

Executive Summary and Introduction

Summary and Introduction

The Upper Mississippi River Basin Information Document is a compendium of information about the water resources, with primary focus on the water quality, of the Upper Mississippi River Basin. As such the Basin Information Document is not a plan, but a source of information to be used in the planning effort. It is not meant to be read from cover to cover, but rather as a reference tool for looking up particular data issues. The information presented in the Basin Information Document should be used by the water resource managers and others interested in water management in the Upper Mississippi River Basin.

This document includes information on how the Minnesota Pollution Control Agency (MPCA) intends to undertake basin planning in the Upper Mississippi River Basin, description of the natural settings of the Upper Mississippi River Basin, assessments of the condition of waters in the basin, summaries of previous and current local plans on water resource management, summaries of public outreach programs in the basin, and information on current activities and projects underway in the basin.

The Upper Mississippi River Basin Information Document attempts to be as thorough as possible, though we acknowledge that the Basin Information Document is not entirely comprehensive. The Upper Mississippi River Basin consists of over 20,000 square miles of land area. Within this large area numerous

water projects, activities, and data collection are underway, and in the sheer number, many of these activities could be over looked. The authors wish to apologize in advance for any oversight of any water management or protection effort that was not identified. Though not entirely comprehensive, this Basin Information Document attempts to bring together in one place a variety of information which should be useful. The MPCA intends to post most of the information found in this document on the MPCA website at:

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

In addition, rather than duplicate or repeat past efforts this document consists of data and information collected from a number of sources including the U.S. Geological Survey, the U.S. Environmental Protection Agency, the Minnesota Pollution Control Agency, the Minnesota Department of Natural Resources, the Minnesota Department of Health and the Minnesota Department of Agriculture. Comprehensive Local County Water Plans, Watershed District Plans, Soil and Water Conservation District Plans, and numerous other local plans and efforts. It is important that the work of the past be recognized, considered and built upon in future planning and management efforts. The MPCA thanks those parties whose information was included in this document.

Emerging Issues

The Upper Mississippi River Basin is constantly evolving and issues in the basin are taking a local, regional, national and global context. As this document is used for the MPCA Upper Mississippi River Basin planning process, a number of issues will be discussed. Below are just a few of the emerging issues that will face the planning groups in the basin.

Hypoxia – Gulf of Mexico

In the Gulf of Mexico nutrient over-enrichment, primarily nitrogen, from anthropogenic sources (human activities) is causing a zone of decreased dissolved oxygen (Hypoxia) in the shallow coastal and estuarine area off the coast of Louisiana and Texas. The Mississippi and Atchafalaya River Basin dominate the nutrient loads to the Gulf.

Early evaluation of the problem indicates that approximately 56 percent of the nitrogen flux to the Mississippi River system is from the Upper Midwest Corn Belt States above the Ohio River outlet to the Mississippi River. Illinois and Iowa account for about 15 percent of each of the nitrogen flux to the Gulf. Minnesota is estimated to contribute about 5 to 6 percent of the excess nutrients in the Gulf from the Mississippi River system.

As more is known about the hypoxic zone in the Gulf of Mexico, best management practices and management programs will need to be developed by the individual states in the Basin to address the program. Minnesota will be required to develop solutions for the nitrogen flux sources coming from the State. Solutions to this problem will probably come from a range of point and non-point best management practices. For the Upper Mississippi River Basin, nutrient management for both phosphorus for the fresh water lake and river

systems and nitrogen for the Gulf of Mexico salt water system will most likely be major factors in the Basin Plan.

MPCA's Phosphorus Strategy

Phosphorus is the primary pollutant associated with the eutrophication of Minnesota's surface waters, a condition in which excess nutrients cause proliferation of algae and aquatic vegetation. Excess phosphorus causes nuisance algae blooms and reduced transparency, making waters unsuitable for swimming or other activities. It also affects downstream reaches, making it a pollutant of regional, statewide, and national concern. Phosphorus is an increasingly important area of environmental regulation, thus the MPCA developed a strategy, known as the "Phosphorus Strategy" for dealing with it.

Phosphorus in lakes and streams comes from both point and nonpoint sources. Point sources (e.g., wastewater treatment facilities) are most significant during periods of low precipitation and stream flow, while nonpoint sources (e.g. runoff from farms and cities) are most significant during periods of high precipitation and stream flow.

Minnesota has had point-source effluent limitations for phosphorus since the early 1970s. Minnesota Rules Chapter 7050.0211 subpart 1 reads, "Where the discharge of effluent is directly to or affects a lake or reservoir, phosphorus removal to one milligram per liter shall be required... In addition, removal of nutrients from all wastes shall be provided to the fullest practicable extent wherever sources of nutrients are considered to be actually or potentially detrimental to the preservation or enhancement of designated water uses." This rule, referred to as the "P rule," has historically been applied to discharges up to 50 miles upstream from the nearest lake or reservoir. However, under the new phosphorus strategy the

MPCA is using more of a basin-wide approach to address phosphorus loading.

As land uses change and population increases, concern over excess phosphorus in our surface waters also has increased. Recognizing this, in 1997 an MPCA team began forming a phosphorus strategy. The team developed seven action steps which now are in various stages of implementation. These steps form the MPCA's strategy for dealing with phosphorus pollution for both point and non-point sources. Included in the Strategy's activities are the following.

1. Develop education/outreach/information on environmental impacts of phosphorus.
2. Co-sponsor basin-wide phosphorus forums.
3. Use basin management as the main policy context for implementing the phosphorus strategy.
4. Broadly implement Minnesota's point-source phosphorus controls.
5. Broadly promote lake protection initiatives.
6. Address phosphorus impacts on rivers.
7. Modify water-quality standards if necessary.

The Upper Mississippi River Basin is facing a number of phosphorus and permitting issues. Implementation of the Phosphorus Strategy in the Basin Plan context will be a high priority.

Total Daily Maximum Loads (TMDLs)

The Federal Clean Water Act, Section 303 (b) administered by the U. S. Environmental Protection Agency requires States to develop a list of "Impaired Waters" within the State, that do not meet appropriate State Water Quality Standards.

In Minnesota the list of impaired waters is known as the Section 303 (d) list. Section 303 (b) and Section 303 (d) also require the State to develop Total Maximum Daily Loads (TMDLs) for the factors causing the stress or exceedance of the water quality standards. (A more detail explanation of TMDL and the impacted reaches is explained in Section III.)

Part of Minnesota's TMDL response will be to develop implementation and load plans for the identified river reaches through the Basin Planning Process.

Minnesota State Water Plan (Water 2000)

Every 10 years the Minnesota Planning Agency - Environmental Quality Board is required to submit to the Minnesota Legislature a "State Water Plan." The purpose of the State Water Plan is to include an assessment of the current conditions of Minnesota surface and ground water and to provide a framework for water policies for the next 10 year period.

Currently the Environmental Quality Board is updating the Minnesota Water Plan. Beginning during this Water Plan cycle, the plan is using a basin emphasis, with the idea that all future water related policies in the State of Minnesota will be based on hydrologic basin boundaries. A summary of the Upper Mississippi River Basin public comments is included in Appendix C.

The comments generally support water quality initiatives, seek more intensive monitoring and funding for water quality, and are interested in establishing goals for water quality of the rivers and lakes in the Upper Mississippi River Basin.