



AUG 26 2010

Dear Reviewer:

In accordance with provisions of the National Environmental Policy Act (NEPA), we enclose for your review the National Oceanic and Atmospheric Administration (NOAA) Final Environmental Impact Statement and Final Management Plan (FEIS/FMP) for the proposed federal designation of the Lake Superior National Estuarine Research Reserve.

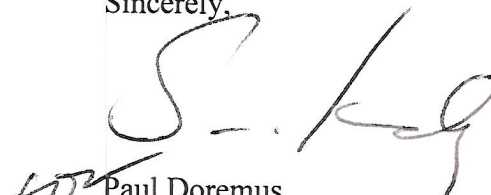
NOAA and the University of Wisconsin-Extension are pleased to release this FEIS/FMP. This FEIS/FMP is prepared pursuant to NEPA to assess the environmental impacts associated with NOAA's proceeding to establish a reserve representing the Lake Superior sub-region within the Great Lakes biogeographic region. The reserve will be operated primarily for research and education purposes; no new regulations have been proposed pursuant to this action. Traditional uses and tribal treaty rights—including access to ceded lands for hunting, fishing, and gathering—will not be changed or impeded in any way by reserve designation.

NOAA is not required to respond to comments received as a result of issuance of the FEIS. However, comments will be reviewed and considered for their impact on issuance of a record of decision (ROD). Please send comments to the responsible official identified below. The ROD will be made available publicly following final agency action on or after October 4, 2010.

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Sincerely,

  
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Enclosure



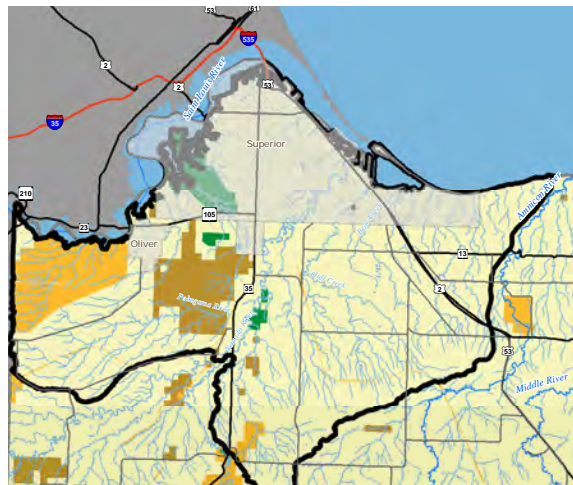


NATIONAL  
ESTUARINE  
RESEARCH  
RESERVE  
SYSTEM

# FINAL ENVIRONMENTAL IMPACT STATEMENT

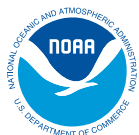
# LAKE SUPERIOR

## NATIONAL ESTUARINE RESEARCH RESERVE



September 2010

[www.nerrs.noaa.gov](http://www.nerrs.noaa.gov)



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## **NOTE TO REVIEWERS**

This is a Final Environmental Impact Statement (FEIS) prepared to review the environmental consequences of a federal action to approve a potential site nominated by the State of Wisconsin to the National Estuarine Research Reserve System. The statement looks at the nominated site in its entirety along with a Management Plan that will serve to guide all aspects of managing the site for the conduct of research, education and outreach activities, and related management, acquisitions and community purposes. Future actions such as potential changes to boundaries, acquisition and construction related activities would receive additional reviews within the framework of this programmatic document but only with the supplemental information needed to make informed decisions of the action in question and help to avoid costly and unnecessary repetition of information.

NOAA gratefully acknowledges the very considerable contributions in providing site specific information by the University of Wisconsin-Extension, Wisconsin Department of Administration and the Fond du Lac Band of the Lake Superior Chippewa for this FEIS.

Endnotes are found on page 58.

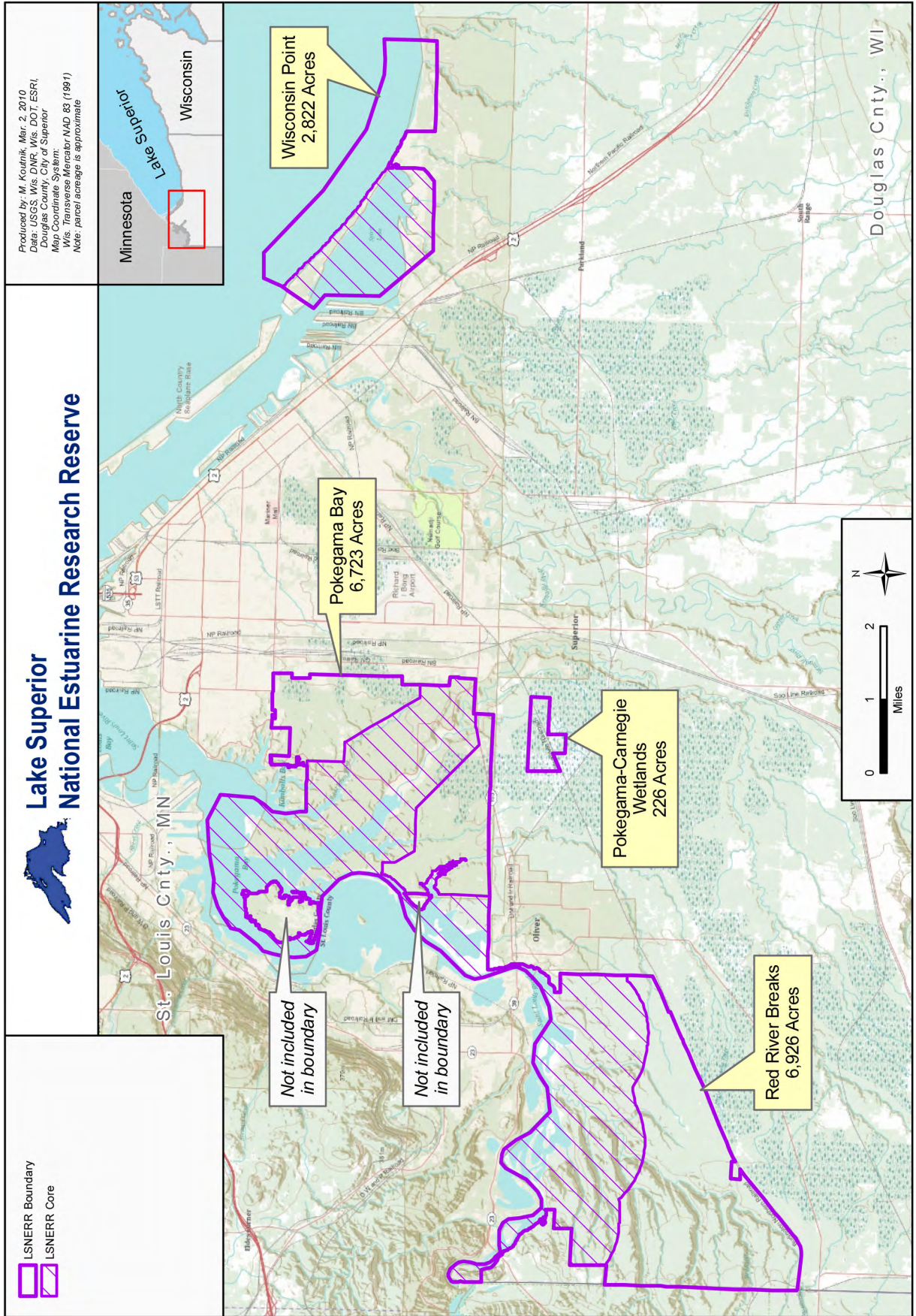
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Figure 1. – Map of Lake Superior NERR Boundary





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**LIST OF ACRONYMS**

<b>AOC</b>	Area of Concern
<b>CELCP</b>	Coastal and Estuarine Land Conservation Program
<b>CFR</b>	Code of Federal Regulations
<b>CTP</b>	Coastal Training Program
<b>CZMA</b>	Coastal Zone Management Act
<b>EIS</b>	Environmental Impact Statement
<b>ERD</b>	Estuarine Reserves Division
<b>ESA</b>	Endangered Species Act
<b>GIS</b>	Geographic Information System
<b>GLSLCI</b>	Great Lakes and St. Lawrence Cities Initiative
<b>K-12</b>	Kindergarten through twelfth grade
<b>KEEP</b>	K-12 Estuarine Education Program
<b>LSNERR</b>	Lake Superior National Estuarine Research Reserve
<b>MOU</b>	Memorandum of Understanding
<b>MP</b>	Management Plan
<b>NEPA</b>	National Environmental Policy Act
<b>NERR</b>	National Estuarine Research Reserve
<b>NERRS</b>	National Estuarine Research Reserve System
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>NHPA</b>	National Historic Preservation Act
<b>NWP</b>	Nationwide Permit
<b>OCRM</b>	Ocean and Coastal Resource Management
<b>RAB</b>	Reserve Advisory Board
<b>SOC</b>	Species of Concern
<b>SWMP</b>	System Wide Monitoring Program
<b>USACE</b>	United State Army Corps of Engineers
<b>UWEX</b>	University of Wisconsin Extension
<b>UWS</b>	University of Wisconsin-Superior
<b>WCMP</b>	Wisconsin Coastal Management Program
<b>WDNR</b>	Wisconsin Department of Natural Resources
<b>WI DOA</b>	Wisconsin Department of Administration

# EXECUTIVE SUMMARY

**On June 1, 2008, Wisconsin Governor Jim Doyle submitted a nomination to National Oceanic Atmospheric Administration (NOAA) to designate part of the St. Louis River freshwater estuary and the Lake Superior shoreline as the Lake Superior National Estuarine Research Reserve (LSNERR or ‘the Reserve’). The National Estuarine Research Reserve System (NERRS or ‘reserve system’) is a partnership program between the National Oceanic and Atmospheric Administration (NOAA) and coastal states that has protected more than 1.3 million acres of coastal and estuarine habitat since the program was established by the Coastal Zone Management Act (CZMA) in 1972. NOAA provides funding, national guidance and technical assistance and the lead state partner manages the reserve on daily basis with input from local partners. The State of Wisconsin has designated the University of Wisconsin-Extension (UWEX) to be the lead state agency for the LSNERR. Through careful stewardship, the reserve system protects estuarine areas, provides educational opportunities, promotes and conducts estuarine research and monitoring, and transfers relevant information to coastal managers.**

Currently, 27 reserves representing different biogeographic regions of the United States have been designated in the NERRS. Research and education are the main focus of the NERRS. The goals of NERRS Strategic Plan are:

- Strengthen the protection and management of representative estuarine ecosystems to advance estuarine conservation, research and education,
- Increase the use of reserve science and sites to address priority coastal management issues,
- Enhance people’s ability and willingness to make informed decisions and take responsible actions that affect coastal communities and ecosystems<sup>1</sup>.

The proposed LSNERR (16,697 acres/26.5 sq. mi/68.6 sq.km.) includes uplands and submerged lands; riparian and riverine habitat; riverine islands; emergent freshwater marshes, interdunal wetlands, and scrub swamp; aspen, xeric and hardwood forests; and open sand beach and dunes within a complex of four components. These components are not contiguous but are in close proximity (e.g., <10 miles) to each other. The Red River Breaks component consists primarily of state-owned upland and wetland habitats along the St. Louis River. Its 6,926 acres make it the largest component within the proposed reserve. Unique to the NERRS, the Pokegama Bay component, downstream of Red River Breaks, contains one of the largest municipal forests in the United States. Its 6,723 acres contain extensive forested wetlands, uplands, clay flats and submerged lands. South of Pokegama Bay is the smallest component, the Pokegama-Carnegie Wetlands. Owned by

Wisconsin Department of Natural Resources (WDNR), this 226 acre area is part of the largest and most intact red clay wetlands remaining in northwest Wisconsin. The Wisconsin Point component is approximately 2,822 acres of estuarine wetlands, xeric forest and Lake Superior water and lake bed. Wisconsin Point has exceptional habitat value and includes a bay mouth bar separating the waters of Lake Superior from Allouez Bay<sup>ii</sup>. Native American tribal cultural sites are found on Wisconsin Point and throughout the lower St. Louis River freshwater estuary. The lands within this component are owned by a combination of city, county, state, and university entities.

The Reserve will be administered by UWEX, the designated lead state agency by Wisconsin. Other key state, tribal, local and municipal partners in the LSNERR include the City of Superior, Douglas County, Fond du Lac Band of the Lake Superior Chippewa, WDNR, WCMP (Wisconsin Coastal Management Program), UW-Sea Grant and the UW-Superior. Further information on the administration and management of the Lake Superior NERR can be found in the Lake Superior NERR Management Plan (See Attachment A). This plan describes the reserve's goals and objectives; administration; boundaries and acquisition; facilities and construction; public access; resource protection, restoration and manipulation; and an orientation to the reserve.

