

I. INTRODUCTION

A. BACKGROUND

The Remedial Action Plan process was the result of the International Joint Commission's (IJC) efforts to halt the degradation of water quality in the Great Lakes. The 1972 Great Lakes Water Quality Agreement between the United States and Canada initially focused on controlling phosphorus inputs to the lakes. The 1978 Agreement expanded the issues of concern to include the effects of toxic substances on the Great Lakes water quality (Table I.1). The agreement adopted an ecosystem approach to water quality problems by encouraging consideration of the interrelationship among water, air, land, and all living things.

After the signing of the 1978 Agreement, IJC identified and designated 43 areas in the Great Lakes Basin as having impaired beneficial uses of the water resource due to pollution. Remedial Action Plans (RAPs) are to be developed for each of the 43 Areas of Concern (AOC). The Great Lakes Water Quality Agreement, as amended on November 18, 1987, defines AOC as "...a geographic area that fails to meet the general or specific objectives of the Agreement, or where such failure has caused or is likely to cause impairment of beneficial use or of the area's ability to support aquatic life." AOCs typically include major urban and industrial centers near rivers, harbors and connecting channels where pollution from a variety of sources, development of shoreline areas and other ecosystem impacts have impaired beneficial uses. Contamination from toxic substances is typically a major concern. The goal of RAPs is to define problems and their causes, and then recommend actions and timetables to restore all beneficial uses of the AOCs. Restoring uses is to be achieved through implementation of programs and measures to control pollution sources and remediate environmental problems.

That portion of the St. Louis River watershed initially designated as the Area of Concern included the section of the St. Louis River below Fond du Lac Dam, including St. Louis Bay and Superior Bay. This definition was later expanded to include the river reach from the City of Cloquet to Lake Superior (Figure I.1). This is the area of the river, that by virtue of population density and industrial concentration, will be the main focus of the RAP. In addition, the Nemadji River will be included in the plan and any factor within the St. Louis River watershed contributing to problems of the water resource will be considered in the plan. The St. Louis River AOC is shared by Wisconsin and Minnesota and both are actively cooperating and involved in development of the Remedial Action Plan.

The St. Louis River was originally designated an AOC due to the large loads of suspended solids, nutrients, and biochemical oxygen demand directly discharged into the river by various industries and communities. This pollution had significant adverse impacts on the beneficial uses of the area and placed severe stresses on the fish populations inhabiting the area. In the early 1970's, the adverse impacts of the pollution and objectionable tasting fish resulted in little or no sportfishing interest. Other recreational uses of the area such as boating and aesthetic viewing were similarly impaired.

