreland district areas. The shoreland district, under local zoning authority, is defined as 1,000 feet around lakes, and 300 feet or the 100-year flood plain, whichever is greater, for streams and rivers. Under **M.S. 103F**, DNR oversees the adoption of local controls and local zoning decisions within shoreland and floodplain areas. The authority for drainage and construction of drainage projects is found in **M.S. 103E**.

Communities that have adopted state approved floodplain management ordinances have provisions in place that maintain the conveyance capacity of altered watercourses as well as the receiving waterbody. Increased flood discharges and/or velocities will not be allowed that increase damages/losses in upstream, adjacent or downstream areas. St. Louis and Carlton counties have state approved floodplain ordinances. The City of Duluth and a number of smaller communities have also adopted state approved floodplain ordinances. Local governments must adopt floodplain management ordinances when the Federal Emergency Management Agency (FEMA) publishes a Flood Insurance Study/Flood Insurance Rate Map for the community.

Existing regulatory and nonregulatory programs are tied together by memoranda of understanding (MOUs). Existing MOUs between the USCOE, DNR, MPCA, MDA, MDH and BWSR ensure coordination between state and federal permitting agencies. New MOUs can be implemented, as needed, basis in areas that need more coordination.

Most programs administered by LGUs (e.g., shoreland and floodplain zoning, sanitary, septic and water supply, tanks and spills, etc.) have state agency oversight. A combined joint notification form – the Minnesota Local/State/Federal Application Forms for Water/Wetland Projects – has been developed for use by the DNR, BWSR, MPCA, SWCD and USCOE, in cooperation with the LGU. The form enables regulatory agencies to determine jurisdictional authority over a proposed project.

Table 19a: State Enforceable Authorities for Hydromodification.

Management Measure	Applicable Minn. Statutes	Applicable Minn. Rules
Table 19a, Part 1: Channelization and Channel Modification		
a. Physical and Chemical Characteristics of Surface Water	103E; 103F; 103G; 116B; 116D	4410; 7050
b. Instream and Riparian Habitat Restoration	97A; 103E; 103G	6115; 7001

Table 19a, Part 2: Dams		
c. Erosion and Sediment Control	103B; 103F; 116B; 116D	4410; 6115; 7001; 7050.0185; 7050.0210
d. Chemical and Pollutant Loading	18B; 18C.201; 18D; 103G.005; 115.061; 116B; 116D	7001; 7050.0185; 7050.0210; 7100
e. Protection of Surface Water Quality and Riparian Habitat	97; 103G; 116B	6115; 7050.0185; 7050.0210

Table 19a, Part 3: Streambank and Shoreline Erosion		
f. Eroding Streambanks and Shorelines	103F; 103G	6115; 7050.0185; 7050.0210

Table 19b. Names of State Statutes and Rules Cited for Hydromodification.

Table 19b, Part 1: Statutes
18B: Pesticide Control 18B.04: Pesticide Impact on Environment 18C: Fertilizers, Soil Amendments, Plant Amendments 18C.201: Prohibited Fertilizer Activities 18D: Chemical Liability 18D.103: Report of Incidents Required 18D.105: Corrective Action Orders 97A: Game and Fish 97A.135: Acquisition of Wildlife Lands 97A.141: Public Water Access Sites 97A.145: Wetlands for Wildlife 103B: Water Planning and Project Implementation 103E: Drainage 103F: Protection of Water Resources [Floodplain Management Act] 103G: Waters of the State [Protected Water Program] 103G.005: Cooperation with Other Agencies 103G.705: Stream Protection and Improvement Loan Program 115: Water Pollution Control Act 115.061: Duty to Notify and Avoid Water Pollution 116B: Minnesota Environmental Rights Act (MERA) 116D: Minnesota Environmental Policy Act (MEPA) 394: Planning, Development, Zoning [County] 462: Housing, Redevelopment, Planning, Zoning [Municipal]

Table 19b, Part 2: Rules
4410: Environmental Review
6115: Public Water Resources
6115.0200: Excavation of Public Waters
7001: NPDES/State Disposal Permits
7050: Waters of the State [Water Quality Standards]
7050.0185: Nondegradation for All Waters [“Antidegradation Policy”]
7050.0210: General Standards for Dischargers [“Nuisance Condition Prohibition”] [“Nuisance Condition Prohibition”]

Note: Minnesota’s statutes and rules are available via the Internet two different ways. The information is the same either way.

1. *Statutes and rules may be viewed by section on the Internet on Minnesota’s Revisor of Statutes Web site at:*
 - *For administrative rules - <http://www.revisor.leg.state.mn.us/arule/> [plus add number of specific rule]*
 - *For statutes - <http://www.revisor.leg.state.mn.us/stats/>*
2. *Statutes and rules may be viewed or easily downloaded in their entirety from Minnesota’s Legislative Web site at:*
<http://www.leg.state.mn.us/leg/statutes.htm>.

Specific Evaluation of Hydromodification Management Measures

PART 1: CHANNELIZATION AND CHANNEL MODIFICATION [HYDROMODIFICATION]

Under the provisions of **Minn. Rules 6115.0200**, it is the goal of the DNR to limit the excavation of materials from the beds of protected waters in order to preserve the natural character of protected waters and their shoreland and to minimize encroachment, change or damage to the environment, particularly the ecosystem of the waters. Under the protected waters permit program, DNR regulates the nature, degree and purpose of excavations, so that the excavations will be compatible with the capability of the waters to assimilate the excavation, and will control the deposition of

materials excavated from protected waters, to protect and preserve the waters and adjacent lands from sedimentation and other adverse physical and biological effects.

Excavation, as defined by the protected water permit rules, includes any activity that results in the displacement or removal of bottom materials, or the widening, deepening, straightening, realigning or extending of protected waters. It may involve proposals for excavations landward or waterward from the ordinary high water mark.

5.a. Physical and Chemical Characteristics of Surface Waters **[Hydromodification: Channelization and Channel** **Modification]**

A. Federal Description of Management Measure [Nationwide] {5.a. Channelization: Physical and Chemical Characteristics of Surface Waters}

- (1) Evaluate the potential effects of proposed channelization and channel modification on the physical and chemical characteristics of surface waters in coastal areas;
- (2) Plan and design channelization and channel modification to reduce undesirable impacts; and
- (3) Develop an operation and maintenance program for existing modified channels that includes identification and implementation of opportunities to improve physical and chemical characteristics of surface waters in those channels.

B. Applicability [Nationwide] {5.a. Channelization: Physical and Chemical Characteristics of Surface Waters}

This management measure, nationwide, is intended to be applied to public and private channelization and channel modification activities, including levees, in order to prevent the degradation of physical and chemical characteristics of surface waters from such activities. It also applies to existing modified channels that can be targeted for opportunities to improve the surface water characteristics necessary to support desired fish and wildlife.

Applicable State Programs and Practices

C. Nonregulatory Approaches {5.a. Channelization: Physical and Chemical Characteristics of Surface Waters}

1. Economic Incentives and Disincentives

The DNR has participated as a partner in the Miller Creek Task Force, which is working to reduce impacts on an urban trout stream in Duluth. The Miller Creek Task Force has received financial support from the Legislative Commission on Minnesota Resources.

2. Public Information/Education, and Technical/Related Assistance

Information pertaining to the DNR protected waters permit program is available through DNR hydrologists and publications. The LGUs can also provide project applicants with relevant local requirements, outside the DNR permit process. MPCA's BMPs provide guidance for protecting physical and chemical characteristics of surface waters. The SWCDs can also provide public information.

Technical assistance for hydromodification projects is available through DNR hydrologists. LGUs and SWCDs can also provide technical assistance to landowners. The *Minnesota Public Drainage Manual* assists in dealing with the state's drainage code.

D. Enforceable Policies and Mechanisms {5.a. Channelization: Physical and Chemical Characteristics of Surface Waters}

1. State Permits and Licenses

A protected waters permit, obtained through the DNR, is required for any project that affects the bed of a protected water or wetland. This includes projects such as channelization and erosion control. DNR protected waters permit rules pertaining to channelization projects require the use of models and/or methodologies to evaluate the effects of proposed channelization and channel modification projects on the physical and chemical characteristics of surface waters. Where an approved local water plan is in use, a proposed project must be compatible with the goals of watershed plans, land use plans and new development plans before a DNR permit can be issued. All permits issued by DNR contain appropriate BMPs and special provisions for use in the design of proposed channelization or channel modification projects, or in the operation and maintenance program of existing projects, to maintain and improve water quality and protect riparian habitat.

In addition to direct regulation by the DNR, the USCOE requires Section 404 and Section 10 permits for channel modification projects. USCOE rules require an evaluation of all potential impacts, and projects must be designed to avoid, minimize and mitigate impacts. Water quality certification for these projects is provided by the MPCA under Section 401 of the Clean Water Act and **Minn. Rules 7050**. The USCOE cannot issue a permit without water quality certification from the MPCA.

The **Minnesota Environmental Policy Act (MEPA) (116D)** establishes Minnesota's environmental review program, which is described in the introduction to this chapter. The **Minnesota Environmental Rights Act (MERA) (116B)** allows state residents to take civil action against any person for the protection of the air, water, land or other natural resources located within the state, whether privately or publicly owned, from pollution, impairment or destruction.

2. Local Zoning

Under **M.S. 103F**, local governments administer zoning ordinances requiring vegetative management standards, erosion and sediment controls, storm water, shoreland and floodplain management standards and the use of BMPs for activities outside of the DNR permit process.

3. Direct State Statutory Requirements

M.S. 103B specifies that all local units of government provide water retention devices or areas for all new developments that create an impervious surface of one acre or larger, either singly or in aggregate. **M.S. 103B.231** requires municipalities to develop watershed plans for their city's watersheds. **M.S. 103B.235** requires LGUs having land use planning and regulatory responsibility for territory within the watershed to prepare or cause to be prepared a local water management plan, capital improvement program and official controls as necessary to bring local water management into conformance with the watershed plan.

Work affecting public waters is regulated by **M.S. 103G**. The **Shoreland Management Act, M.S. 103F**, is mandated by state statute and applies to shoreland of public waters that are subject to local government land use controls. The authority for drainage projects is found in **M.S. 103E**.

MPCA issues certification for the federal Clean Water Act (Section 401) and state certification (**Minn. Rules 7050**) for activities that will result in the discharge of dredge or fill materials into waters of the state.

E. Monitoring and Tracking {5.a. Channelization: Physical and Chemical Characteristics of Surface Waters}

1. Existing and Planned Monitoring Efforts

DNR monitors all protected waters permits for compliance with permit conditions.

2. Inspection, Tracking and Assessment Techniques

Inspection and tracking of permits is the responsibility of the issuing agency or governmental unit.

Permits issued under DNR's Protected Waters Program are assigned an application number and tracked in a database. DNR hydrologists perform inspections of work done under approved permits as needed. Permit conditions can be enforced by the DNR conservation officers (COs).

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {5.a. Channelization: Physical and Chemical Characteristics of Surface Waters}

According to **M.S. 103G.105**, state and local officials must cooperate in enforcement. Personnel from MPCA, the Department of Health (MDH) and county and municipal governments must cooperate with the DNR in monitoring and enforcing water permits. County attorneys, sheriffs, other peace officers and other officers having enforcement authority must take all action to the extent of their authority, respectively, that may be necessary or proper for the enforcement of the provisions, rules, standards, orders or permits specified in **M.S. 103G** and **M.S. 103F**.

5.b. Instream and Riparian Habitat Restoration
[Hydromodification: Channelization/Channel
Modification]

A. Federal Description of Management Measure [Nationwide]
{5.b. Channelization: Instream and Riparian Habitat Restoration}

- Evaluate the potential effects of proposed channelization and channel modification on instream and riparian habitat in coastal areas;
- Plan and design channelization and channel modification to reduce undesirable impacts; and
- Develop an operation and maintenance program with specific timetables for existing modified channels that includes identification of opportunities to restore instream and riparian habitat in those channels.

B. Applicability [Nationwide]
{5.b. Channelization: Instream and Riparian Habitat Restoration}

This management measure, nationwide, pertains to surface waters where channelization and channel modification have altered, or have the potential to alter, instream and riparian habitat such that historically present fish or wildlife are adversely affected. This management measure is intended to apply to any proposed channelization or channel modification project to determine changes to instream and riparian habitat, and to existing modified channels to evaluate possible improvements to instream and riparian habitat.

Applicable State Programs and Practices

C. Nonregulatory Approaches
{5.b. Channelization: Instream and Riparian Habitat Restoration}

1. Economic Incentives and Disincentives

Minnesota does not use economic incentives or disincentives to implement this management measure.

2. Public Information/Education, and Technical/Related Assistance

Information about alterations of instream and riparian habitat as it relates to channelization and channel modification is available from DNR hydrologists and from printed materials.

DNR, through the Stream Flow Protection and Regulation Program (**M.S. 103G**), recommends protected flow levels for rivers, lakes, hydropower and reservoir operations. DNR, through the Adopt-A-River Program, encourages better stewardship of state rivers by sponsoring group cleanups of nonpoint source pollution on designated rivers.

Technical assistance is available through the DNR, BWSR, SWCDs and, for drainage projects, the drainage authority.

DNR, through the Trout Stream Habitat Improvement Program (**M.S. 97A.135, M.S. 97A.141 and M.S. 97A.145**), improves trout habitat on streams in public ownership or where easements have been acquired by DNR. Projects include grading banks, adding rock riprap and adding instream cover structures, as needed, to improve habitat.

DNR, through the Warmwater Stream Habitat Improvement Program (**M.S. 97A.135, M.S. 97A.141 and M.S. 97A.145**), acquires easements along trout streams to improve angler access. The program includes riparian protection and habitat improvement activities.

D. Enforceable Policies and Mechanisms

{5.b. Channelization: Instream and Riparian Habitat Restoration}

1. State Permits and Licenses

At the state level, DNR Protected Waters Permit rules require mitigation for all activities that will affect significant fish and wildlife habitat. There is opportunity within the DNR protected waters permit program to identify degraded habitat and restore it as compensatory mitigation for new proposals. In addition, Governor's Executive Order 20-02 requires that all state agency actions and permit decisions result in the "no net loss" of wetlands.

Under the DNR protected waters permit program, effects to the biological character of the waters and surrounding shorelines is limited to the minimum degree feasible and practical. Adverse effects on the physical or biological character of the water are also subject to feasible and practical measures to mitigate the effects.

Proposed channelization and channel modification projects that occur in DNR public waters are reviewed for impacts to fish and wildlife habitat consistent with the standards and criteria found in **Minn. Rules 6115.0200 - 6115.0201**. In general, the permit review process includes coordination with DNR fish and

wildlife managers, the LGU, the local SWCD and the USCOE. Projects must “preserve the natural character of public waters and their shorelands, in order to minimize encroachment, change, or damage to the environment, particularly the ecosystem of the waters.”

Proposed public drainage projects administered through the state drainage code (**M.S. 103E**) must not affect public waters without first obtaining a DNR public waters permit. Regardless of public waters jurisdiction, petitioners for a drainage project must provide information on fish and wildlife resources potentially affected by the proposed drainage project. **M.S. 103E.015** mandates that the drainage authority consider at least nine criteria relating to land use and the environment.

Fish impacts include sedimentation along downstream areas after construction, blockage of fish movement due to grade control structures, and excessive water velocities created by hydraulic structures. Wildlife may be impacted by potential land use changes, including the destruction of prairie and wooded habitat. The grass buffer strip requirement for drainage systems should not be suggested as providing adequate mitigation for the destruction of other wildlife habitat.

Engineers for the ditch authority or petitioners are encouraged to coordinate early with federal and state fish and wildlife managers in reviewing potential project impacts on fish and wildlife habitat.

Minn. Rules 6115.0200 requires proposed excavations to be consistent with applicable floodplain, shoreland and wild and scenic river management standards and ordinances for the waters involved. Proposed excavations must also be consistent with plans and management programs of local and regional governments, provided that such plans are consistent with state plans and programs.

Under **Minn. Rules 6115.0201, Subp. 6**, excavations to restore or improve fish and wildlife habitat require plans showing the nature and degree of habitat to be benefitted. It also requires information showing that the project will not create other adverse effects such as flooding, erosion, sedimentation or navigational obstructions.

In addition to DNR permit requirements, the USCOE, under Section 404 or Section 10, requires permits for channel modifications. USCOE rules require an evaluation of all potential impacts, and projects must be designed to avoid, minimize and mitigate impacts to riparian habitat. Under Section 401b of the Clean Water Act and **Minn. Rules 7050**, MPCA must give water quality

certification to USCOE permits. Under **Minn. Rules 7001**, MPCA requires long-term erosion and sediment control plans for all projects that will cumulatively result in land disturbance activities greater than five acres. This includes projects that require channelization or channel modifications of protected water courses.

2. Local Zoning

Under **M.S. 103F**, LGUs through shoreland management standards require erosion and sediment control plans for all activities within the shoreland district of protected waters.

The Duluth Comprehensive Port Development Plan was adopted by the City of Duluth, Seaway Port Authority of Duluth and the DNR. This plan identified all habitat within the Duluth Harbor as being important and requires mitigation for all habitat losses due to new development. Mitigation requirements under the Port Plan are required to be consistent with other existing local, state and federal plans and regulations.

3. Direct State Statutory Requirements

Work affecting public waters is regulated by **M.S. 103G**. The **Shoreland Management Act, M.S. 103F**, is mandated by state statute and applies to shorelands of public waters which are subject to local government land use controls. The authority for drainage projects is within **M.S. 103E**. All drainage projects constructed and maintained or improved under the drainage code must consider the costs and benefits associated with the project, and must consider the impacts to water quality.

MPCA issues certification for the federal Clean Water Act (Section 401) and state certification (**Minn. Rules 7050**) for activities that will result in the discharge of dredge or fill materials into waters of the state.

E. Monitoring and Tracking

{5.b. Channelization: Instream and Riparian Habitat Restoration}

1. Existing and Planned Monitoring Efforts

The DNR monitors all protected waters permits for compliance with permit conditions. All permits are assigned an application number and are tracked on a permits data base.

Through the In-Stream Flow Program (**M.S. 103G**), the DNR collects biological and hydraulic data and applies In-Stream Flow Incremental Methodology (IFIM) models to examine water level manipulations (i.e., dams and water appropriations) and their effects on the ecology of the stream.

2. Inspection, Tracking and Assessment Techniques

Inspection and tracking of permits is the responsibility of the issuing agency or governmental unit.

Permits issued under DNR's Protected Waters Program are assigned an application number and tracked in a database. DNR hydrologists perform inspections of work done under approved permits as needed. Permit conditions can be enforced by the DNR COs.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages

{5.b. Channelization: Instream and Riparian Habitat Restoration}

According to **M.S. 103G.105**, state and local officials must cooperate in enforcement. Personnel from MPCA, the MDH and county and municipal governments must cooperate with the DNR in monitoring and enforcing water permits. County attorneys, sheriffs, other peace officers and other officers having enforcement authority must take all action to the extent of their authority that may be necessary or proper for the enforcement of the provisions, rules, standards, orders or permits specified in **M.S. 103G** and **M.S. 103F**.

The St. Louis River Remedial Action Plan (RAP) is focused on restoring and protecting the St. Louis River System Area of Concern (AOC). A strong component of the RAP is the restoration of degraded fish and wildlife (i.e., riparian) habitat. One of the RAP's current major projects is the development of a habitat plan for the lower St. Louis River. This project involves many partners, and is being supported financially by the EPA, USFWS and DNR.

The Harbor Technical Advisory Committee (H-TAC) is a broad based subcommittee of the bistate Metropolitan Interstate Commission, which is staffed by the Arrowhead Regional Development Commission (ARDC). H-TAC partners include EPA, USCOE, MPCA, Minnesota DNR, Wisconsin DNR, LGUs, private

industry, the RAP, etc. H-TAC discusses many issues related to the harbor and harbor maintenance activities. These include dredging and the proper disposal of dredge spoils, including the beneficial reuse of dredge spoils for habitat creation and restoration purposes.

PART 2: DAMS [HYDROMODIFICATION]

Minnesota uses the definition for “jurisdictional dams” that is recommended in the National Inventory of Dams. According to these guidelines, dams less than six feet are exempt, as are dams with less than 15 acre-feet of storage; dams that fall between six and 25 feet high, impounding 15 to 50 acre-feet, are optional and may be considered “jurisdictional dams” at the discretion of the state. A jurisdictional dam is one that is regulated under the dam safety section of the state law, as well as the protected water statutes. A non-jurisdictional dam is still a dam; it is regulated under as a protected water if it is located on a protected water. A small dam that does not meet jurisdictional criteria, is not on a protected water and does not impact a wetland, is not regulated by the state, but may be regulated by county land grading rules.

There are several types of dams in the Lake Superior Basin:

- Hydropower dams, with the Thompson project on the St. Louis River being the largest hydropower project, by far, in the state. It includes five dams on the St. Louis River.
- Tailings dams, most of them by Silver Bay. These dams impound tailings from processing iron ore to produce taconite. At least one impounds ash from a mining-company power plant.
- Lake outlet dams, built to raise runout elevations on an existing recreational lake. They are not normally operated, but have a fixed runout elevation. Devil Track Lake is an example.
- Flood-control and erosion control dams, built by or designed by the Natural Resource Conservation Service (NRCS). Functionally, these tend to have some value for reducing erosion, and less value for flood control. Chez Pond is an example.

Minn. Rules 6115.0300 was established to regulate the construction and enlargement of dams, as well as their repair, alteration, maintenance, operation, transfer of ownership and abandonment in such a manner as to best provide for public health, safety and welfare. These rules are intended to be consistent with the goals and

objectives of applicable federal and state environmental quality programs and policies including, but not limited to, mineland reclamation, and the management of: shorelands, floodplains, water surface use, boat and water safety, wild and scenic rivers, critical areas, recreational or wilderness areas, scientific and natural areas, and protected vegetative species. Where the dam safety rules conflict with other appropriate rules and requirements, the most restrictive provision shall apply.

Pursuant to **Minn. Rules 6115.0320**, a “dam” is any artificial barrier, together with appurtenant works, which does or may impound water and/or waste materials containing water, except:

- (a) Dams that are less than 25 feet in height and have a storage capacity at maximum storage elevation of less than 50 acre-feet, which shall be exempt from dam safety permit requirements if they do not have potential for loss of life resulting from failure or misoperation;
- (b) Any artificial barrier which is not in excess of six feet in height regardless of storage capacity, or which has a storage capacity not exceeding 15 acre-feet regardless of height;
- (c) Underground or elevated tanks to store water and/or waste;
- (d) Any artificial barrier constructed solely for the purpose of containment of sewage or biological treatment of wastewater which is under the jurisdiction of the MPCA;
- (e) Dams owned by the United States;
- (f) Dikes and levees constructed for flood control purposes to divert flood waters and which are not intended to act as impoundment structures.

Minn. Rules 6115.0360, Subp. 2, requires DNR to make an initial, detailed systematic technical inspection, and evaluations, of every Class I (high hazard), Class II (medium hazard) or Class III (low hazard) dam in order to assess the general safety conditions, including a review and analysis of available data on design, construction and operation; and for the adequacy and quality of maintenance and operating equipment and procedures. The three hazard classes are defined in **Minn. Rules 6115.0340**.

The safety evaluations involve constraints on water control such as blocked entrances, restrictions on operation of spillway and outlet gates, if any, inadequate energy dissipaters or restrictive channel conditions, significant reductions in impoundment capacity by sediment deposits and, for waste impoundments, the material abundance. Where essential design data are lacking, evaluations of watershed characteristics, rainfall, and impoundment records may be used to evaluate effects of the dam. Dam safety reports determine the need for emergency measures or actions; corrective actions relating to design, construction and operation; and additional detailed studies, investigations and analyses.

Minn. Rules 6115.0380, Subp. 2, requires dam owners to keep records and report on maintenance, operation, staffing, engineering, geologic investigations and to provide any other data necessary to protect the public health, safety and welfare.

Minn. Rules 6115.0390 (Termination of Operations and Perpetual Maintenance) requires the dam owner to, unless the dam is removed, perpetually maintain the dam and appurtenances so as to ensure the integrity of the structure. DNR may impose such requirements as may be necessary prior to the ultimate termination of the owner's operation to ensure that the owner will be financially responsible for carrying out the activities required for perpetual maintenance, and that adequate funding will exist.

Regarding dams used for waste disposal, the owner must prepare and submit to the commissioner plans for termination of operations and perpetual maintenance that address the owner's plans for both an unanticipated or premature termination of operations and for the ultimate intended termination of operations.

5.c. Erosion and Sediment Control **[Hydromodification: Dams]**

A. Federal Description of Management Measure [Nationwide] **{5.c. Erosion and Sediment Control}**

- (1) Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction, and
- (2) Prior to land disturbance, prepare and implement an approved erosion and sediment control plan, or similar administrative document that contains erosion and sediment control provisions.

B. Applicability [Nationwide] {5.c. Erosion and Sediment Control}

This management measure, nationwide, is intended to be applied by states to the construction of new dams, as well as to construction activities associated with the maintenance of dams. Dams are defined as constructed impoundments which are either:

- Twenty-five feet or more in height and greater than 15 acre-feet in capacity, or
- Six feet or more in height and greater than 50 acre-feet in capacity.

This measure does not apply to projects that fall under NPDES jurisdiction.

Applicable State Programs and Practices

C. Nonregulatory Approaches {5.c. Erosion and Sediment Control}

1. Economic Incentives and Disincentives

M.S. 103G authorizes the legislature to provide funds for the repair, reconstruction and removal of dams. The program provides grants and/or loans to LGUs for engineering evaluations (including hydropower feasibility studies) and for the repair and reconstruction of dams owned by the public. When dams no longer provide public benefits, and their continued repair and maintenance is not in the public interest, the legislature provides money for dam removal.

2. Public Information/Education, and Technical/Related Assistance

Public information is available through DNR, BWSR and MPCA. Information is also available through LGUs and SWCDs.

Technical Assistance on dam safety matters is available from the DNR Dam Safety Unit. This includes information on design criteria, operation and maintenance for dams, and on emergency action plans related to dam failure. Minnesota DNR has developed guidance, *Dam Safety Guidebook, Minnesota Edition*, which is available to the public. It contains information on dam safety, liability and responsibility, inspection, maintenance, repair, alteration, and removal, operation, emergencies and financial assistance.

Additional technical assistance is available from BWSR and MPCA.

D. Enforceable Policies and Mechanisms {5.c. Erosion and Sediment Control}

1. State Permits and Licenses

A protected waters permit, obtained through the DNR, is required for any project as defined as a dam under Minnesota rules. DNR permit special provisions require proper runoff, erosion and sediment controls before, during and after construction. A general requirement is that the technical guidelines of the local SWCD be implemented.

For projects impacting more than five acres, an MPCA construction and stormwater management permit and plan is required under **Minn. Rules 7001**. These plans require that vegetation removal be kept to the minimum necessary for project completion. Special provisions of this permit require onsite sediment retention.

M.S. 103B guidelines require stormwater management for any project creating more than one acre of impervious surface.

2. Local Zoning

Local zoning authorities, under **M.S. 103F**, require site stormwater management plans for all activities within the shoreland district. Vegetation removal must be kept to the minimum necessary for construction. Replanting of vegetation is a general requirement of local zoning ordinances. DNR permit rules require compliance with local zoning authorities.

3. Direct Statutory Requirements

See the citations above, including the discussion of **Minn. Rules 6115** at the beginning of the Dam section (Part 2).

The **Minnesota Environmental Policy Act (MEPA) (116D)** establishes Minnesota's environmental review program, which is described in the introduction to this chapter. The **Minnesota Environmental Rights Act (MERA) (116B)** allows state residents to take civil action against any person for the protection of the air, water, land or other natural resources located within the state, whether privately or publicly owned, from pollution, impairment, or destruction.

E. Monitoring and Tracking {5.c. Erosion and Sediment Control}

1. Existing and Planned Monitoring Efforts

Statewide monitoring of nonpoint source pollution is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan*. The monitoring chapter is available on the Internet.

<http://www.pca.state.mn.us/water/nonpoint/nsmpp-ch5.pdf>

2. Inspection, Tracking and Assessment Techniques

Inspection and tracking of permits is the responsibility of the issuing agency or governmental unit.

Permits issued under DNR's Protected Waters Program are assigned an application number and tracked in a database. DNR hydrologists perform inspections of work

done under approved permits as needed. Permit conditions can be enforced by the DNR COs.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {5.c. Erosion and Sediment Control}

According to **M.S. 103G.105**, state and local officials must cooperate in enforcement. Personnel from MPCA, the MDH and county and municipal governments must cooperate with the DNR in monitoring and enforcing water permits. County attorneys, sheriffs, other peace officers and other officers having enforcement authority must take all action to the extent of their authority that may be necessary or proper for the enforcement of the provisions, rules, standards, orders or permits specified in **M.S. 103G** and **M.S. 103F**.

5.d. Chemical and Pollutant Loading [Hydromodification: Dams]

A. Federal Description of Management Measure [Nationwide] {5.d. Chemical and Pollutant Loading}

- (1) Limit application, generation and migration of toxic substances;
- (2) Ensure the proper storage and disposal of toxic materials; and
- (3) Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters.

B. Applicability [Nationwide] {5.d. Chemical and Pollutant Loading}

This management measure, nationwide, is intended to be applied by the state to the construction of new dams, as well as to the construction activities associated with the maintenance of dams. Dams are defined as constructed impoundments which are either:

- Twenty-five feet or more in height and greater than 15 acre-feet in capacity, or
- Six feet or more in height and greater than 50 acre-feet in capacity.

This management measure addresses fuel and chemical spills associated with dam construction, as well as concrete washout and related construction activities.

Applicable State Programs and Practices

C. Nonregulatory Approaches {5.d. Chemical and Pollutant Loading}

1. Economic Incentives and Disincentives

M.S. 103G authorizes the legislature to provide funds for the repair, reconstruction and removal of dams. The program provides grants and/or loans to LGUs for engineering evaluations (including hydropower feasibility studies) and for the repair and reconstruction of dams owned by the public. When dams no longer provide public benefits, and their continued repair and maintenance is not in the public interest, the legislature provides money for dam removal.

2. Public Information/Education, and Technical/Related Assistance

Information pertaining to chemical and pollutant management and loading is available from the DNR, BWSR, MPCA, LGUs and SWCDs.

Technical Assistance on dam safety matters is available from the DNR Dam Safety Unit. This includes information on design criteria, operation and maintenance for dams, and on emergency action plans related to dam failure. Minnesota DNR has developed guidance, *Dam Safety Guidebook, Minnesota Edition*, which is available to the public. It contains information on dam safety, liability and responsibility, inspection, maintenance, repair, alteration, and removal, operation, emergencies and financial assistance.

Additional technical assistance is available from BWSR and MPCA.

D. Enforceable Policies and Mechanisms {5.d. Chemical and Pollutant Loading}

1. State Permits and Licenses

A number of authorities exist under Minnesota laws to construction site chemical control. The primary authority with regard to spills is vested in **M.S. 115.061**. Under this statute, it is the duty of every citizen to notify the MPCA and to take any action necessary and reasonable to recover and minimize spills that may cause pollution to state waters. Spills of less than five gallons are exempt from these reporting requirements.

Under **Minn. Rules 7001.0520**, **Minn. Rules 7001.3050** and **Minn. Rules 7001.0520**, no person may treat, store or dispose of hazardous waste under without a permit. Under **Minn. Rules 7001.3050**, it is also illegal to treat, store or dispose of solid waste without a permit.

Agencies, contractors and other commercial entities associated with the dam construction project that store, handle or transport fuel, oil or hazardous materials must have a spill-response plan, especially if large quantities of oil or other polluting liquid materials are used. There must be fuel and vehicle maintenance staging areas located away from surface waters, and all drainage leading to surface waters, and require that these staging areas be designed to control runoff. In addition, construction materials, refuse, garbage, sewage, debris, oil and other petroleum products, mineral salts, industrial chemicals and topsoil must be stored, covered and isolated to prevent runoff of pollutants and contamination of ground water.

MPCA's rules relating to tanks, spills and hazardous waste, as well as DNR's Dam Safety Rules, limit the application, generation and migration of toxic substances; ensure the proper storage and disposal of toxic materials; and ensure the application of nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters.

DNR permit special provisions, and rules for dam safety, require the use of prudent engineering practices to prevent spills and pollution, and also require compliance with applicable rules of other agencies.

MDA regulates storage, use and emergency response plans for certain chemicals and pesticides that could be used on hydromodification project sites under the **Agricultural Chemicals Spills Response Program (M.S. 18D.103 and M.S. 18D.105)**.

<http://www.revisor.leg.state.mn.us/stats/115/061.html>

Individual property owners are directed under **Minn. Rules 7035.0700** as to the proper storage of solid wastes. Garbage and refuse must be stored in secure, water-tight containers. Wastes that cannot be placed in containers must be stored so they do not create a public nuisance or pollution problem. Property owners are responsible for the collection and transportation of wastes in an acceptable manner as defined under **Minn. Rules 7035.0800** to a solid waste facility. Vehicles and containers used to store wastes must be designed and moved so as to prevent spills.

In the event that a spill occurs, it is the responsibility of the collector or transporter to clean up material and any area impacted by the spill.

<http://www.revisor.leg.state.mn.us/arule/7035/0700.html>

<http://www.revisor.leg.state.mn.us/arule/7035/0800.html>

2. Local Zoning

Chemical and pollutant loading are regulated by the state, and are regulated only indirectly by local zoning controls.

3. Direct State Statutory Requirements

A number of authorities exist under Minnesota laws to construction site chemical control. The primary authority with regard to spills is vested in **M.S. 115.061**. Notification of all spills of five gallons or more of liquid material such as oil, harmful solvents, antifreeze and paints, must be reported to the Minnesota duty officer. MPCA oversees and ensures cleanup of hazardous materials spills, leaks and other catastrophic occurrences.

A person may not store, handle, distribute or dispose of a fertilizer, fertilizer container, or fertilizer application equipment in a manner that:

(1) Endangers humans, damages agricultural products, food, livestock, fish or wildlife; (2) Will cause unreasonable adverse effects on the environment; or (3) Will cause contamination of public or other waters of the state, as defined in **M.S. 103G.005, Subdivisions 15, 17 and 18**, from back siphoning or back flowing of fertilizers through water wells or from the direct flowage of fertilizers (**M.S. 18C.201**).

Individual property owners are directed under **Minn. Rules 7035.0700** as to the proper storage of solid wastes. Garbage and refuse must be stored in secure, water tight containers. Wastes that cannot be placed in containers must be stored so they do not create a public nuisance or pollution problem. Property owners are responsible for the collection and transportation of wastes in an acceptable manner as defined under **Minn. Rules 7035.0800** to a solid waste facility. Vehicles and containers used to store wastes must be designed and moved so as to prevent spills. In the event that a spill occurs, it is the responsibility of the collector or transporter to clean up material and any area impacted by the spill.

Minnesota has a “nuisance condition prohibition,” **Minn. Rules 7050.0210, Subp. 2**, as well as an “antidegradation policy,” **Minn. Rules 7050.0185**, in its water

quality standards. The nuisance provision says: “No sewage, industrial waste or other wastes shall be discharged from either point or nonpoint sources into any waters of the state so as to cause any nuisance conditions such as the presence of significant amounts of floating solids, scum, visible oil film, excessive suspended solids, material discoloration, obnoxious odors, gas ebullition, deleterious sludge deposits, undesirable slimes or fungus growths, aquatic habitat degradation, excessive growths of aquatic plants or other offensive or harmful effects.”

Under the **Minnesota Environmental Rights Act (MERA), M.S. 116B**, Minnesota allows state residents to take civil action against any person for the protection of the air, water, land or other natural resources located within the state, whether privately or publicly owned, from pollution, impairment, or destruction.

E. Monitoring and Tracking {5.d. Chemical and Pollutant Loading}

1. Existing and Planned Monitoring Efforts

MDA regulates storage, use and emergency-response plans for certain chemicals and pesticides that could be used on hydromodification project sites. Under the **Agricultural Chemicals Spills Response Program**, MDA requires that spills of agricultural chemicals (pesticides or fertilizers) be immediately reported to MDA for investigation, remediation, etc.

Under the **Statewide Surface Water Quality Monitoring for Pesticides Program (M.S. 18B.04)**, MDA monitors and defines the long-term impacts of normal agricultural pesticide applications.

2. Inspection, Tracking and Assessment Techniques

Inspection and tracking of permits is the responsibility of the issuing agency or governmental unit. MDA regulate, tracks and monitors the commercial use of pesticides and fertilizers.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {5.d. Chemical and Pollutant Loading}

According to **M.S. 103G.105**, state and local officials must cooperate in enforcement. Personnel from MPCA, the MDH and county and municipal

governments must cooperate with the DNR in monitoring and enforcing water permits. County attorneys, sheriffs, other peace officers and other officers having enforcement authority must take all action to the extent of their authority that may be necessary or proper for the enforcement of the provisions, rules, standards, orders or permits specified in **M.S. 103G** and **M.S. 103F**.

Spills of five gallons or more of liquid material such as oil, harmful solvents, antifreeze and paints, must be reported to the Minnesota duty officer. The duty officer is responsible for coordination with the appropriate state agencies.