In addition to the preferred alternative, other alternatives relative to the establishment of a NERR within the St. Louis River freshwater estuary are considered, including the "no action" option of not designating a NERR, and alternative boundaries for the NERR. Under the no action alternative, the lands within the NERR boundary would continue to be managed separately by the various land owning state, local, municipal or university entities. No additional federal funds, including grant funds, would be awarded to manage these lands and waters, or to conduct research and educational programs. Although these lands would continue to be protected,

they would be managed under the different resources and priorities of the respective entities involved. NERR designation would provide a clear alternative to current management of these lands and waters by encouraging reserve partners to create an alternative management structure that fosters collaboration among the landholding agencies and other parties to work together toward common goals for research, education, and resource stewardship. Alternative boundaries for the site are considered and largely involve modified site boundaries and component configurations. Designation of a Lake Superior NERR will not introduce new state or federal regulations, nor will it prohibit traditional uses of the area. This action will not affect the rights of the Lake Superior Chippewa tribes to hunt, fish, trap and gather within the reserve boundaries<sup>iii</sup>. Current uses within the different Reserve components include boating, fishing, hunting, snowmobiling, skiing, archery and other recreational activities. Measures will be taken by the Reserve partners to ensure the integrity of selected core research sites for the conduct of long-term research needs in consideration of traditional uses and treaty obligations.

Designation of a Lake Superior NERR within the St. Louis River freshwater estuary and the implementation of its management plan (MP) will provide environmental, social, and economical benefits to the region. Research and educational efforts will link different habitats, resources, and people to improve our understanding of Great Lakes estuaries. Physical alterations and impacts will be restricted to limited areas associated with construction of facilities supporting research and education activities and access sites associated with future growth and potential acquisition. If required environmental reviews will be conducted for individual facilities development projects. Overall, natural resources found in the area's different components will benefit from greater protection and management, and the reserve will serve surrounding communities through improved understanding of Great Lakes estuaries and their stewardship.

# 1.0 INTRODUCTION



Estuaries provide a vast array of resources and services to people. The unique role of estuaries in the transport of sediments and nutrients at the interface between the land and water supports a diverse array of habitats and species. Providing food, fuel, fresh water, flood regulation, nutrients, recreational opportunities, soils, aesthetics and other values, estuaries have long been a focal point of human activity<sup>iv</sup>. As a consequence, they have been heavily exploited throughout our history for natural resources, commerce, tourism and a host of other economic activities. Nationally, 43% of the U.S. population resides close to coastal and estuarine areas. Population and development pressures on our coasts and estuaries, as well as, economic activity have resulted in these areas being subject to continuous degradation. Within the Great Lakes, evidence of this degradation has been noted as recently as 2008. An assessment of our Nation's coasts and estuaries by the U.S. Environmental Protection Agency found that the ecological condition of the Great Lakes as a region were rated as poor to fair<sup>v</sup>. Despite this finding, within the Great Lakes, Lake Superior is the largest and the most pristine. Of the five Great Lakes, Lake Superior is the least populated lake basin and does not have the same level of development or pollution as the other Great Lakes.

## 1.1 THE COASTAL ZONE MANAGEMENT ACT

In 1972, Congress passed the National Coastal Zone Management Act of 1972 (P.L. 92-583, as amended, hereinafter the Act or CZMA). Congress recognized the significance of coastal resources and the importance of these resources to the national, regional and local economies.

The Act further recognized the interrelationships between the land, water, and transitional areas between them. These relationships are reflected in the following portions of the Act's 1996 reauthorization:

The increasing and competing demands upon the lands and waters of our coastal zone... have resulted in the loss of living marine resources,

wildlife, nutrient-rich areas, permanent and adverse changes to ecological systems, decreasing open space and shoreline erosion (16 U.S.C. §1451(c)).

The habitat areas of the coastal zone, and the fish, shellfish, other living marine resources, the wildlife therein, are ecologically fragile and consequently extremely vulnerable to destruction by man's alteration (16 U.S.C. §1451(d)).

In recognition of these issues, the Act established a national goal:

...to preserve, protect, develop, and where possible, to restore and enhance the resources of the Nation's coastal zone for this and succeeding generations (16 U.S.C. §1452(1)).

The Act assists coastal states, territories and local governments in developing tools and programs to improve their management capabilities of the rapidly developing coastal zone to help protect, preserve, develop and restore the fragile natural resources such as the bays and estuaries, the beaches, dunes and wetlands, and the flora and fauna that are dependent on those habitats. Congress also recognized that scientific knowledge of our coastal zone was often lacking. Local decision makers, developers and the public need to understand how the coastal ecosystems work and the consequences associated with development activities on these systems.

To improve our understanding of these ecosystems and support coastal management, Congress provided an additional incentive in the Act with the establishment of the National Estuarine Research Reserve System. Section 315 of the Act provided States with an opportunity to seek answers to important questions about our nation's estuaries through a network of protected areas.

### 1.1.2 THE NATIONAL ESTUARINE RESEARCH RESERVE SYSTEM

Section 315 of the Act (16 U.S.C. §1461),

establishes the National Estuarine Research Reserve System (NERRS or 'the system'). Pursuant to Section 315 of the Act, habitats within healthy estuaries that typify different estuarine types within the U.S. can be designated as a reserve. Reserves are operated for long-term research and monitoring, estuarine education, training, and interpretation. As a system, the NERRS provides a framework to conduct research; monitor estuarine health and conditions; model restoration techniques; and disseminate information for estuarine education, interpretation or decision-maker training.

The mission of the NERRS is stated in the implementing regulations (15 CFR 921.1) as the following:

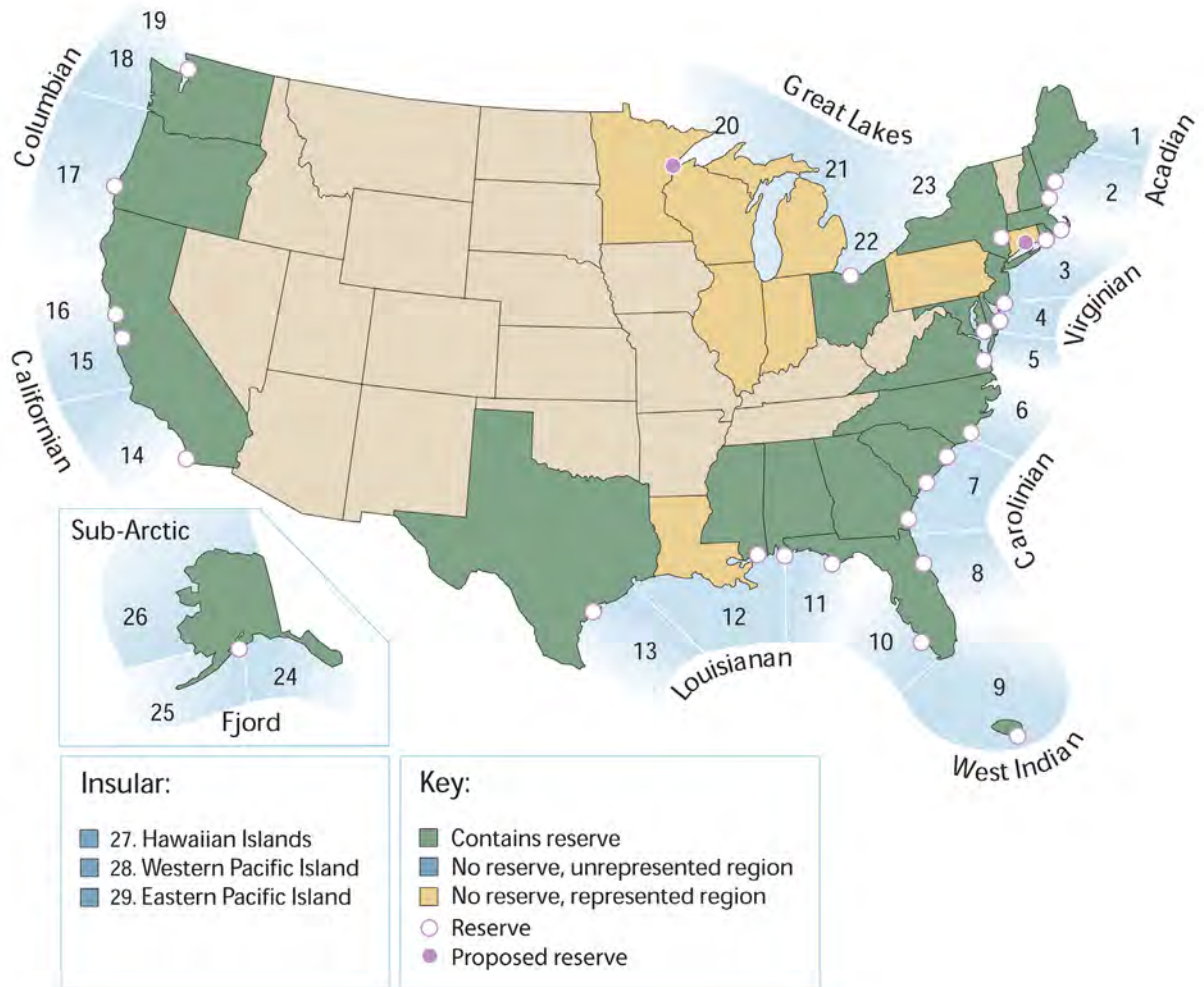
The establishment and management, through federal-state cooperation, of a national system of Estuarine Research Reserves representative of the various regions and estuarine types in the United States. Estuarine Research Reserves are established to provide opportunities for long-term research, education, and interpretation.

### 1.1.3 NERRS ADMINISTRATIVE FRAMEWORK

The NERRS is a partnership program between the National Oceanic and Atmospheric Administration (NOAA) and the coastal states. NOAA provides funding, national guidance, and technical assistance through the Office of Ocean and Coastal Resource Management (OCRM).

OCRM plays four important roles in operating the reserve system. First, it approves and designates individual reserves. Second, it disburses and oversees expenditures of federal funds for research, monitoring, education, land acquisition, facilities construction, operations, and the development of future reserves. Third, it coordinates and provides policy guidance for the system. Finally, as required by federal law, OCRM periodically evaluates the operation of

**Figure 2. – Map of Biogeographic Regions of the United States & Reserves**



research reserves for compliance with applicable federal requirements and with a reserve’s approved five-year management plan. OCRM’s Estuarine Reserves Division has day-to-day responsibility for the implementation of the system.

Each Reserve is managed on a daily basis by a lead state agency or university, with input from local partners. For the proposed LSNERR, UWEX is the lead state agency. Operating under a five-year management plan (Attachment A), reserve staff work with tribes, local communities and regional groups to address natural resource management

issues, such as non-point source pollution, toxics contamination, habitat restoration, climate change, and invasive species. Through integrated research and education, the reserves help communities develop strategies to deal successfully with these coastal resource issues. Reserves provide adult audiences with training on estuarine issues of concern in their local communities. They offer field experiences for K-12 students and support teachers through professional development programs that focus on the ecological, cultural, and historical aspects of the estuary. Reserves also provide long-term water quality and habitat

**Table 1 – Biogeographic Regions & Subregions**

1. Acadian – Northern Gulf of Maine	16. Californian – San Francisco Bay
2. Acadian – Southern Gulf of Maine	17. Columbian – Middle Pacific
3. Virginian - Southern New England	18. Columbian – Washington Coast*
4. Virginian – Middle Atlantic	19. Columbian – Puget Sound
5. Virginian – Chesapeake Bay	20. Great Lakes – Lake Superior *
6. Carolinian – North Carolina	21. Great Lakes – Lakes Michigan & Huron *
7. Carolinian – South Atlantic	22. Great Lakes – Lake Erie
8. Carolinian – East Florida	23. Great Lakes – Lake Ontario *
9. West Indian – Caribbean	24. Fjord – Southern Alaska *
10. West Indian – West Florida	25. Fjord – Aleutian Islands
11. Louisianan – Panhandle Coast	26. SubArctic – Northern Alaska *
12. Louisianan – Mississippi Delta	27. Insular – Hawaiian Islands*
13. Louisianan – Western Gulf	28. Insular – Western Pacific Island *
14. Californian – Southern California	29. Insular – Eastern Pacific Island *
15. Californian – Central California	*No reserve

monitoring as well as opportunities for both scientists and graduate students to conduct research in a “living laboratory.”

### 1.1.4 NERRS BIOGEOGRAPHIC REGIONS

In the more than 30 years since Section 315 of the Act established the NERRS, the system has grown into a national network of 27 protected estuaries that serve as reference sites for research, education and stewardship. Reserves represent different biogeographic regions of the United States.

A biogeographic region is defined by a geographic area with similar dominant plants, animals and prevailing climate. Regions are classified by ecosystem type (i.e., maritime forest, coastal mangroves) and physical characteristics (i.e., geologic, chemical, or hydrographic). As depicted in Figure 2, there are 11 major biogeographic regions around the coast, with 29 sub-regions. The reserve system currently represents 19 of those sub-regions and is designed to include sites representing all 29 biogeographic sub-regions

(Table 1). In the near term, priority for federal designation of new NERR sites is given to coastal states that are in unrepresented biogeographic regions. The Wisconsin proposal for a Lake Superior National Estuarine Research Reserve is the latest reserve to be nominated for approval and is the subject of this environmental impact review.

