

INTRODUCTION

Overview

From its headwaters near the Mesabi Iron Range of northern Minnesota to its mouth at the western end of Lake Superior, the St. Louis River drains approximately 3,634 square miles of land. It is the major U.S. tributary to Lake Superior, largest and deepest of the Great Lakes.

The St. Louis River originates near Seven Beaver Lake (Township 58 North, Range 12 West) in clay deposits of the ancient lake bed of Glacial Lake Upham. The river flows south and west through lake clays and glacial deposits for nearly 100 miles to the town of Floodwood, Minnesota, where it turns to the southeast. Near the city of Thomson the channel narrows, and the river flows through a rocky rapid-filled gorge known as the Dalles, now part of Jay Cooke State Park. After emerging from the narrow gorge, the river curves to the northeast, widening into an estuary. The river channel in this area marks the Minnesota/Wisconsin state border and separates the cities of Duluth, Minnesota, and Superior, Wisconsin. The estuary, protected from the waves of Lake Superior by a baymouth sand bar, serves as the Duluth-Superior Harbor - largest harbor on all the Great Lakes.

From below the Fond du Lac neighborhood of Duluth to its outlet at Lake Superior, the Lower St. Louis River is a 12,000-acre freshwater estuary, which was created when the level of Lake Superior rose following the retreat of the last glaciers. The rising waters gradually drowned the mouth of the St. Louis River and its lower tributaries.

Ecological conditions in the Lower St. Louis River vary greatly. The upper portion of the estuary still retains relatively undisturbed areas, while sections of the lower estuary and harbor have been dredged and modified since the mid-1800s to accommodate shipping traffic and commerce (Walker and Hall 1976). The estuary as a whole, including modified as well as undisturbed areas, provides habitat for a rich variety of fish, aquatic invertebrate, bird, and other wildlife species.

This Habitat Plan has been prepared to facilitate protection of the ecological diversity of the Lower St. Louis River, in accordance with a recommendation of the Stage Two Remedial Action Plan for the St. Louis River Area of Concern (MPCA and WDNR 1995).

Remedial Action Plan

During the 1970s, concerns about pollution problems in the Great Lakes Basin prompted the development of the Great Lakes Water Quality Agreement between Canada and the United States. The goal of the Water Quality Agreement is to restore and maintain the chemical, physical, and biological integrity of the Great Lakes Basin ecosystem (IJC 1989). The International Joint Commission (IJC) designated 43 Areas of Concern (AOC) within the Great Lakes Basin. These areas were recognized as having impaired beneficial uses of the water resource due to pollution. The St. Louis River System was designated as an Area of Concern.

The IJC recommended that a Remedial Action Plan (RAP) be developed for each AOC. The purpose of the RAP is to define the problems that caused the impairment, recommend actions and timetables for restoring the beneficial uses of the AOC, and implement the recommendations.

Development of the Stage One St. Louis River System RAP began in 1989 as a collaborative effort between the Minnesota Pollution Control Agency (MPCA) and the Wisconsin Department of Natural Resources (WDNR). The RAP focused primarily on the 39 river miles of the St. Louis River from Cloquet, Minnesota, to Lake Superior, including the Nemadji River.

The Stage One RAP document, which focused on identification of problems, was published in 1992 and was highly praised by the IJC (MPCA and WDNR 1992). A progress report, or Stage Two RAP, was published in 1995 and contained 43 recommendations for actions on specific problems. The Stage Two RAP also contained a three-phase sediment program for the St. Louis River AOC, which included the development of a Sediment Assessment Plan, a Sediment Management Plan, and a Sediment Monitoring Plan (MPCA and WDNR 1995).

With the help of public agencies, in 1996 the citizens advisory committee that had assisted with the preparation of the RAP was transformed into an independent, non-profit organization - the St. Louis River Citizens Action Committee (CAC). The CAC is committed to facilitating implementation of the recommendations of the RAP and to developing additional recommendations as needed.

The RAP recognized that although habitat is still being lost along the Lower St. Louis River, many valuable areas remain. Cooperative action between various stakeholders, decision-makers, and resource managers in both Minnesota and Wisconsin is needed to protect the remaining habitat and restore degraded areas.

Recommendation #38 of the Stage Two RAP described the creation of a Habitat Plan:

*Design and implement a coordinated comprehensive plan for the protection and further-
ance of biodiversity and ecological diversity within the Area of Concern, without seeking to
restore the estuary to its presettlement condition, through the creation, restoration, reclama-
tion, enhancement, and management of a desired mix of ecosystems and habitat.*

Habitat Plan

In 1999, initial funding was obtained to begin preparation of the Lower St. Louis River Habitat Plan. The St. Louis River System AOC includes the lower 39 river miles of the St. Louis River, but for this initial phase of the Plan, the CAC decided to focus on the lower 21 river miles plus extensive areas of adjacent forested land. Future phases will cover the remaining areas of the AOC.