5.e. Protection of Surface Water Quality and Instream and Riparian Habitat [Hydromodification: Dams]

A. Federal Description of Management Measure [Nationwide] {5.e. Dams: Protection of Surface Water Quality and Instream and Riparian Habitat}

Develop and implement a program to manage the operation of dams in coastal areas that includes an assessment of:

- (1) Surface water quality and instream and riparian habitat and potential for improvement, and
- (2) Significant nonpoint source pollution problems that result from excessive surface water withdrawals.

B. Applicability [Nationwide] {5.e. Dams: Protection of Surface Water Quality and Instream and Riparian Habitat}

This management measure, nationwide, is intended to be applied by states to dam operations that result in the loss of desirable surface water quality, and of desirable instream and riparian habitat. Dams are defined as constructed impoundments which are either:

- Twenty-five feet or more in height and greater than 15 acre-feet in capacity, or
- Six feet or more in height and greater than 50 acre-feet in capacity.

This measure does not apply to projects that fall under NPDES jurisdiction. This measure also does not apply to the extent that its implementation under state law is precluded under *California v. Federal Energy Regulatory Commission*, 110 S. Ct. 2024 (1990) (addressing the superseding of state instream flow requirements by federal flow requirements set forth in Federal Energy Regulatory Commission [FERC] licenses for hydroelectric power plants under the Federal Power Act.).

Applicable State Programs and Practices

C. Nonregulatory Approaches {5.e. Dams: Protection of Surface Water Quality and Instream and Riparian Habitat}

1. Economic Incentives and Disincentives

M.S. 103G authorizes the legislature to provide funds for the repair, reconstruction and removal of dams. The program provides grants and/or loans to LGUs for engineering evaluations (including hydropower feasibility studies) and for the repair and reconstruction of dams owned by the public. When dams no longer provide public benefits, and their continued repair and maintenance is not in the public interest, the legislature provides money for dam removal.

Dam removal to restore a river to a free-flowing condition to benefit recreation, movement of fish and restoration of the entire riverine ecosystem is an option to consider when a dam is in need of repair or becomes a public-safety concern. The criteria or factors to be considered in determining whether to reconstruct or remove an aging dam include: public safety, economic impacts, ecological impacts, recreational impacts, cost, historical significance and public support. **M.S.**

103G.511 authorizes a state dam safety cost-share program. The DNR commissioner may make grants to LGUs for dam removal. The statute directs the commissioner to annually prepare and submit to the legislature a prioritized list of needed dam safety projects, for both locally owned and state-owned dams.

2. Public Information/Education, and Technical/Related Assistance

Through its **Stream Flow Protection and Regulation Program (M.S. Chapter 103G)**, DNR provides recommendations to FERC regarding protected flow levels for rivers and lakes, and for hydropower and reservoir operations.

Through its Adopt-A-River Program, DNR encourages better stewardship of state rivers by sponsoring group cleanups of nonpoint source pollution on designated rivers.

DNR, through the **Trout Stream Habitat Improvement Program (M.S. 97A.135, M.S. 97A.141 and M.S. 97A.145)**, improves trout habitat on streams in public ownership or where easements have been acquired by DNR. Projects include grading banks, adding rock riprap, and adding instream cover structures, as needed, to improve habitat.

DNR, through the **Warmwater Stream Habitat Improvement Program (M.S. 97A.135, M.S. 97A.141 and M.S. 97A.145)**, provides a variety of techniques to maintain and improve fish habitat. These include shoreline stabilization, the addition of instream cover and structures, and flow modifications such as the removal of dams or other barriers.

DNR, through the **Fisheries Land Acquisition for Angler Access Program (M.S. 97A.135, M.S. 97A.141 and M.S. 97A.145)**, acquires corridor easements on designated trout streams for access by anglers and by management agency staff, and for riparian protection.

Through the **Trout Stream Easements Program (M.S. 97A.135, M.S. 97A.141 and M.S. 97A.145)**, DNR acquires easements along trout streams to improve angler access. This program includes riparian protection and habitat improvement activities.

Through the **In-Stream Flow Program (M.S. 103G)**, DNR collects biological and hydraulic data and applies In-Stream Flow Incremental Methodology (IFIM) models to examine water-level manipulations (i.e., dams and water appropriations) and their effects on stream ecology.

Technical Assistance on dam safety matters is available from the DNR Dam Safety Unit. This includes information on design criteria, operation and maintenance for dams, and on emergency action plans related to dam failure. Minnesota DNR has developed guidance, *Dam Safety Guidebook, Minnesota Edition*, which is available to the public. It contains information on dam safety, liability and responsibility, inspection, maintenance, repair, alteration, and removal, operation, emergencies and financial assistance.

Additional technical assistance is available from BWSR and MPCA.

D. Enforceable Policies and Mechanisms {5.e. Dams: Protection of Surface Water Quality and Instream and Riparian Habitat}

1. State Permits and Licenses

The DNR administers the Protected Waters Permit Program for activities that will alter the course, current or cross-section of Minnesota's public waters and wetlands, and the Water Appropriation Permit Program for projects appropriating in excess of 10,000 gallons per day or one million gallons per year.

Minn. Rules 6115.0410, Subp. 6, requires the dam safety permit applicant to submit a final design report, together with plans and specifications, to the DNR for approval. Approval of a dam safety permit is based on the potential hazards to the health, safety and welfare of the public and the environment, including probable future development of the area downstream or upstream. The applicant may be required to take measures to reduce risks. DNR shall furnish information and recommendations to local governments for present and future land use controls to minimize risks to downstream areas. Compliance with prudent, current environmental practice throughout the structures existence is required.

In addition, **Minn. Rules 6115.0460** require the owner of a dam to comply with all other state and federal laws and regulations and to obtain such other permits as may be required, including particularly any laws and rules regarding mineland reclamation.

Permits issued for water-level control structures or dam safety permits must contain specific provisions for a management and operation plan that includes: manner and timing of operation; frequency of maintenance, appropriate monitoring of water levels, water quality and other factors; and management of excess waters. (See **Minn. Rules 6115.0221, Water Level Controls, Specific Standards**). Inspections of dams are performed by the state, and the state can order repairs and improvements to protect water quality and habitat.

The purpose of **Minn. Rules 6115.0300** is to “regulate the construction and enlargement of dams, as well as [their] repair, alteration, maintenance, operation, transfer of ownership and abandonment...” All dams built pursuant to the these rules must also be consistent with the other rules which establish standards and criteria for granting permits for projects that change the course, current or cross-section of public waters (**Minn. Rules 6115.0150 - 6115.0210, Minn. Rules 6115.230, and Minn. Rules 6115.0240 - 6115.0260**).

Minn. Rules 6115.0700, for water appropriation applications for the purpose of establishing and maintaining water levels for basins, requires the applicant to submit information on the basin and proposed source of supply or source of discharge, including facts indicating how the water will be appropriated and discharged and the proximity of the basin to the proposed source of supply or source of discharge; and information on the design of any discharge facility into or out of the basin.

No permit is required to construct, reconstruct or abandon a water level control structure on protected watercourses with a contributing watershed of 300 acres or

less, except on officially designated trout streams, provided that the structure does not qualify as a dam under the dam safety rules. **Minn. Rules 6115.0220** (Water Level Controls) regulate water-level controls that are not covered by the dam safety rules.

For water level control structures 25 feet or more in structural height, or having a maximum storage capacity of 50 acre-feet or more, permits will be issued only to governmental agencies, public utilities or corporations having authority to construct and maintain such projects, except that a title-registration-type permit may be issued to the owner or owners of the private property upon which the proposed water-level-control structure will be located, when the provisions of the program are met.

For other water level control structures, title registration type permits may be issued to the owner or owners of the private property upon which the water level control structure will be located, which shall run with the land and require breaching or removal if it ever falls into a state of disrepair or becomes unsafe.

2. Local Zoning

Local units of government can develop standards for construction of dams. For example, Lake County requires a land use permit for dam construction or modification and requires review by the local SWCD before issuance of a permit.

3. Direct State Statutory Requirements

Minnesota has a “nuisance condition prohibition,” **Minn. Rules 7050.0210, Subp. 2**, as well as an “antidegradation policy,” **Minn. Rules 7050.0185**, in its water quality standards. The nuisance provision says: “No sewage, industrial waste or other wastes shall be discharged from either point or nonpoint sources into any waters of the state so as to cause any nuisance conditions...” The description of these conditions includes excessive suspended solids..., aquatic habitat degradation, excessive growths of aquatic plants or other offensive or harmful effects.

The **Minnesota Environmental Rights Act (MERA) (116B)** allows state residents to take civil action against any person for the protection of the air, water, land or other natural resources located within the state, whether privately or publicly owned, from pollution, impairment, or destruction.

M.S. 103G.545 controls dams and related water levels in Cook, Lake, and St. Louis counties to preserve shorelines, rapids, waterfalls, beaches and other natural features in an unmodified state of nature. Legislative approval is required for control structures and water levels within or bordering on the area of Cook, Lake, and St. Louis counties, as designated in the Act of Congress of July 10, 1930, Shipstead-Newton-Nolan Law, United States Code, title 16, section 577, before: (1) dams or additions to existing dams may be constructed in or across public waters; (2) alteration of the natural water level or volume of flowage of public waters may be made; or (3) an easement for flooding or overflowing or otherwise affecting state property adjacent to public waters may be granted.

E. Monitoring and Tracking {5.e. Dams: Protection of Surface Water Quality and Instream and Riparian Habitat}

1. Existing and Planned Monitoring Efforts

Through the In-Stream Flow Program (**M.S. 103G**), DNR collects biological and hydraulic data and applies In-Stream Flow Incremental Methodology (IFIM) models to examine water-level manipulations (i.e., dams and water appropriations) and their effects on stream ecology.

Statewide monitoring of nonpoint source pollution is identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan*. The monitoring chapter is available on the Internet.

<http://www.pca.state.mn.us/water/nonpoint/nsmpp-ch5.pdf>

2. Inspection, Tracking and Assessment Techniques

The permittee is responsible for providing adequate controls for construction and operation activities, and for the development of data, in the ordinary course of those activities on design, construction and operation assumptions. The owner may engage a professional engineer to operate and inspect the construction, but the designer must also periodically monitor the construction.

All construction must be carried out in accordance with the approved design, plans and specifications. No alteration, modification or addition to the approved designs, plans and specifications that could adversely affect the safety or environmental impact of the dam may be made by the permittee without prior permission from the DNR. Such approvals may be provided, if a proper margin of safety is maintained, as rapidly as possible to preclude interference with construction work schedules.

Emergency short-term revisions may be made by the permittee, followed by prompt notice to the DNR. Records of alterations, modifications or additions to the approved design, plans and specifications, for which written approval of the DNR was not required, shall be submitted with the construction report.

DNR makes inspections for the purpose of securing conformity with approved designs, plans and specifications, and shall require the owner to perform, at the permittee's expense, work or tests found necessary to disclose sufficient information to determine if there is conformity. If, at any time as work progresses, the DNR finds that changes are necessary to protect health, safety, welfare and the environment, the DNR will order the owner to revise the designs, plans and specifications.

The DNR, at its discretion, may observe and approve foundation preparation, and may approve the placement of construction materials on an intermittent or continuing basis when field-conditions dictate. The DNR must be notified at least three days in advance of starting construction.

Periodic engineering inspections of authorized water-level-control structures may be made by the DNR or its designee.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages {5.e. Dams: Protection of Surface Water Quality and Instream and Riparian Habitat}

According to **M.S. 103G.105**, state and local officials must cooperate in enforcement. Personnel from MPCA, the MDH and county and municipal governments must cooperate with the DNR in monitoring and enforcing water permits. County attorneys, sheriffs, other peace officers and other officers having enforcement authority must take all action to the extent of their authority that may be necessary or proper for the enforcement of the provisions, rules, standards, orders or permits specified in **M.S. 103G** and **M.S. 103F**.

PART 3: STREAMBANK AND SHORELINE EROSION [HYDROMODIFICATION]

Streambank and shoreline erosion are addressed by a number of local, state and federal programs that are both regulatory and nonregulatory in nature.

The DNR administers the Protected Waters Permit Program, which regulates any project that affects the bed of a protected water or wetland. This includes projects such as fill, excavation or dredging, permanent docks, wharves, harbors, boat slips, marinas and retaining walls.

In addition to direct permitting and regulation by DNR, the USCOE generally requires permits for erosion control projects in waters of the United States and in navigable waters under the Section 10 and/or Section 404 permit programs. MPCA provides water-quality certification for these types of projects.

In addition to the direct regulation and permitting of erosion control projects by the DNR and USCOE, BWSR and the SWCDs have numerous cost-share programs available to assist individual land owners and municipalities with the implementation, design and engineering of erosion control projects. The BWSR and the SWCDs actively seek out project applicants to implement erosion control projects along Minnesota's Lake Superior North Shore.

The North Shore Management Plan (NSMP) has identified 17 erosion hazard areas on coastal Lake Superior. BWSR and the SWCDs have made the implementation of erosion control projects for these areas a very high working priority. To date, several successful erosion control projects have been implemented, with more projects in process.

The NRCS provides cost-share and technical assistance to land owners and municipalities for the implementation of structural and nonstructural erosion control projects and site water management planning.

M.S. 103F, requires designated LGUs to adopt shoreland and floodplain standards. DNR Waters has direct approval authority of ordinances adopted by local governments and has oversight authority over local zoning decisions within shoreland, floodplain and wild and scenic river districts. In addition, the shoreland district of Lake Superior is governed by the North Shore Management Plan, a joint shoreland management document that was developed cooperatively by the DNR and local units of government.

All DNR approved shoreland, floodplain or wild and scenic river zoning ordinances contain setbacks to minimize disturbance of land adjacent to streambanks and shorelines and to reduce other impacts to riparian habitat and water quality. Special setbacks are required for structures in or near bluffs, bluff impact zones and erosion-hazard areas. Development on steep slopes requires incorporation of design standards developed by a professional engineer. In addition, all DNR-approved zoning ordinances must contain language governing vegetative standards, erosion and sediment controls and BMPs, pre- and post-development site drainage, stormwater management and sanitary requirements.

Under **M.S. 103B**, BWSR requires a stormwater treatment basin for all developments creating one or more acres of impervious surface. MPCA also requires pre- and post-development stormwater management and erosion and sediment control plans for all activities that will disturb more than five acres of land.

Existing local, state and federal land use and permitting programs, as well as cost-share programs, help to protect streambank and shoreline features and have the potential to reduce nonpoint source (NPS) pollution and protect streambanks and shorelines from erosion due to uses of either the shorelands or adjacent surface waters.

5.f. Eroding Streambanks and Shorelines **[Hydromodification: Streambank and Shoreline Erosion]**

A. Federal Description of Management Measure [Nationwide] **{5.f. Eroding Streambanks and Shorelines}**

- (1) Where streambank or shoreline erosion is a nonpoint source pollution (NPS) problem, streambanks and shorelines should be stabilized. Vegetative methods are strongly preferred unless structural methods are more cost-effective, considering the severity of wave and wind erosion, offshore bathymetry and the potential adverse impact on other streambanks, shorelines and offshore areas.
- (2) Protect streambank and shoreline features with the potential to reduce NPS pollution.
- (3) Protect streambanks and shorelines from erosion due to uses of either the shorelands or adjacent surface waters.

B. Applicability [Nationwide] {5.f. Eroding Streambanks and Shorelines}

This management measure, nationwide, applies to eroding shorelines in coastal bays, and to eroding streambanks in coastal rivers and creeks that constitute an NPS problem in surface waters. The measure does not imply that all shoreline and streambank erosion must be controlled. It is not intended to hamper the efforts of any states or localities to “retreat” rather than harden the shoreline.

Applicable State Programs and Practices

C. Nonregulatory Approaches {5.f. Eroding Streambanks and Shorelines}

1. Economic Incentives and Disincentives

BWSR and the SWCDs have numerous cost-share programs available to assist individual land owners and municipalities with the implementation, design and engineering of erosion control projects. BWSR and the SWCDs actively seek out project applicants to implement erosion control projects in the North Shore Area. The NRCS also provides cost share and technical assistance to land owners and municipalities for the implementation of structural and nonstructural erosion control projects and site water management planning.

M.S. 103G.705 establishes a stream protection and improvement loan program, whereby a political subdivision may apply for a loan for up to 90 percent of the total local cost of a project to protect or improve a stream.

2. Public Information/Education, and Technical/Related Assistance

There is a wealth of public information available through LGUs, SWCDs, BWSR, DNR and NRCS. The University of Minnesota’s Natural Resources Research Institute (NRRI) has completed an extensive study of erosion hazard areas on Lake Superior.

Technical assistance for erosion control is available through LGUs, SWCDs, BWSR, DNR and NRCS.

Forest Stewardship Projects have led to extensive tree planting and bioengineering in the 54,000-acre Knife River Watershed. Over the last 10 years, this project has led to the development of 95 Forest Stewardship Plans covering 7,200 acres in the Knife River Watershed, the planting of many thousands of trees along

streambanks, and the use of bioengineering techniques to stabilize streambanks with live willow shoots.

D. Enforceable Policies and Mechanisms
{5.f. Eroding Streambanks and Shorelines}

1. State Permits and Licenses

Under **Minn. Rules 6115.0190**, DNR regulates the placement of fill, including rock riprap erosion protection. LGUs regulate the placement of fill and structures above the ordinary high-water mark under shoreland zoning.

Under **Minn. Rules 6115.0210**, structures in protected waters, DNR regulates the placement of structures, including those designed for erosion control, subject to specific criteria. These rules apply to the placement, construction, reconstruction, repair, relocation, abandonment or removal of any structure placed on or in protected waters.

DNR protected waters permit rules **Minn. Rules 6115.0190** and **Minn. Rules 6115.0210** require proper design and engineering for structural and nonstructural erosion protection so that water quality and riparian habitat is preserved and the structure does not become a continual maintenance problem. In addition, DNR erosion control protected waters permits must be consistent with all shoreland, floodplain and wild and scenic river management ordinances and all other water management plans and authorities.

DNR protected waters permits for erosion protection contain special provisions requiring maintenance of erosion protection projects. Protected waters permit special provisions are enforceable under existing rule and statute.

DNR-Boat and Water Safety establishes and enforces no-wake zones to reduce potential erosion from boat wakes. Boating laws are enforceable by the local sheriff, DNR COs and the U.S. Coast Guard.

2. Local Zoning

M.S. 103F requires designated local units of government to adopt shoreland, floodplain and wild and scenic river zoning ordinances. DNR Waters has direct approval authority of ordinances adopted by LGUs and has oversight authority over local zoning decisions within shoreland, floodplain and wild and scenic river districts. In addition, the shoreland district of Lake Superior is governed by the NSMP, a joint shoreland management document that was developed cooperatively

by the DNR and LGUs and stands as the state rule for the Lake Superior shoreland area, outside Duluth. The NSMP contains special setback requirements for new construction within erosion hazard areas. It has been adopted and is being administered through local zoning controls. Within the City of Duluth, the **Water Resources Management Ordinance, City Code, Chapter 51**, manages development in the shoreland areas.

3. Direct State Statutory Requirements

The authority for the Shoreland Management Act is found in **M.S. 103F**. The authority for Protected Waters Permits is found in **M.S. 103G**. The authority for county and municipal planning and zoning is found in **M.S. 462** and **M.S. 394**.

Minnesota has a “nuisance condition prohibition,” **Minn. Rules 7050.0210, Subp. 2**, as well as an “antidegradation policy,” **Minn. Rules 7050.0185**, in its water quality standards. The nuisance provision says: “No sewage, industrial waste or other wastes shall be discharged from either point or nonpoint sources into any waters of the state so as to cause any nuisance conditions....” The description of these conditions includes excessive suspended solids, odors, undesirable slimes or fungus growths, aquatic habitat degradation, excessive growths of aquatic plants or other offensive or harmful effects.

E. Monitoring and Tracking {5.f. Eroding Streambanks and Shorelines}

1. Existing and Planned Monitoring Efforts

Existing monitoring efforts are conducted locally by the North Shore Management Board, BWSR and DNR.

Statewide monitoring of nonpoint source pollution is identified in *Minnesota’s 2001-2005 Nonpoint Source Management Program Plan*. The monitoring chapter is available on the Internet.

<http://www.pca.state.mn.us/water/nonpoint/nsmpp-ch5.pdf>

2. Inspection, Tracking and Assessment Techniques

Inspection and tracking is performed by the responsible permit issuing agency. The details of this process is described in other chapters of this document.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure through the authorities and programs cited above.

F. Agency Coordination and Linkages

{5.f. Eroding Streambanks and Shorelines}

According to **M.S. 103G.105**, state and local officials must cooperate in enforcement. Personnel from MPCA, the MDH and county and municipal governments must cooperate with the DNR in monitoring and enforcing water permits under **M.S. 103G** and **M.S. 103F**.

BWSR and local SWCDs coordinate erosion control issues with LGUs and state agencies. Cooperation on forestry stewardship planning and implementation of stewardship plans between the DNR, MPCA, BWSR, SWCD and other affected interests occurs on a regular basis. The Knife River Forest Stewardship Project (described above) is a good example of such cooperation, having involved numerous partners, including the NRCS, SWCDs, DNR and counties.

Geographic Information Systems (GIS) and other computer applications have greatly enhanced the abilities of state and local government units to share information and coordinate their activities. Several ArcView GIS data sets for the North Shore of Lake Superior have been prepared from available information specifically for this purpose. These data sets include the identification of shoreline erosion hazard areas by the University of Minnesota's Natural Resources Research Institute (NRRI), detailed mapping of lake trout spawning habitat areas by the NRRI, DNR and USGS, preparation of Ortho Rectified Imagery from DNR aerial photographs and compilation of USGS Digital Ortho Quads.

This information has been combined in a GIS Database and Planning Tool For Minnesota's Lake Superior Shoreline through a recently completed Great Lakes Commission (GLC) grant. The database and planning tool is used by the SWCDs, BWSR, MPCA and DNR to prioritize shoreline protection projects and associated technical assistance. Detailed information about shoreline stabilization projects assisted by the SWCDs and BWSR is also tracked and made available through this GIS database.

See Appendix A (Acronyms) and Appendix B (References Cited).

IV 6

**WETLANDS,
RIPARIAN AREAS
AND VEGETATED
TREATMENT SYSTEMS**

CHAPTER IV: MANAGEMENT MEASURES

SECTION 6. WETLANDS, RIPARIAN AREAS AND VEGETATED TREATMENT SYSTEMS

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Introduction

Statewide, over 50 percent of the state's original wetland base has been drained, filled or otherwise diminished. Before passage of the **Wetland Conservation Act (WCA)**, it was estimated that the loss of wetlands in the state, both rural and urban, was in excess of 5,000 acres per year. Approximately 9.8 million acres of wetlands remain in the state, with over 11 percent of Minnesota's wetlands in the Lake Superior basin.

Within Minnesota's 3,935,620-acre Lake Superior Basin, wetland habitats comprise 31 percent of the basin, deep water habitats three percent, and upland habitats 66 percent. The wetlands commonly result from old glacial lake basins and bedrock controlled flowages dominated by forested (palustrine forested) wetlands (63 percent of all wetlands) and scrub-shrub (palustrine scrub-shrub) wetlands (22 percent of all wetlands).

DNR offers information about wetlands and wetland types on the Internet.

<http://www.dnr.state.mn.us/waters/wetlands/index.html>

http://www.dnr.state.mn.us/waters/wetlands/wetland_types.html

In Minnesota's Lake Superior Basin, it is estimated that **more than 94 percent of the presettlement wetlands still exist**, derived by the Minnesota Department of Natural Resources (DNR), using data from Anderson and Craig, 1984. The current distribution of wetlands may reflect their distribution in presettlement times. Because of the high percentage of wetlands still existing in the basin, the effect of wetland loss on water quality is not considered a major overall contributor to nonpoint source (NPS)

pollution in this basin. In spite of this, the loss of wetlands has had significant effects in some urban watersheds. These include Duluth's Miller Creek, the Duluth/Superior Harbor and the St. Louis River Estuary.

Minnesota has an array of laws, regulations and programs that reflect considerable public support for restoration, protection and management of wetlands. In addition to the federal laws that affect wetlands decision making, Minnesota has three elements in its water law that are directly related to wetlands. These are described below.

- (1) Wetlands of type 3 (shallow marshes), type 4 (deep marshes) and type 5 (shallow open water)-that are 10 or more acres in size in unincorporated areas, or 2.5 acres in size in incorporated areas, are inventoried and mapped as "public waters" pursuant to **M.S. 103G**, Waters of the State. Commonly called "public waters wetlands," these wetlands were inventoried during the 1980s. Projects affecting the "course, current or cross-section" of these wetlands are regulated by the DNR.
- (2) The **Wetland Conservation Act** of 1991, along with subsequent amendments, extended protection to wetlands not covered under the "public waters" statute and established a "no net loss" policy. The central tenet of the **WCA** is that wetlands may not be drained or filled without replacement by wetlands of equal public value, either through restoration or creation. A key feature of the **WCA** is that it gives to "local government units" (counties, cities, townships, watershed districts or soil and water conservation districts) the primary responsibility for implementing the **WCA**, including review and approval of wetland replacement plans. The Minnesota Board of Water and Soil Resources (BWSR) provides administrative and technical assistance, coordinates wetland mitigation banking and hears administrative appeals. The DNR and the local government units (LGUs) handle enforcement.

The **WCA** allows LGUs to develop a Comprehensive Wetland Protection and Management Plan (CoWProMP). The CoWProMP must meet the "no loss" of wetland values standard. The CoWProMPs provide for integration of wetland protection measures with the local water planning process and local zoning ordinances. Lake and St. Louis counties have approved CoWProMPs.

- (3) The U.S. Environmental Protection Agency (USEPA) has delegated to the Minnesota Pollution Control Agency (MPCA) the authority to perform water quality certifications under Section 401 of the Clean Water Act. A Section 401 Water Quality Certification is required for all activities that require a 404 Permit

from the U.S. Army Corps of Engineers (USCOE) (i.e., for discharges of fill into surface waters, including wetlands).

Minnesota has also developed the Minnesota Wetland Conservation Plan (MWCP). The general purpose for developing MWCP was to refine the public policy goals for wetlands, establish specific management objectives to achieve those goals, and improve how well the system works. This was also an opportunity to improve how wetlands are protected, restored and managed, by making policies and procedures more consistent and coordinated. The MWCP was published in 1997.

The MWCP Action Planning Workbook was developed and released by the Minnesota Interagency Wetland Group (IWG). The Action Planning Workbook outlines the goals and tasks the five state agencies represented in the IWG intend to undertake to implement goals set forth in the Minnesota Wetland Conservation Plan.

The Minnesota **Wetland Conservation Act** dictates a no net loss of wetland function based public values throughout the state, including the coastal area. **WCA**, along with the USCOE 404 Program and the DNR Public Waters and Public Waters Wetlands Program, provides for no wetland loss without first sequencing, then mitigating. This means that the applicant must first seek to avoid impacting the wetland. If avoidance is not possible, mitigation (replacement of wetland loss) is required (**M.S. 103G.222, Minn. Rules 8420.0520**).

The **WCA** and sequencing are described in detail in Section II B: Purpose and Approach.

Riparian areas are protected under three programs. Wetland riparian areas are under the jurisdiction of the **WCA** mentioned above, and also the **Shoreland Management Act**. Riparian areas below the ordinary high water level (OHWL) are covered under the DNR's Public Waters Program.

Table 20a. State Enforceable Authorities for Wetlands, Riparian Areas and Vegetated Treatment Systems.

Management Measure	Applicable Minn. Statutes	Applicable Minn. Rules/Orders
a. Protection of Wetlands and Riparian Areas	103F, 103G; 103G.222; 115; 116	6115; 7050; 8420; 7050; Exec. Ord. 00-02
b. Restoration of Wetlands and Riparian Areas	Enforceable Policies Not Required	
	103G	6115; 8420
c. Vegetated Treatment Systems	Enforceable Policies Not Required	
	103F	6120

Table 20b. Names of State Statutes, Rules and Executive Orders Cited for Wetlands, Riparian Areas and Vegetated Treatment Systems.

Table 20b, Part 1: Statutes
92: State Lands; Sales 103F: Protection of Water Resources [Floodplain Management Act] 103G: Waters of the State [Public Waters Program] 103G.222: Replacement of Wetlands 115: Water Pollution Control Act 116: Pollution Control Agency 394: Planning, Development, Zoning [County Zoning]
Table 20b, Part 2: Rules
6115: Public Waters 6115.0191: Specific Standards 6120: Shoreland and Floodplain Management 6120.3300: Zoning Provisions 7050: Waters of the State 8420: Wetlands Conservation Act (WCA) 8420.0520: Sequencing
Table 20b, Part 3: Executive Orders
00-02: No Net Loss of Wetlands

Note: Enforceable policies are not required for wetlands management measure 6b (Restoration of Wetlands and Riparian Areas) or 6c (Vegetated Treatment Systems).

Note: Minnesota's statutes and rules are available via the Internet two different ways. The information is the same either way.

1. Statutes and rules may be viewed by section on the Internet on Minnesota's Revisor of Statutes Web site at:

- *For administrative rules - <http://www.revisor.leg.state.mn.us/arule/> [plus add number of specific rule]*
- *For statutes - <http://www.revisor.leg.state.mn.us/stats/>*

2. Statutes and rules may be viewed or easily downloaded in their entirety from Minnesota's Legislative Web site at: <http://www.leg.state.mn.us/leg/statutes.htm>.

Specific Evaluation of Wetland Management Measures

6.a. Protection of Wetlands and Riparian Areas [Wetlands, Riparian Areas and Vegetated Treatment Systems]

A. Federal Description of Management Measure [Nationwide] {6.a. Protection of Wetlands and Riparian Areas}

Protect from adverse effects wetlands and riparian areas that are serving a significant nonpoint source pollution (NPS) abatement function and maintain this function while protecting the other existing functions of these wetlands and riparian areas as measured by characteristics such as vegetative composition and cover, hydrology of surface water and ground water, geochemistry of the substrate and species composition.

B. Applicability [Nationwide] {6.a. Protection of Wetlands and Riparian Areas}

This management measure, nationwide, is intended to be applied to protect wetlands and riparian areas from adverse NPS pollution impacts.

Applicable State Programs and Practices

C. Nonregulatory Approaches {6.a. Protection of Wetlands and Riparian Areas}

1. Economic Incentives and Disincentives

Funding is typically earmarked for BWSR to establish wetland banking credits for public transportation authority needs.

2. Public Information/Education and Technical/Related Assistance

There is much information available regarding wetland functions and values. Books, slide shows and fact sheets have been developed by the state to educate the public. LGUs can inform landowners about the **WCA** through the planning and zoning permit process. Local Soil and Water Conservation Districts (SWCDs) are designated as clearinghouses for information regarding the **WCA**.

National Wetland Inventory (NWI) maps have been developed for the entire state. Wetland location and habitat classification information is superimposed on standard 7.5-minute U.S. Geological Survey topographic maps. A user's guide for the NWI maps is available. NWI digitized data products are available through the Land Management Information Center. NWI maps and Public Waters Inventory Maps are available for purchase through Minnesota's Bookstore. Copies of maps are available for viewing at all local SWCD offices, and at DNR area and regional offices. The NWI maps are also available via the Internet.

<http://www.nwi.fws.gov>

The DNR area hydrologists are contacts for information regarding the Public Waters and Wetlands Program.

Training sessions to educate the public regarding the **WCA** have been held throughout Minnesota. General wetland information and specific **WCA** information can be found on BWSR's Web site.

www.bwsr.state.mn.us

Technical assistance is available to LGUs through a three-member Technical Evaluation Panel (TEP). The panel is composed of representatives of the LGU, SWCD and BWSR. The panel is expanded to include the DNR for projects

affecting public waters and public waters wetlands, and for projects adjacent to these waters.

For landowners, LGUs throughout the coastal area have been trained in wetland delineation. The LGU can advise landowners on the appropriate procedures for obtaining wetland delineations or determinations.

DNR area hydrologists perform wetland determinations and assist landowners with staking and OHWL evaluations for public waters and wetlands. As mentioned above, NWI maps have been developed for the entire state. In addition, the DNR may be able to produce more accurate wetlands data for the Lake Superior Basin in the near future.

Minnesota's BMPs for water quality and wetlands in forest management have been incorporated into *Sustaining Minnesota Forest Resources: Voluntary Site-level Forest Management Guidelines for Landowners, Loggers and Resource Managers*, by the Minnesota Forest Resources Council (MFRC), 1999. This is available on MFRC Web site.

<http://www.frc.state.mn.us/FMgdline/Guidelines.html>

D. Enforceable Policies and Mechanisms

{6.a. Protection of Wetlands and Riparian Areas}

1. State Permits and Licenses

Permits are required under the USCOE 404 program. Under **WCA**, a notice of proposed wetlands impacts is sent to the TEP, DNR and members of the public who have requested a copy. The notice includes both the proposed impact and the required mitigation (replacement plan). A DNR permit is required for activities in Public Waters Wetlands (**Minn. Rules 6115**). In the Duluth/Superior Harbor, the Comprehensive Port Development Plan and the St. Louis River System Remedial Action Plan (RAP) guide activities that impact wetland and riparian areas.

Under **WCA**, wetlands are defined according to the *1987 Federal Manual for Identifying and Delineating Jurisdictional Wetlands*. Sequencing is required, as defined above, and in Section II B: Purpose and Approach.

2. Local Zoning

The **WCA** has been incorporated into local zoning ordinances by the City of Duluth, and by Carlton, Cook, Lake and St. Louis counties. LGUs have the option of incorporating the **WCA** or adopting the **WCA** by reference. The **Shoreland Management Act** requires the designation of land use districts based on the considerations of preserving natural areas, shore impact zones and other sensitive areas. Special Protection Districts are intended to limit and properly manage development in areas unsuitable for development. Before authorizing any grading or filling activity, local officials must consider how extensively the proposed activity would affect the functional qualities of wetlands.

3. Direct State Statutory Authorities

The **WCA** is mandated by state statute. If LGUs do not adopt it, there is a moratorium on wetland activities. All “public waters” of the state are protected and regulated (**M.S. 103G**). The requirements for replacing wetlands are described in **M.S. 103G.222** (Sequencing).

The Shoreland Management Act is mandated by state statute, and applies to shorelands of public waters that are subject to local government land use controls (**M.S. 103F**).

E. Monitoring and Tracking {6.a. Protection of Wetlands and Riparian Areas}

1. Existing and Planned Monitoring Efforts

Monitoring of wetland mitigation is required by the **WCA**. LGUs are required to monitor replacement wetland sites for five years. Wetland mitigation sites are also protected from future alteration by a conservation easement.

The BWSR monitors the LGUs’ implementation of the **WCA**. BWSR requires annual reporting on implementation of the **WCA**. The BWSR Board has adopted a **WCA** Corrective Action/Oversight policy for use when LGUs have deficiencies in implementing the **WCA**.

DNR monitors public waters permits for compliance with permit conditions. All permits are assigned an application number and are tracked in a permits database.

Executive Order 20-2, which requires “no net loss,” and the **WCA** require that the DNR and BWSR report to the governor and the legislature on the implementation status of wetland regulations. All state agencies are required to monitor and record all wetland impacts, wetland mitigation, wetlands restored or created other than for mitigation, and the acreage of wetlands acquired or removed from state ownership or administration.

2. Inspection, Tracking and Assessment Techniques

Contractors have responsibility under the law to obtain a signed statement from the landowner. The signed statement indicates that a wetland replacement plan has been obtained (or is not required) by the landowner. Penalties for not obtaining the responsibility statement are described in **M.S. 103G.222 - .237**.

Enforcement of the **WCA** is handled by DNR conservation officers (COs) or local peace officers. Cease and desist orders can be issued for non-approved activities. Violation of a cease and desist order is a misdemeanor punishable by a \$200 fine and/or 90 days in jail.

The DNR Public Waters Program is enforced by the DNR COs. Violation of the statute is a misdemeanor. Cases can be tried either civilly or criminally, with either the county attorney or the DNR initiating the court proceedings.

In Minnesota’s Lake Superior Basin, more than 94 percent of the presettlement wetlands still exist. Information is needed on the acreage of each type of wetland. Marshes, bogs, swamps and shrub swamps can be quantified to assess priorities for wetland impacts and replacements.

Each year, the LGUs provide the results of their implementation activities to BWSR, using BWSR’s Local Government Annual Reporting System (LARS). BWSR provides oversight for **WCA** implementation.

3. Management Measure Effectiveness

The LGUs are effectively implementing the **WCA**, with oversight provided by BWSR.

F. Agency Coordination and Linkages
{6.a. Protection of Wetlands and Riparian Areas}

Depending on the size and the type of wetland or water basin affected by a proposed action, a number of regulatory agencies are involved. To address this issue, a combined joint notification form – the Minnesota Local/State/Federal Application Forms for Water/Wetland Projects – has been developed for use by the DNR, BWSR, MPCA, SWCD and USCOE, in cooperation with the LGU. The form enables regulatory agencies to determine jurisdictional authority over a proposed project. The agencies then notify the applicant of their jurisdictional interest, and the need for any additional application forms, project information and fees.

The use of intergovernmental agreements to regulate wetlands is encouraged by the legislature. The DNR has developed administrative guidelines for complying with wetland regulations. The guidelines address internal (DNR) coordination and external (WCA) coordination, as well as consultation and dispute resolution.