## 1.2 THE LAKE SUPERIOR NERR AS PART OF A NETWORK OF RESERVES

The proposed LSNERR would designate 16,697 acres of the St. Louis River freshwater estuary as the second NERR within the Great Lakes Biogeographic Region and the 28th in the nation. The table below (Table 2) shows the other NERR sites along with their year of designation and size. In total the system represents a wide diversity of coastal ecosystems and physical characteristics found within the United States. The proposed Lake Superior site represents a significant addition to the reserve system by increasing its biogeographic coverage and adding new resources and capabilities.

**Table 2. Reserve Designation Dates, Acreage and Biogeographic Regions**

Reserve	Year	Acre†	Sq. Mi	Sq. Km	Region
South Slough, OR	1974	4,779	7.0	18.2	Columbian (7)
Sapelo Island, GA	1976	6,110	9.5	24.7	Carolinian (7)
Rookery Bay, FL	1978	110,000	171.9	445.2	West Indian (10)
Apalachicola Bay, FL	1979	246,000	385.6	998.6	Louisianian (11)
Elkhorn Slough, CA	1979	1,400	2.2	5.6	Californian (15)
Padilla Bay, WA	1980	11,000	16.7	43.3	Columbian (19)
Naragansett Bay, RI	1980	4,259	6.7	17.2	Virginian (3)
Old Woman Creek, OH	1980	571	0.9	2.3	Great Lakes (21)
Jobos Bay, PR	1981	2,883	4.4	11.3	West Indian (9)
Tijuana River, CA	1982	2,513	3.9	10.2	Californian (14)
Hudson River, NY (4 components)	1982	4,838	7.6	19.6	Virginian (3)
North Carolina (4 components)	1985 1991	10,000	15.6	40.5	Carolinian (6)
Wells, ME	1986	1,600	2.5	6.5	Acadian (2)
Chesapeake Bay, MD (3 components)	1985 1990	4,820	7.5	19.5	Virginian (5)
Weeks Bay, AL	1986	6,016	13.3	34.6	Louisianian (11)
Waquoit Bay, MA	1988	2,600	3.5	9.1	Virginian (3)
Great Bay, NH	1989	5,280	8.3	21.4	Acadian (2)
Chesapeake Bay, VA (4 components)	1991	4,435	6.9	17.9	Virginian (5)
Ace Basin, SC	1992	134,710	213.4	552.8	Carolinian (7)
N. Inlet Winyah Bay, SC	1992	12,327	19.3	49.9	Carolinian (7)
Delaware	1993	4,930	7.7	20.0	Virginian (4)
Jacques Cousteau, NJ	1998	114,665	178.1	461.3	Virginian (4)
Kachemak Bay, AK	1999	365,000	570.3	1477.1	Fjord (25)
Grand Bay, MS	1999	18,400	28.1	72.8	Louisianian (12)
GTM, FL	1999	55,000	85.9	222.6	Carolinian (8)
San Francisco Bay, CA	2003	3,710	5.8	15.0	Californian (16)
Mission-Aransas, TX	2006	185,706	290	751	Louisianian (13)
*Lake Superior, WI	Proposed 2010	16,697	26.5	68.6	Great Lakes (20)
*Connecticut, CT	TBD				Virginian (3)
<b>TOTAL</b>		1,338,989	2,092.17	5,418.7	

† Acreage based on current, federally approved management plans.

\* Proposed NERR site



### 1.3 PROPOSED MISSION AND GOALS OF THE RESERVE

The mission of the proposed reserve is to improve our understanding of Lake Superior freshwater estuaries and coastal resources and to address the issues affecting them through an integrated program of research, education, outreach, and stewardship. To meet this end, the proposed reserve has identified the goals and objectives within its management plan (Attachment A). These goals support both the goals of the NERRS, 15 CFR Part 921.1(b), and advance our understanding of Great Lakes estuaries and their stewardship. The proposed goals of the LSNERR are to:

- ***Conduct applied research and monitoring to increase the understanding of Lake Superior freshwater estuaries and coastal ecosystems*** – As a platform for long-term research and monitoring, each reserve serves as living laboratories for on-site staff, visiting scientists and graduate students, and it enhances collaboration among the many agencies already conducting research in the estuary.
- ***Protect and enhance the ecological health of the St. Louis River Watershed and Lake Superior coastal habitats*** - Established with existing public lands and waters, the LSNERR relies on existing authorities and management plans to ensure a stable environment for research, education, and outreach. Each component is under public ownership with strong existing protections in place allowing the long-term protection of reserve system resources for the purposes of a NERR. Designation and implementation of the reserve Management Plan (MP) supports the protections that are already in place on public land, however, no new authorities are proposed through NERR designation.
- ***Educate youth, students, community members, and visitors about Lake Superior freshwater estuaries and coastal resources and improve their ability to address coastal issues*** - Enhance the understanding of the history of the estuary and its cultural importance to the both native and non-native people who live in the area.
- ***Increase community leaders' and other decision makers' ability to address critical Lake Superior coastal management issues*** – Understand and address the needs of targeted local decision-maker audiences through educational outreach and skill-based training programs. Based on the best available science these programs strive to inform coastal management decision-making.

# 2.0 PURPOSE OF AND NEED FOR ACTION



## 2.1 PURPOSE OF NERR DESIGNATION

The purpose of this action is to designate portions of Wisconsin's lower St. Louis River freshwater estuary, Allouez Bay, and adjacent Lake Superior waters as a NERR. The proposed reserve will involve the cooperation and interaction of a unique combination of federal, state, tribal, local and private partners. Joint federal-state and federal-tribal partnerships have been developed to protect representative natural habitats and to collaborate on operation and management plans that will increase awareness and stewardship of the resources. These partnerships assure benefits that can be enjoyed by the people of Wisconsin, Native American tribes and visitors to the area. The designation of a Lake Superior NERR would also represent a significant addition to the NERRS because of unique estuarine types not currently represented in the system. The LSNERR will use

existing authorities to ensure a stable environment for long-term research and provide a coordination oversight mechanism to achieve reserve goals.

The NERR will represent an area where long and short term research projects and programs can be initiated, thereby contributing to a better understanding of the biotic and physical nature of these habitats and the larger ecosystem. The availability of the proposed NERR (including the use of facilities) will be an attractive aspect of research proposals submitted for funding by future researchers. As part of the national system of estuarine research sites, the NERR also will be part of long term water quality, biotic, and land use and habitat change monitoring programs that represents an unprecedented effort to compare data across multiple sites. This will be especially relevant to the system's only other Great Lakes freshwater estuarine reserve, Old Woman Creek NERR in Huron, OH. An additional benefit

of the LSNERR will be new opportunities to study the interactions between human activities and natural estuarine processes and foster more informed decisions to minimize current and future impacts to the estuary.

Establishment of a LSNERR also will allow for the development of interpretive and educational programs that will be attractive to both local and regional school systems. Schools of all levels (K-12, colleges and universities) may be encouraged to use existing city and UW-Superior campus facilities (e.g., laboratories, classrooms) and associated interpretive areas (e.g., nature trails) for single or multiple field experiences. On-the-water investigations of more remote portions of the proposed reserve can be developed and offered (e.g., boat or canoe tours through the site). Local schools may be encouraged to use the reserve's facilities and habitats as sites for long term monitoring and assessment programs that can be coordinated with the LSNERR educational programs. Schools may, for example, adopt an area of the reserve that they revisit throughout the academic year where students participate in making observations about an area or collect data on the quality of a portion of the reserve (e.g., water quality monitoring). As for any use of the site for research, the value of establishing a NERR site lies in the long term presence, its ability to promote collaboration among entities conducting research in the area, and the availability of facilities.

The Lake Superior NERR is also unique in that the Native Americans who have lived in the region for centuries continue to have strong historical and cultural ties to the area. The ancestors of members of the Fond du Lac Band of Lake Superior Chippewa lived in the estuary and used its abundant natural resources to establish village sites and conduct trade with other tribes. Today, the freshwater estuary is within the 1842 and the 1854 Ceded Territory. These ceded territories are protected by treaty rights<sup>vi</sup> that allow tribal members to hunt, fish, and gather within the ceded area. Tribes and tribal agencies such as the 1854 Treaty Authority and the Great Lakes Fish and Wildlife Commission assist their member bands

in the implementation and protection of their off-reservation treaty rights. The establishment of the NERR will create many opportunities for federal and state agencies to collaborate with tribes. This includes education programs to highlight the rich historical and cultural resources in the area, collaboration with tribal research scientists and educators, the potential to improve access to treaty resources for tribal members, and collaboration with tribal agencies to participate in management and operation of the NERR.

## 2.2 THE PROPOSED ACTION AND DECISION TO BE MADE

Based on the nomination by Governor Jim Doyle, and further recommendations from the UWEX acting as the lead state agency, NOAA proposes that a NERR be established at a complex of sites located on or near the St. Louis River freshwater estuary in western Lake Superior. A nomination proposal for the establishment of this research reserve was approved by the State of Wisconsin and by NOAA in 2008. NOAA is following the procedures for nominating and designating a NERR in accordance with the established regulations that are found in Attachment A, Appendix 1: 15 CFR - NERRS Regulations. From the onset, considerable effort was made to include broad and diverse public and private participation in the site selection process. In addition, all of the area's federally recognized Native American tribes and tribal agencies (e.g., Great Lakes Indian Fish & Wildlife Commission, Treaty of 1854 Authority) were extensively consulted throughout the process. One tribe, the Fond du Lac Band of Lake Superior Chippewa, became a cooperating agency for the EIS. This approach reflected the view that any future LSNERR would benefit from a broad base of support from the beginning. Participating groups and individuals had the opportunity to provide input and support in the process from the beginning and therefore, developed a sense of "ownership" in the process and the future of the NERR project. A careful and deliberate site selection process consistent with NOAA guidelines involved four different teams including an extensive public participation process. These teams

comprised more than 65 members representing a diverse, knowledgeable, and dedicated cross-section of professionals from many different federal, state, tribal, and local agencies and organizations, as well as interested citizens. The four teams created for the site selection process include the following:

□ **State Agency Liaison Team (SLT)**

The SLT was charged with ensuring that the NERR site selection process was consistent with regulatory requirements, and involved both the public and partner organizations. The SLT ultimately developed the site selection recommendation for the Governor's site nomination. The team was comprised seven members representing WCMP (Wisconsin Coastal Management Program), UWEX, and WDNR (Wisconsin Department of Natural Resources).

□ **Coordination Team (CT)**

The CT provided leadership, logistical support, and staffing for the site selection effort. The CT advised the SLT regarding appropriate mechanisms for involving and sharing information with the public and partners. The team comprised four members representing UWEX and WCMP.

□ **Site Selection Technical Team (SSTT)**

The SSTT provided local expertise and advice for the technical aspects of the site selection process. Members reviewed the site selection criteria and evaluated Wisconsin's Lake Superior estuary sites using the criteria. Each of the SSTT's 22 members were chosen based on their strong technical expertise and/or local knowledge of Wisconsin Lake Superior estuaries.

□ **Public Involvement Team (PIT)**

The PIT helped develop and implement a public participation process that shared information, solicited and documented viewpoints of interested parties, and provided educational outreach to the public



Figure 3. Pokegama Marsh Habitats

about a potential Lake Superior NERR in Wisconsin. This team was also responsible for developing and disseminating educational and informational resources and materials about the NERR designation process and the NERR project. Each of the PIT's 22 members possesses expertise in public involvement and education, specific knowledge about local public involvement strategies, and/or an interest in ensuring a meaningful public participation process that complied with the NERR site selection and nomination process.

Coordinating these teams was UWEX with oversight from the SLT. UWEX's leadership of the process and staff resources were critical to a successful process.

The LSNERR complex as defined in this document consists of five representative terrestrial and aquatic habitats centered on the St. Louis River freshwater estuary located on the Wisconsin portion of Lake Superior. Bordering Minnesota, the proposed site includes submerged lands and emergent wetland portions of the St. Louis River estuary (within Wisconsin), Allouez Bay and Lake Superior. The proposed reserve also includes uplands in the St. Louis River watershed, Wisconsin Point (excluding the tip near the Superior entry), and the Nelson Outdoor Laboratory, also known as Dutchman Creek (See Reference Map, inside Front Cover and Table 3).

**Table 3. LSNERR Partner Acreage by Component.**

	Total Boundary	Red River Breaks	Pokegama Bay	Pokegama – Carnegie Wetlands	Wisconsin Point
DNR	6,649	6,413	0	226	10
UW- Superior	64	0	0	0	64
Douglas County	627	8	214	0	405
City of Superior	4,708	0	4,522	0	186
Water Areas*	4,649	505	1,987	0	2,157
<b>Total Area (acres)</b>	<b>16,697</b>	<b>6,926</b>	<b>6,723</b>	<b>226</b>	<b>2,822</b>
<b>Percent Total Area</b>	<b>100</b>	<b>42</b>	<b>40</b>	<b>1</b>	<b>17</b>

\* State of Wisconsin managed under the Public Trust Doctrine

Acreage was retrieved from parcel GIS data obtained from Douglas County, WI.