Extending from the Fond du Lac dam to Lake Superior, the total area covered by the Habitat Plan includes approximately 260,000 acres. The boundary for the Lower St. Louis River project area was developed using ecological criteria (Map 1. Project Area Boundary). The boundary encompasses the area required for the conservation targets to maintain natural ecological functions and processes. The upland forest conservation targets surround other conservation targets; therefore, the area required for their ecosystem functions determines the outer boundary of the project area. The boundary roughly follows the historical extent of the boreal spruce-fir forests that once dominated the area; it also includes areas historically occupied by white and red pine forests and northern conifer-hardwood forests. Current vegetation data were also used to establish the boundary; some areas near the edge of the historical boreal forest that have been converted to pasture or cropland were not included. The project area does not include the complete watersheds of the clay-influenced and bedrock-influenced tributaries that are targeted in this plan. Once those watershed boundaries are mapped, the Lower

St. Louis River project area boundary will be modified to include those watersheds. The project area includes much of the metropolitan area of Duluth, Superior, and surrounding towns because there are some natural areas remaining within various city limits that are ecologically significant, and because the Twin Ports human community is an integral part of this project.

The guiding principles of the Habitat Plan, as defined in the RAP, are to :

- Recognize that what is to be managed is not the environment but the actions of humans operating within the environment.
- Promote stewardship of the resource by local residents, users of the resource, and those concerned with it.
- Protect, enhance, and restore ecological functions and maximize biodiversity without seeking to restore the estuary to its presettlement condition.
- Conduct the planning process within the context of similar planning efforts for the St. Louis River watershed (including the Nemadji River watershed), the Lake Superior Basin, and the Great Lakes.

A Habitat Committee (the Committee) was formed to oversee the preparation of the Habitat Plan. The Committee developed the following vision to guide the Plan:

The vision for the Lower St. Louis River is a thriving human community connected to the aquatic and terrestrial ecosystems of the river. The river ecosystems are diverse, productive, and healthy, with natural processes (such as hydrologic regimes, biological productivity, and nutrient cycling) operating within the natural range of variation. The diversity of plants and animals and the composition of natural communities present at the time of European settlement is reflected in the sustainable ecosystems of today.

Based on this vision, the Committee determined that the Habitat Plan would include the following:

1. A detailed and comprehensive synthesis of existing information.
2. An estuary-wide guide for resource management and conservation that would lead to adequate representation, function, and protection of ecological systems in the St. Louis River, so as to sustain biological productivity, native biodiversity, and ecological integrity.
3. A list of conservation and management objectives that reflects a consensus of the Committee.
4. A suite of specific, obtainable, prioritized conservation and management actions that address specific threats.

How To Use This Plan

The Habitat Plan is intended to be a dynamic document. It has been published in a 3-ring binder format to make it easy to replace sections as updates become available. Resource managers are the primary audience for which the Habitat Plan was written, but the Plan is meant to be used by other audiences as well. It may not be necessary to read every section of the Plan, but each section has been included for its value in helping to provide the context in which the Plan was created.

The Habitat Plan begins with a brief summary of the **History of the Lower St. Louis River**, as a reminder of what the river ecosystem was like when European explorers first arrived. This is followed by an **Overview of the Planning Process**, which explains how the Plan was created. The **Lower St. Louis River Ecosystem** section includes a full description of the historical and current habitats of the Lower St. Louis River, and descriptions of the selected conservation targets, including their current

and desired state of health. The **Threats** section identifies the sources of the major processes and events that threaten the conservation targets or the ecological systems that are necessary to maintain the conservation targets. The section entitled **Strategies for Mitigating Threats** details numerous strategies that can be implemented to eliminate or minimize the threats to the conservation targets. The final section, **Indicators of Success**, identifies methods by which the success of the implementation phase can be evaluated. All of the **Maps** for the project can be found after the appendices.

It is important to recognize that the conservation goals described in this Habitat Plan represent an ideal from the ecological perspective. The authors of the Plan recognize that it may not be possible to achieve every goal to its full extent; practical considerations will play a role in where, how, and to what extent the goals can be achieved. It is not the intent of this Plan to recommend the restoration of the entire estuary and its surroundings to a presettlement condition. Rather, by setting conservation goals that will achieve a mix of ecological and social benefits, this Plan presents a new vision of the St. Louis River ecosystem toward which communities, organizations, and individuals can work in cooperation and partnership.