6.b. Restoration of Wetland and Riparian Areas [Wetlands, Riparian Areas and Vegetated Treatment Systems]

A. Federal Description of Management Measure [Nationwide]
{6.b. Restoration of Wetland and Riparian Areas}

Promote the restoration of the pre-existing functions in damaged and destroyed wetlands and riparian systems in areas where the systems will serve a significant NPS pollution abatement function.

B. Applicability [Nationwide] {6.b. Restoration of Wetland and Riparian Areas}

This management measure, nationwide, is intended to be applied by states to restore the full range of wetlands and riparian functions in areas where the systems have been degraded and destroyed and where they can serve a significant NPS abatement function.

Applicable State Programs and Practices

C. Nonregulatory Approaches {6.b. Restoration of Wetland and Riparian Areas}

1. Economic Incentives and Disincentives

Funding is typically earmarked for BWSR to establish wetland banking credits for public transportation authority needs.

2. Public Information/Education and Technical/Related Assistance

There is much information available regarding wetland functions and values. Books, slide shows and fact sheets have been developed by the state. LGUs can inform landowners about the **WCA** through the planning and zoning permit process. Local SWCDs are designated as clearinghouses for information regarding the **WCA**.

NWI maps have been developed for the entire state. NWI digitized data products are available through the Land Management Information Center. NWI maps and Public Waters Inventory Maps are available for purchase through Minnesota's Bookstore. Copies of maps are available for viewing at all local SWCD offices, and DNR area and regional offices.

The DNR area hydrologists are contacts for information regarding the Public Waters and Wetlands Program.

Training sessions to educate the public regarding the **WCA** have been held throughout Minnesota. General wetland information and specific **WCA** information can be found on BWSR's Web site.

www.bwsr.state.mn.us

Technical assistance is available to LGUs through a three-member TEP. The panel is composed of representatives of the LGU, SWCD and BWSR. The panel is expanded to include the DNR for projects affecting public waters and public waters wetlands, and for projects adjacent to these waters.

For landowners, LGUs throughout the coastal area have been trained in wetland delineation. The LGU can advise landowners on the appropriate procedures for obtaining wetland delineations or determinations.

DNR area hydrologists perform wetland determinations and assist landowners with staking and OHWL evaluations for public waters and wetlands.

Minnesota's BMPs for water quality and wetlands in forest management have been incorporated into *Sustaining Minnesota Forest Resources: Voluntary Site-level Forest Management Guidelines for Landowners, Loggers and Resource Managers* (MFRC, 1999).

D. Enforcement Policies and Mechanisms **{6.b. Restoration of Wetland and Riparian Areas}**

1. State Permits and Licenses

The DNR, City of Duluth and the Seaway Port Authority of Duluth are signatories to the Duluth Superior Comprehensive Port Development Plan. DNR regulations, **Public Water Resource Rules 6115.0191, Subp. 5**, require that a comprehensive port development plan be established before the DNR can authorize fill into public waters for port development purposes. The plan identifies all habitats as significant and requires at least 1:1 mitigation, with 2:1 mitigation recommended for wetlands under the St. Louis River Remedial Action Plan (RAP).

One of the goals of the port plan is the designation of natural resource protection areas. One of the objectives is to seek out and initiate enhancement/restoration projects for these areas to restore the full range of wetland/riparian functions. The RAP will be utilized to fully implement specific goals and objectives of the Port Plan.

2. Local Zoning

Local water plans have been developed in all of the counties in Minnesota's Lake Superior Basin. Ground water and surface water quality have consistently been identified as a priority concern. Local zoning ordinances are a mechanism for implementing management measures for restoration of damaged and destroyed wetlands.

3. Direct State Statutory Requirements

WCA approval for wetland replacement plans requires that the LGU make a finding that the applicant has demonstrated that the activity impacting a wetland

has complied with the sequencing principles of **Minn. Rules 8420.0520**. Rectifying the impact by repairing, rehabilitating or restoring the affected wetland to ensure that all preproject functions (including the NPS pollution abatement function) and values are restored is a high priority (**M.S. 103G**).

E. Monitoring and Tracking {6.b. Restoration of Wetland and Riparian Areas}

1. Existing and Planned Monitoring Efforts

Monitoring of wetland mitigation is required by the **WCA**. LGUs are required to monitor replacement wetland sites for five years. Wetland mitigation sites are also protected from future alteration by a conservation easement.

BWSR monitors the LGUs' implementation of the **WCA**. BWSR requires annual reporting on implementation of the **WCA**. The BWSR Board has adopted a **WCA** Corrective Action/Oversight policy for use when LGUs have deficiencies in implementing the **WCA**.

DNR monitors public waters permits for compliance with permit conditions. All permits are assigned an application number and are tracked in a permits database.

Executive Order 00-02, which requires "no net loss," and the **WCA** require that the DNR and BWSR report to the governor and the legislature on the implementation status of wetland regulations. All state agencies are required to monitor and record all wetland impacts, wetland mitigation, wetlands restored or created other than for mitigation, and the acreage of wetlands acquired or removed from state ownership or administration.

2. Inspection, Tracking and Assessment Techniques

Contractors have responsibility under the law to obtain a signed statement from the landowner. The signed statement indicates that a wetland replacement plan has been obtained (or is not required) by the landowner. Penalties for not obtaining the responsibility statement are described in **M.S. 103G.222 - .237**.

Enforcement of the **WCA** is handled by DNR COs or local peace officers. Cease and desist orders can be issued for non-approved activities. Violation of a cease and desist order is a misdemeanor punishable by a \$200 fine and/or 90 days in jail.

The DNR Public Waters Program is enforced by the DNR COs. Violation of the statute is a misdemeanor. Cases can be tried either civilly or criminally, with either the county attorney or the DNR initiating the court proceedings.

In Minnesota's Lake Superior Basin, more than 94 percent of the presettlement wetlands still exist. Information is needed on the acreage of each type of wetland. Marshes, bogs, swamps and shrub swamps can be quantified to assess priorities for wetland impacts and replacements.

Each year, the LGUs provide the results of their implementation activities to BWSR, using BWSR's Local Government Annual Reporting System (LARS). BWSR provides oversight for **WCA** implementation.

3. Management Measure Effectiveness

The LGUs are effectively implementing the **WCA**, with oversight provided by BWSR.

F. Agency Coordination and Linkages **{6.b. Restoration of Wetland and Riparian Areas}**

Depending on the size and the type of wetland or water basin affected by a proposed action, a number of regulatory agencies are involved. To address this issue, a combined joint notification form – the Minnesota Local/State/Federal Application Forms for Water/Wetland Projects – has been developed for use by the DNR, BWSR, MPCA, SWCD and USCOE, in cooperation with the LGU. The form enables regulatory agencies to determine jurisdictional authority over a proposed project.

The use of intergovernmental agreements to regulate wetlands is encouraged by the legislature. The DNR has developed administrative guidelines for complying with wetland regulations. The guidelines address internal (DNR) coordination and external (**WCA**) coordination, as well as consultation and dispute resolution.

6.c. Vegetated Treatment Systems [Wetlands, Riparian Areas and Vegetated Treatment Systems]

A. Federal Description of Management Measure [Nationwide] {6.c. Vegetated Treatment Systems}

Promote the use of engineered vegetated treatment systems such as constructed wetlands or vegetated filter strips where these systems will serve a significant NPS pollution abatement function.

B. Applicability [Nationwide] {6.c. Vegetated Treatment Systems}

This management measure, nationwide, applies in cases where engineered systems of wetlands or vegetated treatment systems can treat NPS pollution. Constructed wetlands and vegetated treatment systems often serve a significant NPS pollution abatement function.

Applicable State Programs and Practices

Vegetated treatment systems are not widely used in Minnesota's Lake Superior Basin.

Information on the use of vegetated treatment systems can be obtained from the LGU planning and zoning office, DNR area offices, MPCA regional offices and the local SWCD office.

C. Nonregulatory Approaches {6.c. Vegetated Treatment Systems}

1. Economic Incentives and Disincentives

Funding is typically earmarked for BWSR to establish wetland banking credits for public transportation authority needs.

2. Public Information/Education and Technical/Related Assistance

There is much information available regarding wetland functions and values and about the **WCA**, as described above. Local SWCDs are designated as clearinghouses for information regarding the **WCA**. Training sessions to educate the public regarding the **WCA** have been held throughout Minnesota. General

wetland information and specific **WCA** information can be found on BWSR's Web site. NWI maps are available for the entire state.

Technical assistance is available to LGUs through a three-member TEP, with representatives from the LGU, SWCD and BWSR. The panel is expanded to include the DNR for projects affecting public waters and public waters wetlands, and for projects adjacent to these waters.

For landowners, LGUs throughout the coastal area have been trained in wetland delineation. The LGU can advise landowners on the appropriate procedures for obtaining wetland delineations or determinations.

The DNR area hydrologists are contacts for information regarding the Public Waters and Wetlands Program. DNR area hydrologists perform wetland determinations and assist landowners with staking and OHWL evaluations for public waters and wetlands.

Minnesota's BMPs for water quality and wetlands in forest management have been incorporated into Sustaining Minnesota Forest Resources: *Voluntary Site-level Forest Management Guidelines* for Landowners, Loggers and Resource Managers (MFRC, 1999).

D. Enforcement Policies and Mechanisms {6.c. Vegetated Treatment Systems}

1. State Permits and Licenses

DNR permits for activities that affect the course, current or cross-section of Public Waters Wetlands require erosion control management measures. The establishment of vegetation adjacent to surface water systems is one of many methods allowed for removing sediment and other pollutants from runoff.

2. Local Zoning

Local units of government, in addition to developing standards compliant with the state **Shoreland Management Act**, have also developed standards that apply countywide that are not state mandated. In Lake County, for example, a **Water, Wetland and Stormwater Management Ordinance** has been developed. Under the ordinance, every land use permit issued by Lake County must address water and vegetative management, and a Water and Vegetative Management Plan must be filed. The contents of the plan must identify land disturbing activities and

include measures to control runoff, including the use of natural topography and land cover such as wetlands, ponds and grassed swales, without compromising the integrity or quality of the natural features. Constructed wetlands and engineered buffer strips (vegetative treatment systems) are to be given consideration.

3. Direct State Statutory Authority

The state **Shoreland Management Act** requires LGUs to consider proper stormwater management in all reviews, approvals and permit issuances under shoreland management controls (**M.S. 103F**). The priority is to retain sediment on site. The use of natural systems such as wetlands, vegetated soil surfaces and buffer strips is given preference over manufactured materials and structures such as settling basins, ponds and skimming devices (**Minn. Rules 6120.3300, Subp. 11**).

E. Monitoring and Tracking {6.c. Vegetated Treatment Systems}

1. Existing and Planned Monitoring Efforts

The management measures are monitored by the LGU responsible for issuance of a specified permit.

Existing and planned monitoring efforts on a statewide basis are identified in *Minnesota's 2001-2005 Nonpoint Source Management Program Plan*.

2. Inspection, Tracking and Assessment Techniques

Contractors have responsibility under the law to obtain a signed statement from the landowner. The signed statement indicates that a wetland replacement plan has been obtained (or is not required) by the landowner (**M.S. 103G.222 - .237**).

Enforcement of the **WCA** is handled by DNR COs or local peace officers. Cease and desist orders can be issued for non-approved activities. Violation of a cease and desist order is a misdemeanor punishable by a \$200 fine and/or 90 days in jail.

The DNR Public Waters Program is enforced by the DNR COs. Violation of the statute is a misdemeanor. Cases can be tried either civilly or criminally, with either the county attorney or the DNR initiating the court proceedings.

Each year, the LGUs provide the results of their implementation activities to BWSR, using BWSR's Local Government Annual Reporting System (LARS). BWSR provides oversight for WCA implementation.

3. Management Measure Effectiveness

Minnesota meets the goals of this management measure, although it should be noted that vegetated treatment systems are not widely used in the Lake Superior Basin.

F. Agency Coordination and Linkages {6.c. Vegetated Treatment Systems}

Depending on the size and the type of wetland or water basin affected by a proposed action, a number of regulatory agencies are involved. To address this issue, a combined joint notification form – the Minnesota Local/State/Federal Application Forms for Water/Wetland Projects – has been developed for use by the DNR, BWSR, MPCA, SWCD and USCOE, in cooperation with the LGU. The form enables regulatory agencies to determine jurisdictional authority over a proposed project.

State and local units of government coordinate the review of permits and site plans. LGUs and state agencies rely on the local SWCD for review and recommendations on permits and site development plans.

DNR area hydrologists are routinely contacted for review and recommendations on projects that have the potential to impact surface water systems. They also refer applicants (proposers) to the appropriate regulatory authorities.

See Appendix A (Acronyms) and Appendix B (References Cited).

V

**ADDITIONAL
MANAGEMENT
MEASURES**

CHAPTER V. ADDITIONAL MANAGEMENT MEASURES

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Introduction

The purpose of this section is to address the possible need for additional management measures in areas where coastal water quality is impaired or threatened. If these conditions exist, this section is needed. Congress defined “management measures” to mean “**economically achievable measures**... which reflect the greatest degree of pollutant-reduction achievable through the application of the best available nonpoint pollution control practices, technologies, processes, siting criteria, operating methods or other alternative” (*Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*, 1993).

The most obvious water quality impairments in the Lake Superior Basin are in the lower St. Louis River system, which has been designated a Great Lakes Area of Concern (AOC), primarily because of sediments that remain contaminated from past industrial practices. There may be newer threats, however, to the prized trout streams on Minnesota’s North Shore.

The next section of this document describes in detail the results of the most recent state water quality monitoring conducted along Minnesota’s North Shore.

A. THREATENED AND IMPAIRED COASTAL WATERS

1. Water Quality Monitoring Results

The water quality monitoring results presented below are characterized in two ways:

- The first three maps (Figures 10, 11 and 12) and the accompanying technical information in Section a, below, show Minnesota's latest information as collected, interpreted and reported under Section 305(b) of the Clean Water Act.
- The fourth map (Figure 13) and accompanying technical information in Section b, below, show Minnesota's Impaired Waters List for the Lake Superior Basin, as collected, interpreted and reported under Section 303(d) of the Clean Water Act. This is the list of impaired waters for which Minnesota will be required to develop Total Maximum Daily Loads (TMDLs), as discussed later in this section.

The results of these two processes are somewhat different, particularly for lakes, because they are based on different parameters. For example:

- According to the 305(b) criteria (Figure 12, from Minnesota's NPS/319 Plan, using data from 2000), there are 15 "nonsupporting" lakes in the Lake Superior Basin, with **one** in Cook County and 14 elsewhere in the basin. Lakes are listed as "nonsupporting" if they fail to support the aquatic life that would be found under natural conditions. This system focuses on trophic status, including phosphorus load, algal growth and water transparency.
- According to the 303(d) criteria (Figure 6, with data from 1998), there are 11 "impaired" lakes in the Lake Superior Basin, **all** in Cook County. These lakes are listed as impaired because of elevated levels of mercury. At least two factors contribute to these elevated mercury levels. Lakes of Cook and eastern Lake counties have lower pH (more acidic) soils and bedrock. This lower pH tends to leach mercury from soils and rock, thus contributing to higher mercury levels in these waters. It should also be noted that the 303(d) sampling for mercury was limited in the basin, and that testing was done on a higher percentage of lakes in Cook County.

The 303(d) testing requirements are more stringent than those for 305(b), in that the 303(d) system requires comparable data collected over a 10-year period in order to classify a water body.

Both the 305(b) and 303(d) lists are dynamic. Waters may be added or removed in the future, based on changing water quality, parameters, water quality criteria, better data, etc. The parameters for the 305(b) and 303(d) systems are described in detail below, in Sections a and b, respectively.

a. Minnesota's 305(b) List: Results of Minnesota's Nonpoint Source Assessment for the Lake Superior Basin, according to Minnesota's Nonpoint Source Management Program/319 Plan, Chapter 1. [Based on Section 305(b) of the Clean Water Act].

Three figures from the NPS/319 Plan, based on **Section 305(b)** of the Clean Water Act, summarize water quality in the Lake Superior Basin.

See Figure 10. Minnesota's Lake Superior Basin: 1996 Assessment for Aquatic Life. (NPS/319 Plan, MPCA).

See Figure 11. Minnesota's Lake Superior Basin: 1996 Assessment for Swimming. (NPS/319 Plan, MPCA).

See Figure 12. Minnesota's Lake Superior Basin: 2000 Lake Water Quality Assessment. (NPS/319 Plan, MPCA). *Note: The lakes shown in Figure 12 are identified in Table 21.*

See Table 21. Lakes Shown in Figure 12 (Minnesota's Lake Superior Basin: 2000 Lake Water Quality Assessment).

The following text, which is taken primarily from NPS/319 Plan, Chapter 1, and is based on **Section 305(b)** of the Clean Water Act, provides technical information about the three maps cited above (Figures 10, 11 and 12). For complete information, see *Minnesota's 2001-2005 Nonpoint Source Management Program Plan* (see references). The plan is available on MPCA's Web site.

<http://www.pca.state.mn.us/water/nonpoint/mplan.html>

Table 21. Lakes Shown in Figure 5 (Minnesota's Lake Superior Basin: Lake Water Quality Assessment, 2000). (Columns below show lake name, lake number and water quality, which is indicated as F (Full), P (Partial), M (Marginal) or N (Non) Support.

<u>Aitkin County</u>			<u>Itasca County</u>					
WOLF	01-0019	N	BEAUTY	31-0028	P	JOHNSON	38-0242	F
			BENGAL	31-0017	F	KANE	38-0651	F
			LONG	31-0001	M	KANGAS	38-0241	F
			BEAN	38-0409	F	KENNEDY	38-0243	F
			BEAR	38-0405	F	LAX	38-0406	F
			BEAR	38-0408	F	MARBLE	38-0650	M
			BENSON	38-0018	F	MICMAC	38-0233	F
			BONANZA	38-0025	F	MORRIS	38-0027	F
			CHRISTIANSON	38-0750	P	NICADO	38-0230	F
			CRAMER	38-0014	F	NINEMILE	38-0033	F
			CROOKED (E. Bay)	38-0024-01	F	NIPISIQUIT	38-0232	F
			DAM FIVE	38-0053	M	ORGAN	38-0067	F
			DIVIDE	38-0256	F	PACCINI	38-0037	F
			DOYLE	38-0249	F	PEARL	38-0019	F
			DUMBELL	38-0393	P	SCARP	38-0058	M
			ECHO	38-0028	F	SECTION EIGHT	38-0258	F
			ELIXIR	38-0218	F	SONJU	38-0248	F
			FRY	38-0411	M	STEWART	38-0744	F
			GOLDENEYE	38-0029	F	TANNER	38-0255	P
			HARE	38-0026	F	TETAGOUCHE	38-0231	F
			HOGBACK	38-0057	P	THOMAS	38-0751	P
			HOMESTEAD	38-0269	F	WILSON	38-0047	F
<u>Carlton County</u>								
BIG	09-0032	F						
BLACKHOOF	09-0006	P						
CHUB	09-0008	F						
CRYSTAL	09-0020	F						
DEAD FISH	09-0051	N						
GRAHAM	09-0003	F						
HAY	09-0010	N						
HIZER	09-0018	P						
MUNSON	09-0019	P						
SAND	09-0016	F						
SPRING	09-0007	P						
<u>Pine County</u>								
HEADQUARTERS	58-0032	N						
NET	58-0038	N						

Table 21 (page 2 of 4): Cook County

ALDER	16-0114	F	CRESCENT	16-0454	P	HUNGRY JACK	16-0227	F
ALTON	16-0622	F	CRYSTAL	16-0090	F	JOCK MOCK	16-0381	F
ASPEN	16-0204	F	DANIELS	16-0150	F	JOHN	16-0035	F
BABBLE	16-0257	F	DAVIS	16-0435	F	JUNO	16-0402	F
BAKER	16-0486	F	DEER YARD	16-0253	F	KELLY	16-0476	F
BALL CLUB	16-0182	F	DEVIL TRACK	16-0143	F	KEMO	16-0188	F
BARKER	16-0358	F	DEVILFISH	16-0029	F	LEO	16-0198	F
BATH	16-0164	F	DIGIT	16-0152	F	LICHEN	16-0382	M
BEARSKIN	16-0228	F	DUNCAN	16-0232	F	LITTLE CARIBOU	16-0142	F
BINAGAMI	16-0098	F	DUTCHMAN	16-0002	F	LITTLE CASCADE	16-0347	F
BIRCH	16-0247	F	DYERS	16-0634	M	LIZZ	16-0199	F
BOUDER	16-0383	F	EAST BEARSKIN	16-0146	F	LOFT	16-0031	F
BRADLEY	16-0465	F	EAST PIKE	16-0042	F	LOGGER	16-0103	F
BRULE	16-0348	F	ELBOW	16-0096	F	LOWER CONE	16-0393	F
BURNT	16-0477	F	ELBOW (MAIN)	16-0805-01	F	MARK	16-0250	M
CARIBOU	16-0141	F	ESTHER	16-0023	F	MARSH	16-0048	M
CARIBOU	16-0240	F	FLOUR	16-0147	F	McDONALD	16-0235	F
CARIBOU	16-0360	F	GASKIN	16-0319	F	MCFARLAND	16-0027	F
CARROT	16-0071	F	GREENWOOD	16-0077	F	MID CONE	16-0391	F
CASCADE	16-0346	P	GUST	16-0380	M	MIT	16-0193	F
CHESTER	16-0033	F	HENSON	16-0314	F	MOOSE	16-0043	F
CHRISTINE	16-0373	F	HIGHLANDER	16-0030	F	MORGAN	16-0220	P
CLARA	16-0365	F	HOLLY	16-0366	F	MULLIGAN	16-0389	F
CLEARWATER	16-0139	F	HOMER	16-0406	F	MUSQUASH	16-0104	F
CLIFF	16-0446	F	HORSESHOE	16-0241	F	N. TEMPERANCE	16-0456	F

Table 21 (page 3 of 4): Cook County

NORTHERN LIGHT	16-0089	F	SWAMP	16-0215	P
OBERG	16-0466	F	TAIT	16-0384	F
OLSON	16-0158	F	THOMPSON	16-0160	F
OMEGA	16-0353	F	THRASHER	16-0192	F
PANCAKE	16-0641	N	THRUSH	16-0191	F
PANCORE	16-0475	F	TIMBER	16-0654	F
PARTRIDGE	16-0233	P	TOM	16-0019	F
PENDANT	16-0163	P	TOOHEY	16-0645	F
PICKEREL	16-0097	F	TRACK	16-0154	F
PIKE	16-0252	F	TROUT	16-0049	F
PINE	16-0041	F	TURTLE	16-0251	M
PIPE	16-0375	F	TWO ISLAND	16-0156	F
POCKET	16-0162	F	UNNAMED	16-0004	F
POPLAR	16-0239	F	UNNAMED	16-0016	F
PROUT	16-0013	F	UNNAMED	16-0095	F
RICE	16-0453	F	UNNAMED	16-0153	F
ROCKY	16-0115	F	UNNAMED	16-0388	F
ROSE	16-0230	F	UPPER CONE	16-0412	F
SAWBILL	16-0496	F	VERNON	16-0267	F
SMOKE	16-0495	F	WANIHIGAN	16-0349	F
S. TEMPERANCE	16-0457	F	WATAP	16-0138	F
SPARK	16-0082	F	WENCH	16-0398	F
SPECKLED TROUT	16-0005	F	WEST PIKE	16-0086	F
SQUINT	16-0202	F	WILLIAMS	16-0361	F
SURBER	16-0343	F	WINCHELL	16-0354	F
			WRINGER	16-0642	F

St. Louis County

ANTOINETTE	69-0225	M
BARRS	69-0132	M
BASS	69-0553	M
BASSETT	69-0041	M
BEAR	69-0112	P
BEAR HEAD	69-0254	F
BERG	69-0538	N
BERGEN	69-0515	F
BRIAR	69-0128	F
CADOTTE	69-0114	F
CAMERON	69-0237	F
CAMERON	69-0545	P
CANTON PIT	69-1294	F
CARIBOU	69-0489	F
CLEARWATER	69-0397	F
COE	69-0562	P
COLBY	69-0249	F
COMSTOCK	69-0412	P
DEEPWATER	69-0399	M
DINHAM	69-0544	P
DODO (W. LEORA)	69-0523	F
DOHERTY (SPIRIT)	69-0763	F
EAGLE	69-0238	P
ELBOW	69-0717	N
ELLIOT	69-0642	P

Table 21 (page 4 of 4): St. Louis County

ELY	69-0660	F	MAJESTIC	69-0721	F	SIX MILE	69-0840	N
EMBARRASS	69-0496	M	MAPLE LEAF	69-0700	M	SMITH	69-0111	P
ESQUAGAMA	69-0565	F	MARKHAM	69-0414	P	S. TWIN CITY PIT	69-1298	F
FIG	69-0644	P	MASHKENODE	69-0725	N	SPRING	69-0129	F
FISH LK FL. (E)	69-0491-02	P	McQUADE	69-0775	N	ST. MARY'S	69-0651	F
FISH LK FL. (MA)	69-0491-01	P	MESABI MT. PIT	69-1292	F	STONE	69-0027	F
FLOWAGE	69-0394	M	MIRROR	69-0234	P	STRAIGHT	69-0133	F
FRASER PIT	69-1300	F	MURPHY	69-0646	F	STRAND	69-0529	P
GILBERT PIT	69-1306	F	NICHOLS	69-0627	F	SUNSHINE	69-0235	M
HORSESHOE	69-0232	M	PEQUAYWAN	69-0011	M	TWIN	69-0504	F
HORSESHOE	69-0503	M	PIKE	69-0490	F	UNNAMED	69-0502	F
HORSESHOE	69-0654	P	PINE	69-0001	F	UNNAMED	69-0122	P
INDIAN	69-0023	P	PIONEER	69-0532	P	UNNAMED	69-0239	P
ISLAND RSVR. (E.)	69-0372-02	F	ROSE	69-0525	F	VIRGINIA	69-0663	F
ISLAND RSVR. (W.)	69-0372-01	M	SABIN (EMBARRASS)			WHITE	69-0030	F
JACOBS	69-0231	N	PIT	69-0429	F	WHITEFACE RES.	69-0375	P
LEORA (ELORA)	69-0521	F	SAND	69-0016	P	WHITEWATER	69-0376	P
LITTLE LONG	69-0528	F	SANTA CLAUS	69-0139	N	WILD RICE	69-0371	N
LITTLE STONE	69-0028	M	SCHUBERT	69-0546	F	WILSON	69-0542	P
LONG	69-0044	P	SCHULTZ	69-0230	F	WINKLE		
LONG	69-0493	F	SEVEN BEAVER	69-0002	P	(S. LEORA)	69-0522	M
LONG	69-0653	M	SHERMAN PIT	69-1297	F	WOLF	69-0143	P
LONGYEAR (N.)	69-0857-02	N	SIDE (BOWMAN)	69-0519	M	WYNNE	69-0434	F
LONGYEAR (S.)	69-0857-01	P	SILVER	69-0662	F			

(1) Aquatic Life Use Support [NPS/319 Plan, Chapter 1]

Assessments of Aquatic Life Use Support (ALUS) are conducted to determine if the waters are of a quality to support the aquatic life that would be found in the stream under the most natural conditions. Two types of data were used in the assessments: water chemistry data and biological and habitat information. Table 22, below, summarizes this information in detail.

Table 22. Water Quality Criteria Aquatic Life Use Support in Rivers and Streams [based on NPS/319 Plan, Table I-1]. [Based on Section 305(b) of the Clean Water Act].

**Physical/Chemical Parameters –
Evaluated Against State Water Quality (WQ) Standards (Minn. Rules 7050)**

Conventional Pollutants: Dissolved oxygen, pH and turbidity (n ≥ 10 observations for each parameter).

Use Support	Criteria for Each Parameter Evaluated.
Fully Supporting	The standard is exceeded in fewer than 10% of the observations.
Partially Supporting	The standard is exceeded 10% to 25% of the time.
Not Supporting	The standard is exceeded in more than 25% of the observations.

Toxics: Ammonia, chloride, arsenic, cadmium, chromium, copper, lead, nickel, selenium and zinc (n ≥ five observations for each parameter).

Use Support	Criteria for Each Parameter Evaluated.
Fully Supporting	The standard is exceeded in fewer than 2.8% of the measurements. (Not more than one violation in three years of monthly sampling).
Not Supporting	The standard is exceeded in 2.8% or more of the measurements.

NPS: Total phosphorus, nitrite/nitrate, total suspended solids and biochemical oxygen demand (n ≥ 10). Evaluated against least impacted sites in the ecoregion.

Not Used for Use Support	Criteria for Each Parameter Evaluated (nonpoint source pollution indicators).
No Impact	The ecoregion expectation is exceeded in fewer than 10% of the observations.
Ecoregion Criteria Exceeded	The ecoregion expectation is exceeded in 10% or more of the observations.

Preliminary Assessment, based on physical and chemical parameters of water quality. (Sampling by MPCA and cooperators. Data stored in the USEPA's STORET data system).

Aquatic Life Use Support	Criteria for Each Waterbody (River Reach).
Fully Supporting (Good)	Parameters measured against WQ Standards are Fully Supporting.
Partially Supporting (Fair)	The worst parameter measured against WQ Standards is Partially Supporting.
Not Supporting (Poor)	At least one parameter measured against WQ Standards is Not Supporting.

Index of Biotic Integrity (IBI).

Aquatic Life Use Support	Criteria (evaluated against regional expectations).
Fully Supporting (S)	The biological community is in fair or better condition, not significantly altered from what would be expected for the region under natural conditions. IBI score of 30 or above.
Partially Supporting (PS)	Disparate levels of support between different portions of a larger reach.

Aquatic Life Use Support	Criteria (evaluated against regional expectations).
Not Supporting (NS)	Indications of a poor or very poor biological community, severely modified from what would be expected under natural conditions. IBI score less than 30.

Determination of Use Support, Based on Hierarchy of Data Sources.

Aquatic Life Use Support	Criteria for each waterbody (river reach).
Full Support	IBI shows support for aquatic life (Biology = S). If no IBI, physical/chemical parameters are fully supporting (FS).
Partially Supporting	Partial support based on mixed Index of Biotic Integrity findings (PS). Partial support based on physical/chemical parameters (PS).
Not Supporting	IBI shows nonsupport (NS). If no IBI, physical/chemical parameters show nonsupport (NS).

To determine Aquatic Life Use Support, the following guidelines were used to evaluate each of the data sources for a reach, and to combine them when more than one type of information was available.

(a) Water Chemistry Data [ALUS]

To evaluate chemical and physical parameters of water quality (WQ), the MPCA uses data and sampling site information that are stored in the USEPA's water quality data storage and retrieval system (STORET) by the MPCA and others. Ten years of data are used where available. This time period is sufficient in most cases to pick up impairments under a variety of climatic and flow conditions.

Samples are evaluated against state water quality standards (WQS) set forth in **Minn. Rules Chapter 7050**, as minimum requirements needed to support aquatic life. Determinations of use support are based on the "frequency of exceedance" of the "chronic" standards applicable for a given water class.

1) Conventional parameters include dissolved oxygen, pH, turbidity measured directly, and turbidity estimated from total suspended solids measurements. At least ten samples from a reach are needed during the ten-year time frame for a parameter to be evaluated. For each parameter evaluated, levels of support are then defined as:

- Fully supporting - fewer than 10 percent of samples exceed the standard.
- Partially supporting - 10 to 25 percent of the samples exceed the standard.
- Not supporting - more than 25 percent of samples exceed the standard.

2) Toxic substances include un-ionized ammonia, chloride, arsenic, cadmium, chromium, copper, lead, nickel, selenium and zinc. At least five samples are

needed for a given toxicant to be evaluated. For each toxicant evaluated, levels of support are then defined, according to USEPA guidance, as:

- Fully supporting - not more than 2.8 percent of samples exceed the standard (not more than one violation in three years of monthly sampling).
- Not supporting - more than 2.8 percent of observations exceed the standard.

3) Nonpoint Source Indicators

Total phosphorus (TP), nitrate/nitrite, total suspended solids (TSS) and biochemical oxygen demand (BOD) are evaluated as indicators of nonpoint source pollution. These are not used in determining use support status. In contrast to the support parameters described above, Minnesota has not established legal standards for nonpoint source pollution indicators. However, the MPCA has developed ecoregion expectations for them from data collected at a small set of least impacted sites. At least ten observations are needed for an indicator to be evaluated, and a reach is identified if more than ten percent of the observations of an indicator exceed the ecoregion expectation.

4) Preliminary Assessment (based on physical/chemical parameters of water quality)

For each reach, the evaluations described above are combined into a preliminary assessment of the waterbody's ability to support aquatic life. The level of support is assumed to be no greater than the support provided by the weakest of the elements measured. Therefore, the preliminary assessments are defined as follows:

- Fully supporting - all measures show full support.
- Partially supporting - the worst parameter indicates partial support.
- Not supporting - At least one conventional or toxic parameters indicates nonsupport.

(b) Biological/Habitat Data [ALUS]

The Index of Biotic Integrity (IBI) and a regional reference site approach were used to evaluate fish communities and develop biological criteria. Field investigations and IBI metric development were conducted in cooperation with numerous federal and state agencies. The typical time frame or index period for sampling fish communities was during normal to low flows in the summer (mid-June through September) and fall. A collection was only used to assess that portion of the reach that has similar physical/chemical characteristics.

The IBI is a composite index, evaluating 10-12 characteristics of a fish community, with a total possible score of 12 to 60 points. The IBI classes were determined in relation to the best sites in the basin or the ecoregion. "Fair" (30) was considered to be

the lowest acceptable condition in terms of meeting an aquatic life or biological criteria.

Therefore the use support levels were defined as:

- Fully supporting - IBI score 30 or above.
- Not supporting - IBI score below 30.
- Partially supporting - IBI scores disparate between two portions of a larger reach.

(c) The information sources were combined as follows:

Some waterbodies had more than one category of data available for assessing use support. When this occurred, the judgment was based on the strongest information possible. Biology was considered to be the strongest indicator of a waterbody's ability to support aquatic life, therefore IBI evaluations took precedence over any other preliminary assessments for a reach.

In the absence of biological measures, support levels were based on physical and chemical parameters of water quality, where available.

(2) Swimming Use Support [NPS/319 Plan, Chapter 1]

Assessments for swimmable use support were conducted to determine if the waters are of a quality to support primary body contact. Swimmable use was determined based on two types of information: instream monitoring of fecal coliform bacteria, and a survey of local resource managers.

The MPCA uses fecal coliform data collected by MPCA staff or other government agencies or volunteers according to USEPA guidelines for fecal coliform monitoring using the membrane filter technique. Ten years of data are used, where available. At least ten samples are needed for the data to be evaluated. Data and site information are stored in USEPA's STORET data system.

(3) Lakes Assessment Methodology [NPS/319 Plan, Chapter 1]

Twenty-eight years of data (1970-1998) from USEPA's STORET data system was used for the lake assessments. The focus of lake assessments is on trophic state and its relation to support and nonsupport of designated uses, specifically swimming and aesthetics uses. The parameters used to assess trophic state were epilimnetic TP, chlorophyll-a (chl-a) and Secchi Disk (SD) transparency.

(a) Data Use and Analysis Procedures [Lakes]

1) Monitored Data

Lakes with data collected between calendar years 1989-1998 with summer data (defined as the time period from June through September) were considered monitored. Summer data are preferred for assessments to better represent the maximum productivity of a lake and yield the best agreement among trophic variables. They also reflect the period of maximum human use of the resource. Summer means were calculated for each variable.

2) Evaluated Data

Lakes without data meeting monitored criteria but with TP, chl-a or SD transparency measurements collected between 1970-1988 were treated as evaluated. Summer data were used for calculating mean chl-a and SD transparency. Mean TP was calculated from data collected during the open water season (May through November). Expanding the season for TP allows for inclusion of a larger number of lakes in northern Minnesota. These lakes were often sampled only during spring or fall turnover as part of the MPCA Acid Rain Lake Monitoring Program.

(b) Trophic Status [Lakes]

Trophic Status was determined for each lake using Carlson's Trophic State Index (TSI). This index was developed using the relationship among summer SD transparency, epilimnetic concentrations of chl-a and TP. The TSI values were calculated as follows:

- Secchi disk (SD) TSI (TSIS) = $60 - 14.41 \ln(\text{SD})$.
- Total phosphorus (TP) TSI (TSIP) = $14.42 \ln(\text{TP}) + 4.15$.
- Chlorophyll-a (chl-a) TSI (TSIC) = $9.81 \ln(\text{chl-a}) + 30.6$; (chl-a and TP in micrograms per liter (ug/L) and SD transparency in meters).

The index ranges from 0 to 100, with higher values indicating more eutrophic conditions. The TSI values were calculated for each variable, then averaged for each lake.

(c) Impaired Status [Lakes]

The status of lakes (supporting, partially supporting or not supporting) was assessed by ecoregion. Phosphorus criteria for each ecoregion were used in conjunction with Carlson's TSI scale to establish use support thresholds. Phosphorus criteria are based on ecoregion characteristics and reflect several considerations such as lake morphometry, attainability and lake user perceptions. Specific ecoregion phosphorus criteria are shown in the NPS/319 Plan. Determining use support by ecoregion provides a more reflective picture of the condition of Minnesota lakes, as opposed to assessing all lakes by a single scale.