The proposed reserve's identified components are composed of a combination of, city, county, and university owned properties that will allow for shared resources (e.g., personnel, technical assistance) among respective partners. Additional resources (e.g., personnel, funds) will undoubtedly be contributed by many other governmental agencies, non-governmental organizations, tribal governments and organizations, industries, and citizens groups that have supported the LSNERR initiative. These groups have been highly supportive of the NERR process through their participation in the nomination and site selection process, and will continue to contribute to the remaining tasks required to designate and operate a LSNERR.

The purpose of this Draft Environmental Impact Statement (DEIS) is to provide information to decision makers and the interested public on the potential impacts associated with designation as a NERR under federal authorities. The draft Management Plan (draft MP) in Attachment A describes an organizational framework for the LSNERR and articulates policies that protect the ecological integrity of proposed LSNERR while improving their value for research, monitoring, education, and stewardship purposes. The plan will provide guidance to the development of the LSNERR over the next five years, or until the plan is revised and updated.

## 2.3 THE SCOPING PROCESS

In an effort to better understand what the concerns of interested parties might be with respect to the designation of the LSNERR, considerable effort was made to include broad and diverse public and private participation through the National Environmental Policy Act (NEPA) scoping process. This approach reflected the view that any future LSNERR would benefit from a broad base of support from the beginning. Participatory groups and individuals had the opportunity to provide input and support in the process from the beginning and, therefore, developed a sense of "ownership" in the process and the future of the NERR project.

Federal regulations<sup>vii</sup> require at least one public scoping meeting. A scoping meeting congruent with those regulations was held on December 1, 2008 at 7 p.m. at the University of Wisconsin Superior Campus, Old Main, Room 232. The public was notified of the meeting through posting in the Federal Register and advertisement in local newspapers. The Federal Register notice was posted 14 days in advance, on November 18, 2008. A newspaper advertisement was posted in the largest paper in the area, the Duluth News Tribune, on November 14, 2008, 22 days in advance. The Duluth News Tribune serves the cities of Duluth and Superior, as well as the surrounding area.

The scoping meeting was attended by a diverse set of stakeholders including interested citizens and representatives of local, state, federal, tribal, legislative, and non-governmental organizations. The scoping meeting was well attended with a total turnout of 46 individuals.

The participating public heard presentations about the NERRS from NOAA and about the proposed LSNERR. Overall, participant comments were supportive of the proposed nomination. The scoping meeting did raise several issues that are addressed in the DEIS or the draft MP. One issue brought up by the public was the role of Minnesota in the reserve. There were multiple comments regarding how Minnesota could partner with and participate in the proposed reserve and access federal funds. Due to the shared state boundary of the St. Louis River, UWEX is developing partnerships with Minnesota partners on reserve research, education and stewardship issues. A second issue raised was related to the

nominated reserve boundary. It was suggested that the nominated boundaries include several county-owned wetland habitats along the St. Louis River adjacent to the Pokegama Bay component and the Red River Breaks component. Douglas County requested these parcels, Oliver Marsh and several islands adjacent to the river, be included in the boundary. Supported by a Douglas County resolution, the state partners and NOAA have included these parcels within the reserve boundaries of the preferred alternative. Another issue raised during the scoping meeting was directed toward plans for future reserve facilities. The reserve will utilize UW-Superior facilities immediately after designation. The reserve management plan will address future reserve facilities needed to support research, education, and training. More information can be found in the MP (Attachment A). A summary of the issues raised and where the concerns are addressed is listed in Table 4.

**Table 4. Issues Raised During Scoping Process**

Issue	Where Discussed
Ownership of water bottoms within the Allouez Bay	EIS
Land protection within NERR boundaries	EIS & MP
Road access	MP
Expanding NERR boundaries	MP
Facilities & Infrastructure	MP
Facility Uses	MP
Minnesota Involvement in the Reserve	MP
NERR as a Regional Geospatial Data Center	MP
Invasive Species & Historical Use Impacts Research	MP
Development of a Minnesota NERR	EIS
Public Participation	MP
Graduate Student Research at the Reserve	MP
Native American Uses	MP
Partnerships	MP

After the public comment period for the draft EIS/MP, there will be a final EIS/MP made available followed by a 30 day waiting period prior to taking federal action.

# 3.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION



## 3.1 SUMMARY OF ALTERNATIVES

The federal action proposed by NOAA is the recommendation from the State of Wisconsin to establish a Lake Superior NERR on the St. Louis River freshwater estuary. That action includes formal approval and joint designation by the NOAA Administrator and the Governor of Wisconsin and will result in the awarding of annual grants for up to 70 percent of operation and program costs, and additional funding for acquisition and construction of facilities in the years to come. The alternatives described below and summarized in Table 5 include the preferred alternative (i.e., to designate the proposed reserve and fund MP implementation), a review of

possible alternative boundary configurations (i.e., larger or smaller boundaries than currently proposed), and the no action alternative (i.e., take no action to designate the proposed NERR).

## 3.2 PREFERRED ALTERNATIVE

The preferred alternative is the nominated site with the addition of Oliver Marsh, a small Douglas County parcel adjacent to the St. Louis River, and additional portions of Wisconsin Point and Allouez Bay (Figure 4).

NOAA requires applicants to go through a rigorous site selection screening process prior to coming up with what they consider to be the

**Table 5. Summary of Alternatives**

Alternatives	Action	Alternative Size (acres)	Social-Economic Impacts	Environmental Impacts	Research & Education
Preferred Alternative	Approve Nominated site with the addition of Oliver Marsh, Wisconsin Point and implementation of a management plan	16,697	National recognition, new resources and programming will increase research, education and tourism	Improved stewardship of natural resources within reserve boundaries	Programs that advance estuarine science, education and improved coastal management
Boundary Alternative A	Pokegama-Carnegie Wetlands eliminated from boundary	16,471	Same as preferred alternative for remaining components	Existing resource protections remain in effect at the State Natural Area	Same as preferred alternative for remaining components
Boundary Alternative B	Additional water areas in the St. Louis River and Allouez Bay included in proposed boundary	18,516	Potential conflict with current and future activities of the Port of Superior	Same as preferred alternative	Improved ability to conduct long-term water quality monitoring for research and management
Boundary Alternative C	Hog Island and Newton Creek included in proposed boundary	16,852	Potential traffic use of nearby roads due to increased use by Reserve visitors and program activities	Same as preferred alternative	New opportunities for the research and monitoring of habitat restoration efforts
Boundary Alternative D	Wisconsin Pt. Component eliminated from boundary	13,875	Reduced opportunities to incorporate tribal cultural awareness through reserve education programs	Existing resource protections remain in effect	Reduced opportunities to integrate science and education for the benefit of Great Lakes coastal management
No Action Alternative	Proposed NERR is not designated	0 acres	Reduced federal funding and the financial benefits additional visitors attracted to Reserve activities bring to area businesses	No new opportunities to for improved stewardship of natural resources within the proposed reserve boundaries	No new research, education and stewardship efforts are implemented within the affected area



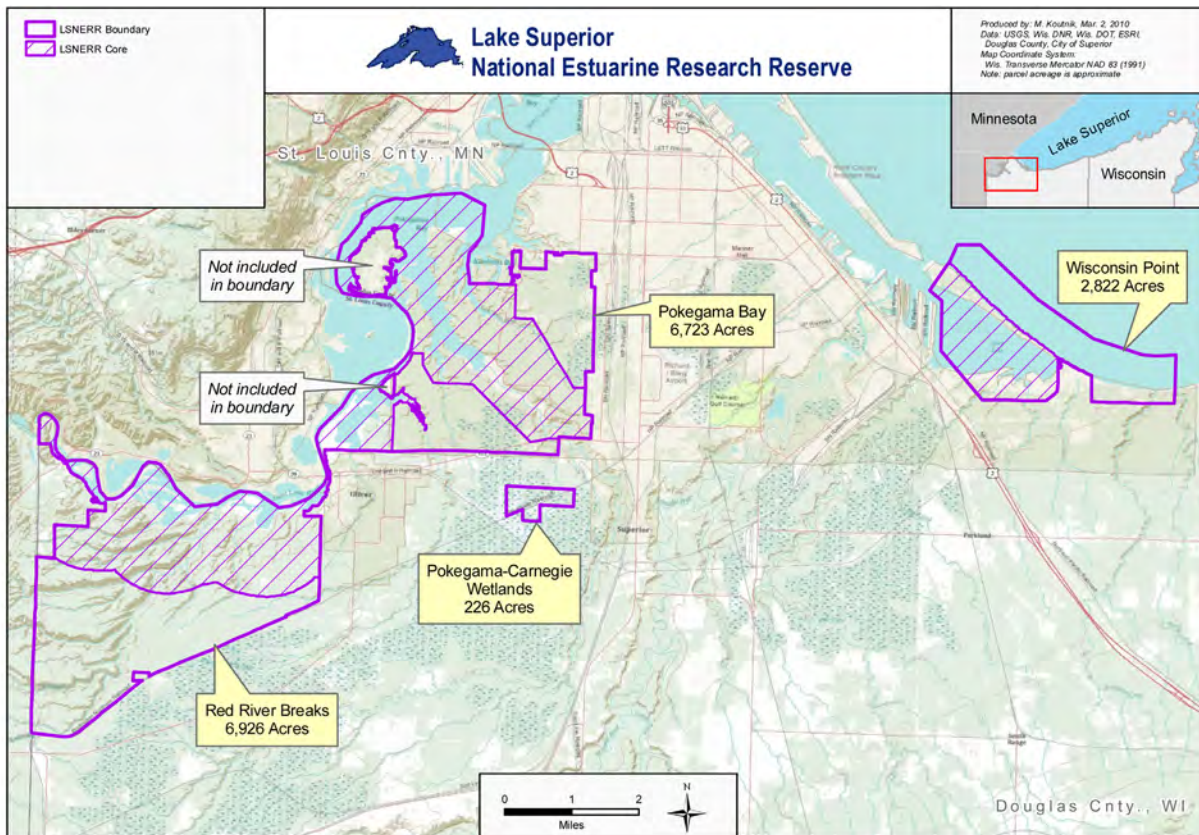


Figure 4. Proposed LSNERR Boundaries

best site to meet the requirements of the CZMA and implementing regulations (Appendix 1). The site selection process the UWEX and WI DOA undertook can be found in their Site Nomination document at <ftp://doaftp04.doa.state.wi.us/doadocs/FINAL%20DOCUMENT.pdf>. The proposed site and implementation program are described at length in Attachment A and are summarized below:

### 3.2.1 Boundary

**1) Red River Breaks (6,926 acres):** Wisconsin DNR-owned land along the Wisconsin-Minnesota state line to the west and the St. Louis River to the north. Also known as the St. Louis and Red River Streambank Protection Area, this is the largest upland component of the proposed reserve. Relatively undisturbed due to its limited access, this component may be ideal for

long-term research/monitoring of freshwater estuarine processes. The area includes the adjacent Wisconsin portions of the St. Louis River Channel up to the Minnesota state line, as well as a small county owned parcel adjacent to the west of the WDNR parcel.

**2) Pokegama Bay (6,723 acres):** This component is west of State Highway 35 and north of State Highway 105. Composed of the Pokegama River and its surrounding uplands, this upland and wetland complex (Figure 5) contains the Superior Municipal Forest owned by the City of Superior, and Oliver Marsh owned by Douglas County. It borders the St. Louis River to the north, the village of Oliver to the south and is contained within the City of Superior. Clough Island and the residential area known as “Riverview” both of which are adjacent to the Municipal Forest, are privately owned and excluded



Figure 5. Aerial View of the Lower St. Louis River Estuary

from the reserve boundary, as are the privately held parcels located between the Superior Municipal Forest and Oliver Marsh. This component encompasses Wisconsin public trust waters within the Lower St. Louis River from the Minnesota state line in the west along the Red River Breaks, Oliver Marsh, past Clough Island to Kimball Bay near to the Port of Duluth-Superior.

**3) Wisconsin Point (2,822 acres):** Primarily owned by the City of Superior, this component encompasses the majority of Wisconsin Point, leaving out the western most point. Located north of US Highway 2, this is the only component that directly fronts the Lake Superior shoreline. The site includes nearly contiguous lands along the Lake Superior shoreline east to Dutchman Creek, a small stream flowing directly into Lake Superior. Douglas County lands connect Wisconsin Point and the southeastern portion of Allouez Bay to the Dutchman Creek property owned by the UW-Superior. Additional Douglas County lands bordering the southern end of Allouez Bay are also included as are the waters of Lake Superior one-half mile from the shore adjacent to Wisconsin Point stretching east to the Nelson Outdoor Laboratory and the eastern end of Allouez Bay. The Wisconsin

Point Landfill site (25 acres) owned by the City of Superior is specifically excluded from the proposed boundaries.