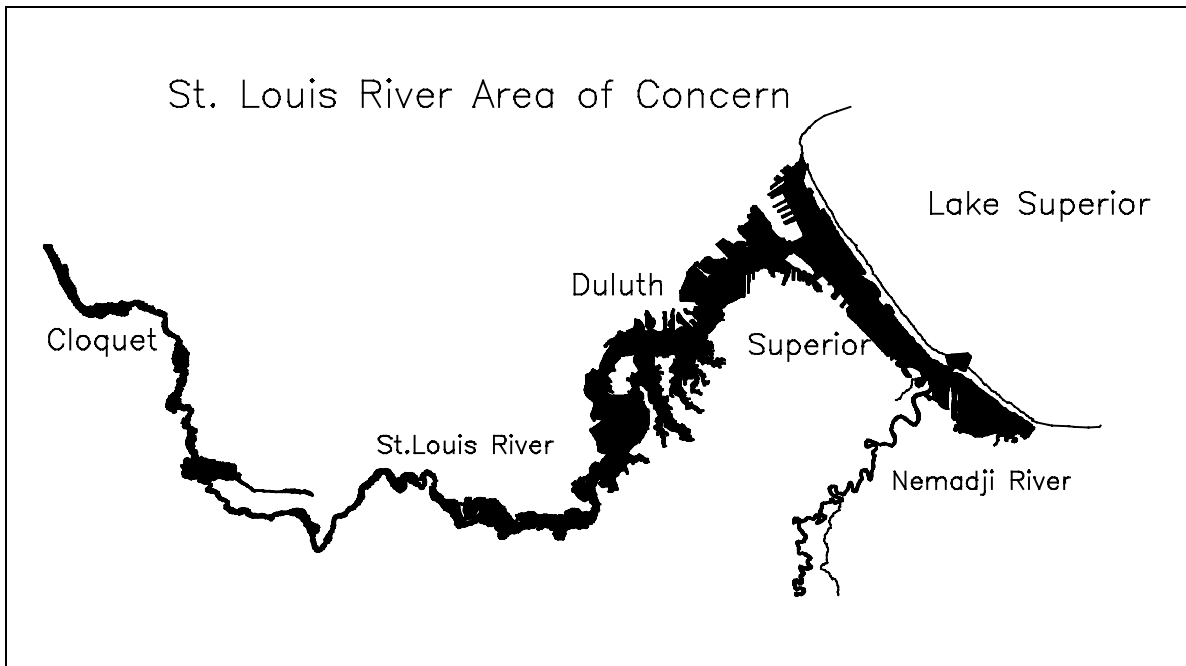
Table I.1 U.S. Laws Designed to Control the Entrance of Toxic Pollutants into Waters (adapted from Manahan 1984)

Name of Law	Major Provisions
1991	
1990	
Great Lakes Critical Program Act of 1990	Provides water quality guidance in accordance with the provisions outlined by the International Joint Commission in the Great Lakes Water Quality Agreement
Water Resources Development Act of 1990	Requires the participation of the U.S. Army Corp of Engineers in the development and implementation of Remedial Action Plans as outlined by the International Joint Commission in the Great Lakes Water Quality Agreement
Nonindigenous Aquatic Nuisance Prevention and Control Act	Establishes a task force to develop and implement a program to prevent introduction and dispersal of exotic species
Clean Air Act amendments	Requires assessment of atmospheric deposition of hazardous pollutants in the Great Lakes Basin and subsequent promulgation of additional regulations if necessary
1980	
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)	Provides for the "Superfund" program clean up of toxic waste dumps threatening water supplies
1977	
Clean Water Act (CWA)	Provides for the regulation of the quality of effluents discharged from publicly owned treatment works (POTW)
1976	
Resource Conservation and Recovery Act (RCRA)	Indirect control of water pollution by the regulation of the treatment, storage, and disposal of hazardous wastes
Toxic Substances Control Act (TSCA)	Provides the EPA with broad control over the manufacture, processing, and distribution of chemical substances posing a risk of injury to health or environment
1974	
Hazardous Materials Transportation Act	Provides for the regulation of dangerous substances, e.g. corrosives, oxidants, acids
Safe Drinking Water Act (SDWA)	Requires the U.S. Environmental Protection Agency (EPA) to regulate the quality of public drinking water

Table I.1 cont. U.S. Laws Designed to Control the Entrance of Toxic Pollutants into Waters

Name of Law	Major Provision
1972	
Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)	Requires registration, classification, and regulation of pesticides
Marine Protection, Research and Sanctuaries Act	"The Ocean Dumping Act"; provides for control of toxic waste dumping in the oceans
Ports and Waterways Safety Act	Enables the Coast Guard to regulate bulk shipment of hazardous substances and oil by water
1970	
Federal Water Pollution Control Act (FWPCA)	Provides the basic mechanism for water-pollution control; requires "best available technology"
1954	
Atomic Energy Act	Provides for regulation of environmental release of radioactive wastes

Figure 1



In the mid-to-late 1970's, several remedial actions caused remarkable improvement in the water quality and fisheries of the St. Louis River System:

- (1) Formation of the Western Lake Superior Sanitary District (WLSSD).
- (2) Consolidation of the treatment of a majority of the municipal and industrial discharges in Minnesota at a single facility with a single discharge.
- (3) Construction and operation of an advanced wastewater treatment system to treat the consolidated discharges.
- (4) Improved wastewater treatment by the City of Superior

These actions greatly improved the quality of St. Louis River water and fisheries. However, the many years of discharging untreated or poorly treated wastes into the river and bay have left their mark. Sediment contaminated by toxic substances still remains in the St. Louis River and impairs beneficial uses of dredged materials and fish consumption. Contaminated sediment makes disposal of dredged material very difficult and provides a reservoir of contaminants which are released into the water and taken into aquatic life, including fish. Contaminated sediment is a major pollution concern for the St. Louis River AOC and, therefore, will be a major focus of the RAP.

In the St. Louis River, contamination of fish tissue by toxic substances has resulted in the issuance of fish consumption advisories for some size classes of some fish species by both Minnesota and Wisconsin. The advisories are based on the concentrations of mercury and PCBs in the fish tissue. Recent data collected as part of the U.S. Environmental Protection Agency (EPA) National Dioxin Study have shown the presence of low concentrations of 2,3,7,8-tetrachlorodibenzo-p-dioxin in flesh of fish taken from the harbor.

The RAP is only one of several planning efforts targeted at improving the environmental status of the St. Louis River AOC. Two sites of improper hazardous waste disposal in direct contact with the St. Louis River are being addressed by the MPCA. The U.S. Steel Duluth Works Site and the Interlake Steel/Duluth Tar and Chemical Company have been consolidated by the EPA into one hazardous waste Superfund site, which has been named the St. Louis River site on the National Priorities List. The U.S. Steel site and the Interlake site are also on the MPCA Permanent List of Priorities for remedial action and cleanup. Although listed on the National Priorities List as one site, each site is being investigated and will be cleaned up separately. The Remedial Investigation for the Interlake site has been completed and was approved by the Minnesota Pollution Control Agency (MPCA) and the Environmental Protection Agency (EPA) in February 1990.

B. PURPOSE

The IJC requested that the Minnesota Pollution Control Agency and Wisconsin Department of Natural Resources develop a RAP which identifies specific management strategies to control sources of pollution, abate environmental contamination already present, and restore beneficial uses in the AOC. As defined in the Water Quality Agreement between the United States and Canada, an impairment of beneficial uses means a change in the chemical, physical, or biological integrity of the Great Lakes system. The RAP will address the following specific points:

- * The environmental problems, including geographical extent of the area affected and research needs.
- * Beneficial uses that are impaired.
- * The causes of the problems and sources of pollutants.
- * Remedial measures proposed to resolve the problems and restore beneficial uses.
- * A schedule for implementing and completing remedial measures.
- * Agencies and jurisdictions responsible for implementing and regulating remedial measures.
- * The process for evaluating remedial program implementation and effectiveness.
- * Surveillance and monitoring activities that will be used to track effectiveness of the programs and eventually confirm that the AOC beneficial uses have been restored.

Water quality problems in the St. Louis River AOC are resulting in fish consumption advisories, dredging restrictions, high nutrient levels, habitat loss and degradation, and possibly aquatic biota and wildlife impacts. Restoration of the beneficial uses of the AOC will be guided by the ecosystem perspective which emphasizes the protection of the entire Great Lakes system.

The RAP is intended to guide the restoration of beneficial uses in the St. Louis River AOC. Development of the RAP is but a first essential step in that program. To achieve results, the RAP must be implemented. Proper development and implementation of the RAP will only be successful if concerned citizens take an active role in these activities. The St. Louis River RAP makes extensive use of volunteers to provide technical advice as well as policy development and goal establishment.

The RAP will cite those remedial efforts that have already been initiated and have improved the water quality of the AOC as well as develop and recommend future remedial activities. After approval of the states, the RAP will be incorporated in the Minnesota and Wisconsin water quality management plans.