In general, use support thresholds for the Northern Lakes and Forests and North Central Hardwood Forests ecoregions are somewhat more restrictive than the previous thresholds. Differences in lake user perceptions of “impaired swimming” and what constitutes nuisance algal blooms, along with differences in lake morphometry and attainability are primary reasons for the regional differences.

Phosphorus criteria levels of 30 micrograms per liter (ug/L) for the Northern Lakes and Forests ecoregion serve as the upper threshold for “full support (marginal)” of swimmable use. Those concentrations correspond to Carlson’s TSI values of 53 and 57, respectively. Full support of swimmable use is set at slightly lower concentrations, 25 ug/L and 30 ug/L, respectively, which ensures that conditions associated with “impaired swimming” would occur during less than ten percent of the summer. Phosphorus concentrations above criteria levels would result in greater frequencies of nuisance algal blooms and increased frequencies of “impaired swimming.” The upper threshold for partial support of swimmable use was set at 60 and 63 Carlson’s TSI units, respectively, for these two regions.

Phosphorous concentrations above 50 ug/L for the Northern Lakes and Forests ecoregion were associated with nonsupport of swimmable use. At phosphorous concentrations above 60 ug/L, severe nuisance algal blooms (greater than 30 ug/L chl-a) may occur over 40 percent of the summer. This would result in a high frequency (greater than 50 percent of summer) of impaired swimming and greater than 25 percent as “no swimming.”

b. Minnesota’s 303(d) List: Results of Minnesota’s Water Quality Assessment for the State’s 303(d) (Total Maximum Daily Load, or TMDL) Listing. [Based on Section 303(d) of the Clean Water Act].

The federal Clean Water Act requires states to adopt water quality standards to protect the nation’s waters. These standards define how much of a pollutant can be in a surface and/or ground water while still allowing it to meet its designated uses, such as for drinking water, fishing, swimming, irrigation or industrial purposes. Many of Minnesota’s water resources cannot currently meet their designated uses because of pollution problems from a combination of point and nonpoint sources.

For each pollutant that causes a water body to fail to meet state water quality standards, the federal Clean Water Act requires the MPCA to conduct a Total Maximum Daily Load (TMDL) study. A TMDL study identifies both point and nonpoint sources for each problem pollutant. Water quality sampling and computer modeling determine how much each pollutant source must reduce its contribution to assure that the water quality standard is met. Rivers and streams may have several TMDLs, each one determining the limit for a different pollutant.

The Clean Water Act requires states to publish, every two years, an updated list of streams and lakes that are not meeting their designated uses because of excess pollutants. The list,

known as the 303(d) list, is based on violations of water quality standards and is organized by river basin.

Minnesota's published list includes about 100 areas where TMDLs need to be established. The list of Minnesota's impaired waters includes streams throughout the state. It also includes a number of lakes in northeastern Minnesota affected by excess mercury. By establishing TMDLs in these areas, the MPCA will be able to take steps to regain designated uses in these waters.

Rivers and lakes included on Minnesota's 1998 303(d) (TMDL) list for the Lake Superior Basin are shown in Figure 13 and Tables 23a and 23b, below:

See Figure 13. Lake Superior Basin 1998 Impaired Waters [per Section 303(d) of the Clean Water Act]. (MPCA).

Table 23a. Lakes Shown in Figure 13: Lake Superior Basin 1998 Impaired Waters [per Section 303(d) of the Clean Water Act]. (MPCA). *[Note: All of the lakes listed below are in Cook County].*

Lake	Lake #	Affected Use	Pollutant/Stressor	TMDL Start/End
1. Ball Club Lake	16-0182	Aquatic Life	Mercury ¹	1999 - 2010
2. Devil Track Lake	16-0143	Aquatic Life	Mercury ¹	1999 - 2010
3. Devilfish Lake	16-0029	Aquatic Life	Mercury ¹	1999 - 2010
4. Elbow Lake	16-0096	Aquatic Life	Mercury ¹	1999 - 2010
5. Greenwood Lake	16-0077	Aquatic Life	Mercury ¹	1999 - 2010
6. Homer Lake	16-0406	Aquatic Life	Mercury ¹	1999 - 2010
7. McDonald Lake	16-0235	Aquatic Life	Mercury ¹	1999 - 2010
8. Musquash Lake	16-0104	Aquatic Life	Mercury ¹	1999 - 2010
9. Northern Light Lake	16-0089	Aquatic Life	Mercury ¹	1999 - 2010
10. Sawbill Lake	16-0496	Aquatic Life	Mercury ¹	1999 - 2010
11. Tom Lake	16-0019	Aquatic Life	Mercury ¹	1999 - 2010

Table 23b. Streams Shown in Figure 13: Lake Superior Basin 1998 Impaired Waters [per Section 303(d) of the Clean Water Act]. (MPCA).

Stream	Stream Number(s)	Affected Use	Pollutant/Stressor	TMDL Start/End
1. Beaver River, headwaters to Lake Superior	04010102-009	Aquatic Life	Mercury ¹	1999 - 2010
		Aquatic Life	Turbidity	2007 - 2010
2. Brule River, headwaters to Lake Superior	04010101-015	Aquatic Life	Mercury ¹	1999 - 2010
3. Knife River, headwaters to Lake Superior	04010102-012	Aquatic Life	Mercury ¹	1999 - 2010
		Aquatic Life	Turbidity	2001 - 2004
4. Lester River, headwaters to Lake Superior	04010102-015	Aquatic Life	Mercury ¹	1999 - 2010
		Aquatic Life	Turbidity	2004 - 2007
5. Poplar River, Mistletoe Cr./Poplar R. to Lake Superior	04010101-030	Aquatic Life	Mercury ¹	1999 - 2010
6a. St. Louis River, from Cloquet R. to Pine R.	04010201-013	Aquatic Life	Mercury ¹	1999 - 2010
6b. St. Louis River, from Midway R. to St. Louis Bay	04010201-109	Aquatic Life	Mercury ¹	1999 - 2010
6c. St. Louis Bay, through reach to Lake Superior	04010201-003	Aquatic Life	Mercury ¹	1999 - 2010
7. Talmadge River, headwaters to Lake Superior	04010102-102	Aquatic Life	Low Oxygen ²	2005 - 2010

Footnotes (based on information from MPCA) for Table 23a-b, regarding the 303(d) list:

- 1. Impacts of mercury are mainly regional in expression, so the initial approach will be to complete regional mercury TMDLs. This approach could change based on basin planning activities. USEPA accepts responsibility for the air-borne component of these TMDLs.*

The waterbodies listed in the Minnesota Fish Consumption Advisory are included by reference in the 303(d) list. Those listed for mercury contaminants will be included in the regional mercury TMDLs scheduled to be completed by 2010.

- 2. Low Oxygen TMDL scheduling is dependent upon low flow conditions. The draft schedule may be changed accordingly.*

Additional information on TMDLs is included on MPCA's Web site.

<http://www.pca.state.mn.us/water/tmdl.html>

MPCA's 1998 Methodology for Creating the 303(d) (TMDL) List

MPCA prepared assessments of water quality for Congress under the Clean Water Act. Where available, ten years of monitoring data were utilized for dissolved oxygen, pH, turbidity, un-ionized ammonia, metals and fecal coliform, from October 1, 1986, to September 30, 1996. Those data were reviewed against the following set of criteria:

For support of Aquatic Life, parameters evaluated were as follows:

Dissolved oxygen, pH, and turbidity - at least ten observations:

- Fully supporting - fewer than 10 percent of samples exceed chronic water quality standard
- Partially supporting - 10 percent to 25 percent of samples exceed chronic water quality standard
- Not supporting - more than 25 percent of samples exceed chronic water quality standard

Un-ionized Ammonia - at least five observations:

- Fully supporting - one violation in three years of monthly sampling (≈2.8 percent)
- Not supporting - more than 2.8 percent of samples exceed standard.

Mercury:

- Great Lakes Initiative (GLI) waterbodies must average less than 1.3 ng/L
- Non-GLI waterbodies must average less than 6.9 ng/L.

For support of swimming and recreation, the 1998 Fecal Coliform methodology is as follows:

Data were aggregated over the ten year period October 1985 to September 1995, by month by reach. If the geometric mean of at least five samples for each appropriate month (all years combined) exceeded 200 organisms per 100 ml, that reach was placed on the 1998 303(d) list. In addition, if at least 10 percent of the entire data set for a reach during the ten year period exceeded 2000 organisms per 100 ml, then that reach was also placed on the list. Finally, represented reaches were included if they were contiguous to a reach that had been monitored. The 1998 methodology focuses on monthly analyses of the 200 organisms/100 ml standard. In addition, stream reaches showing a minimum threshold number of high individual values are considered to have impaired uses and are included on the list.

2. Discussion

The St. Louis River, between Cloquet, Minnesota, and Lake Superior, including St. Louis Bay, has been designated as a Great Lakes area of concern (AOC) by the International Joint Commission. Contaminated sediments in the bay and behind upstream reservoirs contribute to fish consumption advisories for mercury and PCBs. Phosphorus and sediment loads are also high. A Remedial Action Plan (RAP) is in place, with numerous milestones achieved. Information about work related to contaminated sediments is available online at USEPA's Great Lakes National Program Offices (GLNPO) Web site. Other information about the RAP is available on the Web site of the St. Louis River Citizens Action Committee (CAC).

<http://www.epa.gov/glnpo/aoc/stlouis.html>

<http://www.stlouisriver.org/>

Minnesota's 305(b) list and 303(d) list, and the ways they rate water quality are presented in detail in the preceding section.

Minnesota's 305(b)'s 1996 Assessment for Aquatic Life shows the following results, which are depicted in Figure 10:

- Nonsupporting – seven stream segments in the St. Louis River system, three stream segments (Beaver River, Crow Creek and Knife River) on the North Shore, and one stream segment in the Nemadji River Basin (Skunk Creek).
- Partially Supporting – eight stream segments: Lester River and Miller Creek (in Duluth), Encampment River, Talmadge River, Schmidt Creek, Silver Creek, Skunk Creek (in Two Harbors) and Skunk Creek (tributary to the Gooseberry River).
- Supporting Standards, Exceeding Ecoregion Norms – Baptism River, Big Sucker Creek, Brule River, Cascade River, French River, Gooseberry River, Poplar River, Stewart River.
- Fully Supporting – Amity Creek (in Duluth), Baptism River (West Branch), Elbow Creek, Kadunce River, Pigeon River.

Minnesota's 2000 303(d) list classified 20 water bodies in the Lake Superior Basin as impaired. Inland lakes accounted for 11 of them. Nine Lake Superior stream segments on seven streams round out the list. Mercury exceeded water quality standards in all 11 lakes and in eight of the nine river segments. The Beaver, Knife and Lester rivers, which were listed for mercury, were also listed for turbidity. The Talmadge River was not listed for mercury, but was listed for low dissolved oxygen levels. (See Table 23a-b and Figure 13 for details).

Suspended sediment and solids, which are contributing to high turbidity readings in three North Shore streams mentioned above, can settle out and fill the interstitial spaces in gravel stream bottoms, eliminating aquatic invertebrates and generally making the stream less productive. It can also smother fish eggs in the streams beds.

It should also be noted that natural tannins are a component in turbidity measurements. Tannins come primarily from natural peat-bog wetlands that are common in many of the headwaters of this region.

Fish consumption advisories have been issued in the Lake Superior Basin for mercury and/or PCB contamination. The Minnesota Fish Consumption Advisory is issued annually by the Minnesota Department of Health. Information is available from them at (800) 657-3908 and on their Web site.

<http://www.health.state.mn.us/divs/eh/esa/hra/fishfact/fcahome.html>

In addition to the state agency studies described earlier, studies done at USEPA's Mid-Continent Ecology Laboratory in Duluth (Detenbeck 2000 and Eaton 1996) indicate that the "designated use" of most North Shore streams as trout waters might be threatened because of temperature. If water temperatures were to increase, from forest fragmentation in the watershed, global warming or some combination of factors, the result would be the same: temperatures too warm to support trout and salmon. Detenbeck's work also looks at the hydrologic changes and erosion resulting from forest fragmentation and lack of water storage capacity in watersheds. Her work shows that if a watershed has less than 50 percent mature forest cover, or less than 10 percent water storage in wetlands, it is at risk for increased erosion. Combining these two risk factors further exacerbates the erosion potential.

Because of the predominance of either red clay soils or ledge rock, combined with steep topography, along much of Minnesota's coast, most of the runoff to streams is surface runoff. The ability of the coastal streams to maintain their cold water status is largely dependent on the extensive forest canopy that shades the surface runoff as it makes its way to Lake Superior. Fragmentation and overall loss of this forest canopy is, therefore, a threat to the "trout stream" designation and related fisheries in these waters. The lower stream segments, near Lake Superior, are the most susceptible to warming. This is because the water is exposed to air and sunlight for a longer period of time as it travels to the lake. In addition, most of the development pressure is concentrated on the lower stream segments.

All of the North Shore streams, except the Knife and Sucker rivers, have barrier waterfalls that prevent fish from moving upstream beyond the lower segments. Anadromous fish (those that migrate from large lakes or oceans to spawn in streams) can therefore use only these lower stream segments for spawning, and their fry must be reared in these lower stream segments. Brook trout (including coaster brook trout), rainbow trout (steelhead), brown trout and chinook salmon would all be threatened by warmer stream temperatures.

B. LAND USES CONTRIBUTING TO DEGRADATION OF COASTAL WATERS

Erosion of organic soils is likely to carry mercury and PCBs, as well as nutrient and sediment loads, which are detrimental to the receiving waters. Disruption of the ground's mineral layer, especially in the red clay areas representing the ancient bed of Lake Superior that surrounds today's lake, is a main contributor to the violations of the turbidity standard in the basin. Erosion caused by construction, logging, pasturing of livestock in riparian areas and gravel mining is contributing in varying degrees to turbidity, total suspended solids and phosphorus loads. Variability depends on where the site is, how well regulations and BMPs are being followed, the conditions of the site and the severity of rain events and snowmelt runoff during times when soils are exposed.

Forest cover type is also an important factor in preventing erosion of fine clay soils. The Nemadji River Basin Project report, *Erosion and Sedimentation in the Nemadji River Basin* (1998), a spinoff from the St. Louis River RAP, found that 98 percent of the eroded sediment in the watershed originated from streambank erosion. The Nemadji River has the highest average annual suspended sediment load per square mile of drainage area among all monitored rivers in Minnesota and Wisconsin. Land use and land cover changes since the original forest was logged have resulted in altered hydrologic conditions that have accelerated historic natural streambank erosion rates.

Other Lake Superior tributaries flowing through erosive substrates have experienced similar historic land use changes, which may also have accelerated streambank erosion. Landscape level alterations can cumulatively impact hydrologic conditions and exacerbate stream bank erosion problems. Identification of sensitive watersheds and coordination of forest harvesting, combined with emphasis on reforesting open areas, can minimize impacts over time. In some cases, hydrologic conditions and long-term streambank stability may even be improved.

The potential threat that increased temperature poses to the cold water and trout designations on North Shore streams was mentioned earlier. While logging has remained relatively consistent for decades, North Shore development pressure has increased dramatically in the last decade. New condominiums, golf courses, asphalt parking lots, homes, lawns and roads permanently eliminate the shady forest canopy that helps maintain cold water temperatures in basin streams. In addition to losing the shading canopy, black surfaces such as asphalt and dark roof shingles heat up in

sunlight and transfer that heat to waters that come in contact with them. New proposed sewered areas will solve failing septic issues in many areas, but will allow for smaller lot sizes and, thus, more development. Cumulatively, if this development continues without substantial countermeasures, these waters will, at some point, warm a few degrees, and will likely become dominated by suckers and chubs instead of trout and salmon (USEPA researchers Eaton 1996 and Detenbeck 2000).

C. CRITICAL COASTAL AREAS (ADJACENT TO THREATENED AND IMPAIRED COASTAL WATERS)

Riparian areas along the Lake Superior shore and the streams feeding the lake are undoubtedly the most important critical areas in need of protection. Forested buffer zones in these areas stabilize banks, prevent erosion, shade trout streams, provide wildlife habitat, enhance aesthetic values and eventually provide important fish habitat when trees fall into the streams and create large, woody debris.

The North Shore Management Plan (NSMP) sets zoning restrictions for riparian zones within the North Shore Planning area under **M.S. 471.59**. Outside the NSMP area, Minnesota's **Shoreland Management Act (M.S. 103F.201 - .221)** applies. Both the NSMP and the state shoreland standards specify setbacks, lot sizes and development standards. In spite of these standards, there are some impaired waters, perhaps related to the steep slopes and red clay soils that characterize parts of the basin. Additional monitoring could provide more detailed information.

Figures 3, 4 and 5 in Chapter II show the boundary for the North Shore Management Plan's planning area.

Approximately 90 percent of land along Minnesota's Lake Superior shore is privately owned. Much of the Lake Superior shoreline available for private development has already been developed. The next tier of development is likely to follow the rivers inland from the shore, or expand around the existing towns. More monitoring is needed to determine if this is causing problems now, or if it may do so in the future.

Lake Superior shorelines susceptible to erosion were identified in a study done by the Natural Resources Research Institute (NRRI) over a decade ago. The Minnesota Board of Water and Soil Resources (BWSR) and the local SWCDs are working together to stabilize these eroding shorelands.

The susceptibility to erosion of streams and their tributaries has not been cataloged as has been done for the lakeshore itself. Geographic Information System (GIS) coverages could be developed, using Global Positioning System (GPS) technology to identify critical erosion areas along streams and shore, for use by local zoning authorities. The stream corridors, including tributaries, are crucial buffers for temperature moderation and erosion control. NRRI has developed a process for evaluating the groundwater component of a stream's flow. This methodology could be

very helpful in identifying streams with the least groundwater input. These will be the ones that most need protection from factors that increase water temperature.

The nine state parks and five state waysides within the Lake Superior watershed include roughly 44,500 acres, of which DNR Parks owns and manages 32,300 acres. These areas feature rivers, along with the lower portions of their associated watersheds. Although these streams are protected by being within the state park system, their water quality is vulnerable to actions and practices that take place upstream of the park boundaries.

D. OTHER EFFORTS DEALING WITH IMPAIRED COASTAL WATERS [LAKE SUPERIOR LAMP, ST. LOUIS RIVER RAP, TMDLS]

Minnesota has worked hard to remove mercury from sources within the state sources, banning mercury containing products such as batteries, games, toys and clothing and making it illegal to knowingly dispose of mercury bearing products in the trash. The state has also required mercury product labeling and fluorescent bulb recycling. Minnesota established as a statewide goal a 70 percent reduction of mercury emissions between 1990 and 2005. There are numerous efforts to collect mercury products, and work with small businesses and industry to eliminate mercury from their products, processes and wastes. As part of the work being done basinwide by the Lake Superior Binational Program, the Lake Superior Lakewide Management Plan (LaMP) proposed reducing mercury releases from sources in the basin to zero by the year 2020.

Through numerous mercury reduction initiatives, Minnesota intends to keep reducing the state's mercury releases to the environment. It should be noted, however, that more than 80 percent of the mercury deposited in Minnesota comes from beyond the state's borders. Therefore, **stronger national and international mercury standards will be needed for substantial reductions in Minnesota's fish consumption advisories.** More information on Minnesota's mercury policy and programs is available on MPCA's Web site.

<http://www.pca.state.mn.us/air/mercury-mn.html>

The Lake Superior Binational Program has been involved in much more than mercury reduction. The Lake Superior Binational Program and the LaMP are described on Web sites maintained by the USEPA and by Environment Canada.

<http://www.epa.gov/glnpo/lakesuperior/lamp2000/index.html>

<http://www.on.ec.gc.ca/glimr/lakes/superior/>

Minnesota has also adopted the Great Lakes Initiative (GLI). This sets Lake Superior Basin water quality standards for mercury, PCBs and other bioaccumulative, toxic chemicals at levels that are among the strictest in the nation.

Contamination by polychlorinated biphenyls (PCBs) persists, from sediments contaminated in the past, and from air emissions that are primarily from beyond the

state's borders. The manufacture and distribution of PCBs has been banned in Minnesota since 1976. Measured PCB concentrations in the tissue of Lake Superior lake trout have decreased by 75 percent.

Innovative GIS technology is being used by state agencies and Minnesota Sea Grant for educational purposes. The Nonpoint Education for Municipal Officials (NEMO) project is being used to educate coastal decision makers about the potential impacts of various land uses. This computer planning tool models individual watersheds and uses "build out scenarios" to predict the impacts of possible future development. Such educational efforts can help raise public awareness, which could help to reduce the potential threat of some of the temperature and turbidity issues described earlier in this section.

The St. Louis River RAP and CAC developed 43 recommendations. The CAC, now a nonprofit organization, is involved with all planning and projects that affect the health of the lower St. Louis River. The RAP and CAC are responsible for many of the accomplishments in the AOC. Additional information is available on Web sites maintained by the CAC and USEPA.

<http://www.stlouisriver.org/>

<http://www.epa.gov/glnpo/aoc/stlouis.html>

It is important to keep mercury and PCBs that are deposited on the landscape from being washed into the water. After falling from the atmosphere, these two pollutants reside in organic soils. Erosion control measures properly implemented under the Coastal Nonpoint Pollution Control Program will help keep these soils in place and away from water bodies where they can bioaccumulate in fish.

A TMDL process has been underway since October 1998 for dealing with mercury problems in the lower St. Louis River. Two Super Fund clean-up sites are in their final stages on St. Louis Bay. Another TMDL is expected to start soon for the Knife River Watershed. Information about TMDL listings, status and procedures is available on MPCA's Web site.

<http://www.pca.state.mn.us/water/tmdl.html>

E. PROCESS FOR SELECTING AND IMPLEMENTING ADDITIONAL MANAGEMENT MEASURES

Minnesota's Lake Superior Coastal Nonpoint Pollution Control Program is an important part of the Lake Superior Basin Planning process, which is being facilitated by the MPCA with numerous state, federal and local resource managers and partners involved in the process. The Coastal Nonpoint Program is also a major part of Minnesota's Lake Superior Coastal Program, which is being led by DNR Waters.

Prior to discussing the development of additional management measures, it would make sense to better assess what is or is not working in terms of the measures that are already in place. It would also make sense to determine if problems might have "natural" causes, such as steep clay banks, or be caused by other things beyond state control, like that portion of Minnesota's mercury problem that is caused by mercury blowing in from outside the basin. It might be possible to address water quality issues with improved education, technical assistance, implementation and enforcement of existing management measures.

Any process for discussing, proposing, selecting and implementing any additional management measures will require extensive discussions with a broad audience. Such an audience would include all of the partners who are currently involved in the state's Coastal Nonpoint, Basin Planning and 319 Planning processes, including the members of the Programmatic Work Group (PWG). The PWG, which serves as an advisory committee and provides input to both the Coastal Nonpoint and Basin Planning processes, is comprised of representatives of federal, state and local government that manage land uses in the Lake Superior Basin. In addition to agency partners and PWG members, any discussions about possible additional management measures will include elected officials from the local governments in the Lake Superior Basin, as well as interested members of the public.

The first steps in this process might be to do some more detailed assessments of management-measure effectiveness in critical subwatersheds, and to work with the PWG to identify needs for better implementation, education, monitoring and enforcement.

Later discussions might include methods of riparian protection in critical areas, long-term projects to convert forest cover to desired future cover types, and/or the possible need for additional TMDLs. The major barrier to developing additional TMDLs is limited staff and funding.

VI

**MINNESOTA'S 2001
NONPOINT SOURCE
MANAGEMENT
PROGRAM PLAN**

CHAPTER VI. MINNESOTA'S 2001 NONPOINT SOURCE MANAGEMENT PROGRAM PLAN (STATEWIDE "SECTION 319" PLAN) [NPS/319 PLAN]

Introduction

This chapter of the Coastal Nonpoint Program Document is based on *Minnesota's 2001-2005 Nonpoint Source Management Program Plan* (final draft). Because Minnesota's Nonpoint Source Management Program is developed under Section 319 of the Clean Water Act, it is often known as the "319 Program" or "319 Plan." The complete plan is available on the Minnesota Pollution Control Agency's (MPCA's) Web site.

<http://www.pca.state.mn.us/water/nonpoint/mplan.html>

This chapter has a broader statewide focus than other portions of this coastal nonpoint program document. For information that more closely focuses on the Lake Superior Basin, see the other chapters of this Coastal Nonpoint Program document.

Coordination between Minnesota's 319 Program and Minnesota's Lake Superior Coastal Nonpoint Program is discussed in Section III B: Coordination, as well as in the discussions of the individual management measures in Chapter IV.

Minnesota's 2001 Nonpoint Source Management [Section 319] Program

Minnesota is required to update its NPS/319 Plan approximately every five years. Minnesota's previous NPS/319 Plan was produced in 1994. During development of the 2001 NPS/319 Plan, it was stressed that the updated version should be viewed as Minnesota's statewide approach to address nonpoint source pollution, and not primarily as a requirement of 319 funding.

Chapters in Minnesota's 2001 NPS/319 Plan

Chapter 1. Updated Nonpoint Source Assessment {NPS/319 Plan}

The NPS Assessment is an ongoing NPS problem identification process, which was initiated in 1987 to meet the requirements of Section 319 of the Clean Water Act Amendments of 1987, as well as to evaluate the state's long-term assessment and planning needs. The first NPS Assessment Report was completed in 1988 and was designed as a companion document to the 1988 NPS Management Program. To ensure that the assessment information more directly drives the management program milestones, both documents were combined in the 1994 NPS/319 Plan.

The USEPA requires the NPS Assessment to use all available information to describe, on a watershed basis, the nature, causes, extent and effect of NPS pollutants on state waters. Specific requirements based on USEPA guidance for the Section 319 Program include the following:

- Identification of navigable waters within the state that, without additional action to control nonpoint sources of pollution, cannot reasonably be expected to obtain or maintain applicable water quality standards (WQS) or support their designated uses.
- Identification of categories and subcategories of nonpoint sources that add significant pollution in amounts that contribute to portions navigable waters not meeting WQS.

Chapter 2. Programs and Funding for Implementing Nonpoint Source Programs {NPS/319 Plan}

We are only just beginning to understand the enormity of the nonpoint source pollution problem. The diffuse nature of nonpoint source pollution makes it very expensive to abate. Insufficient funds are the most frequently noted barrier to implementing comprehensive management programs. Amassing enough money to deal with nonpoint-source pollution comprehensively even in one small area is a daunting task.

Water quality degradation from point sources has been largely remedied. This was accomplished, however, with substantial financial support over a long period of time. From 1972-1987, the federal government alone invested over \$50 billion to help local communities build secondary waste water treatment plants to meet requirements of the

Clean Water Act. In contrast, the total Section 319 appropriation for nonpoint source pollution for the past six federal fiscal years was \$805 million.

Chapter 3. Watershed Planning and Management Framework {NPS/319 Plan}

In Minnesota, water planning occurs on many different scales, from statewide plans to local plans. These major efforts include:

- Minnesota's 2001 Nonpoint Source Management Program Plan
- Minnesota State Water Plan 2000
- Development of basin plans for the 10 major drainage basins of the state
- Watershed planning efforts by groups representing major and minor watersheds
- County water plans
- Planning by watershed districts and watershed management organizations.

Though each level of planning has its purpose, significant workload issues at both the local and state levels can arise if local and state task force members and staff are expected to participate in these multiple water related planning efforts at the same time. In addition to the potential for the timeframes for many of these planning efforts to overlap, there is also some lack of understanding of the purpose of these planning efforts and how they all fit together.

Chapter 4. Overall Strategy for Each Water Resource {NPS/319 Plan}

Because of the interrelation between ground water, lakes, rivers, streams and wetlands, the strategies for each of these resources were included in the same chapter.

4.1 Ground Water Strategy

Ground water supplies drinking water to almost 100 percent of the rural population of Minnesota, and to 932 of 956 community water supply systems. Concerns over the impacts that land use and improper waste disposal practices have on ground water quality have resulted in broad based groundwater protection laws in Minnesota. The importance of potential ground water contamination through NPS activities is currently recognized in several Minnesota laws and programs (e.g., the 1989 Minnesota Ground Water Protection Act and the State Clean Water Partnership Program). Monitoring during the past two decades has indicated widespread contamination from improper management of nonpoint sources. For example, studies conducted by the Minnesota Department of Agriculture (MDA) and the Minnesota Department of Health (MDH) indicate that certain pesticides are present in Minnesota ground water, some in hydrogeologically sensitive areas. The MPCA and the MDA

concluded from examination of nitrate data from over 25,000 Minnesota wells that nitrate contamination of ground water is clearly a problem in many areas of Minnesota.

4.2 Lakes Strategy

Preserving Minnesota's nearly 14,000 lakes from nonpoint source pollution requires a balanced approach of protection and restoration, using a variety of management strategies in a structure that recognizes regional differences in lake ecology and land use. Restoring lakes with impaired uses or degraded water quality or habitat has been the major focus of management efforts in the past. This strategy identifies assessment and protection of unimpaired lakes as a higher priority. Management strategies include regulations, incentives, education, planning and acquisition.

4.3. Rivers and Streams Strategy

Streams and rivers integrate terrestrial conditions of the landscape with aquatic conditions. This interaction occurs in four processes:

1. Hydrological, relating to the movement of water
2. Geomorphic, relating to the action of water on the stream channel, riparian area and watershed
3. Chemical, relating to the cycling of materials from the land through the water
4. Biological, relating to the processes that support plant and animal life in the stream or river and its watershed.

To assure the health of streams and rivers, effective management strategies for nonpoint source pollution must recognize the interrelation of these processes. Emphasizing one or the other will alleviate a symptom but not remove the cause. This strategy will provide some guidance for managers seeking to improve understanding of how nonpoint source pollution arises and how it can be managed, and then present goals, milestones and action steps to manage nonpoint source pollution in Minnesota's streams and rivers for the next five years.

4.4 Wetlands Strategy

Note: This text is from the statewide 319 Plan. For information more specific to the Lake Superior Basin, see Section IV 6: Wetlands, Riparian Areas and Vegetated Treatment Systems, in this Coastal Nonpoint Program document.

Minnesota supports one of the richest wetland heritages in the lower 48 states. From the bogs and peatlands of the north, to the prairie potholes of the central and southern part of the state, wetlands are complex hydrologic systems with intrinsic values and functions. These wetland resources are recognized for their benefits and are worth maintaining. In addition to their valuable ecological functions, Minnesota wetlands provide utilitarian benefits such as improving and protecting the quality of surface and groundwater by retaining storm water and filtering pollutants. Intrinsically, wetlands also provide important recreational resources, essential habitat for many plants and animals, environmental learning opportunities and aesthetic open spaces.

Chapter 5. Monitoring {NPS/319 Plan}

Note: This text is from the statewide 319 Plan. For information more specific to the Lake Superior Basin, see Section III E: Monitoring, in this Coastal Nonpoint Program document.

Water monitoring provides the information necessary to determine whether the quality and quantity of our water resources are adequate for the many uses they serve. Water monitoring specific to nonpoint source pollution is necessary for determining what contaminants come from nonpoint sources, as well as evaluating the success of efforts used to manage those sources. This chapter reviews past and present monitoring and makes recommendations for future directions. The monitoring strategy is consistent with, “The Minnesota Water Monitoring Plan” prepared under the auspices of the Minnesota Environmental Quality Board in April 1992. Excerpts from that document have been included. The chapter differs from that document in that it focuses on monitoring activities with a direct relationship to be nonpoint source pollution management.

Chapter 6. Information and Education {NPS/319 Plan}

Investment in education must be considered an essential and integral part of every step in the 2001 NPS/319 Plan. Education cannot be viewed as a minor component but rather one of the many steps that must be taken to meet the plan’s goals. In almost

every other chapter of this management plan, education is recognized as an important means of reducing water pollution from nonpoint sources.

The information and education program recommended in this chapter/strategy includes community analysis, planning, instruction, promotion, evaluation and reporting. Over the years, most of the programs funded with Section 319(h) funds and state Clean Water Partnership (CWP) funds relied on voluntary participation. For the last 10 years, about 25 percent of the Section 319(h) projects had an educational emphasis. As the CWP program moves to a watershed approach, good information about the condition of waters and the health of aquatic systems on a watershed scale is absolutely critical. Mitigation measures will include education and pollution reduction incentives.

The role of information and education in Minnesota's 1994 nonpoint source strategy was to increase overall awareness and knowledge of nonpoint source pollution issues and move targeted groups toward action or behavior change.

The statewide nonpoint source information and education strategy was updated using information from ongoing and Phase 2 CWP projects and local county water planning. The purpose of the updated strategic planning effort was to establish specific educational requirements for the 2001 NPS/319 Plan. The idea that this strategy gets its direction from local nonpoint source educational needs is a powerful one. Local coalitions and participatory processes are vital to motivate local governments and citizens, and the recommended action steps laid out in this strategy focus on these concepts. It is much easier to build public consensus for action when people feel they are protecting a particular water resource, especially one near and dear to their hearts. Local educational activities should be planned with participants and partners whose mutual intent is achieving meaningful outcomes.

Chapter 7. Feedlots {NPS/319 Plan}

Note: This text is from the statewide 319 Plan. For information more specific to the Lake Superior Basin, see Section IV 1: Agriculture, in this Coastal Nonpoint Program document.

Animal manure, when properly used as fertilizer, is a useful resource. It contains valuable nutrients such as nitrogen, phosphorus and potassium. It can improve soil qualities, including aggregate stability, infiltration, water holding capacity, aeration, levels of organic matter and earthworm activity. However, animal manure improperly stored, handled, disposed of or allowed to leach or runoff to surface or ground waters, can create serious water pollution hazards. These hazards include excess nitrogen and

phosphorus, pathogens, hormones and trace metals. The impacts of this pollution can be felt locally, regionally and/or nationally, as in the issue of hypoxia in the Gulf of Mexico. A study prepared by the Minnesota Nitrogen Task Force (funded by the Minnesota State Legislature) has indicated that although Minnesota farmers are doing a good job of managing nutrients applied in commercial fertilizers, often inputs of nutrients from other sources such as manure are not credited accurately.

Nutrients in manure are useful on cropland, but can promote algae and weed growth in surface waters. Manure and runoff from animal confinement and manure storage areas may also contain substances that deplete oxygen in surface waters, materials such as ammonia that in high concentrations can be toxic to aquatic life, and disease-causing organisms. Manure solids and soils disturbed by animal traffic on open lots can increase sediment loadings in surface waters.

Ground water concerns include potential human and animal health effects from nitrates and pathogens. Potential pathways by which these pollutants enter ground water can include leaking earthen storage basins, improperly built drinking water wells, and recharge from polluted surface waters.

Chapter 8. Agricultural Erosion {NPS/319 Plan}

Note: This text is from the statewide 319 Plan. For information more specific to the Lake Superior Basin, see Section IV 1: Agriculture, in this Coastal Nonpoint Program document.

Soil is one of Minnesota's most valuable resources. Our fertile topsoil and skilled agricultural producers make Minnesota one of the outstanding crop producing regions in the world. As global population and agricultural markets increase, so does demand for the numerous products (e.g., food, clothing and shelter) that come from the soil. It is important that this demand be translated into careful conservation and management of soil and not merely into exploitation. Minnesota's soil resources must be maintained permanently, because future needs for productive soil will be even greater than those of the present.

Soil and water quality problems caused by agricultural land uses are now recognized by society as significant environmental concerns. Sediments from eroded cropland interfere with the use of waterbodies for transportation; threaten investments in dams, locks, reservoirs and other developments; and degrade aquatic ecosystems. Sediments contain nutrients that accelerate the eutrophication of lakes, streams and wetlands.

Compaction and declining levels of organic matter in the soil are other forms of soil degradation, which also may result in accelerated erosion and greater sedimentation.

Stormwater and snowmelt runoff from cropland and pastures carry sediment, nutrients, bacteria and organic contaminants into nearby lakes, streams and wetlands.

The U.S. Department of Agriculture indicates the primary source of pollution to those rivers and lakes of the nation that are affected by nonpoint sources is agriculture. Nationally, 64 percent of affected rivers and 57 percent of the affected lakes receive most of their pollution from agricultural sources. Sediments and nutrients combine for 60 percent and 81 percent, respectively, of the primary pollutant types in rivers and lakes. Sediment accounts for nearly one-half of all pollutant types in the nation's rivers, and over one-fifth of all pollutant types in lakes.

Chapter 9. Agricultural Nutrients {NPS/319 Plan}

Note: This text is from the statewide 319 Plan. For information more specific to the Lake Superior Basin, see Section IV 1: Agriculture, in this Coastal Nonpoint Program document.

Nitrogen and phosphorus are the primary nutrients posing the greatest environmental threat to Minnesota's surface and ground waters. Nitrogen effects on humans, domestic animals, and aquatic species have been summarized for Minnesota conditions. The principal human health concern associated with nitrate consumption (via drinking water or dietary intake) is methemoglobinemia or "blue baby" syndrome, a circulatory impairment affecting primarily infants. Eutrophication in surface waters can be rapidly accelerated by phosphorus and nitrogen enrichment. Resulting breakdown compounds from the decomposition of algae can pose health concerns in drinking water supplies.