**4) Pokegama-Carnegie Wetlands (226 acres):** The State Natural Area, owned by the WDNR, is located south of the Superior Municipal Forest. Located south of State Highway 105, the area is part of the headwaters of the Little Pokegama River and separated from the Superior Municipal Forest by private lands. Designated as a State Natural Area in 2006, this component is known for its rare plant populations.

The proposed boundary includes 16,697 acres of uplands and submerged lands (lakebed and riverbed); riparian and riverine habitat; riverine islands; emergent freshwater marshes, interdunal wetlands, and scrub swamp; aspen, xeric and hardwood forests; and open sand beach and dunes. Although the four components are not contiguous, they are in close proximity (e.g., <10 miles) to each other and represent a number of diverse habitats. The boundary reflects a willingness of multiple partners to work together to form a LSNERR. The proposed site is shown in the Reference Map (Figure 5). All the land and water is publicly owned and provides ample opportunities to conduct research, monitoring, and education activities in a variety of settings representative of a complete freshwater estuarine system. In addition, the designation of a LSNERR will have no impact on any Native American hunting, fishing, and gathering treaty rights on any Wisconsin public lands. It is also important to note that all parts of the Port of Duluth-Superior are specifically excluded from the land and water components under the preferred alternative.

### 3.2.2 Management

The UWEX will serve as lead management agency and have a NERR Manager with staff to assist in implementing the day-to-day activities of the reserve. Reserve staff includes education, research, training, and stewardship coordinators who implement reserve programs and receive advice from various advisory groups. Reserve partners, including the land owners and key collaborators will serve on the Reserve Advisory Board, thereby providing guidance and direction for key activities identified in the Management Plan (MP - Attachment A). Management of the reserve and its various land and water components is structured through various memoranda of understanding and partnerships with area tribal entities, reserve landowners, the State of Minnesota and various other interested parties. The MP is a roadmap that guides the LSNERR's actions in the future and is composed of several key components including: administration, boundaries/acquisition, stewardship, public access, facilities/construction, research and monitoring, education/interpretation and outreach, and volunteer efforts. The MP is a living document and subject to review and updating every five years.

### 3.2.3 Goals and Objectives

The reserve will strive to achieve a number of goals and objectives in the years ahead supported by a number of outcomes to help achieve the objectives. This sets the tone for the types of activities that are likely to take place in the future and important for understanding the types of impacts that will be associated with program implementation. The four chosen goals include: (1) conduct applied research and monitoring to increase the understanding of Lake Superior freshwater estuaries and coastal ecosystems; (2) educate youth, students, community members, and visitors about Lake Superior freshwater estuaries and coastal resources and improve their ability to address coastal issues; (3) increase community leaders' and other decision makers' ability to

address critical Lake Superior coastal management issues; and (4) to protect and enhance the ecological health of the St. Louis River Watershed and Lake Superior coastal habitats. A more thorough description of these goals and objectives and proposed activities can be found in the draft MP. Dedicated personnel with an annual operating budget will work to achieve these goals with no significant negative impact on the environment and result in positive benefits to the human and natural communities in which the reserve components are located.

## 3.3 OTHER ALTERNATIVES CONSIDERED

As part of the NERR site selection process for Wisconsin's Lake Superior estuaries, several alternative site and configurations were discussed. For the purposes of this DEIS and reserve MP, these alternatives are briefly described along with a no action option of not siting a NERR in Wisconsin on Lake Superior, and alternative boundaries for the NERR. More detailed descriptions of the Lake Superior estuaries not considered can be found in the Site Nomination document of June 1, 2008<sup>viii</sup>.

### 3.3.1 Alternative Site Boundaries

Once the St. Louis River freshwater estuary was nominated by the Governor of Wisconsin, several alternative reserve configurations were considered. Each of the four potential alternatives considered differ from the preferred alternative.

#### *3.3.1.1 Removal of Pokegama-Carnegie Component*

The total land area of the LSNERR could be reduced by removing a relatively isolated land parcel from the final configuration (Figure 6). The Pokegama-Carnegie Wetlands State Natural Area is a small wetland area separated from the Superior Municipal Forest to the north by private lands and the State Hwy 105. This component

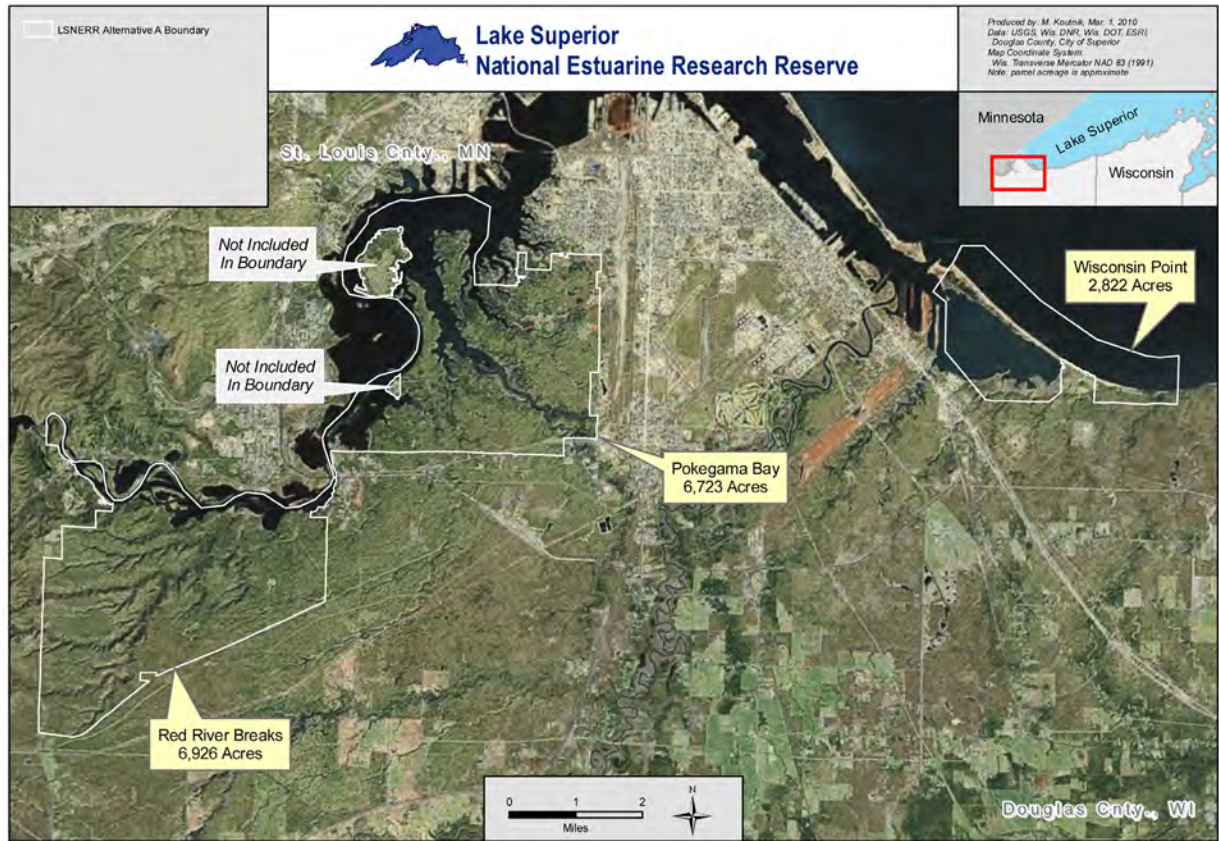


Figure 6. LSNERR Alternative A Boundaries

is not contiguous to any of the three larger core reserve components. Despite this minor issue, the parcel adds value to a Lake Superior reserve based on its outstanding native vegetative habitats and their protected status within the state. Excluding this area from the final boundary configuration would not affect the current status of these sites or impact future programming at the other larger core components identified within the preferred boundary. However, despite not being critical to a reserve designation, including this important mosaic of wetland habitats within the boundary may potentially provide expanded opportunities for Great Lakes estuarine research and educational programming at the reserve.

### 3.3.1.2 Inclusion of Additional Water Areas

The proposed reserve boundary currently encompasses 4,675 waterway acres of Lake Superior, the St. Louis River, Allouez Bay, and

smaller tributaries. Alternative B includes the expansion of the water areas of the St. Louis River freshwater estuary to include the Minnesota portion of the St. Louis River directly adjacent to the preferred components on the Wisconsin side, as well as additional Wisconsin portions of Allouez Bay adjacent to the Bunge Dock and Burlington Northern Santa Fe Ore Dock #5 (Figure 7). Both additions would enhance the reserve's ability to conduct research and water quality monitoring within the freshwater estuary. All navigable submerged lands (riverine and lake bottoms) on the Wisconsin side of the state boundary are subject to the Public Trust Doctrine<sup>ix</sup> and under the stewardship of the State of Wisconsin. On the Minnesota side, the State of Minnesota enjoys similar stewardship regimes as those submerged lands in Wisconsin waters. Together, each additional water area has sufficient state control to warrant inclusion within an expanded boundary.

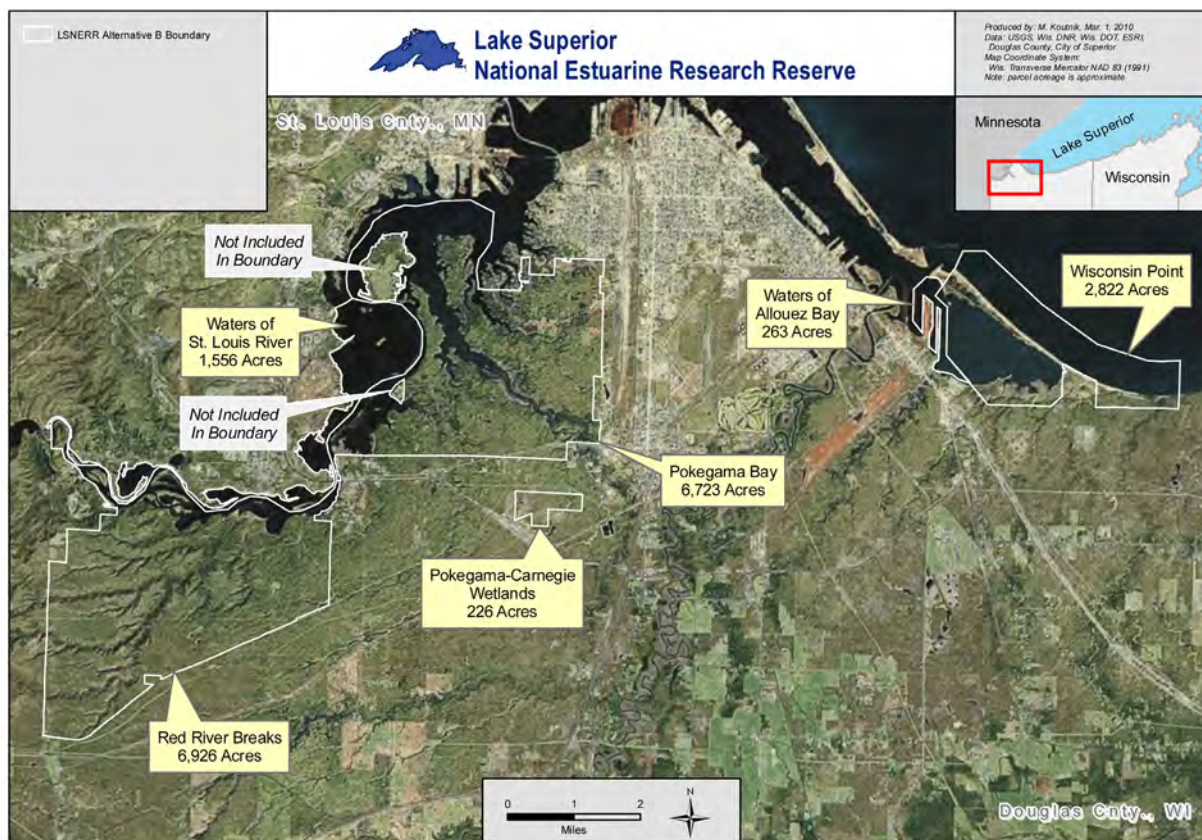


Figure 7. LSNERR Alternative B Boundaries

Despite the benefits of expanding the water portion of the reserve with additional parts of Allouez Bay and the St. Louis River, two issues have excluded this alternative from consideration in the final proposed configuration. The state partner managing a reserve must have sufficient long-term control over areas of the reserve to ensure a stable environment for research. In this boundary alternative, UWEX, as the Wisconsin state partner, does not have jurisdiction over Minnesota state waters. Minnesota, however, is eligible under NERRS regulations under §921.10 to apply for funding to establish a second estuarine research reserve in this shared biogeographic region. An example of multiple reserves in the same biogeographic region and waterbody can be found in the Chesapeake Bay NERRs (Maryland and Virginia).