Chapter 10. Agricultural Pesticides {NPS/319 Plan}

Note: This text is from the statewide 319 Plan. For information more specific to the Lake Superior Basin, see Section IV 1: Agriculture, in this Coastal Nonpoint Program document.

Finding the balance between the responsible use of pesticides and the protection of our water resources is an ongoing challenge. While certain areas of the state, including the central sand plains and the Karst regions of southeast Minnesota, are particularly vulnerable to ground water contamination, all of our surface and ground water

resources need to be protected from the potential risk of contamination by pesticides. By finding the balance, we will be able to continue using pesticides as a tool for protecting crops, shrubs, trees, lawns and gardens from pests.

Chapter 11. Urban Runoff {NPS/319 Plan}

Note: This text is from the statewide 319 Plan. For information more specific to the Lake Superior Basin, see Section IV 3: Urban/Rural Areas, in this Coastal Nonpoint Program document.

Many reports by the Center for Watershed Protection and others have summarized the impacts of urbanization on water resources. The two main issues can be summarized as quantity and quality. The USEPA, Metropolitan Council, U.S. Geological Survey (USGS) and MPCA, among many others, have documented these impacts. The latest USEPA 305(b) report for 1998 shows urban runoff as the third leading source of pollutants causing impairment of fresh waters, after agriculture and hydromodification.

Chapter 12. Forestry {NPS/319 Plan}

Note: This text is from the statewide 319 Plan. For information more specific to the Lake Superior Basin, see Section IV 2: Forestry, in this Coastal Nonpoint Program document.

Minnesota is blessed with vast acreages of forestland and an abundance of high quality water resources. Forest management activities are extensive in nature and often take place in close proximity or adjacent to water resources, or in wetland areas. Sustainable forest management is only possible when society's needs for forests are balanced against maintaining diverse, healthy forest ecosystems. Forest managers, landowners and operators must ensure that all forest management activities are accomplished in a manner that minimizes impacts to the environment and water quality.

Chapter 13. Mining {NPS/319 Plan}

Historically, iron ore mining created hundreds of mine pits, tailings basins, and stockpiles. Most pits have filled with water and although some pit walls are eroding, the general water quality in these abandoned pits is very good. Several cities use mine-pit water for drinking water, and some pits have been stocked with trout. Most old tailing and stockpile areas have revegetated naturally. Erosion is still a problem on a

few old surface overburden stockpiles, where it was stockpiled at the angle of repose and gullies have formed on the stockpiles.

Minnesota contains over seven million acres of peatlands, accounting for more than half of the known peat reserves in the lower 48 states.

Water quality concerns with most current mining operations in Minnesota are related to suspended solids and resulting turbidity and sedimentation in receiving waters. These problems are addressed by existing state programs. Site-specific issues that may need to be addressed in the future could include:

- Increased levels of total dissolved solids in wetlands and certain receiving waters.
- Discharge of water containing elevated concentrations of sulfate, which may impact the growth of wild rice and affect the rate of methyl mercury production.
- Releases of nitrate from fertilized areas and blasting residuals.
- Discharge of low-pH water and phosphorus from peat mining operations.
- The fate of reagents used in taconite processing.

Chapter 14. Land Treatment and Disposal {NPS/319 Plan}

Strategy 14.1, Individual Sewage Treatment Systems

According to the 1990 census, 492,000 (27 percent) of the housing units in Minnesota were served by individual sewage treatment systems (ISTS). This shows a 22 percent increase in the number of housing units served by an ISTS between the 1980 and 1990 censuses. The total number of housing units grew 13 percent in the same period. Assuming this same rate of growth from 1990 to 2000, the number of homes currently served by an ISTS could be about 600,000.

Ground water contamination is a concern from malfunctioning or inadequate ISTSs and older cesspools, seepage pits and dry wells. Surface water also can be affected by the discharge of contaminated ground water. Direct surface water contamination is a concern from systems discharging to agricultural drain tile, ditches or to the ground surface. These concerns are magnified in areas of higher population density.

Strategy 14.2, Land Application/Treatment of Biosolids, Industrial Byproducts, and Commercial Wastes

Land application/treatment of many types of wastes occurs in Minnesota. The primary categories of wastes that are land applied include the following:

- Animal wastes (manure and animal bedding)

- Biosolids (sewage sludge) generated from the processing of wastewater
- Septage generated by ISTS
- Commercial wastes from a variety of small businesses such as animal slaughtering operations (wash waters), vehicle repair and maintenance facilities (sand and flammable trap wastes) and restaurants (grease trap wastes).

Chapter 15. Effects of Atmospheric Pollution on Water Quality {NPS/319 Plan}

Pollutants in the upper atmosphere can be a significant source of pollution to surface water, particularly for acid rain, mercury, PCBs and nutrients such as nitrogen and phosphorus. It is sometimes assumed that pollutants in urban runoff are picked up by clean precipitation running off dirty surfaces. Yet the rain itself may already contain some pollutants.

In the case of urban runoff, impervious surfaces alone may create a nonpoint source pollution problem for surface water, even without considering other nonpoint sources in the watershed such as lawn care, pet feces and soil erosion.

VII

CONCLUSIONS

CHAPTER VII. CONCLUSIONS

This document focuses on nonpoint pollution in Minnesota's Lake Superior Basin. Chapter IV focuses on the six federally defined nonpoint pollution source categories and the 55 federally defined management measures, which are designed to control nonpoint pollution. Included is a thorough discussion of the authorities, policies and programs that Minnesota uses for controlling nonpoint pollution.

This document also presents a summary of current water quality monitoring programs, and water quality monitoring results, within the Lake Superior Basin. Except for elevated mercury levels, with substantial contributions coming from sources that lie outside the Lake Superior Basin, water quality within the basin is generally considered good. There are also some problems, as evidenced by waters listed as impaired on the state's 303(d) list, and the waters listed as "nonsupporting" or "partially supporting" on the state's 305(b) list. (See discussion in Chapter V: Additional Management Measures). Because of those existing water quality problems, Chapter V includes a preliminary discussion of a process that could be used for developing additional management measures, if needed.

Nonpoint source pollution is a serious concern in the Lake Superior Basin, as elsewhere. Because of Minnesota's concern about this problem, and its proactive approach to environmental protection, it is the State of Minnesota's position that sufficient enforceable authorities currently exist to protect the water resources of the state.

In addition to the numerous state statutes and rules cited in this document as specific to individual management measures, broad backup authority is provided by Minnesota's "antidegradation policy" (**Minn. Rules 7050.0185**), "public nuisance prohibition" (**Minn. Rules 7050.0210**), **MERA** (the **Minnesota Environmental Rights Act, M.S. 116B**) and **MEPA** (the **Minnesota Environmental Policy Act, M.S. 116D**). Details are summarized below:

Minn. Rules 7050.0185, Nondegradation for All Waters. Subp. 1. Policy. ...It is the policy of the state of Minnesota to protect all waters from significant degradation from point and nonpoint sources and wetland alterations, and to maintain existing water uses, aquatic and wetland habitats, and the level of water quality necessary to protect these uses.

Minn. Rules 7050.0210, General Standards for Dischargers to Waters of the State. Subp. 2. Nuisance conditions prohibited. No sewage, industrial waste or other

wastes shall be discharged from either point or nonpoint sources into any waters of the state so as to cause any nuisance conditions, such as the presence of significant amounts of floating solids, scum, visible oil film, excessive suspended solids, material discoloration, obnoxious odors, gas ebullition, deleterious sludge deposits, undesirable slimes or fungus growths, aquatic habitat degradation, excessive growths of aquatic plants or other offensive or harmful effects.

Minnesota Environmental Rights Act (MERA): M.S. 116B.03 Civil actions.

Subd. 1. Any person residing within the state, the attorney general, any political subdivision of the state, any instrumentality or agency of the state or of a political subdivision thereof; or any partnership, corporation, association, organization, or other entity having shareholders, members, partners or employees residing within the state may maintain a civil action in the district court for declaratory or equitable relief in the name of the State of Minnesota against any person, for the protection of the air, water, land or other natural resources located within the state, whether publicly or privately owned, from pollution, impairment or destruction....

Minnesota Environmental Policy Act (MEPA): M.S. 116D.04-.045, Subd. 6, regarding permitting and approval decisions, relates to significant environmental impacts disclosed through the Environmental Review Program. No state action can be allowed or permitted if it is likely to cause pollution, impairment or destruction of the air, water, land or other natural resources if there is a prudent and feasible alternative. Economic considerations alone cannot be used to justify a decision.

In addition, in **Minn. Rules 7052**, Minnesota recently bestowed special protective designations upon Lake Superior and its tributaries in recognition of their outstanding value and water quality. The lake has been designated an Outstanding Resource Value Water, while its tributaries have been designated as Outstanding International Resource Waters. Minnesota's "antidegradation policy" is designed to ensure that the lake and its tributaries stay that way. "Outstanding Resource Value Waters" are defined as "...Lake Superior...and other waters of the state with high water quality, wilderness characteristics, unique scientific or ecological significance, exceptional recreational value or other special qualities which warrant stringent protection from pollution" (**Minn. Rules 7050**).

The State of Minnesota is submitting its Coastal Nonpoint Pollution Control Program, and this document that describes it, to NOAA and USEPA. The State of Minnesota is requesting federal approval of its Lake Superior Coastal Nonpoint Pollution Control Program. With this submittal, the state's program emphasis will shift to implementation. The DNR, MPCA, BWSR and other partners will continue collaborating on the implementation of Minnesota's management measures for

controlling nonpoint source pollution. Identifying and working on additional implementation activities will also be important.

The goal of developing, submitting and implementing Minnesota's Lake Superior Coastal Nonpoint Pollution Control Program is help to restore and protect the water quality of Lake Superior and its tributaries, which are among Minnesota's most outstanding natural resources and most prized assets.

APPENDICES

APPENDIX A

ACRONYMS

APPENDIX A: ACRONYMS

AF&PA	American Forest & Paper Association
ALUS	Aquatic Life Use Support
AOC	Area of Concern
ARDC	Arrowhead Regional Development Commission
AWQT	Arrowhead Water Quality Team
BMP(s)	Best Management Practice(s)
BMP/BMPs	Best Management Practice(s)
BOD	Biochemical Oxygen Demand
BWCAW	Boundary Waters Canoe Area Wilderness
BWSR	Board of Water and Soil Resources [Minnesota]
CAC	Citizens Advisory Committee [North Shore Management Board]; also Citizens Action Committee [St. Louis River CAC]
CAFO	Concentrated Animal Feeding Operation
chl-a	Chlorophyll-a
CMA	Calcium Magnesium Acetate
C.M.S.	Conservation Management System
CNP	Coastal Nonpoint Program [Minnesota]
CNPCP	Coastal Nonpoint Source Pollution Control Program
CO, COs	DNR Conservation Officer(s)
CoWProMP	Comprehensive Wetland Protection and Management Plan
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
CSAH	County State Aid Highway
CVA	Clean Vessel Act [federal]
CWA	Clean Water Act
CWAP	Clean Water Action Plan
CWP	Clean Water Partnership
CZARA	Coastal Zone Act Reauthorization Amendments of 1990
CZMA	Coastal Zone Management Act
DNR	Department of Natural Resources [Minnesota]
EAW	Environmental Assessment Worksheet
EHA	Erosion Hazard Area
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency [U.S.]
EQB	Environmental Quality Board [Minnesota]
EQIP	Environmental Quality Incentives Program
ER	Environmental Review
FANMAP	Farm Nutrient Management Assessment Program

FERC	Federal Energy Regulatory Commission
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
GAP	Gap Analysis Program
GEIS	Generic Environmental Impact Statement
GIS	Geographic Information System
GLI	Great Lakes (Water Quality) Initiative
GLNPO	Great Lakes National Program Office
GPD	Gallons per Day
IBI	Index of Biological Integrity
IIC	Interagency Information Cooperative
IPM	Integrated Pest Management
ISTS	Individual Sewage Treatment Systems [state terminology]
IUP	Intended Use Plan
IWG	Interagency Wetland Group
LaMP	Lakewide Management Plan
LAP	Lake Assessment Program
LARS	Local Government Annual Reporting System
LCMR	Legislative Commission on Minnesota Resources
LGU	Local Government Units, Local Units of Government
ln	Natural logarithm
M.S.	Minnesota Statutes
MARPOL	<u>Marine Pollution</u> [International Convention for the Prevention of Pollution from Ships]
MDA	Minnesota Department of Agriculture
MDH	Minnesota Department of Health
MDNR	Minnesota Department of Natural Resources
MECA	Minnesota Erosion Control Association
MED	Mid-continent Ecology Division (USEPA)
MEPA	Minnesota Environmental Policy Act
MERA	Minnesota Environmental Rights Act
MES	Minnesota Extension Service
MFCA	Minnesota Fish Consumption Advisory
MFRC	Minnesota Forest Resources Council
ml	Milliliter(s)
MFI	Minnesota Forest Industries
MLEP	Minnesota Logger Education Program
MLSCP	Minnesota's Lake Superior Coastal Program
MLSCP-FEIS	MLSCP Final Environmental Impact Statement
MnDOT	Minnesota Department of Transportation
MOA	Memorandum of Agreement

MOU	Memorandum of Understanding
MPCA	Minnesota Pollution Control Agency
MSD, MSDs	Marine Sanitation Device(s)
MWCP	Minnesota Wetland Conservation Plan
n	Number
NEMO	Nonpoint Education for Municipal Officials
NIPF	Nonindustrial Private Forest Lands
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source Pollution
NRCS	Natural Resources Conservation Service
NRRI	Natural Resources Research Institute [University of Minnesota]
NS	Not Supporting; nonsupporting
NSHP	North Shore Harbor Plan
NSMB	North Shore Management Board
NSMP	North Shore Management Plan
NWI	National Wetlands Inventory
OEA	Office of Environmental Assistance
OHWL	Ordinary High Water Level
OSDS	Onsite Disposal Systems [federal terminology]
PCA	Pollution Control Agency [Minnesota]
PCBs	Polychlorinated biphenyls
PCT	Project Coordination Team
PFA	Public Facilities Authority
PIC	Planning Information Center
PFM	Private Forest Management
PS	Partially Supporting
RAP	Remedial Action Plan
RGU	Responsible Government Unit
RIM	Reinvest in Minnesota Program
RMZ(s)	Riparian Management Zone(s) [state terminology]
S	Fully Supporting
SD	Secchi Disk (transparency)
SDS	State Disposal System
SEEK	Sharing Environmental Education Knowledge
SFI	Sustainable Forestry Initiative
SFRMP	Subsection Forest Resource Management Plan
SIC	Standard Industrial Classification
SIZ	Shoreland Impact Zone
SLR Program	Streambank, Lakeshore and Roadside Program [BWSR]
SMA(s)	Streamside Management Area(s) [federal terminology]

SNN	Shipstead-Newton-Nolan Law
SRF	State Revolving Fund [loan program]
STORET	Water quality data <u>storage</u> and <u>retrieval</u> system [USEPA]
SWCD, SWCDs	Soil and Water Conservation District(s)
TEP	Technical Evaluation Panel
TMDL(s)	Total Maximum Daily Load(s)
TMP	Timber Management Plan
TP	Total Phosphorus
TSI	Carlson's Trophic State Index
TSS	Total Suspended Solids
ug/L	Micrograms per liter
USCG–MSO	U.S. Coast Guard – Marine Safety Office
USCOE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	Underground Storage Tank
WCA	Wetland Conservation Act [Minnesota]
WHIP	Wildlife Habitat Improvement Program
WLSSD	Western Lake Superior Sanitary District
WQ Standards	Water Quality Standards
WQS	Water Quality Standards
WRPR	Water Resource Protection Requirements

APPENDIX B

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APPENDIX B: REFERENCES

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APPENDIX C

COMMENTS FROM 1996 CONSULTATION REPORT

APPENDIX C: COMMENTS FROM 1996 CONSULTATION REPORT

- Column A contains 1996 federal comments to a state document entitled: *State of Minnesota, Nonpoint Source Pollution, Existing Controls and Programs, Lake Superior Watershed Report*. (MDNR, 1995).
- Column B contains location(s) where each comment or issue is addressed in the current (2001) document.

Comment(s) from the 1996 Federal Consultation Report [<i>Emphasis Added</i>]	Location
<p>General 1: For future program review, it may be helpful to include a section that provides a general description of the programs that Minnesota sees as the primary tools for implementing the coastal nonpoint program. For example, the North Shore Management Plan and St. Louis River Management Plan include a number of useful tools which could be described generally in the beginning of the document, and then simply referenced under the appropriate heading for each management measure.</p>	<p>II B II D</p>
<p>General 2: As part of the attachments for the summary document, Minnesota included a document entitled “A Guide to Land and Water Resource Management Programs in Minnesota.” Included in this document is a table of programs and laws that includes a heading for the (lead) Agency Name, Program, Authority, Funding and Program Delivery. This summary table is extremely useful and could be slightly revised to summarize programs for each of the management measures and the state programs and authorities that will be used to implement them.</p>	<p>II D Tables 4-9</p>
<p>General 3: Geographic Boundary: The state proposed to exclude the counties of Itasca and Aitkin, which represent approximately 2.5% of the total land area of the Lake Superior watershed. The Minnesota review document includes a map of the NOAA recommended management area (showing the coastal watershed boundary), but the map does not include county boundaries. It would be helpful to include an overlay of the county boundaries on the watershed map in order to see the relative geographic extent and proportion of the proposed boundary modification. It would also help to include other logical overlays such as land use, land ownership (state, federal, local, private), and the North Shore Management Area.</p>	<p>III A Fig. 2 (counties) Figures 3-5 (NSMP) Fig. 9 (ownership)</p>
<p>General 4: Programmatic Boundary: In many cases, Minnesota’s existing programs tend to focus on buffer or fringe areas such as those covered by the Shoreland Management Act. In considering the geographic scope of the coastal nonpoint program, Minnesota should look at programs that apply throughout the state’s proposed management area to ensure that all significant sources are addressed, even where they may not be directly adjacent</p>	<p>II B VI</p>

Comment(s) from the 1996 Federal Consultation Report [Emphasis Added]	Location
to water bodies.	
Agriculture 1: General: ...there are approximately 399,000 acres of farmland in the four coastal counties (Cook, Lake, St. Louis and Carlton) that drain to Lake Superior, including a total of 128 dairy farms (1994). While these numbers have been declining over recent years, it is difficult to determine the significance of the source without more extensive evaluation. Minnesota may wish to further evaluate information on the geographic distribution of agricultural sources within the Lake Superior drainage, the extent to which the agricultural operations meet the applicability thresholds for each of the management measures, and information on water quality impacts from agriculture.	IV 1 Intro. Fig. 6
Agriculture 2: General: Alternatively, the state's existing agricultural programs, including technical and financial assistance, may provide the means by which to demonstrate that agricultural sources can be addressed as part of the coastal nonpoint program.	IV 1
Agriculture 3: General: In order to demonstrate that the state's existing programs meet coastal nonpoint program approval requirements, Minnesota will need to include back-up enforceable policies and mechanisms for the agriculture source category. The state should also include technical guidance that is used for nutrient management planning and any other technical guidance which supports agricultural programs in Minnesota.	IV 1-c D
Agriculture 4: General: Additional information is needed as to how the state Shoreland Management Act (MN Rules, Part 6120.3300, Subpart 7) is used to implement the agricultural management measures and what kind of protection exists outside the Shoreland areas. Buffer area requirements under the Shoreland rules do not prevent cattle from using buffer areas and adjacent water bodies. Has the [Shoreland] Management Act been successful in ensuring that agricultural operations are conducted in accordance with agricultural management measures?	IV 1-a D 3
Agriculture 5: General: Section 103F.415 of the Minnesota Water Law includes a provision that a land occupier of agricultural land is not violating subdivision 1 (which requires certain technical conformity) if farming by methods that implement "best practicable conservation practices." This seems to provide a possible basis for "bad actor" authority for local jurisdictions in administering local erosion ordinances. Have any local jurisdictions (through Soil and Water Conservation Districts) used this to require certain types of "best practicable conservation practices", e.g., practices in conformity with Field Office Technical Guide or other manuals of practice? Might some procedure such as this be developed if it hasn't been to date?	IV 1-a C IV 1-a D
Agriculture 6: General: At the consultation, it was mentioned that Minnesota is in the very early stages of developing an audit process to evaluate the extent of agricultural management practices in the state. This audit process should provide useful information in documenting the ability of existing state programs to ensure widespread implementation of the agricultural management measures.	IV 1-a E IV 1-b E IV 1-c E IV 1-d E 2

Comment(s) from the 1996 Federal Consultation Report [Emphasis Added]	Location
Agriculture 7: Erosion and Sediment Control: Minnesota indicated that there have been whole farm plans developed for a limited number of farms in the coastal watershed. Information on the types of activities addressed by these plans and any potential for further development of these plans would be helpful.	IV 1-a C IV 1-b C IV 1-c C IV 1-d C 2-3
Agriculture 8: Erosion and Sediment Control: At the consultation, the state indicated that Carlton County is exploring a county-level soil loss ordinance . As development of this ordinance proceeds, the state may wish to consider further discussions with other counties on the potential benefits of such an ordinance, particularly where Carlton County may be able to show some early successes.	IV 1-a
Agriculture 9: Confined Animal Facilities (Large and Small): Minnesota indicates that any operation with 10 or more head of livestock triggers M.S. Chapter 7020, which governs feedlots. Based on the discussions at the meeting and a review of the law, it is unclear how this requirement addresses small operations. Additional discussion of the cost-share program combined with the potential back-up authority provided by Chapter 7020 would be helpful in further program review documents.	IV 1-b B IV 1-b D 3
Agriculture 10: Nutrient Management: Nutrient management in Minnesota appears to be addressed in part through chemigation permits, sale and distribution permits, the state Shoreland Management Act, and the state Groundwater Protection Law, as well as Nitrogen Fertilizer Best Management Practices and other assistance programs. Minnesota does not appear to have a program whereby agricultural operations develop a nutrient management plan to incorporate elements of the management measure.	IV 1 Intro. IV 1-c C
Agriculture 11: Pesticide Management: The pesticide management measure appears to be generally addressed by several laws and programs including the state Pesticide Control Law (M.S. 18B, 18C, 18D), an Integrated Pest Management provision (M.S. 17.114), chemigation permits, licenses and certifications for applicators of restricted use pesticides, the state Shoreland Management Act, and education and technical assistance programs. The Department of Agriculture is responsible for the development and adoption of BMPs (M.S. 103H.151) but no BMP manual was presented with this review package. Minnesota appears to have strong back-up authorities but does not appear to have specific programs to implement all the elements of this management measure. In its final submittal, Minnesota needs to describe all the elements of this management measure.	IV 1-d
Agriculture 12: Grazing Management: Minnesota appears to have back-up authority to enforce water quality violations due to grazing or concentrated feeding activities. As mentioned in the general comments, buffer area requirements under the Shoreland rules do not prohibit cattle from using buffer areas and adjacent water bodies but allows for action if the permanent vegetative cover is destroyed within the shore impact zone. Except for certain protected trout streams and an ordinance in St. Louis County, there do not appear to be specific programs which protect waters from erosion and	IV 1-a D 3

Comment(s) from the 1996 Federal Consultation Report [Emphasis Added]	Location
sedimentation from physical disturbance and direct loading of animal waste.	
Agriculture 13: Irrigation Water Management: The extent of irrigation in Minnesota is not clear. Although it may not represent a significant source in Minnesota, there was not a specific proposal to exclude this management measure in the Existing Controls and Programs Report. Minnesota may wish to further evaluate the extent of irrigation in the state, particularly within the Lake Superior drainage.	IV 1-f B
Forestry 1: General: Minnesota's existing forestry program addresses these management measures primarily through voluntary efforts, including technical assistance and education. Minnesota documents an 84% compliance rate with BMP recommendations, which is supported by "Best Management Practices for Water Quality Evaluating BMP Compliance on Forest Lands in Minnesota: A Three-Year Study." This high compliance rate and the extensive list of BMPs described in Minnesota's Forestry BMP guidebook are to be commended.	IV 2 Intro.
Forestry 2: General: The forestry community has recently completed the fourth year of field audits. The audit process was revised to incorporate changes to BMPs which are included in the revised BMP guidebook (1995). This includes a more thorough evaluation of impacts to non-open water wetlands. EPA and NOAA urge the state to continue its iterative program of post-harvest audits with successive-year training and technical assistance targeted to problems and geographic areas identified in the audits.	IV 2 Intro.
Forestry 3: General: Discussion at the consultation focused on what kinds of authorities the state might look to as an enforceable back-up for the existing program. The Minnesota legislature enacted the 1995 Minnesota Sustainable Forest Resources Act (MSFRA) which provides a comprehensive strategy for sustaining Minnesota's forest resources. The MSFRA relies on voluntary compliance with guidelines and BMPs. The Forest Resources Council developed under the MSFRA will develop and administer a negligent timber harvesting or forest management practice referral process. Depending on how this referral process is structured and/or integrated with existing authorities, this may provide a back-up authority in cases where a landowner fails to implement appropriate practices. Other authorities the state may wish to further evaluate include the Shoreland Management Act or the authority exercised by conservation officers and other state officials under M.S. Chapter 115.071, who may take certain actions necessary to ensure compliance.	IV 2 Intro.
Forestry 4: Preharvest Planning: Throughout the Forestry BMP guidebook, planning is highly recommended. The Department of Forestry (DOF) undertakes preharvest planning through the Timber Management Planning Information System. Timber sale contracts can specify that BMPs are to be followed. On private industry land or for cuts under permit, loggers comply with the cutting plan, which may also contain BMPs in their standard operating procedure. Assistance can be obtained from state and federal agencies to private	IV 2-a

Comment(s) from the 1996 Federal Consultation Report [Emphasis Added]	Location
landowners for installation of conservation practices or land retirement. Enforceable policies include requirements for permits for working in the beds of public waters and public water wetlands (M.S. 103G), local zoning (voluntary compliance and the St. Louis Management Plan and the North Shore Management Plan), and direct statutory requirements (the Forest Management act of 1982, M.S. 89).	
Forestry 5: Preharvest Planning: At the present time there is no “intent to harvest” notification required in Minnesota. However, the concerns raised with stream crossings and SMAs may be partly addressed through the process of obtaining a public waters permit.	IV 2-a
Forestry 6: Streamside Management Areas: The 1995 Forestry BMP guidebook appears to address this measure. The revised Forestry BMP guidebook recommends widths for filter strips of from 50-150 feet.	IV 2-b
Forestry 7: Road Construction/Reconstruction: The Forestry BMP guidebook addresses many road construction/reconstruction issues including planning considerations, drainage structures, soil protection, surfacing, excavation, and clearing. The recommendations in the BMP guidebook are applicable to all water bodies. The state regulates stream crossings pursuant to M.S. 103G. Also, road construction and management is given substantial time in logger training and field audits.	IV 2-c
Forestry 8: Road Management: The Forestry BMP guidebook addresses this measure for both active and inactive roads. It includes practices such as dust abatement, stream crossing, debris clean-up, and avoidance during wet weather. Minnesota evaluates compliance with BMPs for road construction and management through the field audit process.	IV 2-d
Forestry 9: Timber Harvesting: The Forestry BMP guidebook appears to address this measure. It encourages planning and makes recommendations for harvest follow-up activities. M.S. 103G is listed as an enforceable policy to ensure implementation.	IV 2-e
Forestry 10: Site Preparation and Forest Regeneration: The Forestry BMP guidebook provides recommended site preparation practices and planning considerations.	IV 2-f
Forestry 11: Fire Management: Although prescribed burning is not used extensively in Minnesota, the Forestry BMP guidebook provides recommended practices for prescribed burning (including ways to minimize sedimentation and erosion) and encourages planning. The state appears to provide technical assistance in this area and also requires a permit to conduct burning activities.	IV 2-g
Forestry 12: Revegetation of Disturbed Areas: There is no specific section of the Forestry BMP guidebook for revegetation for disturbed areas, however it is mentioned in the related areas (e.g., soil protection under the section on forest roads). Enforceable policies listed include permitting (DNR Protected Waters Permit), local zoning, and the state Forest Management Act of 1982. In its final submittal, the state should specify where revegetation is fully provided for under the several acts or rules which address forestry under different	IV 2-h

Comment(s) from the 1996 Federal Consultation Report [Emphasis Added]	Location
circumstances.	
Forestry 13: Forest Chemical Management: Pesticide use appears to be addressed in the Forestry BMP guidebook through planning, the use of IPM, licensing and proper application, pesticide selection, spill contingency plans, and disposal. The state provides public information and education as well as technical assistance. Enforceable policies include permitting, local zoning, and direct statutory requirements. It appears that the state addresses the elements of this management measure.	IV 2-i
Forestry 14: Wetlands Forest: Wetland BMPs are incorporated in the revised Forestry BMP guidebook. The wetland BMPs are also included and evaluated in the field audits for 1995. The state provides information and education as well as technical assistance. Enforceable policies and mechanisms include local zoning and direct statutory requirements.	IV 2-j
Urban 1: There appear to be a number of laws and programs that could be used to address the Urban management measures. It would be helpful to understand where these programs occur geographically.	Figures 2-5
Urban 2: New Development: Local zoning codes, especially local permit application requirements under Chapter 46,11, provide a means to address new development but more information is needed on evaluation criteria and guidelines followed for preparation. For example, it would be helpful to know the specific standards for runoff control that are required.	IV 3-a D
Urban 3: New Development: M.S. Chapter 103B requires that local governments provide retention for all new developments that create greater than one acre of impervious surface. It would be helpful to see the design standards or technical guidelines that are used to design facilities for these developments. Similarly, while MN Rules, Part 6120.3300, Subpart 11 requires that stormwater management considerations be incorporated into all reviews and permits under the Shoreland Management Act, it is unclear what these requirements include (in practice) and whether they apply in a limited geographic area.	IV 3-a D 3
Urban 4: Watershed Protection: It appears that Minnesota has a number of elements of a good watershed protection program, with implementation by local units of government, partnerships for funding, technical and administrative assistance, and assistance in developing comprehensive watershed plans. The Minnesota review document focused on authorities under 103G and 103E, the Shoreland Management Act and River Planning efforts. There was little discussion of the provisions of 103B and the establishment of watershed districts and development of local water plans.	IV 3-a D 2
Urban 5: Watershed Protection: The watershed management measure is intended to address management at the watershed scale – therefore programs which address watershed management should be included in the final program. Is there an opportunity to use the development of watershed management plans or local water plans to meet the Watershed Protection	IV 3-b C 3 IV 3-b F

Comment(s) from the 1996 Federal Consultation Report <i>[Emphasis Added]</i> management measure?	Location
Urban 6: Site Development: It appears that a number of the components of the site development management measure are addressed under the Shoreland Management Act and the DNR protected waters program. The coverage question is more serious for this management measure due to the geographic limits of the programs cited. What is the geographic extent of each of these rules or programs? Have local governments along Lake Superior typically adopted site planning requirements that apply throughout their jurisdiction or only within the designated shoreland?	IV 3-b E 1 IV 3-c D 2 IV 3-c D 3
Urban 7: Construction Site Erosion and Sediment Control: The Minnesota review document identifies a number of enforceable policies that might be used to ensure implementation of this management measure but the coverage of these authorities is not clear for the North Shore Management Plan, local land use ordinances, and DNR Protected Water Permits. Also, it is not clear how these programs address construction site erosion control for road projects. Minnesota does not specifically require a plan for erosion control prior to land disturbance but may have other requirements that could be used to address this measure.	IV 3-d D
Urban 8: Construction Site Chemical Control: More specific analysis of the applicable laws and examples of application would be helpful to fully understand how the state addresses this management measure. For larger projects associated with road construction, the cleaning of concrete and asphalt equipment, disposal of uncured concrete and asphalt, and nutrients for new seeding become more significant potential sources of pollution. How are these aspects addressed?	IV 3-e C
Urban 9: Existing Development: Buffer zone identifications and prioritized green space support the implementation of this management measure, especially if widely used within the 6217 management area. The partnerships formed between the state and local units of government to develop strategies are an excellent way to implement this management measure.	IV 3-f
Urban 10: OSDS - New and Existing: It appears that the elements for new OSDS are generally addressed. Cook, Lake, and St. Louis counties have adopted provisions that follow Chapter 7080. Each county has delegated the authority to local governments. The revisions to Chapter 7080 should improve the management of OSDS by requiring adoption of 7080 by 1996 by units of government with existing ordinances. It appears that all counties within the proposed 6217 management area have such ordinances. The Individual Sewage Treatment System Act of 1994 may include some tools that can be used to address existing OSDS. Further description of these provisions in a future program submittal would be helpful.	IV 3-g
Urban 11: Pollution Prevention: Fact sheets appear to provide the right kind of information to conform to this measure. The Shoreland BMP fact sheets address hazardous household products but not recycling .	IV 3-i
Urban 12: Roads, Highways, and Bridges - Planning, Siting, and Developing:	IV 3-j

Comment(s) from the 1996 Federal Consultation Report [Emphasis Added]	Location
Siting and design and protective aspects appear to be addressed for the roads, highways, and bridges management measures, but it is not clear if bridges and construction projects are covered under terms of the Minnesota Construction General Permit for long-term stormwater control. The use of local Soil and Water Conservation District (SWCD) field guides may address certain elements of the management measure in the Shoreland Management Act areas. Are these field guides used for roads, highways, and bridges in other portions of the 6217 management area?	
Urban 13: Bridges: Siting and design aspects appear to be addressed but reliance on NPDES Permits for long-term stormwater control depends on the terms of the Minnesota Construction General Permit.	IV 3-k
Urban 14: Construction Projects: See comments for construction site chemical control for construction activities above. [Urban: 8].	IV 3-l
Urban 15: Operation and Maintenance: The management measure appears to be met appropriately. Minnesota has a number of regulatory and non-regulatory programs which incorporate many of the practices listed in the management measure guidance.	IV 3-n
Urban 16: Road, Highway and Bridge Runoff (Management) Systems: The “appropriate road authority” for existing roads, highways, and bridges may not be the same as for siting, design, and construction. The programs described in the Operation & Maintenance measure above include inspections and maintenance. If the road authority in charge also looks for opportunities to improve runoff routing and controls, and these improvements are prioritized in a schedule, this would represent an appropriate runoff management system.	IV 3-o
Marinas 1: Siting and Design: The state follows a combination of non-regulatory and enforcement policies to implement requirements for new and expanding marina developments within the state. Minnesota has state and local policies in place to assure protection of the Lake Superior shoreline. The state appears to generally meet most of the management measures for marinas.	IV 4
Marinas 2: Siting and Design: Siting and Design measures are generally addressed by Minnesota laws. The DNR requires permits generally for marinas including filling, excavation, and structure placement in protected waters under MN Rules, Part 6115.001 - 6115.0211 and M.S. 103G. Protected waters are defined as those waters of the state identified as public waters or wetlands under Minnesota Statutes, section 105.37 or 105.391.	IV 4 1
Marinas 3: Siting and Design: Certain marina construction and expansion design measures do not appear to be required by existing law or application review, such as hull maintenance areas, protection for fuel spills in the water from fueling stations, and adequate sewage facilities. For the final program, these measures must be addressed or a justification provided for exclusion.	IV 4 1
Marinas 4: Siting and Design: It would be helpful to have a description of the	IV 4 1

Comment(s) from the 1996 Federal Consultation Report <i>[Emphasis Added]</i>	Location
<p>process by which siting and design elements of a new or expanding marina/harbor application are reviewed at the state level. Are there state review criteria other than those listed in the North Shore Harbors Plan?</p>	
<p>Marinas 5: Marina and Boat Operation and Maintenance: While there appear to be adequate back-up laws (for example, M.S. Chapter 115.03), it is not clear how some of the laws specifically address certain management measures. These measures include Solid Waste, Fish Waste, Petroleum Control and Boat Cleaning. It is stated that the discharge of Solid Waste and Fish Waste is prohibited but there is no specific law or rule cited. Similarly, for Petroleum Control and Boat Cleaning the discharge of wastes is prohibited but there does not appear to be a program directed specifically at the reduction of petroleum wastes from boats or cleaning agents from boat cleaning. For the final program, these measures should also be addressed.</p>	<p>IV 4 2 IV 4-i IV 4-k IV 4-l</p>
<p>Hydromodification 1: General: The state appears to have many existing authorities and mechanisms that can be used to address the Hydromodification management measures.</p>	<p>IV 5 Intro.</p>
<p>Hydromodification 2: General: The state’s laws and programs that are described for the channelization management, and for the dam management measure for chemical and pollutant loading, appear to address these management measures.</p>	<p>IV 5 1 IV 5-d</p>
<p>Hydromodification 3: General: For the other hydromodification management measures [Dams: Erosion and Sediment Control; Dams: Protection of Surface Water Quality and Instream and Riparian Habitat; and Streambank and Shoreline Erosion], additional information is needed to understand more fully how the state will ensure implementation.</p>	<p>IV 5-c IV 5-e IV 5 3</p>
<p>Hydromodification 4: General: NOAA and EPA have some concerns with the state’s proposed reliance on the Clean Water Act (CWA) 401 and 404 programs and request that the state provide further clarification of how CWA section 401 and 404 could serve as a component of the state’s 6217 program. It is important, however, even in cases where conditional approval is sought, to distinguish the underlying state policies or authorities from the federal certification and permitting mechanisms. CWA section 401, by its own terms, applies only to federally-licensed or permitted projects. Furthermore, CWA section 404, by its terms, applies only to the review and authorization of federally licensed or permitted projects involving the removal or disposal of fill material in waters of the U.S., including wetlands. Whether the CWA section 401 certification process, or CWA section 404 permit process can be used to implement management measures depends on the state water quality standards, other applicable requirements of state law on which the 401 certifications and 404 permits are based, the state’s ability to monitor and enforce against federal permittees who violate the permit conditions, and the availability of state authorities which address non-federally permitted or licensed projects. This applies to the Channelization and the Dams</p>	<p>Hydro: IV 5 Intro. IV 5 1 IV 5 2 Wetlands: IV 6-a</p>

Comment(s) from the 1996 Federal Consultation Report [Emphasis Added]	Location
management measures and to the wetlands and riparian area protection measure in the wetlands section which follows.	
Hydromodification 5: General: The use of local zoning ordinances, under authority of M.S. Chapter 103F, could serve as a component of the state’s 6217 program. It is important, however, to distinguish the underlying state policies or authorities from the mechanisms implemented at a local level. Whether local zoning ordinances can be used to enforce a particular state policy, and thus ensure implementation of a particular management measure, depends on the applicable requirements of state law on which the zoning ordinances are based, as well as on the state’s ability to monitor and enforce against permittees who violate zoning conditions. EPA and NOAA would like the state to provide additional information on how the management measures will be implemented through the authority of M.S. chapter 103F, which covers local zoning ordinances.	IV 5 Intro.
Hydromodification 6: Channelization and Channel Modification: The state’s Protected Waters Permit rules pertaining to channelization projects require the use of models and/or methodologies to evaluate the effects of proposed channelization and channel modification projects on the physical and chemical characteristics of surface waters. This would appear to be an appropriate state enforceable mechanism to ensure implementation of portions of the management measures for Channelization.	IV 5 1
Hydromodification 7: Channelization and Channel Modification: How are proposed channelization and channel modification projects evaluated for their effects on instream and riparian habitat?	IV 5 1
Hydromodification 8: Dams - Erosion and Sediment Control: The state’s main approach is to evaluate applications for Protected Waters Permits for new work. In addition, the state plans to use the Construction and Stormwater Management Permit (required under MN Rules Chapter 7001) for projects impacting more than five acres, and M.S. 103B Guidelines for any project creating more than one acre of impervious surface to implement the management measure.	IV 5-c
Hydromodification 9: Dams - Chemical and Pollutant Control: MPCA Rules Chapter 7100 require development and implementation of a spill prevention and control plan. Agencies, contractors, and other commercial entities associated with a dam construction project must have a spill response plan. DNR permit special provisions and rules for dam safety require the use of prudent engineering practices to prevent spills and pollution. MPCA Rules Chapter 7100 require the establishment of fuel and vehicle maintenance staging areas located away from surface waters and all drainage leading to surface waters. These areas must be designed to control runoff. In addition, construction materials, refuse, debris, oil, industrial chemicals, and topsoil must be stored, covered, and isolated to prevent runoff of pollutants and contamination of ground water. MPCA rules and DNR Dam Safety rules limit application, generation, and migration of toxic substances, ensure proper storage and disposal of toxic materials, and application of nutrients at rates necessary to	IV 5-d

Comment(s) from the 1996 Federal Consultation Report [Emphasis Added]	Location
establish and maintain vegetation without causing significant nutrient runoff to surface waters.	
Hydromodification 10: Dams - Protection of Surface Water Quality and Instream and Riparian Habitat: The state's main approach is to evaluate permit applications for the construction of new dams, which includes evaluation of probable environmental impacts to future development downstream or upstream. However, the main emphasis of the enforceable mechanisms seems to be on the engineering integrity of the structures and on safety of operation of the facilities. It is not clear from the information provided in the Minnesota review submittal that the operations activities of existing dams that affect surface water quality and habitat are addressed through the regulations in a way that implements the management measure.	IV 5-e
Hydromodification 11: Streambank and Shoreline Erosion: The state's main approach is to evaluate permit applications for new work that is proposed along shorelines/streambanks. The Minnesota Protected Waters Permit Program, the CWA section 401 Water Quality Certifications, and section 404 wetlands permitting authority are presented as the backup enforceable policies. In addition, local governments have adopted shoreland and floodplain standards under authority of M.S. Chapter 103F.	IV 5 3
Hydromodification 12: Streambank and Shoreline Erosion: Other than cost share programs implemented by the Board of Water and Soil Resources (BWSR) and SWCDs along the Lake Superior shoreline, the authorities address erosion via permits for new projects.	IV 5 3
Hydromodification 13: Streambank and Shoreline Erosion: NOAA and EPA would like to understand how Minnesota addresses erosion and sedimentation problems from existing projects, that is, how the management measure will be implemented in the absence of a permit for new work.	IV 5 3
Wetlands 1: General: Minnesota presents an array of laws, regulations, and programs that reflect considerable public support for restoration, protection and management of wetlands. In the Lake Superior watershed, greater than 80% of pre-settlement wetland remain, and the effect of wetland loss on water quality impairment is not considered to be a major contributor to nonpoint source pollution.	IV 6 Intro.
Wetlands 2: General: It is important to note that the state is not required to include enforceable policies and mechanisms in its strategy to implement the second and third management measures of this section (Restoration of Wetland and Riparian Areas, and Vegetated Treatment Systems). The program submittal only needs to include a description of the state's proposed activities which would implement these management measures.	IV 6 Intro.
Wetlands 3: Protection of Wetlands and Riparian Areas: The state's main approach to this measure is two-pronged: (1) to evaluate applications for new work in wetlands, under CWA section 404, and (2) to impose a moratorium on	IV 6-a

Comment(s) from the 1996 Federal Consultation Report [Emphasis Added]	Location
wetland activities if local units of government (LGUs) do not adopt wetland conservation plans.	
Wetlands 4: Protection of Wetlands and Riparian Areas: EPA and NOAA would like the state to clarify how this management measure will be implemented through the CWA section 401 Water Quality Certification, and CWA section 404 permit, and local ordinances under authority of M.S. Chapter 103F. (See the general comment under Hydromodification on the application of CWA section 401/404.)	IV 6-a
Wetlands 5: Protection of Wetlands and Riparian Areas: Like the hydromodification authorities, the authorities cited address impacts to wetlands via permits for new projects. NOAA and EPA would like to understand how a system of permits which only apply to new work proposed within wetlands/riparian areas addresses existing conditions and “off-site” impacts, such as land-use changes in the watershed, which affect wetlands/riparian areas serving a nonpoint source function.	IV 6-a
Wetlands 6: Restoration of Wetland and Riparian Areas: Minnesota describes several actions which the state would use to ensure the implementation of this management measure: the Duluth Superior Comprehensive Port Development Plan, which has a goal of initiating enhancement and restoration projects to restore a full range of wetland/riparian functions; local water plans in North Shore Counties, which are an instrument for implementing restoration of damaged or destroyed wetlands; and MN Rules part 8420.0520, which contains principles for determining that wetlands affected by environmental impacts have been repaired, rehabilitated, or restored. Nonpoint source pollution functions are among those values that are considered under this rule.	IV 6-b
Wetlands 7: Vegetated Treatment Systems: Minnesota describes several actions which the state would use to ensure implementation of this management measure: permit conditions for Public Waters Permits allow establishment of vegetative methods as one of the allowable ways to reduce sediment and other pollutants from runoff; LGUs adopt Water, Wetland, and Stormwater Management Ordinances which include practices to control runoff from land-disturbing activities, practices such as constructed wetlands, grassed swales, and engineered buffer strips; and the Shoreland Management Act requires local units of government to consider proper stormwater management in the review of all permit applications, including constructed wetlands, filter strips, and buffer strips.	IV 6-c

APPENDIX D

LISTENING LOG

APPENDIX D: LISTENING LOG

<i>ProgramTitle</i>	<input type="text" value="CNPP"/>
<i>Category</i>	<input type="text" value="CNPP Document; Urban/Rural"/>
<i>CommentDate</i>	<input type="text" value="4/30/01"/>
<i>First Name</i>	<input type="text" value="Mark"/>
<i>Last Name</i>	<input type="text" value="Nelson"/>
<i>Organization Name</i>	<input type="text" value="MN Board of Water and Soil Resources"/>
<i>Comments</i>	<div style="border: 1px solid black; padding: 5px;"> <p>Joel: We divvied up our agency review of the coastal document and I took the Urban/Rural Areas Management Chapter and the Wetlands Chapter.</p> <p>Previously, Al Kean and Gene Clark commented on the Hydromodification Chapter and Ron Shelito provided comments to you. Because I revised the Wetland Chapter, I will not comment further on that Chapter of the draft.</p> <p>My comments for the Urban/Rural Areas Management Chapter are listed below:</p> <p>Introduction: The language regarding decreasing population for the Duluth area and Cook County can be updated. The new census showed some moderate growth for these two areas.</p> <p>3. Part 1.: Urban/Rural Runoff</p> <p>C, 2: The Minnesota Construction Site Erosion and Sediment Control Handbook is out of print. However, copies can be made using the existing manuals. Perhaps, the readers can be informed of this.</p> <p>Also, MnDOT has a new specifications manual for erosion control. Many contractors are quite familiar with the MnDOT standards and specs so it should be mentioned as an additional resource.</p> <p>D, 3: It can be stated that all counties in the coastal area have county water plans in force. I believe I saw this fact referenced elsewhere in the document. General comment: I appreciate you mentioning county water plans in detail. This document can strengthen and reaffirm the county water plans.</p> <p>3.B. Watershed Protection</p> <p>C, 2: I appreciate your mentioning the Minnesota Erosion Control Association (MECA) as a resource for workshops and erosion control techniques. If erosion control certification were to be pursued by the State, I believe MECA would be the appropriate entity to manage the training and testing.</p> <p>3.C. Site Development</p> <p>E.2. The BWSR Natural Resource Block Grant reporting system (currently LARS) should help local governments quantify their accomplishments. Shoreland alteration permits, wetland impacts from development, and septic systems (ISTS's) can be entered and reported electronically. Instructive maps can then be generated to graphically show accomplishments of LGU's in the coastal area.</p> <p>3. Part 6: Roads, Highways, and Bridges: General comment: Perhaps the updated MnDOT specifications manual can be detailed in this part.</p> </div>
<i>ResponseDate</i>	<input type="text" value="6/1/01"/>
<i>ResponderName And Affiliation</i>	<input type="text" value="Joel Peterson, MPCA"/>
<i>Response</i>	<div style="border: 1px solid black; padding: 5px;"> <p>Thank you all for the time you took to review Minnesota's Coastal Nonpoint Pollution Control Program document. Your technical knowledge was a great help in updating the document. We have done our best to incorporate your comments into the text.</p> <p>Thanks again, Joel Peterson, Coastal Nonpoint Coordinator, Minnesota Pollution Control Agency</p> </div>

ProgramTitle	CNPP
Category	CNPP Document; Agriculture; Erosion
CommentDate	4/27/01
First Name	AI
Last Name	Kean
Organization Name	MN Board of Water and Soil Resources
Comments	<p>Thanks for the opportunity to comment. These comments are in addition to those provided by Ron Shelito, BWSR North Region Supervisor, and Mark Nelson, BWSR Board Conservationist.</p> <p>1) Page 16, Table II.2.: Because federal programs are included in the table, should add "and Federal" to its title. Should remove "Agricultural Conservation Program" (because it no longer exists) and add Environmental Quality Incentives Program. Also suggest adding Ag Best Management Practices Loan Program, Feedlot Water Quality Management Cost-Share Program, Section 319 Grants and Great Lakes Commission Grants.</p> <p>2) Page 19, Table II.3.: Suggest adding "(Board of Water and Soil Resources)" after "103B Water Planning and Project Implementation". Maybe should add "103D Watershed Districts". Although no watershed districts currently exist along Lake Superior, they could. Also suggest adding "103F.401" "103F.461 Soil Erosion".</p> <p>3) Page 32, Section D., second paragraph: Suggest replacing the first sentence with: "In Minnesota, the primary funding sources for NPS activities in the Lake Superior basin have been state cost-share programs administered by the BWSR and SWCDs, federal Section 319 grants, State Revolving Loan Funds (SRF) administered by the MDA and MPCA, and federal cost-share administered by the NRCS." Suggest removing "cost-share and" from the next paragraph.</p> <p>4) Page 43, third to last line: Replace "districts" with "practices".</p> <p>5) Page 44: Should add a subsection entitled "State Cost-Share Programs" and discuss Regular, Special Project and Feedlot Water Quality Management Cost-Share. Information about these cost-share programs can be obtained from the BWSR web site and/or Wayne Zellmer, BWSR Grants Coordinator.</p> <p>6) Page 64, Subsection C.1., third paragraph: Suggest replacing the first sentence with "In 1995, State Revolving Loan Funds became available for implementing conservation practices through the Ag BMP Loan Program administered by the MDA and the Clean Water Partnership Program administered by the MPCA."</p> <p>7) Page 64, Subsection C.3.: Suggest adding "The NRCS and" at the beginning of the first sentence, and "and implementation" after "design" in the second sentence.</p> <p>8) Page 66, Subsection E.1.: Suggest adding "The BWSR's Local Government Reporting System (LARS) provides information about completed conservation practices, including pollution reduction estimates for some practices."</p> <p>9) Page 66, Subsection F.: Suggest replacing second sentence with "Counties and SWCDs facilitate the use of state and federal cost-share funds and SRF loans to implement erosion control practices on private lands."</p> <p>10) Page 67, Subsection 1.b.A., last sentence of first paragraph: Suggest adding "surface and" before "groundwater".</p> <p>11) Page 68, Subsection C.1., last sentence of first paragraph: Suggest adding "state cost-share and" after "through".</p> <p>12) Page 71, subsection F.: Should add discussion about coordination between MPCA, delegated feedlot counties and SWCDs.</p> <p>13) Page 202, subsection C.1.: Suggest replacing existing text with "The State Cost-Share Program, including Special Project Cost-Share, is administered at the state level by the BWSR and at the local level by SWCDs. Private landowners can get up to 75% cost-share to fix erosion and water quality problems. Local Water Planning challenge grant funding administered by the BWSR can also be used to help implement high priority erosion and water quality projects."</p> <p>14) Page 256, subsection 5.f.B.: The word "retreat" in the last line does not seem to make sense.</p> <p>15) Page 258, subsection F.: Should mention NRRI shoreline erosion hazard information, DNR</p>

nearshore substrate and bathymetry data and other data in the GIS Database for the Lake Superior Shoreline that is used by SWCDs, BWSR, MPCA and DNR to prioritize shoreline stabilization projects. Also could mention the GIS Database information that locates and summarizes shoreline stabilization projects assisted by SWCDs and the BWSR.

ResponseDate

5/8/01

**ResponderName
And Affiliation**

Karen Plass, MDNR

Response

Thank you, Al and Gene, for your comments on the draft Coastal Nonpoint document. Your comments have been very helpful.
Joel Peterson is working on incorporating suggestions in the agriculture and urban chapters, and may have some additional questions.
I am working on the other parts of the document, and on draft block of text for your review and comment: Your last comment (re page 258) includes info that I have tried to turn into a paragraph. Please edit it as you will, or make any other suggestions as to where I should get additional info, etc.
Proposed draft text: Computers, and especially Geographic Information Systems (GIS) technology, have greatly enhanced the abilities of agencies to share information and coordinate their activities. For the Lake Superior shore, the University of Minnesota's Natural Resources Research Institute (NRRI) has identified shoreline erosion hazard information. NRRI has also identified potential lake-trout spawning areas, by identifying nearshore substrate and bathymetry data. This information is available for use by other agencies, and has been used by the SWCDs, BWSR, MPCA and DNR to prioritize shoreline stabilization projects. Information about shoreline stabilization projects assisted by the SWCDs and BWSR is also tracked and made available in a GIS database.
Thank you for any suggestions or additional text you can provide!

ProgramTitle

CNPP

Category

CNPP Document; Mercury; Wetlands; Nuclear Waste

CommentDate

4/26/01

First Name

Karen

Last Name

Johnson

**Organization
Name**

Sierra Club Northern Lights Group

Comments

As part of your public review, we would like to comment on several issues related to the Coastal Nonpoint Pollution Control Program.
We believe that mercury contamination of our waters is a significant problem that continues to require exhaustive attention. A committee of the National Academy of Sciences recommended last year that U.S. Food and Drug Administration (FDA) tighten its safety standards for mercury in fish. And a recent report released from U.S. Public Interest Research Group (US PIRG) and the Environmental Working Group emphasizes the dangers of mercury to women and children. They warn that "government recommendations for fish consumption could expose more than one in four expectant mothers - 1 million women - to enough mercury to put the health of their fetuses at risk." We need to give this issue the urgency it demands. Allowing companies to voluntarily reduce mercury emissions and to police themselves does not do enough to address this serious threat to people's health. Strong regulations that are supported by inspections by the MPCA and that carry meaningful consequences are our only real hope to reduce the damage that is caused by mercury contamination.
Another of our concerns is the loss of wetlands that continues to plague our area. This issue, also, has not been adequately addressed. The DNR has been purposefully destroying wetlands by removing beaver dams. Their reasoning seems to be that this helps non-native species, like

steelhead trout. There are two points here. One is that we need our wetlands, obviously, for a host of reasons, including the filtration of pollutants. The second point is that there is no "need" for the DNR to continue to support the proliferation of non-native species. Using non-native species as an excuse to destroy wetlands is appalling! The DNR should not be allowed to continue this destructive behavior.

Finally, it has come to our attention that the U.S. Department of Energy may still be considering Minnesota as a potential site for storing nuclear wastes. The risk of their waste leaking into our waters is too great; the results would be disastrous. We should ensure that Minnesota is removed from consideration as a nuclear waste site.

Thank you for considering our comments. Sincerely, Karen Johnson.

ResponseDate

6/1/01

**ResponderName
And Affiliation**

Joel Peterson, MPCA

Response

Dear Ms. Johnson:

Thank you for your comments on Minnesota's Coastal Nonpoint Pollution Control Program document. You raise good points.

It is important to remember the scope and focus of this current document. We can only address nonpoint issues in this document. We are also in a tight timeline to submit an approvable program to the National Oceanic and Atmospheric Administration (NOAA) and the Environmental Protection Agency (EPA) on their 55 specific management measures. Therefore, at this time, we can address only those issues that are required to be addressed by these federal agencies. That includes the nonpoint categories resulting from agriculture, forestry, urban/rural issues, marinas, hydromodification, and wetlands/riparian area activities.

Please keep in mind that this Coastal Nonpoint Program will be incorporated into the Lake Superior Basin Plan as the starting point for that plan's nonpoint component. Once the federal requirements have been met we will be looking at other nonpoint issues beyond the federal scope as participants in the process, such as your group, prioritize them. The over-all Lake Superior Basin Plan will also deal with point sources, land use, and basically all activities that can affect water quality. The basin and coastal programs are being developed in a coordinated effort and share the same Listening Log and advisory committee. The timetable for developing the basin plan is from now through the end of 2001, or into early 2002.

Your comments will become part of the Listening Log that will go into the final document and onto our web site.

<http://www.pca.state.mn.us/water/basins/superior/lbsbasin/listeninglog.html#currentlog>

We will also make sure the basin planner, Brian Fredrickson, gets these comments.

The issues of nuclear waste storage and exotic species, while important, are not in the scope of this document or the nonpoint pollution category.

You mention the significance of mercury contamination of our water and the need for strong regulations and inspections. We concur with the significance of the mercury problem. Over 80% of the mercury deposited in Minnesota comes from out of state. Mercury is regulated through point source permits, and will require tighter regulations at a federal level to reduce threats and impairments, as mentioned in chapter III, F.4. of the final document or chapter VI., D., p.276 of the draft document. This toxic substance, once deposited broadly, becomes a nonpoint source of pollution within the scope of the Coastal Nonpoint Program. Mercury binds to organic particles in the soil. Soil erosion processes then carry this toxin to our waters along with unwanted nutrient and sediment loads. The Coastal Nonpoint Program is all about stabilizing and confining erosion problems. In doing so we can have a partial impact on keeping this pollutant from reaching our waters. Your comments should, therefore, also be addressed to state and federal point source programs.

The wetlands loss through beaver dam removal question is a potential non point pollution issue that, can be dealt with in the basin planning process. It is not in the federal management measures that we are dealing with in the current document. I will say that beaver dam removal is done on cold water streams statewide and on a case by case basis. Our agencies are required to try to protect the designated uses of our waters. Cold water fisheries are one of those designated uses. Beaver dams often contribute to stream warming, thus threatening the stream's designated use. It should also be noted that Lake Superior's native coaster brook trout require water temperatures several degrees colder than the other game species using North Shore streams. Removal of beaver dams on spawning streams where "coaster" restoration is being done may be critical to their survival, even more so than it is to other trout and salmon species. I think a case by case approach is the key here and timing of any needed removal is also an important factor to consider for erosion issues, fish migration (even in inland waters), and wild rice waters.

We hope you will continue to participate when we get beyond the focused approach of the current submittal to the broader scope of the Lake Superior Basin Planning process.

Sincerely, Joel Peterson, Coastal Nonpoint Coordinator, Minnesota Pollution Control Agency

ProgramTitle CNPP

Category CNPP Document; Off-road Vehicles

CommentDate 4/15/01

First Name Urb

Last Name Weidner

Organization Name

Comments Having attended a presentation on the non-point pollution process, I am very interested in how you are addressing the off-road vehicle trail development plans of the DNR and how they fits in with your plans. Have you initiated studies of how these trails will lead to increased air pollution, water pollution (via runoff from trails into creeks, streams, rivers, Lake Superior), and water pollution? And, are you relating the results to the EPA as part of your non-point pollution report? Thanks, Urb Weidner

ResponseDate 6/1/01

ResponderName And Affiliation Karen Plass, MDNR

Response

Dear Mr. Weidner:

Thank you for your comments on the draft version of Minnesota's Lake Superior Coastal Nonpoint Pollution Control Program.

I appreciate your raising the question about OHV trails. Your comments will be incorporated into something we call the Listening Log, which will be included in the coastal nonpoint program document, and is posted on MPCA's Web site at:
<http://www.pca.state.mn.us/water/basins/superior/lbbsin/listeninglog.html#currentlog>

I recognize your concern about off-road vehicles and about DNR's trail development plans. I have learned more about OHVs because of your question. I recognize that they can contribute to nonpoint pollution.

I talked to Tom Peterson and Bruce Highland, with DNR Trails and Waterways (TWW) in Two Harbors, about this issue. They point out that environmental review would proceed any OHV trails construction. They are confident that, regarding nonpoint pollution, all-terrain-vehicle trails (along the Lake Superior shoreline no 4x4 truck trails or off-highway motorcycle trails are being proposed) will have no "significant" impact. They also note, that for any trail that is constructed (and for the rehabilitation of existing trails, which is mostly what's being proposed), the latest best management practices (BMPs) will be followed.

For the coastal nonpoint document that is now being developed, we (DNR Waters and MPCA) are using a federally defined set of six nonpoint source categories and 55 federally defined management measures, which are designed to minimize nonpoint pollution from those six nonpoint source categories. Because of our deadlines for developing this document, we are focusing on the nonpoint categories and measures in the federal guidelines. Related issues that are outside the scope of the federal guidelines will be taken up in the Lake Superior Basin Plan, which is being facilitated by Brian Fredrickson at the MPCA.

The federally defined coastal nonpoint source categories include forestry, and the related management measures include one on forest roads. The guidelines for forest roads, however, deal with the silvicultural (i.e., forest industry) uses of forest roads. Recreational uses are not mentioned in the guidelines.

For that reason, we will include your comment, with other comments that are broader than the federal guidelines, as issues that will be highlighted for Brian Fredrickson and discussed during the development of Minnesota's Lake Superior Basin Plan. These two programs are being developed in a coordinated way. In fact, they share the same Listening Log and advisory committee.

Furthermore, the coastal nonpoint program will become the starting point for development of the nonpoint pollution portion of the basin plan. The timetable for developing the basin plan is from now through the end of 2001, or into early 2002.

Again, thank you for raising this issue within the context of the Coastal Nonpoint Program. It will be addressed, and will help ensure that we look at all potential sources of nonpoint pollution, in the "next step" of this process, as part of the Lake Superior Basin Plan.

Sincerely, Karen Plass, Minnesota DNR (Waters)

ProgramTitle

Category

CommentDate

First Name

Last Name

Organization Name

Comments

Attached are the National Wildlife Federation's comments on Minnesota's draft Coastal Nonpoint Pollution Control Program document. Please let me know by return email if you would prefer to receive it in another format. A hard copy will also be sent out by U.S. mail today.

Dear Sir or Madam, The National Wildlife Federation (NWF) submits the following comments on Minnesota's draft Coastal Nonpoint Pollution Control Program document. NWF represents four million members and supporters devoted to the protection of wildlife, people and wild places. From our Great Lakes office in Ann Arbor, we pursue NWF's mission in and for the Great Lakes basin, which includes a special project to protect and restore Lake Superior and the waters and ecosystems of the Lake Superior Basin. Our Lake Superior Project was initiated in 1991, and has addressed a broad range of environmental issues, including toxic pollution from mining activities, forest restoration and management planning in Northern Wisconsin, and the destruction and degradation of wetlands through the Clean Water Act section 404 permitting program.

Of the six specific areas addressed by the EPA's management measures, we feel that forestry and urban/rural development present the greatest threats to Lake Superior and the other waters of the Lake Superior Basin. Our specific comments below on the management measures thus focus on these two activities. As for programmatic issues, our greatest concern is for the strength of Minnesota's enforceable policies and mechanisms to implement the management measures, and our comments therefore focus on the statutes and regulations cited in the document.

1. General Comments: The Coastal Zone Management Act requires coastal states to implement Coastal Nonpoint Pollution Control Programs, including enforceable policies and mechanisms. 16 U.S.C. § 1455(d)(16). These programs must include actions to implement the management measures developed by the EPA pursuant to the Act. 16 U.S.C. § 1455b(b). The EPA provides flexibility by allowing states to choose the specific practices they use to implement the management measures. However, these practices must meet the requirements set out by the measures themselves. E.g., EPA Guidelines Chapter 3.I.B.

In general, Minnesota's draft document does cite statutes, rules, and mandatory Best Management Practices (BMPs) that provide enforceable authority to control the activity in question. However, the document repeatedly fails to specify whether the provisions of these statutes, rules, or BMPs meet the provisions of the EPA management measures. For example, the EPA forestry measures include completion of a fairly comprehensive preharvest plan for individual timber harvest sites. Although Minnesota Department of Natural Resources (DNR) regulations require that timber harvest be carried out in accordance with BMPs for protection of water resources, it is unclear whether the BMPs require preharvest planning that covers all of the areas included in the management measure. This is a recurrent difficulty with virtually every management measure, making it difficult to judge whether the state's authorities will provide the same degree of protection as the EPA guidelines.

Another overall difficulty with the draft document is that it cites numerous statutes and regulations as enforceable authorities that relate only peripherally to the management measure that is being addressed, or do not in fact provide enforceable authority. Specific instances are detailed

below, but once again this is a recurrent problem throughout the document. Based on a review of the cited statutes and regulations in the forestry and urban/rural development sections, it appears that the Shoreland Protection Act, MS. 103F.201-221, the rules promulgated under it, Minn. R. 6120.3300, and the forestry guidelines referenced by the rules at Minn. R. 6120.3300(8)(A) are the only truly enforceable mechanisms that apply to forestry and development, with the exception of activities that involve the filling, draining, or excavation of wetlands. Although we have reservations about the strength of the DNR regulations that implement the Shoreland Protection Act, we do acknowledge that it goes farther than many states in making nonpoint pollution controls mandatory for forestry and development activities. The entire document would be both simpler and more honest if it stuck to these provisions and explained how they meet the requirements of the federal guidelines, rather than obscuring the issue with citations to statutes that simply do not provide enforceable authority for the management measure in question.

Minnesota identifies Minn. R. 7050.0210 as general authority available to prevent pollution of Minnesota's waters, including pollution from nonpoint sources. The EPA document entitled "Final Administrative Changes to the Coastal Nonpoint Pollution Control Program Guidance" states that such general authorities may be relied upon if several conditions are met, including "a commitment to use the existing enforcement authorities where necessary." We found no such commitment in the document. We find it difficult to believe that the state would or could use Minn. R. 7050.0210 to address sources that are quite minor individually, but that cumulatively have created impairments. Furthermore, we question whether Minnesota has ever used this authority to address problems created even by larger nonpoint sources. For instance, the Lutsen ski hill has long been a significant source of nonpoint pollution to the Poplar River. We understand that the county has been working with the ski hill on a voluntary basis to address the problem, but the situation does not seem to be improving. Under what circumstances will the state use Minn. R. 7050.0210 to address this and similar problems?

The document itself reveals that many North Shore streams are impaired due in part to nonpoint sources. If general authorities such as Minn. R. 7050.0210 truly provide the means to address the sources of pollution to these streams, and if Minnesota is truly committed to using these authorities where needed, why have they not been used to address the impairments of these streams?

Another general problem is that the document repeatedly misrepresents the degree of impairment of Minnesota's waters. The document states on page 45 that "More than 65 percent of assessed streams and lakes meet water quality standards." However, I was told by Minnesota Pollution Control Agency (MPCA) staff that every lake except one that has been tested in Minnesota is impaired for mercury. The last chapter of the document states that 11 lakes and 9 rivers in the Lake Superior Basin are listed as impaired. Yet the Minnesota Department of Health advises against unlimited consumption of fish from every lake and river in the Basin (including Lake Superior) due to mercury and PCB contamination, and I have been told by MPCA staff that their agency considers every lake in the state and every river in the Lake Superior basin to be impaired. As Chapter IV of the document notes, runoff carries mercury and PCBs deposited on land into water bodies, contributing to these problems. Impairments due to mercury and PCB loadings are thus quite relevant to the discussion of nonpoint pollution.

The draft document includes many references to the St. Louis River Management Plan, but is unclear as to the plan's status as an enforceable document. For instance, the forestry section states that the St. Louis River Management Plan requires a no-cut zone along the rivers that it covers, and that a modified version was adopted in a zoning ordinance. To what degree does the zoning ordinance differ from the management plan? Or more to the point, what does the zoning ordinance require, and how will the ordinance be enforced? Similarly, the urban/rural development section states that "once implemented into local zoning or land-use ordinances, the recommendations [of the Plan] will result in increased lot sizes, a no-cut zone along the river corridor, and mandated forest management plans." Are LGUs required to adopt the provisions of the Plan? If not, it is difficult to see how these recommendations can be considered enforceable mechanisms.

As a final general comment, we are disappointed that several specific land uses that cause nonpoint pollution problems in the Basin are not specifically addressed by management measures. These land uses include mining and recreational activities such as golf courses and ski hills. We understand that these activities were not listed as specific categories addressed by the EPA's management measures, but believe the state should implement management measures to deal with these sources of pollutants.

2. Comments on specific management measures: 1. Forestry:

The draft document states that monitoring shows an 87% overall compliance rate with forestry BMPs, and that 93% (96% in 1997) of the monitored sites showed "adequate protection" of water resources. Were the State's enforceable authorities used in the other 4% of the cases? While this might seem like a small percentage of logging units that are out of compliance, it is precisely for such bad actors that enforceable laws are needed. Most loggers and forest owners do care enough to educate themselves on and then follow recommended management practices. The

small number who do not can create tremendous localized problems that are never adequately dealt with.

Throughout the forestry section under several of the management measures, the document states that no information has been identified under local zoning and state statutory authorities. We were unable to discern the degree to which enforceable BMPs referenced by Minn. R. 6120.3300(8)(A) might cover the management measures pertaining to road construction and maintenance, timber harvesting, site preparation, and reforestation. If mandatory BMPs do not cover the requirements of these management measures, Minnesota must institute additional enforceable authorities to gain federal approval of its program.

1. Management Measure 2.b., Streamside Management Areas:

The forestry management measure for streamside management areas provides that management areas should be established that are wide enough and with a sufficient number of canopy species to buffer against temperature change. Canopy species are also to be managed to provide adequate large woody debris.

According to the document, Minnesota forestry guidelines do require streamside management areas, termed "Riparian Management Zones" of anywhere between 50 and 200 feet. Harvest is allowed within these zones, but a minimum residual basal area of varying amounts must be left. The final chapter of the document reveals that North Shore trout streams may be threatened due to temperature change. Does Minnesota have a monitoring program in place to ensure that the amount of basal area left in fact protects the streams from warming? This will be particularly important as we begin to feel the effects of global climate change. Finally, the document does not say what the Minnesota guideline requirements are regarding the provision of large woody debris.

2. Management Measure 2.d., Road Management: The EPA management measure for road maintenance includes closing roads that will not be needed. Is this included in the enforceable state guidelines?

3. Management Measure 2.i., Forest Chemical Management: Under the provisions for pesticide use in forestry, the draft document states only that the MDA is responsible for the regulation of pesticides. Please provide information on whether (and what) MDA regulations say about amounts of application, buffer strips, etc.

4. Management Measure 2.j., Wetland Forest Management: The authority cited for the protection of wetlands is misleading. The Wetland Conservation Act appears to apply only to activities that involve draining, excavating or filling, see Minn. R. 8420.0102, while the EPA's management measure is much more extensive. While we applaud Minnesota for closing the loophole left open for forestry activities by Clean Water Act section 404, we do not agree that this covers the full extent of impacts from forestry activities in wetlands. The document cites no enforceable authority for the control of forestry activities in wetlands if filling, draining, or excavation is not involved.

The document states that according to monitoring, wetland forestry met BMP standards 87% of the time in 1995 and 1997. Once again, please provide information about enforcement action or remedial activities undertaken in the other 13% of the cases.

B. Urban/Rural Development: The discussion of the percentages of land ownership in the introduction to the Urban/Rural section is unclear (page 135). The document refers to the "coastal area," "basin," and "coastal zone." What is the difference between these three designations? The document states that 3% of the "coastal" area is residential. More to the point would be the percentage of the actual Lake Superior shoreline, inland lakes shoreline, and riparian area that is residential. Elsewhere in the document, it says that "much" of the Lake Superior shoreline is already developed. It would be helpful to know the actual amount of development on the big lake, inland lakes, and streams.

Although this section does acknowledge that construction of seasonal residences is expected to increase, more should be done to describe the extent of this problem. Cook County at least is experiencing rapid development of the few remaining privately-held, undeveloped shoreline areas on Lake Superior, inland lakes, and streams. Even aside from Minnesota's response, NWF is dismayed by the EPA's failure to provide management measures to address this situation.

2. Management Measure 3.a., New Development: The management measure for new development apparently allows for a 20% increase of TSS loadings, and requires maintaining peak runoff rates similar to pre-development only to the extent practicable. These provisions will not protect coastal waters from degradation. Existing development has already resulted in degraded waters. Additional development should not be allowed unless it results in no increase of runoff, both on average and at peaks. Also, greater-than-2 year, 24-hour storms are often the most devastating to river systems. New development should not be allowed to create situations that will make this devastation worse. While we understand that this management measure comes from the EPA guidelines and represents the minimum requirements that the State must meet, we hope that Minnesota will provide stronger protections against runoff from new development.

There is a growing consensus among people who care about the Lake Superior environment that shoreline development is one of the greatest problems facing this area. While Minnesota does appear to have enforceable provisions regarding new development, the restrictions as to lot

widths and setbacks do not provide adequate protection. Minnesota's lake and river classification system provides less protection the more development already exists. Minn. R. 6120.3000(1a), .3300(2a),(2b),(3). Lot widths and setbacks are narrower for lakes and rivers that already suffer from over development, with lot widths as narrow as 75 feet and setbacks as shallow as 50 feet for sewerred areas. Id. With the amount of clearing necessary to build structures and the amount of vegetated surface removed just from the structures alone, these provisions simply cannot provide adequate protection from runoff. When clearing for lawns and driveways is added, virtually no natural vegetated areas will be left on these lakes and river stretches. While this is unclear from the rules, it appears that setbacks are even less on Lake Superior, as is further explained below.

Furthermore, the state rules provide an exception to the applicable setbacks where structures on adjacent properties on both sides do not conform to the setbacks. Minn. R. 6120.3300(3)(A)(2). Thus, the rules seem designed more to protect aesthetic considerations than water quality or habitat.

Although Minnesota regulations protect developed riparian areas from complete de-vegetation, in many areas the only requirement is that a certain number of canopy trees be left. See Minn. R. 6120.3300(4)(A). Lakeshore development often results in complete removal of the forest understory, with devastating effects on shoreline ecosystems. While forestry activities also destroy the forest understory, that destruction is generally not as complete or as permanent as destruction from development. Furthermore, removal of dead and down woody debris is specifically allowed for development. Minn. R. 6120.3300(4)(A)(2)(c). Minnesota needs to do more to protect developed and developing shoreline and riparian areas from the removal of vegetation.

The document cites M.S. 103B.231 for the proposition that municipalities must have watershed protection plans and M.S. 103B.235 for the proposition that LGUs must prepare local watershed management plans. By their terms, these statutes apply only to "the metropolitan area," which lies entirely outside of the Lake Superior basin. See M.S. 103B.205(8), 473.121.