In addition, expanding the water portion of

Allouez Bay could potentially lead to conflicts with the Port of Duluth-Superior. The Port has significant maritime commerce supported by a federally authorized shipping channel. For navigational purposes, the Port, in collaboration with the U.S. Army Corps of Engineers (USACE), periodically dredges the shipping channels. Channel dredging along with other industrial and maritime related activities could potentially interfere with planned research and monitoring activities. In addition, reserves are “designated critical resource water” and receive additional consideration when applicants seek to obtain a nationwide permit from the USACE for dredging. The Port also may restrict access to water areas adjacent to shipping or other maritime facilities for a range of NERR activities. Over time, the Port of Duluth-Superior may give permission to allow the NERR to conduct research activities within waters identified in the Superior Port Land Use

Plan but it is not necessary to include such areas within the proposed boundaries.

### ***3.3.1.3 Inclusion of Hog Island and Newton Creek***

Expanding the proposed Reserve boundaries to include lower portions of Newton Creek and Hog Island at its mouth would add another element within the Lower St. Louis River Harbor Area to the Reserve (Figure 8). Linking the lakeshore to wetland and upland habitats within the city of Superior, Newton Creek is an important sub-watershed that flows into Allouez Bay and a key component of a wetland complex that supports a wide diversity of migratory birds and fish populations. The adjacent Hog Island is artificial land, created from dredge spoil in the 1920s-1930s and is currently being restored to a semi-pristine state following a history of industrial contaminant inputs. Adding these components within the proposed boundary could also complement future reserve research and monitoring activities associated with restoration science.

Despite these perceived benefits, there are several factors that eliminated the inclusion of Hog Island and lower Newton Creek from consideration. The site is geographically isolated from the key components of the proposed reserve. Surrounded by the Port of Superior and within its planning boundary, Hog Island and Newton Creek are separated from the Wisconsin Point-Allouez Bay component by several ore docks and the Superior Harbor Basin shipping channel. Channel dredging by the Port may not be compatible with reserve research and monitoring activities.

A history of industrial discharges and municipal combined sewer overflows contaminated the sediments within Newton Creek and Hog Island. Toxic industrial contaminants found within area sediments led the U.S. Environmental Protection Agency to label this area as an “Area of Concern (AOC)”. As defined by the U.S.-Canada Great Lakes Water Quality Agreement, an AOC is a

geographic area that has caused or is likely to cause impairment of the area’s ability to support aquatic life. As recently as 2005, restoration efforts have removed nearly 55,000 tons of petroleum contaminated sediments from the area. Despite the implementation of an ecological restoration master plan in 2007, the area has undergone extensive ecological changes as a result of human activities associated with the Port of Superior and the Murphy Oil Refinery at the headwaters of Newton Creek. Such changes to the area’s ecological characteristics do not improve or contribute to the representative estuarine system identified in the preferred alternative.

While it may be desirable to include areas where restoration activities could improve the representative estuarine characteristics of a particular estuary, there are usually many limitations to achieving such a goal. These may include the ability to fund restoration projects, the size of the area requiring restoration in relation to the ecosystem, and the actual restoration objectives identified through the reserve’s management plans. After initial designation, many NERR sites considered acquiring additional properties suitable for restoration as such property becomes available. Consequently, elements of this alternative remain viable into the future. Additional environmental assessment would be needed with future acquisitions and boundary changes should they occur.

### ***3.3.1.4 Removal of Wisconsin Point Component***

Removal of the Wisconsin Point land parcel from the reserve’s final configuration is another option to reduce the total land area of the LSNER (Figure 9). Potential conflicts with tribal resources, public access, and historical land practices (i.e., historic Wisconsin Point Landfill site) could warrant the removal of this area. The presence of tribal cultural resources means that the areas will continue to be accessed and used by Native Americans regardless of potential

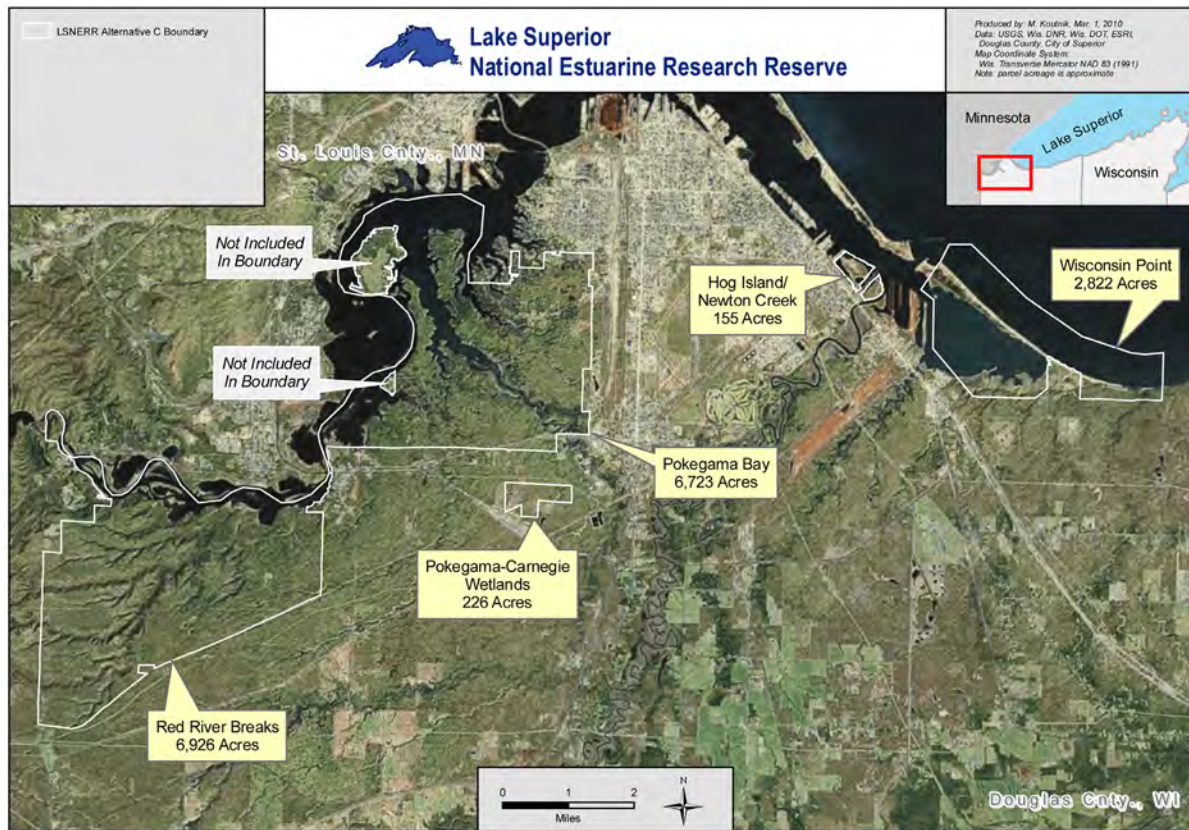


Figure 8. LSNERR Alternative C Boundaries

NERR activities on the Point. Additionally, the now closed ‘Wisconsin Point Landfill’ at the base of the peninsula actively disposed of a variety of municipal, commercial and industrial wastes for 26 years before closing in 1976. Groundwater monitoring wells on the landfill perimeter indicate the presence of industrial contaminants including volatile organic compounds and polynuclear aromatic hydrocarbons<sup>x</sup>. These contaminants could impact future programmatic activities including water quality monitoring, research and education.

Despite these issues, the Wisconsin Point parcel adds value to a Lake Superior reserve due to its unique geomorphology as well as its wetland and xeric dune habitats and their status as protected state, county, or city lands. Additionally, the presence of an historic Ojibwe<sup>xi</sup> burial ground near the tip of the Wisconsin Point Peninsula provides a good location to highlight the rich

cultural history of the area and the continuing importance of the freshwater estuary to native people. The Fond du Lac Band of Lake Superior Chippewa is interested in the opportunities to create a site for cultural/historical interpretation on Wisconsin Point. Historical and cultural programming developed in partnership with tribes and tribal organizations would help the reserve educate students, local communities and visitors about the historic and current relationship that native people have with the freshwater estuary.

Being at the base of the peninsula, the historic Wisconsin Point landfill and the associated issue of toxic contaminants has been eliminated from the preferred alternative without removing Wisconsin Point. Excluding this particular parcel from the final boundary configuration would not impact future programming at Wisconsin Point or the other core components. As a result, including Wisconsin Point in the boundary will expand

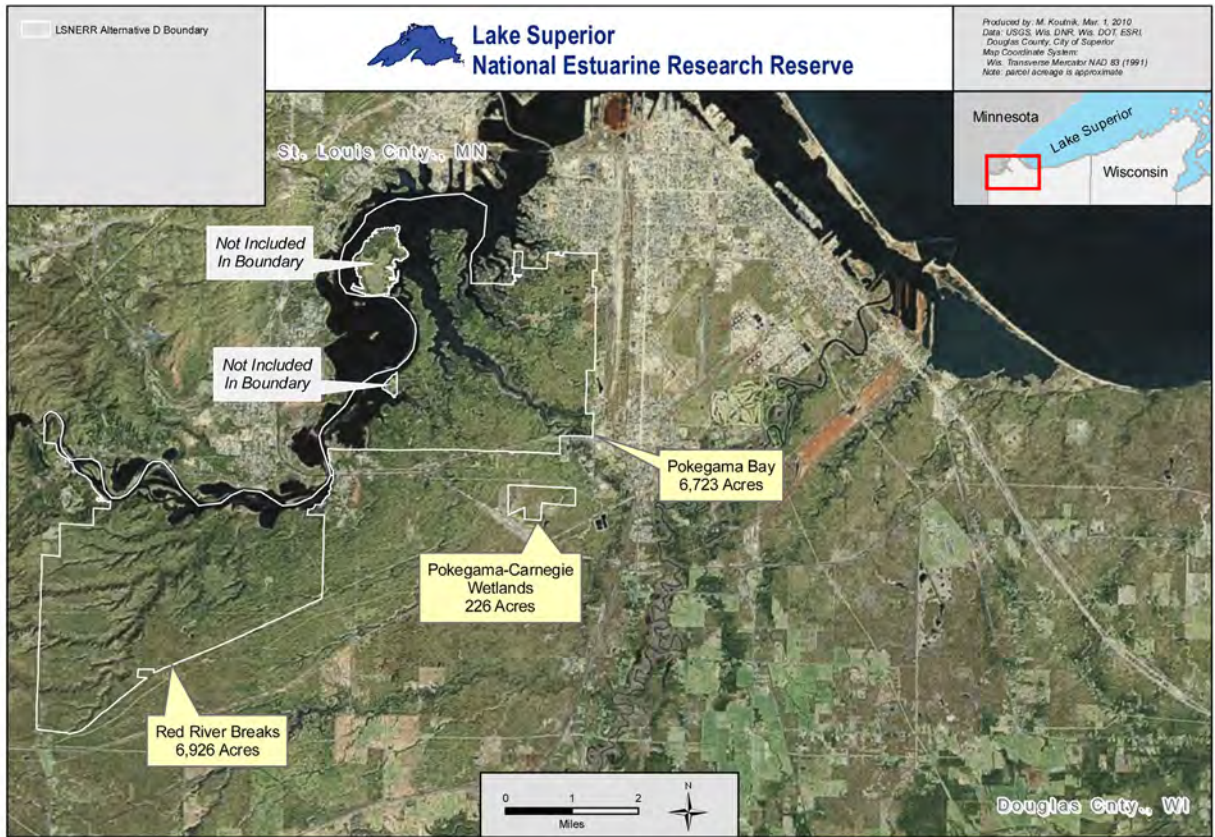


Figure 9. LSNERR Alternative D Boundaries

opportunities for Great Lakes estuarine research and educational programming at the reserve.

### 3.4 NO ACTION ALTERNATIVE

Nationally, there are many types of estuarine areas not represented in the NERRS. The greatest gaps in the system are the Great Lakes, northern Alaska and the Pacific Islands. Potential future NERR sites can be found in the numerous biogeographic sub-regions of these broad areas. While NOAA provides funding to applicants to undertake a site evaluation process, there are no guarantees that a site will be selected, thus the no action alternative is considered a viable alternative. Under this option the St. Louis River freshwater estuary would not be designated as part of the NERRS or placed on hold and there would be no change in current management of the proposed reserve components. Publicly owned lands and waters within the St. Louis River estuary would maintain their current status. River and lake bottoms in Wisconsin are subject

to the Public Trust doctrine. The St. Louis River and Red River Streambank Protection Area, also known as ‘Red River Breaks’ would continue to be managed by WI DNR. The Superior Municipal Forest would continue to be managed by the City of Superior. The Pokegama-Carnegie SNA would still be managed by WI DNR as a formally designated state natural area the Oliver Marsh would still be owned by Douglas County. And Wisconsin Point would be managed by the City of Superior. Also, this alternative would have no impact on any court-affirmed Native American hunting, fishing, and gathering treaty rights on any Wisconsin public lands<sup>xii</sup> within the St. Louis River estuary. Under these current ownership patterns and treaty rights, the diverse habitats within the proposed reserve are managed differently as dictated by the available resources and priorities of the respective agencies involved.