The document also cites M.S. 103B.311 and .325 as enforceable mechanisms. As the State acknowledges, M.S. 103B.311 provides "encouragement" only, and no mandatory measures. Although the statute does give counties the authority to provide for enforcement of watershed plans, M.S. 103B.311(1)(3), it does not require them to do so. This section of the document would benefit from a discussion of whether each of the three primary counties have in fact adopted such plans, and whether they have provided for enforcement of those plans.

The document also cites Minn. R. 7050.0180, providing that "the agency will prohibit or stringently control new or expanded discharges from . . . nonpoint sources to [Outstanding Resource Value Waters]," which include Lake Superior. It is unclear how the agency proposes to implement this rule. Nonpoint discharges to Lake Superior are expanding with virtually every new residence and development in the North Shore Management Planning Area. Responsibility for control of these discharges appears to lie entirely with the counties or other LGUs. Furthermore, protection within this area appears to be less than in other areas. The booklet distributed by the Cook County Planning and Zoning office to applicants for building permits states that setbacks from rivers within the North Shore Management zone is 75 feet, while in other areas it is 100 to 200 feet. Structure setbacks from inland lakes in Cook County are 75 to 100 feet, while setbacks from Lake Superior are 40 feet from the vegetation line. NWF fails to see how ORV designation has provided any additional protection for Lake Superior.

2. Management Measure 3.f., Existing Development: The enforceable authorities given for the management measure for existing development do not appear to apply to the type of development addressed by the management measure. The cited permitting authorities apply to new development and facilities that require NPDES permits, neither of which are covered by this management measure. It is unclear from the cited statutes and from the discussion in the document how either the buffer zones identified pursuant to the Shoreland Protection Act or the Miller Hill Corridor Plan apply to existing development. And while it may be true that "[f]urther planning efforts for the protection of natural drainage ways will identify additional opportunities for watershed protection," it is unclear how this qualifies as an enforceable measure. Finally, it is unclear how Minnesota's antidegradation law applies to existing development.

3. Management Measure 3.i., Pollution Prevention: The section on hazardous waste includes nothing at all "enforceable or otherwise" that provides any likelihood that the sources identified in the EPA's management measure (households and small commercial establishments) will not improperly dispose of hazardous waste. Rather, the focus is on small producers of such waste along with larger industrial facilities. While MPCA fact sheets are good, the document does not tell us how the information in those fact sheets will get to rural households and commercial establishments.

III. Additional Management Measures to Protect Designated Uses: The Coastal Zone Management Act requires that state programs include "[t]he implementation . . . of additional management measures applicable to [land uses that threaten or cause impairments of listed water bodies] that are necessary to achieve and maintain applicable water quality standards under

section 1313 of Title 33 and protect designated uses." 16 U.S.C. §1455b(b)(3). The single most troubling aspect of Minnesota's draft document is its failure to specify any additional management measures, despite its recognition that many water bodies in the Basin are impaired or threatened.

This chapter of the document contains an excellent assessment of the impairments of and threats to the Basin's waterbodies, and their causes. Clearly, the state's existing authority" or its will to use that authority--is insufficient to protect these waters, or the impairments and threats would already have been dealt with. If the State's existing authorities are sufficient, we should be at the very least be seeing an improvement in these waters over time.

The document states that "Minnesota has gone the extra mile to remove mercury from sources within the state." This is simply untrue. While Minnesota has made significant progress removing certain smaller sources of mercury, the large sources (power plants and taconite processing plants) continue unabated. Minnesota is lagging at least a mile behind the Northeastern states in its willingness to address mercury from power plants.

The document's reference to the Lakewide Management Plan's goal of zero discharge of mercury by 2020 is also misleading. NWF participates extensively in that program, and we know of no one who believes that the goal will be achieved if the states and Ontario do not institute additional measures to eliminate and/or control mercury, particularly from power plants and taconite processing facilities. The reference to the St. Louis River TMDL is even more objectionable, as the state does not even support the efforts of citizens, environmentalists, and industry to develop the TMDL.

IV. Additional concerns: NWF has several additional concerns that are not addressed in the draft document. In general, we agree with the issues identified by the Save Lake Superior Association (SLSA) in their comments. In particular, we would like to specifically mention the possible leakage of toxic chemicals into Lake Superior. While we understand that contaminated sites are addressed under other programs, leakage from toxic sites into waters does constitute a form of nonpoint source pollution. Any potential disposal of nuclear wastes in the basin would also present a threat of nonpoint source pollution. To the degree that these sources are not addressed by other authorities, they should be covered by Minnesota's Coastal Nonpoint Pollution Control Program.

Conclusion: In summary, NWF disagrees with the State's position "that sufficient state enforceable authorities already exist to adequately control nonpoint pollution within the Lake Superior Basin." The simple fact that many waters of the Basin are impaired is evidence that existing authorities and enforcement activity are insufficient.

Thank you for this opportunity to comment on an early draft of the state's submission to the EPA. Sincerely, Atty. Jane Reyer

ResponseDate

6/4/01

**ResponderName
And Affiliation**

Joel Peterson, MPCA

Response

Dear Ms. Reyer:

Thank you for your comments on Minnesota's Coastal Nonpoint Pollution Control Program document. You have done a very thorough job of reviewing and raise many good points.

It is important to remember the scope and focus of this current document. We can only address nonpoint issues in this document. We are also in a tight timeline to submit an approvable program to the National Oceanic and Atmospheric Administration (NOAA) and the Environmental Protection Agency (EPA) on their 55 specific management measures. Therefore, at this time, we can address only those issues that are required to be addressed by these federal agencies. That includes the nonpoint categories resulting from agriculture, forestry, urban/rural issues, marinas, hydromodification, and wetlands/riparian area activities.

Please keep in mind that this Coastal Nonpoint Program will be incorporated into the Lake Superior Basin Plan as the starting point for that plans nonpoint component. Once the federal requirements have been met we will be looking at other nonpoint issues beyond the federal scope as participants in the process, such as your group, prioritize them. The over-all Lake Superior Basin Plan will also deal with point sources, land use, and basically all activities that can affect water quality. The basin and coastal programs are being developed in a coordinated effort and share the same Listening Log and advisory committee. The timetable for developing the basin plan is from now through the end of 2001, or into early 2002.

Your comments will become part of the Listening Log that will go into the final document and onto our web site:

<http://www.pca.state.mn.us/water/basins/superior/lbbsin/listeninglog.html#currentlog>. We will also make sure the basin planner, Brian Fredrickson, gets these comments.

For the final document we have added language to the management measures, as you suggested, about their effectiveness. NWF will receive this document in July. Because of time constraints, we were not able to do an in-depth study at this time, but we were able to make some

general statements. We have included our opinion about the effectiveness of Minnesota's practices in meeting the goals of the federal management measures, and have added an indication that Minnesota meets the goals of the management measure, or at least has the ability to do so. We have also added additional rule and statute citations to many of the management measures.

You questioned whether the state has ever used M.R. 7050.0210 on page 2 of your letter. The MPCA Duluth Region alone, since April 1999, has taken 18 enforcement actions for various unauthorized discharges to waters of the state, both point and nonpoint. Of those 18 enforcement actions, 11 cited M.R. 7050.0210.

The issue of nuclear waste storage, while important, is not within the scope of this document or the nonpoint pollution category.

You mention the significance of mercury contamination of our water and the need for strong regulations and inspections. We concur with the significance of the mercury problem. Over 80% of the mercury deposited in Minnesota comes from out of state. Mercury is regulated through point source permits, and will require tighter regulations at a federal level to reduce threats and impairments, as mentioned in the document. This toxic substance, once deposited broadly, becomes a nonpoint source of pollution. Mercury binds to organic particles in the soil. Soil erosion processes then carry this toxic substance to our waters, along with unwanted nutrient and sediment loads. The Coastal Nonpoint Program is all about stabilizing and confining erosion problems. In doing so, we can have a partial impact on keeping this pollutant from reaching our waters. Your comments on this issue should also be addressed to state and federal point-source programs. Federal mercury criteria would level the playing field so that states don't compete for businesses and power plants by providing weak environmental controls to attract them. Minnesota has to tolerate power plants just over its western state line because the environmental standards are weaker in those states. Minnesota gets most of the pollution from those plants because of the prevailing westerly winds.

Standard lake assessments do not include mercury testing because of the high cost of such testing and the abundance of state waters. A small percentage of Minnesota lakes have been tested for mercury.

The St. Louis River Management Plan has a memorandum of agreement signed by the three main counties in that watershed and the Fond du Lac Band of Lake Superior Chippewa to incorporate the plan into their ordinances. Enforcement then follows through standard county and tribal mechanisms.

Your comment on page 4, on forestry, asks if Minnesota has a monitoring program to ensure the basal area left in streamside management areas in fact protects streams from warming. Minnesota's new forestry monitoring program is described in the final document, which is now being completed. We are very concerned with potential temperature changes, especially with global warming's influence. We have, in the last few years, taken advantage of the new instream computerized temperature monitors and will continue to expand the use of this technology to monitor changes in temperature caused by various land use and climatological changes.

On page 5 of your comments, you ask for information about enforcement actions taken for the 13% of forestry wetlands BMP noncompliance found in 1995 and 1997. Minnesota has chosen to provide education and technical assistance before taking enforcement actions. Numerous work shops are held for loggers, landowners and the forest industry on how to do things right. The major wood buyers in the state require compliance with BMPs in the contracts they sign with their loggers. BMPs are also required on state and federal forest lands. The industry developed BMPs knowing that regulations were imminent if they didn't adopt them and see that they worked. There is a great deal of peer pressure to comply with BMPs. Enforcement actions are most likely to be taken against repeat offenders.

The Minnesota Forest Resources Council has a toll-free Public Concerns Registration Line (888-234-3702) that lets citizens register concerns about timber harvesting and forest management practices they see in Minnesota. MFRC contacts all involved, explaining that someone has registered a concern about forest management being done on the property, and finding out what happened. Concerns may also be submitted via MFRC's Web site: <http://www.frc.state.mn.us/monitor/PCR.P.htm>

In response to concerns, MFRC may distribute educational materials, and eventually distributes a report to the landowner, logger, forester and the individual who raised the concern. This report indicates whether any forest management rules were not followed appropriately, and points out forest management guidelines that could have been used. It also recommends actions for mitigating problems on the site, or describes actions already being taken. This is an educational process. MFRC cannot impose punitive measures, and does not take legal action or resolve disputes between parties over contractual or legal issues regarding forest management activities.

We will attempt to better define "coastal area," "basin" and "coastal zone" in the next version. Basically the "basin" refers to the Minnesota portion of the Lake Superior Basin. The "coastal zone" is the defined area of the main coastal program, basically consisting of a stair-step of townships down the shore and out to Cloquet. (It is shown in Figs. VI.1a, 1b and 1c in the version that you reviewed.) Coastal zone I think was used synonymously with coastal area, but we will take

another look at that to make it more clear.

With regard to development and vegetation removal, Local Governing Units set zoning for lot sizes and other parameters not covered by state law. BWSR, DNR, MPCA, Sea Grant, USDA, and local SWCDs are educating land owners and local officials about the importance of riparian areas, forest canopies, and non-impervious surfaces to water quality. It should also be noted that Carlton, Cook, Lake and St. Louis counties have developed comprehensive water plans under M.S. 103.B.

The Outstanding Resource Value Water status deals with new and expanded discharges to the waters from point or nonpoint sources. It does not deal with setbacks. I would also like to see greater setback from the "vegetation line" in Cook County. The vegetation line is different along Lake Superior; not starting for 20 feet to 120 feet from the water's edge.

The development of additional management measures will be discussed in the next phase of the Lake Superior Basin Planning process by those who participate. Any proposed new management measures will receive a thorough public review.

State agencies managing natural resources in Minnesota have been under tight budget constrains in recent years. With over 14,000 lakes, 93,000 miles of rivers, and less than five million people in Minnesota, it is very difficult to come up with the tax dollars needed to regularly monitor all the waters to the level our staffs and yours would like to see. Coastal dollars have already been helpful in filling some of the gaps in funding. MPCA has received grants to do addition stream monitoring on the Poplar river above and below the developed areas. This will provide quantitative data to determine if or when violations of water quality occur. Two other streams will also get monitoring as a result. Another coastal grant, submitted by Sea Grant and MPCA, is funding a pilot program for Nonpoint Education of Municipal Officials (NEMO), which uses GIS technology to educate municipal officials about the possible consequences of their planning and zoning decisions.. Furthermore, Minnesota DNR has received grants to enhance state parks and stabilize eroding pathways.

As of July 1, 2001, there will be no funding available for development of state coastal nonpoint pollution programs. After that date, federal funding will be available only to states that have conditionally approved or fully approved coastal nonpoint programs. This change in funding encouraged Minnesota to accelerate the submission of the coastal nonpoint program document from December 2001 to July 2001.

We do have serious development issues, stream temperature concerns, and more. As mentioned earlier, this document is the starting point for the Lake Superior Basin Plan's nonpoint section, which will address all nonpoint issues in the basin. Issues will be prioritized and strategies set. As usual, dollars will be the limiting factor. We hope you will continue to participate when we get beyond the focused approach of the current submittal to the broader scope of the Lake Superior Basin Planning process. Participation will allow you to see the issues, obstacles and potential solutions first hand. Above all, NWF could help set priorities and be a constructive advocate for attaining the dollars needed to deal with issues that both you and I find so important.

Sincerely, Joel Peterson, MPCA, Coastal Nonpoint Coordinator

ProgramTitle

CNPP

Category

CNPP Document; Forestry

CommentDate

4/12/01

First Name

Tim

Last Name

O'Hara

Organization Name

Minnesota Forest Industries

Comments

Dear Sir or Madam:

Minnesota Forest Industries (MFI) is an association that represents the states forest products companies. MFI has reviewed the "DRAFT Coastal Nonpoint Pollution Program Document" and would like to offer the below comments with respect to forest management.

The document provides a good background on the history of Minnesota's forests, forestland owners, and the programs that have been developed to promote sustainable forest management.

The document provides a thorough review of the programs available for private land management assistance. Absent from this, however, is a discussion of the American Tree Farm program.

The Tree Farm program is a national program sponsored by MFI in the state. This program provides forest landowners with professional assistance in the development of forest management plans for their property. Currently, more than 950,000 acres of forestland are enrolled in this program. For more information on this program, I recommend contacting the Tree Farm Program Coordinator at 218/722-5013.

In addition, many of the forest product companies also have private forest management (PFM) programs that assist landowners in the development of forest management plans. I have enclosed an informative fact sheet that identifies PFM programs provided by the forest products industry.

MFI recommends that the above mentioned landowner assistance programs be included in the document.

The document provides a good history on the development of voluntary forest management guidelines. An accurate history of the development of Best Management Practices (BMPs) for water quality to the more recent work of the Minnesota Forest Resources Council guideline development and implementation is provided. As noted in the document voluntary program approach is successful as shown by the implementation, continuous improvement and compliance of the voluntary water quality BMPs. MFI believes that the best approach to maintaining water quality and other forest values during timber harvest is done through the development, education and implementation of voluntary forest management guidelines. As discussed by the document, programs are in place to determine the implementation and compliance of these voluntary guidelines across land ownerships. The members of MFI are committed to continuous improvement based on these monitoring results. It should also be noted that successful voluntary guideline implementation results in the same resource protection as a regulatory approach with less cost to tax payers.

The document reviews logger education programs over the last decade, but does not discuss the Minnesota Logger Education Program (MLEP). The logger education program was developed several years ago to provide annual workshops for loggers and their resource managers on BMP implementation, and other forest resource related topics. MLEP has replaced many of the logger education programs cited in the document. MFI recommends that you contact MLEP at 218/722-5442 for more information on this program.

The document does not discuss that several counties in the basin that have licensed their lands under the Sustainable Forestry Initiative (SFI). Lake, St. Louis, Itasca, and Carlton have licensed county administered lands under the SFI program. These counties must abide by the sustainable forest management guidelines and principles outlined in the SFI program. Further, many of the forest product companies have implemented or are in the process of developing certification systems, which include audits of their forest management practices. Many of these companies are also implementing the principles and guidelines of the SFI program. The document should include a discussion of the SFI program implementation in the basin as well as efforts by forest products companies to certify their forest management practices.

MFI appreciates the opportunity to comment on the "Coastal Nonpoint Pollution Program Document". MFI believes that the forest products industry has shown a continuous commitment of developing and implementing sustainable forest management practices. We believe the success of these programs has been the voluntary approach of guideline development, education and implementation. We recommend that the Coastal Nonpoint Pollution Program continues to recognize this success and continues to support the voluntary development and implementation of forest management guidelines. Sincerely, Tim J. O'Hara, Vice President of Forest Policy.

ResponseDate

6/1/01

***ResponderName
And Affiliation***

Karen Plass, MDNR

Response

Dear Mr. O'Hara: Thank you for your comments and suggestions on the draft version of Minnesota's Lake Superior Coastal Nonpoint Pollution Control Program.

I was glad to learn about the additional efforts that you cited. Because we are following federal guidelines, our document focuses primarily on what is being done by the various state agencies, but I will make sure that MFI is included in the document's forestry section. I will also do my best to mention the specific points and programs that you brought to our attention.

We appreciate your interest, and your active involvement in the development of the coastal nonpoint program document. Thanks, again. Sincerely, Karen Plass, DNR Coastal Nonpoint Coordinator

ProgramTitle

CNPP

Category

CNPP Document; Forestry

CommentDate

4/11/01

First Name

Robert

Last Name

Berrisford

Organization Name

US Forest Service

Comments

Here are my comments on the draft program document. I'd prefer to have a larger number of folks here on the Forest look at the draft before I proclaim the review comments as those of the Superior National Forest. But due to the time crunch and the fact that other potential reviewers are engaged in other tasks, and in the interest meeting your timeframes for review, I offer the attached as my best guess at the Superior National Forest's perspective on what's contained in the draft program document.

If you'd prefer to have an official Superior National Forest letter of support these comments, I can work on that and gather review thoughts from some other key Forest personnel. But that can't all come together until some time after April 13, 2001.

I'd be happy to further discuss any of my comments--my phone # is on page 1 of the attached document. Thanks for the opportunity to comment!! Bob Berrisford
(See attached file: Comments on Lake Comments on Superior Coastal Nonpoint Draft Program Document.doc)

General Comments: In general, I support the document's general conclusion that sufficient state enforceable authorities exist to adequately control nonpoint pollution within the Lake Superior Basin. As mentioned in the specific comments below, future consideration of watershed scale integrated (all land uses) BMPs/guidelines, might be one additional mechanism for future inroads to nonpoint pollution reduction.

I see value in this program document simply in terms of having all the existing controls, regulations, BMPs etc. pulled together in one place.

Although I've quickly read most of the draft program document, I have reviewed in depth only Chapters I, II, III, VII and the forestry portion of Chapter V. Based on this review, I offer the following specific comments or suggestions for changed wording.

Specific Comments: Chap I, p. 2 (and Chap III, p.27): I support the selection of the physical boundary of the entire L. Superior watershed as the program boundary. I agree that nonpoint pollution can only be effectively addressed for L. Superior and its connected waters on basis of the Lake's entire contributory watersheds.

Chap II, p. 25, and 26: The nonpoint categories identified for focus during the year 2002 seem appropriate. Depending on which watersheds end up getting selected for intensive (we call it mid-level) assessment by the Superior National Forest in year 2002, the Forest might be poised to work cooperatively with MPCA, DNR and others when you look more closely at [land use practices in] watersheds that have been identified as threatened or impaired.

Chap V.2., p.88: I suggest that when the components of forestry activities are listed it be made clear, that in comparison to the other activities listed, road development/maintenance is by far the greatest source of potential for creating NPS pollution. This is related to the degree of surface (and sometimes subsurface) flow disruption and the relative permanence of roads on the landscape.

Chap V.2., p.88: You might consider adding the original Water Quality in Forest Management: Best Management Practices in Minnesota publication to your bulleted list of publications. (Although I believe it was published before 1990.)

Chap V.2., p. 89 & p. 92: The statement on page 89 is correct that the focus of MNs forestry BMPs has been at the site level. On page 92, the document also makes reference to initial efforts in NE MN, through the MFRC landscape initiative, to address forest management issues at a landscape level. A logical extension of these two items of information, is that further reduction in impacts of nonpoint sources may be enhanced by future development of watershed (e.g. landscape)-based BMPs. This concept (watershed scale BMPs) is touched on in Chapter VI page 274 as part of the discussion about the Nemadji R. basin, but the idea that this may be an important item for future action seems to get lost in the verbiage.

Chap V.2., p. 95: I am confused by the statement in item B. Applicability that says: On federal land, where notification of forestry activities is provided to the federal land management agency,

the provisions of the final paragraph of this measure may be implemented through a formal agreement between the state agency and the federal land management agency. This statement would make sense if the notification were provided by rather than to the federal land management agency. I suggest that DNR and the Superior National Forest confer to clarify this statement and to assure that the intent of this nationwide guidance is being met.

Chap V.2., p. 96: Regarding the statement that the level of preharvest planning varies by landowner group, you might wish to add that harvest on federal (Superior National Forest) lands is done under the general guidance of a forestwide land management plan, as well as specific guidance from plans done for individual projects or groups of projects. Both the forestwide plans and individual projects plans are based on environmental analyses which are produced with a rigorous look at alternative courses of action, interdisciplinary collaboration, and public involvement at key steps in the analysis process.

Chap V.2., p. 102: The terms RMZ and filter strip are both used in the discussion on this page. Whereas, the term RMZ [SMA] is reasonably well defined (on page 101), the term filter strip is not explained. A sentence or two describing the purpose of filter strips might promote reader understanding of the relationship between filter strips and RMZs.

Chap V.2., p.104: Regarding the discussion of the Shipstead-Newton-Nolan (SNN) Law. Contrary to the statement in the draft document, the SNN law, with a few specific exceptions, does not specify, name or list individual lakes and streams to which shoreline logging restrictions apply. What the law actually says is that within the designated SNN area (which is specified by a precisely described legal boundary), lakes or streams which are now or eventually to be in general use for boat or canoe travel are subject to the shoreline logging restrictions. The importance of this distinction is that the actual application of SNN, particularly on small streams and lakes, often involves a judgment call on whether an individual water does (or will at some future time) reasonably accommodate boat or canoe travel to the degree of being considered general use.

Chap V.2., p. 106: Under item 3. reference is made to a Forest Road Inventory Project being coordinated by MFRC. As a point of information, the Superior National Forest is also in the midst of conducting a forestwide roads analysis and inventory.

Chap V.2., p. 107: Under item E.1., for road construction/reconstruction, the statement is made that DNR Forestry monitors 120 sites per year. While this stand-alone statement is true, its use in this location could be somewhat misleading to the reader. Although a target of 120 sites per year has been set in the past, not all of the audited sites involved roads which were constructed/reconstructed as part of the audited forest management activity. So the actual number of sites being monitored for road-related BMP/guideline implementation has in the past been a subset of 120. By consulting past BMP audit reports it may be possible to identify the number of sites which were actually monitored for road BMPs/guidelines. [Note: this same, possibly misleading, statement about 120 sites being monitored, is also used with reference to road management on page 111, and with reference to wetland forests on page 132.]

Chap V.2., p. 113: In the 3rd paragraph under Applicable Programs and Practices, item (3), I suggest changing the term larger loggers to larger logging operations.

Chap V.2., p. 128: Under item D. Enforceable Policies and Mechanisms for Forest Chemical Management, Superior National Forest herbicide applications are referred to under the heading of permit programs. Due to a moratorium, herbicide applications for site preparation and release are not currently being done on National Forest lands administered by the Superior National Forest, and, have not been done for the past several years. Even when herbicide applications were made several years ago, it would be a stretch to describe that activity in the context of a permit program.

Chap V.6., p.263: Under Item 3. Technical Assistance and Related Activities, 4th paragraph, the statement is made that DNR Forestry, MN Forest Industries and the Timber Producers Association developed the forestry BMPs for wetlands. A more accurate statement would include much longer list of forest managers and interests who collaborated in the development these guidelines. Those involved included DNR-Forestry, Fish & Wildlife and Waters; MPCA; MN Board of Soil and Water Resources; MN Center for Environmental Advocacy; National Audubon Society, MN office; MN Power Company; MN Forest Industries; Timber Producers Association, MN Association of County Land Commissioners, and the USDA Forest Service.

ResponseDate

6/1/01

**ResponderName
And Affiliation**

Karen Plass, MDNR

Response

Thank you very much for your comments on the draft version of Minnesota's Coastal Nonpoint Pollution Control Program. I will be putting the final touches on the text very shortly, and will make sure that your comments have been incorporated.

P.S. In Chap. V.2., p. 95, you identified a statement as confusing. It turns out that I had inadvertently omitted a paragraph from the original federal language. The paragraph we missed initially has now been added. Thanks, again.

ProgramTitle	CNPP
Category	CNPP Document; Erosion; Mercury; Nuclear Waste; Wetlands; Runoff
CommentDate	4/9/01
First Name	Clyde and Karen
Last Name	Ritchie
Organization Name	Save Lake Superior Assoc. & Clean Water Action Alliance
Comments	<p>Re: Comments relative to the Draft Program Document in line with request for public review and comment on Coastal Nonpoint Pollution Control Program.</p> <p>We have several areas of concern that we would like to address. The attached document, "Save Lake Superior Association and Clean Water Action Alliance response to LaMP.doc" contains our comments.</p> <p>From attached document: We respectfully submit the following comments relative to the Draft Program Document in line with your request for public review and comment on your Coastal Nonpoint Pollution Control Program. We have several areas of concern that we would like to address:</p> <p>Deposition of pollutants on land and water from power generating plants: In our view, an additional category should be added to the program to adequately attack the problem of attenuating and quickly eliminating the accumulation of mercury, dioxins, PCBs, and other toxics that foul our water and contribute significantly to the human and animal health problems arising from this deposition.</p> <p>We understand the technical difficulties in tracing the source of the 80% of such depositions that are airborne and likely originate well away from Lake Superior. But greater pressures should be applied to ensure huge reductions of mercury (and other harmful emissions) that now total 351 pounds annually from Minnesota Power plants on the Iron Range.</p> <p>We question the veracity of the Draft Program Document's contention on page 276, paragraph three, that "Minnesota has gone the extra mile to remove mercury from sources within the state...." Some progress has been made in that regard but major known sources of mercury deposition, namely coal-fired generating plants, must be subject to legal enforcement for compliance and frequent on-site inspections by the MPCA. Such plants cannot be relied upon to accurately make their own inspections nor to closely adhere to suggested parameters for reducing toxic emissions.</p> <p>There simply is no guarantee that a 'proposal' to eliminate mercury releases in the Basin by 2020, as proposed by the Lake Superior Lakewide Management Plan (LaMP) will be realized without ironclad regulations and strict enforcement. We have seen countless examples of industry failing their promises of voluntary pollution controls in the past.</p> <p>We found only passing reference to this issue: Ongoing dioxin leakage investigation required for the St. Louis River: We have deep concerns for the continuous reports of leakage of dioxins, mercury, PCBs, toxophene and other harmful chemicals into the St. Louis River. Though nonpoint pollutants, some may be the result of ground water penetrating the ash and black liquor disposal site adjacent to the river on the property of the Potlatch Corporation at Cloquet, Minnesota. The MPCA should institute a monitoring project in which this river is tested monthly or more frequently with water samples collected immediately adjacent to the Potlatch Plant in Cloquet. If access to this location is not possible via the river, the Potlatch Corporation should be legally bound to permit sampling from their private property. The health of the people, wildlife, and the river dictates compliance by the wood processing company.</p> <p>These persistent reports of continuous seepage should be substantiated or proven false. Further study is needed to find safe methods to remove the mercury and dioxins from accumulations at man-made structures, primarily dams, on the St. Louis River below Cloquet.</p> <p>Re-suspension of these pollutants, especially during flooding, has caused a festering condition that plagues this river, endangers human health, and necessitates warnings that fish from this waterway should eaten only infrequently because of pollutants in their flesh. This chronic problem must be vigorously addressed.</p>

Not to be overlooked or minimized in importance are the findings of the EPA's research ship Mudpuppy during its 1990s test mission of water and sediment between the Duluth anchor basin and the mouth of the St. Louis River.

Evidence of the most extreme pollution was pinpointed next to the old U.S. Steel Plant, now USX. Here the mercury and other persistent toxics were in disturbingly high concentration. Further seepage from the Plant property seems to continue unabated and requires MPCA's constant attention.

The second worst pollution site in this general area was the cauldron of a nasty admixture of the same content in the water and sediment next to the former Interlake Iron location in the vicinity of Hallet Dock # 6.

We trust the MPCA will give its full attention to these and other estuary "hot spots" and will quickly implement remedial action.

The MPCA claims that 20 "impaired waters" (containing pollution) have been identified in the Lake Superior Basin. It also notes that "many" other lakes and streams within the Basin have not been tested. It's deemed likely by the MPCA that a majority of those untested are in an impaired status.

Unresolved questions on Lake Superior barrel contents remain: In view of the release of new data, acquired under the Freedom of Information Act in early 2001, it is absolutely imperative that the lingering issue of barrel disposal in the waters of Lake Superior near Duluth be revisited. These data focus on the still unknown cause and source of background radiation detected during a 1990s federal testing project. Sampling efforts failed to retrieve any of several hundred barrels from unchecked dumpsites. Until exhaustive testing for radioactivity and toxins in the barrels has been completed, identification of existing or potential hazards to Lake Superior and all life forms within the Basin cannot be finished.

The public is entitled to know the total number and identification of all impaired waters within the Basin and this information must be included in Minnesota's Coastal Nonpoint Pollution Program Document.

Minnesota must be eliminated as a nuclear waste disposal site!

The US Department of Energy probed granite formations in Minnesota in 1985 as one of 17 states considered as potential radioactive repositories for unwanted nuclear waste. Such waste dumps are still desperately needed by the DOE and Minnesota may still be under consideration.

The great danger attendant to storage in this state's rock formations lies in the proximity to Lake Superior. Geologists have insufficient information on the possibility of fissures in the granite formations that could result in leakage of this contaminant into the Great Lakes via Lake Superior.

The DOE should be petitioned to remove Minnesota as a future repository for nuclear waste.

Nonpoint Source Pollution from DNR's beaver dam destruction:

We take issue with the Draft Document statement on page 259 in which it's stated in paragraph two, "In the Lake Superior Watershed, greater than 80% of the pre-settlement wetlands remain, therefore, the effect of wetland loss on water quality impairment, although not insignificant in some areas, such as urbanized areas, "is not considered a major contributor to NSP pollution."

Erosion, and thus siltation, in the Lake Superior Basin has been exacerbated as the result of the destruction of multiple (at least 50) beaver dam water impoundments by the Minnesota DNR. This state agency, publicly dedicated to work for no net loss of wetlands in Minnesota, has drained hundreds of acres of wetlands in the Basin in a senseless effort to provide an extended habitat for the non-native steelhead trout.

By the DNR's own admission, the release of the thousands of gallons of impounded water contributes to erosion with the resulting nonpoint source pollution.

Drainage of beaver-made wetlands deprives birds, mammals, some fish species, and amphibians of their habitat as well as removing water reserves that may be of critical importance in forest fire suppression and/or as a refuge for firefighters in emergencies.

Scientific analysis to determine whether admission of the exotic steelheads into the North Shore rivers and streams has resulted in the introduction of pathogens has, to our knowledge, never been done and needs to be implemented.

It is our contention that the DNR's legal right to destroy wetlands, in the pursuit of aiding the proliferation of non-native species, be rescinded. Opening additional streams tributary to Lake Superior to non-native fish should be permanently prohibited. To continue this practice by the DNR is to violate the spirit and intent of the overarching Minnesota's Lake Superior Basin Plan and Minnesota's Lake Superior Coastal Program.

Monitoring and abatement of golf course runoff: Of no small concern is the runoff from golf courses, and to a lesser extent, athletic fields, which now exist within the Basin (and with others likely to be built in the near future.)

We also wish to point up the need to inspect for the erosion problems that frequently occur from the rapid, flood-like movement of accumulated rainfall that, unlike the forest floor, barely impedes the flow as it drains the greens into nearby watercourses.

Nutrients and pesticides applied to the turf at these recreational sites must come to the close attention of and action be taken by the MPCA and other agencies dealing with public health.

Regular inspections, monitoring and strict adherence to anti-pollution laws must be rigorously maintained.

Crucial need to increase funding for the Minnesota Pollution Control Agency: From personal observations we are aware of the gross inadequacy of funding, and thus insufficient personnel, to reasonably attend to the plethora of pollution problems within the Lake Superior Basin.

Considering the handicap imposed by budget constraints, the Duluth office of the MPCA has done some exceptional work, especially with emergencies such as the taconite tailings spill into the Beaver River on the North Shore.

From our vantage point, however, it appears unlikely, if not impossible, that the MPCA could accomplish more than token results in bringing to fruition the goals outlined above if not adequately funded.

ResponseDate

6/1/01

**ResponderName
And Affiliation**

Joel Peterson, MPCA

Response

To: Save Lake Superior Association and CWA Alliance
Clyde and Karen Ritchie and Glenn Maxham:

Thank you for your comments on Minnesota's Coastal Nonpoint Pollution Control Program document. You raise many good points.

It is important to remember the scope and limitations of this document. We can only address nonpoint issues in this document. We are also in a tight timeline to submit an approvable program to the National Oceanic and Atmospheric Administration (NOAA) and the Environmental Protection Agency (EPA) on their 55 specific management measures. Therefore, at this time, we will address only those issues that are required to be addressed by these federal agencies. That includes the nonpoint categories resulting from agriculture, forestry, urban/rural issues, marinas, hydromodification, and wetlands and riparian area activities. Keep in mind that this Coastal Nonpoint Program will be incorporated into the Lake Superior Basin Plan as part of that plans nonpoint component. Once the federal requirements are met we will be looking at other nonpoint issues beyond the federal scope as participants in the process, such as your group, prioritize them. The over-all Lake Superior Basin Plan will also allow planning to deal with point sources, land use, and basically all activities that can affect water quality. The basin and coastal programs are being developed in a coordinated effort and share the same Listening Log and advisory committee. The timetable for developing the basin plan is from now through the end of 2001, or into early 2002. Your comments will become part of the Listening Log that will go into the final document and onto our web site. We will also make sure the basin planner, Brian Fredrickson, gets these comments.

The issues of the Lake Superior barrels, nuclear waste storage and exotic species, while important, are not in the scope of this document or the nonpoint pollution category.

You mention deposition of pollutants from power plants. This is regulated through point source permits, and needs tighter regulations at a federal level to reduce threats and impairments, as mentioned in chapter III, F.4. of the final document (Ch. VI.D., p.276 of the draft document). These toxins, once deposited broadly, do become a nonpoint source of pollution. Mercury and Dioxin bind to organic particles in the soil. Soil erosion processes then contribute these toxin to our waters along with unwanted nutrient and sediment loads. This document is all about stabilizing and confining erosion problems. In doing so we can have a partial impact on these pollutants reaching our waters. Your comments should, therefore, also be addressed to State and Federal point source programs.

Contaminants behind the man-made structures below Cloquet is a difficult issue that is beyond the scope of this document. This issue can be raised with-in the larger Lake Superior Basin Planning process where participants make the priority decisions.

The beaver dam removal question is a potential non point pollution issue that, again, could be dealt with in the basin planning process. It is not in the federal management measures that we are dealing with in this document. I will say that beaver dam removal is done on cold water streams statewide and on a case by case basis. Our agencies are required to try to protect the designated uses of our waters. Cold water fisheries are one of those designations and beaver dams often contribute to stream warming, thus threatening the designation of the waters. It should also be noted that the native coaster brook trout of Lake Superior require water temperatures several degrees colder than the other game species using North Shore streams. Removal of beaver dams on spawning streams where "coaster" restoration is being done may be critical to their survival, even more so than it is to other trout and salmon species. I think a case by case approach is the key here and timing of any needed removal is also an important factor to consider for erosion issues, fish migration (even in inland waters), and wild rice waters.

We hope you will continue your participation when we get beyond the limited scope of this

document submittal to implementation and additional areas of basin resource management.
Sincerely, Joel Peterson, Coastal Nonpoint Coordinator, Minnesota Pollution Control Agency

ProgramTitle

CNPP

Category

CNPP Document; Forestry; Agriculture; Wetlands

CommentDate

4/6/01

First Name

Ron

Last Name

Shelito

Organization Name

MN Board of Water & Soil Resources

Comments

I'm writing with my comments relative to the Minnesota Coastal Nonpoint Pollution Control Program document. Most of my comments are minor additions or changes in language. I think the document is well written and I did not find any major issues to comment on. My comments are listed below.

1. Page 16: I would add the Water Planning Challenge Grants to the list of programs and tools.
2. Page 17: I would add the Wetland Conservation Act (WCA) to the list of Regulatory Programs.
3. Page 23: WCA Rules Chapter 8420 should be added to the list.
4. Page 23: Water Planning Rules Chapter 9300 could be added to the list.
5. Page 28: the Coordination section does not mention coordination with county local water plans. I believe a statement to this effect should be added in this section.
6. Page 33 to 35: it seems to me that the Forest Stewardship program (federal funding administered through the DNR) could be included in this section, and also, the BWSR Natural Resources Block Grant, which includes water planning funds, WCA funds, feedlot funds, and shoreland funds to counties.
7. Page 62: I would add the word "County" before the phrase Local Water Plans at the top of the page.
8. Page 81, Section C 1: The reference to RIM should read, "The Reinvest in Minnesota Program" makes easement payments to retire marginal agricultural land, including riparian areas, and to restore drained wetlands.
9. Page 81, Section C 2: It should include a statement reads "A cooperative position between Minnesota Extension Service and the Board of Water and Soil Resources is located in the Duluth BWSR office, to assist SWCDs and county water planners in a variety of educational efforts".
10. Page 138: Should add 103 G 222 Replacement of Wetlands (WCA). Also should add Minn. Rules 8420 Wetland Conservation Act Rules.

I hope this is helpful.

ResponseDate

5/8/01

ResponderName And Affiliation

Karen Plass, MDNR

Response

Thank you, Ron, for your comments on the draft Coastal Nonpoint document. Your comments have been very helpful.

Joel Peterson is working on incorporating suggestions in the agriculture and urban chapters, and may have some additional questions.

I am working on the other parts of the document, and have a few paragraphs where I could use some text and/or suggestions from Mark (?) or other BWSR staff. I looked on BWSR's Web site, but didn't readily spot any pre-existing, succinct text.

From your comments:

- Page 28: mention coordination with county local water plans.
- > Some suggested text (a sentence or several sentences, to make a small paragraph with a bullet) would be very helpful. [Mark, do you have anything to provide?]

- Page 33-35: mention the BWSR Natural Resources Block Grant.
> A paragraph or two of text would be very helpful. [Mark, can you please provide some text?]
Thanks for any additional guidance or text you can provide!

Dear Ron:

Thank you for your comments and suggestions on the draft version of Minnesota's Lake Superior Coastal Nonpoint Pollution Control Program. You will be receiving a copy of the revised (May 2001) version. I will be checking to be sure that we got all of BWSR's comments in there. If you notice something we missed, please don't hesitate to let me know. The May version is going through a final internal review. Comments need to get back to me by June 11 to be incorporated into the final document.

We are also sending Ron Harnack a copy of the May document. We are inviting him to write a letter from BWSR, which we would be pleased to include in the bound version of the final document. Thanks, again.

ProgramTitle

CNPP

Category

CNPP Document; Boundaries

CommentDate

4/4/01

First Name

R. D.

Last Name

Learmont

Organization Name

Comments

Good afternoon. Melinda Huff kindly e-mailed me some info (the CNP excerpt) re the current Draft Program Document of the Lake Superior Coastal Nonpoint Pollution Control Program, probably because I had expressed interest in the subject, including attendance at one of the public meetings a month or two ago.

I continue to be interested in the project including reviewing the current draft - unfortunately, try as I might, I have not been able (even using Acrobat) to open up and print a complete copy of either the excerpt which she sent nor of the complete document itself.

I understand that you have print copies available for distribution - Melinda said that requests should be directed to you, and I'd appreciate your mailing a complete copy to me as soon as possible, as I know the comment deadline is rapidly approaching. Thank you - Doug

Response to Joel's Response: Thank you Joel - it is helpful to know that the comment period has been extended.

Yes, I know where the boundaries are - for example, I attended one of the public meetings a couple months ago and we spent some time talking details with you then - I use the address given below for one of my business addresses, but be assured that I do get involved in, including doing both government and private work within, the Lake Superior basin area and have several interests there - as well as from broader-interested state citizen and professional standpoints.

Re the document, unfortunately I think the problem has been with downloading into and printing with my limited computer hardware and software, not with your website, so while I appreciate the offer to help walk through it, I expect that a paper copy would work better for me. If you don't have one available and have exhausted your supply, I understand, just let me know please - I can develop some comments and suggestions without having a document available, just looking at it a little bit at a time on the website, but I expect it would provide for more meaningful and helpful comments if I had a draft document in hand that I could spend some quality time studying while developing thoughts. Thank you - Doug

ResponseDate

**ResponderName
And Affiliation**

Joel Peterson, MPCA

Response

I just got your request today. Our comment period has been extended until April 27th.
Are you aware that the Lake Superior Basin (which is the area for the Coastal Nonpoint Program) stops just west of Swan River near the intersection of highways
I am wondering if I may be able to call you and work you through getting our draft document off of our web site. (please e-mail me your phone number if this is. Thanks for your interest,

ProgramTitle

CNPP

Category

Scoping Document; Marinas

CommentDate

4/4/01

First Name

Tom

Last Name

Estabrooks

**Organization
Name**

MN Pollution Control Agency

Comments

Coastal Nonpoint Pollution Control Program
Review of Draft:
-Page 140 C2. - Is the document A Citizen's Guide to Lake Protection still in print and widely distributed?
-Page 140-141 C3 - The reference to MPCA's BMP manual is incorrect. The document cited on page 140-141 should be the updated version - Protecting Water in Urban Areas: Best Management Practices for Dealing with Storm Water Runoff from Urban, Suburban and Developing Areas of Minnesota (MPCA, 2000).
-Page 141 D1. MPCA has another industrial storm water permit, NPDES/SDS General Permit MN G490000, that is specific to construction sand & gravel, rock quarrying and hot mix asphalt production facilities.
-Page 141 D2. The City of Duluth has their Water Resources Management Ordinance (City Code Chapter 51). They also have an erosion and sediment control ordinance (Duluth City Code Chapter 18). The City of Proctor has an Erosion and Sediment Control Ordinance (Proctor City Code, Section 303B).
-Page 151 D1. The General NPDES/SDS Storm Water Permit for Construction Activity requires both temporary and permanent erosion and sediment control plans
-Page 154 D2. Local City and County Governments have erosion and sediment control ordinances (e.g., Duluth requires plans and a permit for projects that disturb 10,000 square feet or more; Lake County has a Grading Permit with requirements based on area to be disturbed).
-Page 190. Federal and state regulations require that marinas be covered under a General NPDES/SDS Storm Water Permit for Industrial Activity. A marina, Standard Industrial Classification (SIC) Code 4493 - Marina operation, is considered a mandatory category for coverage of this permit, per 40 CFR 122.26(b)(14)(viii). The threshold of >10,000 GPD, I believe, is confused with requirements for wastewater permits.
-Page 191. Item e. Storm Water Runoff - Minn. Rules MR 7001.1035 are applicable as well as M.S. 115 and 116.

General comments on marinas:
- Operation and maintenance of the facility may require a maintenance dredging permit from the MPCA, along with a PW permit from DNR in order to maintain an appropriate depth for vessels.
- MPCA regulations do apply to regulating waste discharges from vessels. I have two pages of citations that identify the rule/statute and the type of waste that is regulated. I will forward the email

to Joel.

- Page 232+, Hydromodification - all sections that talk about regulatory authority should include Section 401 and 7050 for MPCA.
- Page 260. The Section 401 authority of MPCA includes Section 404 (CWA) permits, Section 10 (Rivers and Harbors Act) permits and Hydropower (FERC) licensing permits.
- Page 261. The paragraph at the top of the page implies that there is a no-net-loss policy within the basin. The state has a no-net-loss policy for wetlands. However, current regulations allow, what ends up to be, a loss of wetlands within a geographic area of the state. Most wetlands filled/excavated/drained within the basin are replaced outside of the basin.
- Page 261 Tables V.6.1 &2 should cite Minn. Rules 7050 and M.S. 115 and 116.

Note: the current system provides no review or protection mechanism to evaluate the cumulative (direct and indirect) impacts to wetlands within a watershed.

Page 274, third paragraph, fourth sentence should be losing not loosing.

- Page 276. This section should include a discussion on the Lake Superior Initiative and it's efforts to reduce hazardous waste, including mercury within the basin. See Chris Butler for more information.

ResponseDate

6/1/01

**ResponderName
And Affiliation**

Joel Peterson, MPCA

Response

Thank you all for the time you took to review Minnesota's Coastal Nonpoint Pollution Control Program document. Your technical knowledge was a great help in updating the document. We have done our best to incorporate your comments into the text.

Thanks again, Joel Peterson, Coastal Nonpoint Coordinator, Minnesota Pollution Control Agency

ProgramTitle

CNPP; LSBP

Category

Agriculture

CommentDate

3/28/01

First Name

Carri

Last Name

Lohse-Hanson

**Organization
Name**

MN Pollution Control Agency

Comments

Because agricultural irrigation is not occurring in the basin, this category will be eliminated. However, the whole idea of withdrawal and return of appropriated water from the Great Lakes is an issue that may be suitable to include in the nonpoint program.

(Note: under Annex 2001 from the Council of Great Lakes Governors, it is likely that each state will need to develop a withdrawal plan.)

ResponseDate

6/4/01

**ResponderName
And Affiliation**

Joel Peterson, MPCA

Response

Carrie, I think we talked on the phone about this but here's the belated short response so that we get it in the listening log.

You were concerned that if agricultural irrigation is exempted that appropriations of water from lake superior would not be addressed.

Because of our tight time-lines to develop this program to federal guidelines we will only deal with what is required for this submittal. Through the basin planning process we will expand the

nonpoint program. Your point is well taken. Golf course irrigation has already surfaced as an issue. Appropriation of water from North Shore streams for lawns and gardens at low flow periods will also be an issue. Your ideas on this topic will be appreciated .

ProgramTitle

Category

CommentDate

First Name

Last Name

Organization Name

Comments

ResponseDate

ResponderName And Affiliation

Response

ProgramTitle

Category

CommentDate

First Name

Last Name

Organization Name

Comments

Just a thought...I think you should include the work that EPA is doing on the watersheds. I may have missed it, but if not their information on forest fragmentation and watershed storage as an indicator to water quality is important. Call Naomi Detenbeck for info.
Also, page 32 Rule 7065.0010...Can you pin down what the standards of effluent quality are for these counties? It just says there are stds, but there is not a reference to them when you go to the rule.
Good Luck with the feedback and editing. Diane

ResponseDate

3/27/01

**ResponderName
And Affiliation**

Karen Plass, MDNR

Response

Karen wrote: Hi, Diane! We will get your comments into the "Listening Log," and will work to address them.
I am asking Joel, by copy of this email, to look into your first comment about EPA's work for our revision.
For your second comment, can you double check the page number? I didn't see it on page 32, 132 or 232. I could search for it electronically, but want to make sure I'm looking at the reference you have in mind. Thanks!
Joel wrote: Diane, in the Additional Measures section, page 271, I did make reference to Naomi Detenbeck's report and John Eaton's work. However, it was in regards to temperature changes, which I was keying on when I read it. It would be a good add the fragmentation/water storage component of this report as well. I, personally, did not find it very easy to decipher the findings of this report. I'll take another look at it when we do the rewrite.
Sandy Verry's work, for the Forest Service at Grand Rapids, would also have a tie-in to the forest age component in regard to changing hydrology and peak flows. Thanks for the good idea. Thanks! Your note reminded me to ask the Web Master to adjust the PDF page numbers so they match the actual document.
Karen wrote: I checked the rule (Rules 7065 'C_Effluent Stds.htm.htr), and think that it's in there, further down. Please see: 7065.0100, Scope, and especially, 7065.0130, STANDARDS OF EFFLUENT QUALITY AND PURITY Here, they specify standards for the LS basin. Later (7065.0230), they list separate standards (with stricter fecal standards) for the St. Croix.
Please let me know if this doesn't answer your question.

ProgramTitle

CNPP

Category

Scoping Document; Forestry

CommentDate

3/26/01

First Name

Dan

Last Name

Amell

**Organization
Name**

MN Dept of Natural Resources - Forestry

Comments

I reviewed Chapter V., Sec. 2, page 87 - 133, and here are my comments.
2.a Preharvest Planning
- Minnesota Voluntary Site Level Guidelines address concerns expressed here. Minnesota Guidelines are discussed on page 95.
- Pages 97, 102, 106, 109, 114, 117, 120, 124, 127, 130 The Agricultural Conservation Program no longer exists by that name. It is now the Farm Service Agency (FSA), an agency of the U. S. Dept. of Agriculture. These paragraphs are repeated 10 times. Is that necessary?

- Page 99 I am not sure how involved the "North Shore Management Board" is in reviewing harvest plans. I doubt it is active. DNR under previous state shore land rules was allowed to harvest in riparian zones for properly executed harvests (partial cuts to accomplish silvicultural goals - did this change?)
- Page 100 I am unsure if DNR would require LGU's to issue permits for forest harvesting in shore land areas if voluntary compliance proved ineffective. I am unfamiliar with the St. Louis River Remedial Action Plan. Who administers it? And by what authority?
- Page 104 Shipstead - Newton - Nolan law is applied north of a particular township (I forget which), not the entire county.
- Page 112 If we are not using cable yarding in Minnesota, perhaps we should not mention it.

ResponseDate

3/29/01

**ResponderName
And Affiliation**

Karen Plass, MDNR

Response

Thank you for your comments on the forestry section of the Coastal Nonpoint Program Document. We will use them in revising the document.
FYI, the St. Louis River was designated as a Great Lakes Area of Concern by the International Joint Commission. The Remedial Action Plan was developed under the auspices of the MPCA and the Wisconsin DNR, with participation from other agencies, including MnDNR, and citizens on the St. Louis River Citizens Advisory Committee. (It's now a separate nonprofit called the Citizens Action Committee).
RAP recommendations may become incorporated into other plans or local ordinances. In and of themselves, they are recommendations only and have no enforceable legal authority. Thanks, again.

ProgramTitle

CNPP

Category

Scoping Document

CommentDate

3/24/01

First Name

Cindy

Last Name

Hilmoe

**Organization
Name**

MPCA

Comments

Joel, Melinda or Karen, congratulations on an excellent web site. I am interested in knowing (or reading about) any reduction strategies for NPS pollution that involve pollution prevention or sustainable design/development principles. In which sections of the Plan, if any, should I look for such information? I have been interested in collecting this information to use as models or resources for other water quality projects. Thanks, Cindy Hilmoe, MPCA Policy and Planning

ResponseDate

3/30/01

**ResponderName
And Affiliation**

Karen Plass, MDNR

Response

Karen Plass provided the following response: Thank you for your comments. Pollution prevention is discussed most prominently in Category 3, Urban/Rural Areas, Part 5: Pollution Prevention (page 169) and in Category 4, Marinas and Recreational Boating, Part 2 (Marina and Boat Operation and Maintenance) (pages 214-229).
Sustainability is discussed in the sections that deal with agriculture, urban/rural areas and

forestry. You can do a "find" within the PDF document to hone in on sustainability.
We appreciate your interest. We would be pleased to know of any state programs that we may have missed that are using pollution prevention or sustainable development concepts to reduce nonpoint pollution from any of the federally identified six nonpoint pollution source categories. One of our hopes is that this public review may help us identify state efforts related to these six categories that we may have overlooked. Thanks!

ProgramTitle

Category

CommentDate

First Name

Last Name

Organization Name

Comments

ResponseDate

ResponderName And Affiliation

Response

ProgramTitle

Category

CommentDate

First Name

Last Name

Organization Name

Carlton County SWCD

Comments

Here's my comments.

4.1.2.a.i.iii.aa. ACP is now EQIP. CFSA is now FSA

pg 42, vi. SRF funds available through counties and SWCDs. SWCDs can provide technical engineering signoff too.

pg 43, Large Units. Is this a regulatory proposal? Feedlot operators should not be required to have a storage tank, concrete, or lined basin is state wide rules don't require it and there is no pollution hazard as determined by a feedlot evaluation. Very small operations can handle pollution abatement through management but can't afford expensive infrastructure. Feedlot runoff is an insignificant problem in this watershed. Better to keep things flexible and affordable for our few remaining farmers.

Low interest loans are now available for manure management.

UMES, NRCS and SWCDs can all calculate nutrient value of stored manure.

pg 44. MAP may be obsolete. U of M Nutrient Management Planner version 1.0 current. Check with UMES.

dd. Update this. 1995 and this project are over.

pg 53. 1a. Change to exclude livestock as needed to maintain riparian health. 100% exclusion usually not necessary.

pg 54 cc SWCD also available to assist landowners with grazing management.

dd. the feedlot engineer is long gone.

pg 55 v.aa. Carlton Co has a level 2 feedlot inventory. FFI call Brian Hayden, 384-9178.

pg 57 dd. SWCD can assist to.

pg 58, last paragraph. Don't ask SWCDs to get into regulation. It's hard enough now to get landowners to trust us. Let Zoning do the determination as to whether there is a violation or not. Zoning can require the landowner to fix the problem and suggest they contact the SWCD or a private consultant.

Carlton Co soil loss ordinance interest is news to me. I think the City of Hermantown has one. Check with So St. Louis SWCD.

Kelly Smith
Carlton SWCD

ResponseDate

12/8/00

ResponderName And Affiliation

Joel Peterson, MPCA

Response

Thanks for the comments Kelly, they are very helpful. We'll do our best to incorporate them.

As for your question on "Large Units", that language has apparently changed to CAFO or non-CAFO units. It appears that the language has gotten less specific about types of storage. Basically manure and wastewaters should be used as domestic fertilizer and if it is not an owner shall apply for a permit according to part 7020.0405 of the MN rules.

Here is the web site for the new rule, it's very straight forward to use.
<http://www.revisor.leg.state.mn.us/arule/7020/>

ProgramTitle

CNPP

Category

Forestry

CommentDate

11/21/00

First Name

Donald

Last Name

Ferguson

Organization Name

Consulting Forester

Comments

To: Dave Miller, Landscape Coordinator

Dear Dave:

At the last Coordinating meeting I voiced a concern about the L.S. Coastal Nonpoint Pollution Program.

With the EPA issuing an order in the last year - which they have backed off from, under political pressure, for the present - making forestry projects eligible for permits, I am a little jumpy.

This may become an organized cause for someone to try and force permitting for forestry activities. It is my concern, should this happen, from an N.I.P.F. as well as others standpoint, that it would be simpler and less costly to do nothing than to try for a permit. Therefore, the level of forestry activity would be lowered or possibly eliminated in this area from a private landowner's standpoint.

There may be too much conjecture in the above, but "causes" have a way of popping up, so alertness is the watchword.

Sincerely,
Donald Ferguson

ResponseDate

11/21/00

ResponderName And Affiliation

Karen Plass, MDNR

Response

Dear Mr. Ferguson:

Thank you for stopping in to meet me and express your concerns about the potential impacts of the Coastal Nonpoint Pollution Program, and especially the possibility of forestry permits, on forestry activities. Dave Miller sent me a copy of your November 13 letter, which summarized those concerns. Dave is on the Programmatic Work Group (PWG), a committee that provides advice on the Coastal Nonpoint Program, and whose members represent agencies, governments and organizations that manage natural resources and land uses in the area.

The Coastal Nonpoint Program Document will identify the state's enforceable policies and other measures (such as voluntary guidelines and best management practices) in six nonpoint source pollution categories, including forestry. This document will be submitted to the National Oceanic and Atmospheric Administration (NOAA) and the EPA for approval in December 2001. During 2002, we will focus on implementation.

The State's position is that we already have a fully approvable Coastal Nonpoint Pollution Control Program, so that this effort should not result in additional rules or regulations. Regarding the issue of forestry permits, EPA's Total Maximum Daily Load (TMDL) Web site says: "In States that develop and maintain forestry BMP programs that are recognized by EPA as adequate (i.e. generally consistent with this guidance) forest operations will have no exposure to NPDES permit requirements...."

I would like to include your letter as part of the public record (called the "Listening Log") for the Coastal Nonpoint Program. The log will grow throughout this process, and will be available on MPCA's Web site. The Listening Log will also be included as an appendix in the document. Please let me know if you would prefer to have your letter excluded from the Listening Log.

I acknowledge your interest. I hope this helps ease your concerns. Hearing them helped me better understand the complexities and sensitivities surrounding this issue. Thank you.

ProgramTitle

CNPP

Category

CommentDate

First Name

Last Name

Organization Name

Comments

ResponseDate

ResponderName And Affiliation

Response http://www.pca.state.mn.us/water/stormwater.html. Hope this helps and make sure and call if questions arise!"/>

ProgramTitle

Category

CommentDate

First Name

Last Name

Organization Name

Comments P. 58, first bullet: Rather than suggesting avoiding harvesting say avoiding soil disturbance, because that's really what does the damage.
P. 58, bullet 1: minimize sediment delivery to surface waters add or wetlands.
P. 59: Agr. Cons. Program is gone. It was semi-replaced by EQIP, which does a little bit of this through the Farm Service Agency (\$) and NRCS (technical assistance).
P. 59: MFIP is gone.
P. 59: SIP there is now much less money than there was, but it is supplemented by the Minnesota Forestry Association's LCMR grants (\$400K and \$800K), for a SIP-like cost-share.
P. 60, cc: add Minn. Forestry Assn. (MFA)."/>

P. 73, dd: U.M. Forest Vegetation Mgmt. Coop. may no longer exist check with the Cloquet Forestry Center.
P. 74: LUGs BWSR says LGUs, because some took offense to LUGs.

ResponseDate

11/14/00

**ResponderName
And Affiliation**

Karen Plass, MDNR

Response

I want to let you know that I appreciated your updates and suggestions on the Coastal Nonpoint forestry excerpt.
I decided to write it up for our summary, and have attached my write-up. Please speak up if I've misquoted anything! Thanks.

ProgramTitle

CNPP

Category

Scoping Document; Forestry

CommentDate

11/9/00

First Name

Dave

Last Name

Miller

**Organization
Name**

MN Forest Resources Council

Comments

I don't have any specific comments except that I believe the voluntary site level guidelines developed by the Council take the place of many of the BMP's. At least they are more current. If that is the case you will need to emphasize the site level guidelines rather than BMP's in this document. You need to talk to Mike Phillips about this.

ResponseDate

11/13/00

**ResponderName
And Affiliation**

Karen Plass, MDNR

Response

Thank you for your review of the forestry excerpt. FYI, I have included, below, Rick Dahlman's detailed suggestions on this issue. Part of the current process is inviting people to flag any parts of the 1995 document that need updating, and I appreciate the fact that you and Rick caught this. I'll be sure that the revised text (which will be developed over the next few months) is updated to reflect the current Forest Mgmt. Guidelines and landscape level planning approach.

I haven't connected with Mike Phillips yet, but will as this process gets a little further along.
Thanks, again!

Received from Rick Dahlman: "I have reviewed the scoping document for the Lake Superior plan. Since the scoping document was written in 1995, there are obviously many discrepancies relative to the current Forest Management Guidelines. It is my assumption that the Lake Superior plan will adopt the current Forest Management Guidelines and compliment the current landscape level forest management planning efforts rather than take an independent approach. This avoids duplication of the extensive effort involved and provides continuity across the state and between organizations.

The current forest guidelines, published in early 1999, built upon the water quality, wetland, and visual quality BMPs cited in the scoping document. They have been expanded to address four additional site level issues, riparian areas, site specific wildlife, soil productivity, and cultural and historic resources. An extensive (nearly 3 years) stakeholder, peer review, and public review process, and an intensive resource manager and logger education program was utilized to develop and implement these expanded guidelines. A new statistically designed monitoring

process is in place to monitor their use. Research efforts are underway to evaluate their effectiveness and economic impact. Landscape level planning, on an ECS subsection basis, is underway, to augment the site level guidelines." [End of R. Dahlman comments].

ProgramTitle

Category

CommentDate

First Name

Last Name

Organization Name

Comments

I made one brief comment on the MS Word version of the forestry excerpt, below, in section 4.2.1, which is the introduction:

Text: "This area was originally comprised of nearly pure coniferous stands of eastern white pine, jack pine, red pine, white spruce, black spruce, northern white cedar, tamarack and balsam fir."

Comment: I don't believe that the previous sentence is true. The research that I have seen indicates that vast areas of pure stands were not the majority of the forest. There were large areas of aspen, birch and upland hardwoods. Jim Larson, St. Louis County Land Dept. has authored an excellent video that covers this subject and others.

In general, I thought that the detailed background sections incorporated the forestry BMP process very well, as well as other regulatory/voluntary methods. The final commentary text shown in blue at the end seemed to be somewhat hesitant in its support or endorsement of how present regulatory/voluntary approaches are working. I don't know if that was the intent of the writers. Since this is only one excerpt, I don't know if this is just a writing style that is consistently applied to the whole scoping document, or only appears here.

ResponseDate

ResponderName And Affiliation

Response

Thank you very much for your comments.

On the introductory text (4.2.1), Jim Lemmerman (forester for the Board of Soil and Water Resources) gave me the same feedback you did, so I will make sure we get that revised.

The blue text was the feedback we received from NOAA (the National Oceanic and Atmospheric Administration) in 1996. I think the tone you noticed appeared in reviews of the other sections of the document, as well.

We will face the same challenge - convincing NOAA that our voluntary practices are sufficient, and that the state has some backup authority. The Attorney General's office will be developing a companion piece that explains what that backup authority is (state water quality standards, public nuisance law, etc.). One change since 1996, however, is that NOAA has become more accepting of voluntary measures, especially when there is an evaluation component that documents their effectiveness.

ProgramTitle

Category

CommentDate

10/24/00

First Name

Rick

Last Name

Dahlman

Organization Name

MN Dept of Natural Resources

Comments

I have reviewed the scoping document for the Lake Superior plan. Since the scoping document was written in 1995, there are obviously many discrepancies relative to the current Forest Management Guidelines. It is my assumption that the Lake Superior plan will adopt the current Forest Management Guidelines and compliment the current landscape level forest management planning efforts rather than take an independent approach. This avoids duplication of the extensive effort involved and provides continuity across the state and between organizations.

The current forest guidelines, published in early 1999, built upon the water quality, wetland, and visual quality BMPs cited in the scoping document. They have been expanded to address four additional site level issues, riparian areas, site specific wildlife, soil productivity, and cultural and historic resources. An extensive (nearly 3 years) stakeholder, peer review, and public review process, and an intensive resource manager and logger education program was utilized to develop and implement these expanded guidelines. A new statistically designed monitoring process is in place to monitor their use. Research efforts are underway to evaluate their effectiveness and economic impact. Landscape level planning, on an ECS subsection basis, is underway, to augment the site level guidelines.

I have three significant concerns regarding the scoping document in reference to forestry. The first concern is the statement on page 23 that states that "logging and iron mining ... are considered the principle activities that impact water quality in this area." there should be some sound factual basis for such a statement. Identifying any activity as a "principle" contributor without clear documentation is unnecessarily inflammatory and could become a stumbling block to acceptance of the overall plan. There is no doubt forest management activities, including timber harvest, do impact water quality. However, most literature identifies forest practices as contributing 3 to 9 percent of the nonpoint source pollutants nationally, with states such as Minnesota on the low end of that range.

The second concern relates to the tables and bar charts at the end of the Executive Summary. The bar chart on page 29 titled "Major NPS Sources in Rivers" is a prime example. I believe the label for each bar is meant to indicate land use categories, not on-site activities. However, it is not at all clear that this is the case, and the meaning of the chart is very unclear. This leaves the chart open to mis-interpretation, which, again, could be unnecessarily inflammatory. All tables, charts, and graphs need to be more clearly titled and labeled to minimize confusion.

The third concern relates to the discussion of "Streamside Management Areas (SMAs)" in the Forestry chapter. The first paragraph of item ee. under iii. on page 63 references the "Division of Forestry Northeastern Region Plan". It implies adoption of the riparian guidelines proposed in that document. It proposes a 200 foot wide RMZ around all protected waters and trout streams and their tributaries, limited or no harvest within 100 feet, and only selective harvests in the outer 100 feet. RMZs were a highly contentious issue during the development of the expanded Forest Management Guidelines. They remain so. The reference to the "Division of Forestry Northeastern Region Plan" proposed RMZ guidelines should be eliminated.

There are a number of lesser concerns, but I am hopeful that they will be resolved during the preparation of the final plan. Please keep me involved in the development of all segments for the Lake Superior Coastal Zone Management Plan that relate to forestry. Thank you.

ResponseDate

10/24/00

ResponderName And Affiliation

Karen Plass, MDNR

Response

Hi, Rick:

Thank you for reviewing the scoping document, and for your thorough and thoughtful comments.

Yes, you are correct in thinking that the coastal nonpoint program will use the current Forest Management Guidelines and landscape level forest management planning efforts, rather than take an independent approach.

I'd like to assure you that we will address your concerns - and will make sure that you and other forestry experts have an opportunity to review the draft text that will be developed for forestry over the next few months. (The same thing will be happening with the other five nonpoint source

categories that are defined in this process). The "expert" review will take place before the draft document gets reviewed by the Programmatic Work Group (PWG) (which is made up of representatives of local units of government and other land management agencies and organizations in the basin, and which serves as an advisory group for the Basin Planning/Coastal Nonpoint process). After that comes the public review.

Timewise, the "expert" input and technical review will take place between November and early January, as the source category write-ups from the scoping document are updated, revised and refined. The PWG review of the draft program document will run from Jan. 22 - Feb. 16 (four weeks), and the public review will run from March 26 through April 4 (six weeks).

In addition to the three significant concerns that you have already flagged, I would appreciate hearing about your lesser concerns, as well, in any format that's relatively quick and convenient for you. Maybe sometime in the next 3-4 weeks, while those concerns are still fresh in your mind, you could make some rough notes on a printout of the text, or talk me through them on the phone (and have me write up the notes). Either one would work for me.

Thanks, again, for the feedback! It's much appreciated.

ProgramTitle

CNPP;LSBP

Category

General; North Shore

CommentDate

9/28/00

First Name

Fern

Last Name

Koestner

Organization Name

Comments

After reading the Scoping document, re: the LSBP, I think the major weakness is the expectations of the Federal and State governments that the county and city governments will comply with the plan. Just sharing a 'vision' and acting as an 'umbrella' organization will not guarantee nor safe guard the water quality. There are just too many holes in that umbrella. As can be seen along the shore between Duluth and Grand Marais, the local planning units are allowing variances, leading to any kind of housing and seasonal lodgings to be built, with little regard for the 'pristine beauty' or 'lively trout streams'. As long as these developments bring in the taxes, they will be approved by the planning commissions. Lake Superior's basin will soon be a Minnesota 'Riviera' with only wealthy residents and resorts allowed on the shores. State and Federal governments should have regulations in place that are enforceable and not rely on voluntary compliance with the plan. One other point - how will the LSBP control the major pollution that will occur as the MDOT reconstructs Hwy 61? The area between Split Rock River and Tofte is saturated with nearly 50 years of taconite dust which will be disturbed and it will end up in the air and rivers - unfortunately, Lake Superior. We've lived on the North Shore for 31 years and it's not a pleasant thought re: taconite dust blowing around for months on end.

ResponseDate

ResponderName And Affiliation

Response

(in progress)

ProgramTitle

CNPP

Category	<input type="text" value="CNPP"/>
CommentDate	<input type="text" value="9/6/00"/>
First Name	<input type="text" value="Roger"/>
Last Name	<input type="text" value="Andrascik"/>
Organization Name	<input type="text" value="Voyageurs National Park"/>
Comments	<input type="text" value="Is Voyageurs National Park(Rainy, Namakan, Kabetogama and Sand Point Lakes) covered under this program?"/>
ResponseDate	<input type="text" value="9/13/00"/>
ResponderName And Affiliation	<input type="text" value="Joel Peterson, MPCA"/>
Response	<input 218-283-2240."="" area,="" at:="" baratonio="" basin="" basin"="" be="" but="" can="" coastal="" effort="" he="" in="" include="" is="" it="" money.="" nolan="" not="" planner="" planning="" rainy="" reached="" the="" there.="" type="text" up="" value="Thanks for the question asking if Voyager's National Park is in the area for the Coastal Nonpoint Program. The Minnesota Coastal Nonpoint Program is part of the National Coastal Program, which includes the Atlantic and Pacific coasts as well as the Great Lakes. Minnesota's coastal Nonpoint Program can only include those areas within the Lake Superior Basin and within MN boundaries. Unfortunately, Voyagers is not in that area. A portion of the Southeastern area of the federal BWCAW is in this area. There is a " would="" you=""/>

ProgramTitle	<input type="text" value="CNPP"/>
Category	<input type="text" value="Scoping Document; Wetlands"/>
CommentDate	<input type="text" value="9/4/00"/>
First Name	<input type="text" value="Glenn"/>
Last Name	<input type="text" value="Maxham"/>
Organization Name	<input type="text" value="Save Lake Superior Association"/>
Comments	<input "the="" "what="" addresses="" and="" areas="" basin="" basin's="" bedrock...."="" begins="" bullet="" equally="" focus="" forests,="" from="" future="" heading="" high="" is="" it?""="" lake="" lakes,="" localized="" of="" paragraph="" plan's="" pollution."="" protect="" quality="" special="" superior="" the="" these="" threats="" to="" two="" type="text" under="" value="As one who has been invited to participate in the Lake Superior Coastal Nonpoint Pollution Program, I have a couple of questions regarding issues to be included or excluded from citizen input. In your cover letter of August 29, 2000 it was noted that the Program is being facilitated by the DNR and by the MPCA. Could this leadership mean that issues of concern to non-agency citizens, which may be critical of past performances by one these governmental agencies, may not be included? More specifically, we in the Save Lake Superior Association have long questioned the DNR Fisheries Division's actions in northeastern Minnesota that have resulted in the release of a million or more gallons of beaver-impounded water into North Shore streams. (the beaver dams were blown out to allow for faster movement of water to try to increase numbers of non-native slamonids). This action, while perhaps not technically originating from a non-point source, results nonetheless in erosion problems with deposition of erosion detritus in Lake Superior. It has also wiped out dozens of wetlands created by beaver. In your packet of material is a page titled 'Lake Superior Basin Plan - How Will it Work?' in the second sentence it's stated " water="" watershed="" wetlands,="" where="" with="" words=""/>

on this same page, in paragraph two, it reads "The LSBP will consist of recommendations for the protection of threatened waters, restoration strategies for impaired waters, and suggestions for institutional changes that improve regulation, management, and cooperation among agencies." Having quoted the above positions of intent by the MPCA and the DNR, can I assume that our concerns for wetland destruction by the DNR through beaver dam removal will be on the table and opened to discussion and input from interested citizens? Or will it be eliminated on the basis of being an indirect or peripheral issue that can be sidestepped due to a possible conflict with DNR management? Pardon my cynical approach, but I have been unsuccessful to date in trying to convince the DNR that it is doing great harm to the wetland ecosystem in this Basin by destroying beaver colonies, and by the equally horrendous salmonids, especially steelheads, to gain access to potential spawning beds upstream. To ignore our stated concerns in the Lake Superior Basin Plan is tantamount to condoning the egregious damages within the Basin at the hands of the Fisheries Division of the DNR. I would appreciate a response to questions we have raised.

His response on 10/16/00: Thank you for your reply to my letter and I was pleased that it will be included in the listening log. Regarding the views of those to whom you spoke regarding the elimination of beaver, their ponds and lodges on North Shore streams, I would venture to say that the general public would find it difficult to believe that Minnesota has any wetland to spare, including those created by beaver. The sacrifice of these wetlands to benefit non-native salmonids I find to be especially galling and, I assume, so will others such as the Audubon Society, Sierra Club, and other groups I will be contacting on this issue.

ResponseDate

10/6/00

***ResponderName
And Affiliation***

Karen Plass, MDNR

Response

Thank you for submitting comments in response to the distribution of the Coastal Nonpoint "Scoping Document". I want to acknowledge your letter and your concerns. Your letter will become part of the public record for development of the Coastal Nonpoint Pollution Program and the Lake Superior Basin Plan. It will be included in the "Listening Log", which will continue to grow throughout this process. Issuing the Scoping Document was the first step in developing the Coastal Nonpoint Program Document. The Program Document will follow federal guidelines, describing the state's enforceable policies and best management practices in six nonpoint pollution categories, identifying existing laws, regulations, policies, programs and practices. It will be submitted to the National Oceanic and Atmospheric Administration (NOAA) and the Environmental Protection Agency (EPA), who will review Minnesota's Coastal Nonpoint Pollution Program for completeness and adequacy. Phase 1 is this identification process, which will be completed in December 2001. Phase 2 (January through December 2002) will consist of developing an implementation strategy and beginning implementation. Phase 2 is when we anticipate looking in detail at a variety of nonpoint issues, with more public discussion. In the meantime, I shared your concerns with the Programmatic Work Group; it oversees the coastal nonpoint/basin planning process and is comprised of representatives of land-management agencies and local units of government. I am glad that you are involved in an active dialogue and exchange with John Spurrier and Don Schreiner regarding fisheries management policies. I encourage you to continue those discussions. For the Coastal Nonpoint Pollution Program, you will receive periodic updates, be invited to public meetings in January and be notified when the draft Program Document goes out for public review next spring. Thanks, once again, for your comments.

Minnesota's Lake Superior Coastal Nonpoint Pollution Control Program
is being developed as part of:

Minnesota's Lake Superior Basin Plan,
which is facilitated by the Minnesota Pollution Control Agency, and
Minnesota's Lake Superior Coastal Program,
which is led by the Minnesota Department of Natural Resources.

Funding for this program is being provided by the State of Minnesota,
which includes funding through
the National Oceanic and Atmospheric Administration and
the U.S. Environmental Protection Agency.



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