Federal funding is potentially a limiting factor in efforts towards expanding the reserve system.



Under this no action alternative, federal funding supporting LSNERR would not be available to develop reserve specific estuarine research, education and stewardship activities. Although each part of the LSNERR complex would continue to be protected and managed, together these efforts would benefit by association with a NERR designation and additional resources provided for stewardship, research, monitoring, education and training.

The designation of the LSNERR would provide a clear alternative to the current management of these lands by bringing these different components of a relatively intact watershed under a more collaborative, coordinated and unifying management program. This designation would also provide substantial additional resources to address research, education, and stewardship needs. The no action option would, therefore, limit collaboration related to the management of these important estuarine and associated non- estuarine habitats. Additionally, there would be the loss of potential funds, the loss of opportunities for public education, for research, and there would be no coordinated efforts to facilitate science based management. Reserves serve to draw tourists, researchers, and other visitors adding to the positive economic impact in the Reserve area. No action would lead to a lost opportunity to improve the public's understanding and appreciation of Great Lakes estuaries. The efforts of the many organizations and individuals who provided input into the management planning process and comments during the scoping meetings in favor of the Reserve would be negated if the no action alternative were selected.

### **3.5 SUMMARY OF ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES**

The details regarding all of the predictable environmental consequences of establishing a Lake Superior NERR are provided in section 5.0 of this document but are briefly summarized as

follows. The environmental impact of establishing the LSNERR will be to coordinate the protection and management of the habitats and cultural resources currently held within the boundaries of the proposed reserve. This action will offset any minor environmental impacts by providing a comprehensive program for the coordinated management of the reserve. The development of programs in research, monitoring, decision-maker training and environmental education will further benefit the LSNERR by generating additional scientific knowledge and public support and appreciation for the roles played by these natural areas. The reserve intends to use existing University and City of Superior infrastructure to support reserve programs until an assessment of priority facility needs is conducted (Attachment A). However, future facilities will only be sited within reserve buffers; be placed to minimize adverse impacts to existing habitats and other natural and cultural resources; and be subject to future NEPA and NOAA review processes. In addition, there will be few physical alterations to the present environmental conditions in the reserve apart from those associated with activities for basic scientific activities associated with research and monitoring outlined in the MP (Attachment A). Traditional uses of the site including tribal hunting, fishing and gathering rights on all Wisconsin public lands, recreational fishing (i.e., Walleye, Lake Trout), recreational hunting, non-consumptive recreational uses (i.e., x-country skiing, hiking, biking) will remain unchanged (Attachment A).

### **3.6 ALTERNATIVE SITES CONSIDERED**

The preferred alternative LSNERR came about as the result of an extensive review of many Wisconsin Lake Superior estuaries. NEPA regulations encourage the rigorous exploration of all reasonable alternatives. In partial fulfillment of that requirement, the NOAA required that the State conduct a preliminary site selection process designed to help them filter out many

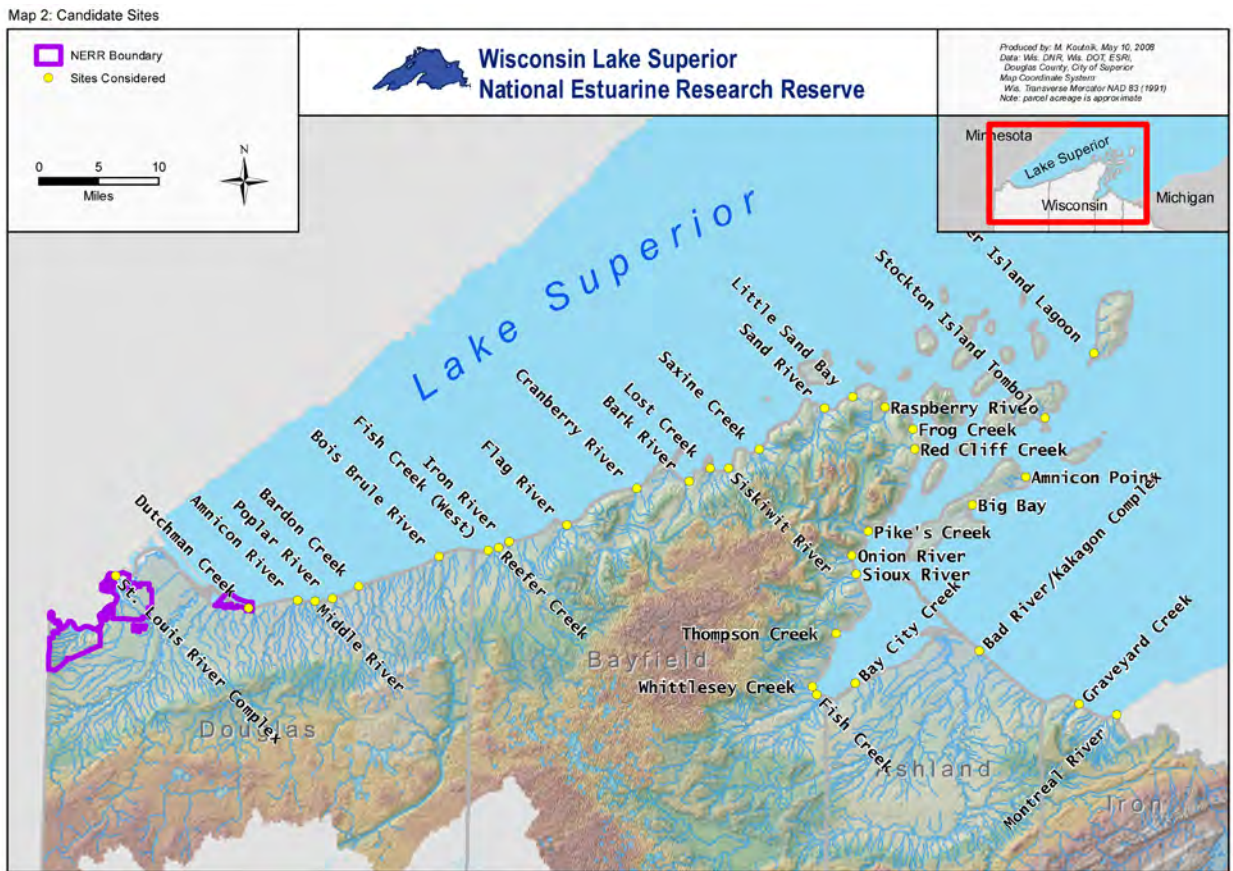


Figure 10. Potential Wisconsin – Lake Superior NERR Sites Considered

alternative sites through a rigorous review that includes selection criteria, sound and open review and evaluation process to include discussions with potential property owners and the public among others, in order to meet the requirements of the federal program. The combined efforts of UWEX, WI DOA and the review teams in implementing this process and the documentation describing the estuaries reviewed and why sites were not preferred can be found as background information and is incorporated by reference in this document at: <ftp://doafp04.doa.state.wi.us/doadocs/FINAL%20DOCUMENT.pdf>.

Because reserves are owned and operated by state authorities or organizations other than NOAA, this type of alternatives analysis is typically funded by NOAA prior to the state making a selection. NOAA not only funds this process but is an active participant as well. Beginning in 2006, UWEX,

WI DOA and NOAA began an extensive and in depth selection process including the review of potential sites (Figure 10) along the Wisconsin Lake Superior shoreline. During the process, the pros and cons of each potential site is referenced for review by interested parties. Site selection also provides for extensive opportunities for the public, property owners, and others to comment on the alternative sites reviewed during this process. At the time Wisconsin made its decision to submit the St. Louis River site for nomination to the NERRS, the other sites were no longer considered as viable alternatives for review. Therefore, information on alternative sites is provided here for context of the vetting process, but they are not listed as reasonable alternatives within the EIS. After careful analysis, these sites were not considered feasible either by NOAA or by the state and are not further described or discussed for NEPA purposes.

# 4.0 THE AFFECTED ENVIRONMENT



This section describes the present day St. Louis River freshwater estuary and additional habitats within the proposed LSNERR. Description of these habitats provides baseline information of the environment for analytical purposes.

## 4.1. BIOGEOGRAPHIC REGION ANALYSIS.

There are currently 27 sites in the NERRS scattered among 19 of the 29 NOAA recognized

biogeographic subregions in the United States. The proposed Lake Superior NERR site represents a previously unrepresented biogeographic region - the Great Lakes, Lake Superior subregion - and will join Old Woman Creek as the only other Great Lakes freshwater estuary in the NERR system.

This subregion contains all of Lake Superior and its receiving freshwater estuaries. One of these estuaries formed where the waters of the St. Louis River enter Lake Superior. Lake Superior; which is bordered by Michigan, Minnesota, Wisconsin and

Ontario, Canada, is the largest of the Great Lakes and the most pristine.<sup>xiii</sup> The proposed LSNERR is situated on the most western tip of Lake Superior, and represents portions of the lower St. Louis River freshwater estuary within the state of Wisconsin. The St. Louis River is the largest United States tributary to Lake Superior and flows 179 miles through a 3,634 square mile watershed within Wisconsin and Minnesota, eventually creating 23 miles of the boundary between the two states.

The site is diverse and includes the following representative ecosystem types: Maritime Forest-Woodland (Northern Coniferous Biome, Temperate Deciduous Forest Biome), Coastal Shrublands, Coastal Grasslands, Coastal Marshes, and Coastal Swamps. The hydrographic characteristics of the site include Stratified Circulation; with a tide type dominated by Wind/Storm Tides and related Seiche.<sup>xiv</sup> Surface water runoff from the St. Louis River watershed is the primary source of freshwater into the estuarine system.

The proposed LSNERR includes areas of national significance, including the world's largest freshwater baymouth sand bar (Wisconsin Point), estuarine wetlands, and steep highly erodible red clay bluffs. Significant historic and cultural sites exist within or adjacent to the proposed boundary including Native American cultural sites throughout the estuary and on Wisconsin Point and historic lumbering and shipping sites along the estuary's shore.

The wetlands of the St. Louis River freshwater estuary form one of the largest complexes of estuarine wetlands in the Lake Superior Basin. The coastal wetland complex is a mosaic of varying combinations of submergent marsh, emergent marsh, wet meadows or fens, and wet shrublands.<sup>xv</sup> Two Wisconsin State Natural Areas (SNAs) and 11 Wisconsin Priority Wetlands are found within the proposed boundaries.<sup>xvi</sup>

Recently, Priority Conservation Opportunity Areas were identified for Wisconsin's Wildlife Action Plan.<sup>xvii</sup> Through that process, the wetlands and boreal forest associated with the St. Louis River freshwater estuary complex were identified as an area of continental (i.e., national) significance. While some portions of the proposed LSNERR have been influenced and altered by human activities, the many designations and recognitions of valuable habitats within the St. Louis River freshwater estuary complex clearly indicate that there are portions that remain relatively pristine.<sup>xviii</sup>

## 4.2. PHYSICAL ASPECTS

Freshwater estuaries occur where rivers and Great Lakes water mix in shallow wetlands located near the mouth of a river. The proposed LSNERR contains all three common defining characteristics of a Great Lakes freshwater estuary including a) presence of a drowned river mouth b) adequate zone of transition between lake and river water and c) influence from tide or seiche.<sup>xvix</sup> Table 6 shows the acreage for each habitat type within the NERR boundary.

On the baymouth bars that separate the river from Lake Superior, there are rare plant communities that are only found in the Great Lakes region.<sup>xx</sup> Major site features include several miles of open sand beach and dunes, small interdunal wetlands, and a xeric forest of white and red pines.<sup>xxi</sup> The transition zone between boreal forest, northern hardwoods forest, and Great Lakes pine forest is also unique.<sup>xxii</sup>

The proposed reserve is a combination of four distinct land components and portions of the connecting waterways. Each component possesses its own combination of habitats (Figure 11); descriptions of the habitats can be found in the Final Nomination Package.

**Table 6. Habitats & Acreage for proposed LSNERR**

Habitats	Total Boundary	Red River Breaks	Pokegama Bay	Pokegama – Carnegie Wetlands	Wisconsin Point
Aquatic Bed	31	–	8	–	23
Clay-Influenced Bay	823	–	–	–	823
Clay-Influenced River Mouths	839	–	839	–	–
Large Estuarine Reach	64	64	–	–	–
Lower Estuarine	39	–	27	–	12
Open Water	1,520	70	202	1	1,247
Sheltered Bays	258	258	–	–	–
Upper Estuarine River Channel	369	178	191	–	–
Upper Estuary Flats	732	–	732	–	–
Emergent/Wet Meadow	588	56	367	4	161
Scrub/Shrub	1,305	250	910	58	87
Flats/unvegetated wet soil	12	–	–	–	12
Forested Wetland	2,227	1,178	864	91	94
Broad-Leaved Deciduous	2,764	2,312	413	–	39
Developed	111	–	107	–	4
Grassland	842	297	326	70	123
Mixed-Deciduous/Coniferous	1,812	469	1,276	–	67
Upland Shrub	2,384	1,792	462	1	129
Total Area (acres)*	16,697	6,926	6,723	226	2,822
Percent Total Area	100	42	40	>1	17

\*Differences in the total acres are due to a rounding calculation of the habitat acreages.

Habitats as described in the final site nomination document in the four proposed LSNERR component areas include<sup>xxiii</sup>:

- **Red River Breaks:** This component is comprised of a rough and deeply dissected landscape, underlain with red clay. The area is characterized by coastal habitat including island complexes, aspen forest, hardwood and shrub swamp, emergent

marsh, and sedge meadow. Aquatic habitats include upper estuarine river channel and clay influenced river mouths. The portion of the St. Louis River freshwater estuary near the mouth of the Red River includes some of the area's last remaining shoreline wetlands.

- **Pokegama Bay:** This component contains mature coniferous forest, extensive emergent marsh, and wet clay

flats supporting a mixture of shrub swamp and wet meadow. This component contains the largest remaining population of wild rice in the estuary. The area is a tremendous resource for wildlife, with its backwaters and islands providing nesting habitat for numerous waterfowl and other birds, as well as nursery and spawning areas for aquatic life.

- **Wisconsin Point:** Wisconsin Point is the eastern portion of a long coastal barrier spit that includes Minnesota Point, separating the waters of Lake Superior from the St. Louis River. Allouez Bay is sheltered from Lake Superior by Wisconsin Point. Major site features include several miles of open sand beach and dunes, small interdunal wetlands, and culturally significant sites including an historic burial ground. The eastern end of the Allouez Bay is shallow and contains a large marsh with patches of sedge meadow and a drowned tamarack swamp present near the base of Wisconsin Point. Bear Creek, Bluff Creek and the Nemadji River empty into the bay. The wetlands are composed mostly of native species, and plant diversity and wildlife habitat values are quite high. In the early spring, substantial numbers of water birds of many kinds congregate here. The waters of Lake Superior one-half mile from shore adjacent to the Wisconsin Point and stretching to Dutchman Creek are included in the boundary of the site. This nearshore area links the St. Louis River and the open waters of Lake Superior.
- **Pokegama-Carnegie Wetlands:** This area is part of the largest and most intact of the red clay wetlands in northwest Wisconsin. The extensive, poorly drained, red clay flats in the headwaters of the Pokegama and Little Pokegama rivers support a large wetland mosaic of shrub

swamp, sedge meadow, emergent marsh, and small ponds. Of special significance are the many populations of rare plants occurring in the site's wetlands. In addition, the site's wetlands are home to a wide variety of amphibians and birds.

### 4.3. CLIMATE

The climate is strongly influenced by Lake Superior, resulting in cooler summers, warmer winters, and greater precipitation compared to more inland locations.<sup>xxiv</sup> Winters are moderately long and somewhat severe, but more than 120 days have temperatures above 50°F (10°C). Average temperatures range from 35° to 50°F (2° to 10°C). A short growing season imposes severe restrictions on agriculture; the frost-free season lasts from 100 to 140 days. Snow usually stays on the ground all winter. The Superior area receives an average of more than 50 inches of snowfall per year.<sup>xxv</sup>

Exposed coastal areas in this region are subject to significant disturbance from windstorms, waves, ice, currents, and periodic water level fluctuations. These disturbance regimes play a significant role in determining both the landform and vegetation characteristics of the shoreline ecosystems.<sup>xxvi</sup>

### 4.4. ST. LOUIS RIVER WATERSHED AND HYDROLOGY

The St. Louis River is the largest United States tributary to Lake Superior. As the St. Louis River flows southeast through Minnesota and finally Wisconsin, it encompasses a 3,634 square mile watershed. Near the end of its 179-mile journey through the two states, the river slows and spreads into a 12,000-acre freshwater estuary located in Superior, Wisconsin and Duluth, Minnesota.<sup>xxvii</sup>

The flow of the St. Louis River and fluctuations in water level of Lake Superior determine water level

and flow in the estuary. Lake Superior's water level fluctuates on a daily, seasonal, and annual basis. Long-term lake level fluctuations lack a predictable pattern and result from annual variability in precipitation, ice cover and evaporation.<sup>xxviii</sup>

The hydrology of the St. Louis River is determined by a combination of both surface water and groundwater.<sup>xxvix</sup> Surface water runoff from the St. Louis River watershed is the primary source of freshwater into the estuarine system.<sup>xxx</sup>

Stormwater management, impervious surfaces, mining, forest management practices, and other land use changes and hydrologic modifications have created water flow that is highly variable compared to pre-development water flow. Today's early successional forests and deciduous forests do less to slow snowmelt than did the original coniferous forests. As a result, runoff from storms and snowmelt has greater volume, speed, and erosional force, thereby carrying greater sediment loads into these tributary streams and greater erosion of stream banks. Sedimentation is a serious and ongoing threat to the sheltered bay habitats and their accompanying Great Lakes coastal wetland complexes.<sup>xxxi</sup>

Groundwater feeds the St. Louis River headwaters, the Seven Beavers/Sand Lake peatlands systems. Despite some early attempts to drain the peatlands and wetlands, much of the peatlands are still present. The wetland areas receive significant contributions from groundwater and contribute to the base flow of the St. Louis River.

Natural variability of water flow and sediment transfer into the estuary has also been altered by dams constructed on tributaries as well as the main stem of the St. Louis River. Less than one-quarter of the watershed flow is regulated by the five headwater reservoirs, which reduce natural variability by increasing winter flow, reducing the peak spring run-off flow and severity of flooding, and discharging year-round minimum flows to provide for recreation and fish habitat. The five

hydroelectric dams located on the main stem of the St. Louis River have a minimal long-term impact on flows, since they have little storage capability.<sup>xxxii</sup>

Dredging of the shipping channel, which has occurred for over 100 years, coupled with isostatic rebound of land to the north and east, has resulted in an overall deepening of the harbor. As more shallow water habitats are transformed to open water, fetch increases, wave strength increases, and erosion of shallow water areas and shorelines increases. Commercial shipping and recreational boating also increase shoreline erosion as a result of wave action caused by bow wake and propeller wash.<sup>xxxiii</sup>

Specific hydrographic characteristics of the proposed LSNERR include a stratified circulation; with the tide type clearly dominated by wind/storm tides and related seiches.<sup>xxxiv</sup> Seiches occur frequently in Lake Superior. The change in water level as a result of a seiche is typically less than one foot, with areas of a freshwater estuary closest to the lake most strongly influenced. In the Lower St. Louis River, the seiche causes changes in water level ranging from 1 to 10 inches, and it can reverse the direction of flow in the estuary and its tributaries.<sup>xxxv</sup> A strong seiche, however, can reverse the flow of the St. Louis River up to 11 miles upstream. River currents which are 1-3 cm/second under no or very low seiche conditions can increase by a factor of 20 during high seiche conditions.

Major conservation threats to the watershed include loss of habitat, increased sedimentation, competition from undesirable exotic species, exposure to sediment-associated contaminants and degraded water quality.<sup>xxxvi</sup>

## 4.5. GEOLOGY

The geologic history of the Lower St. Louis River can be reconstructed from the rocks and sediments exposed in the river bed and along the

shoreline. The present St. Louis River channel was shaped primarily by the glaciers of the Pleistocene epoch, which began advancing and retreating approximately 2 million years ago and receded for the last time around 10,000 year ago<sup>xxxvii</sup> Left behind was a complex pattern of sediment, including moraines, drumlins, beach sands, and lake-bottom clays.

The landscape of the Lower St. Louis River area today is a nearly level lake plain of lacustrine clays. The bedrock is mostly sandstones and shale covered by water-reworked moraine, forming mostly well-drained soils. The bedrock over which the St. Louis River flows is part of the Canadian Shield, the ancient core of the North American continent.<sup>xxxviii</sup> The red-clay, sand, and silt cover the bedrock on the Wisconsin side of the river; remnants of a time when the region was covered by the Glacial Lake Duluth, which was formed by the melt-water trapped in front of the retreating Superior Lobe of the Laurentide ice sheet.<sup>xxxix</sup> Some basalts occur in the northern part of this region as a result of continental rifting that occurred over one million years ago.

At the end of the most recent Ice Age, massive amounts of ice as thick as several hundred feet retreated from much of the Great Lakes Basin. Post glacial rebound, also known as isostatic rebound, is occurring more rapidly along the northeastern and eastern portions of Lake Superior causing uplift in the earth's crust that "tilts" the Basin toward the southwest, thereby flooding lake water into river mouths along the southwestern shore, creating the drowned river mouth system of the St. Louis River estuary.<sup>xl</sup>

The United States Geological Survey (USGS) has found that water levels in the southwestern portions of Lake Superior have risen approximately 15 to 18 feet over the past 2000 years. USGS estimates that the lake level rise in those areas is occurring at a rate of one inch per decade.<sup>xli</sup>

## 4.6. WATER QUALITY

The St. Louis River has been affected by a history of resource degradation and industrial pollution. The St. Louis River and Lake Superior contain elevated levels of mercury and other toxic substances. The St. Louis River, including Superior Harbor, is under a fish consumption advisory for mercury in walleye. Lake Superior lake trout, salmon and siscowet are also under fish advisories for levels of polychlorinated biphenyl (PCB) or pesticides<sup>xlii</sup>,<sup>xliii</sup> In addition, the St. Louis River is listed as impaired under state 303(d) lists in both Minnesota and Wisconsin for contaminated sediment, chronic toxicity, and contaminated fish tissue.

The primary source of mercury pollution in the Lake Superior basin is from air deposition but contaminated sediments may also contribute mercury to the water column.<sup>xliiv</sup> For the St. Louis River estuary, the wet/dry cycle created by dams upstream allows shoreline wetlands to become inundated, thereby causing additional methylation of mercury into its bioavailable form. The most problematic areas of persistent contaminated sediments are located outside and downstream from most of the proposed NERR boundaries.

The lower 39 river miles of the St. Louis River, and other immediate sources and adjacent tributaries of the Superior-Duluth Harbor are listed as an "area of concern" (AOC) by the U.S. Environmental Protection Agency and the International Joint Commission. Of 14 beneficial uses identified, 9 are impaired for St. Louis River: 1) restrictions on fish and wildlife consumption; 2) excessive loading of sediment and nutrients; 3) degradation of fish and wildlife populations; 4) beach closings; 5) fish tumors or other deformities; 6) degradation of aesthetics; 7) degradation of benthos; 8) restriction on dredging activities; and 9) loss of fish and wildlife habitat. Since this listing, an assessment of the environmental problems, as well as a remedial action plan for the river have been completed.



**Table 7. Summary Water Quality Data for the St. Louis River**

Secchi = 0.75 m
Chlorophyll a = < 12 ppb
TP = ~30 - 150 ppb
NO3/NO2-N = 100 - 300 ppb
NH4 = ~20 - 100 ppb
TN = ~ 500 - 1200 ppb
Turbidity = ~5 - 50 NTU (high)
Alkalinity = 100 (moderately soft)
pH = ~8
EC = ~110 $\mu$ S/cm
Color = highly colored
DO > 5 mg/L throughout
on-stratified; mixed water column
~30% dredged

Implementation of the plan has been ongoing since 1991, spearheaded as a joint effort between Wisconsin and Minnesota.

The table above provides recent summary water quality data, as gathered by Water on the Web sampling equipment located on the wall of the Duluth Ship Canal at the lower part of the St. Louis River Freshwater Estuary.<sup>xiv</sup>

Water quality parameters in the St. Louis River freshwater estuary change spatially and temporally. In addition to seasonal, weather-related variations, and human impacts, the St. Louis River is subject to variations as a result of the seiche.

The following analysis is based on water quality data collected by the Minnesota Pollution Control Agency for station SLB-1 from 1972-1993. In the winter, water temperature drops to around 0 degrees Celsius in winter and rises to low 20 degrees Celsius in the late summer. Dissolved oxygen levels decrease in the colder months to ~13 mg/L and increase to ~7 mg/L in the warmer months. Nitrogen and phosphorus levels also

fluctuate. Nitrogen levels were reported as high as .7mg/L and as low as .01 mg/L. Phosphorus levels were reported as high as .23 mg/L and as low as 0 mg/L.

Water quality parameters measured by the Minnesota Pollution Control Agency in 2008 is included in Appendix 1. Wisconsin has similar water quality data available to the public through SWIMS and WI DNR.

#### 4.7. HABITAT TYPES DESCRIPTION

The combination of ecosystems within the Lower St. Louis River—estuarine wetlands and aquatic habitats, baymouth bar complex, and surrounding upland forest—are very unusual in Lake Superior, the Upper Midwest, and the wider the Great Lakes region. Many of the ecosystems and native species are rare and/or declining across their range. This concentration of such diverse ecosystems, along with its location on the western end of Lake Superior, makes this freshwater estuary a critical migratory stopover and an important breeding area for many species.

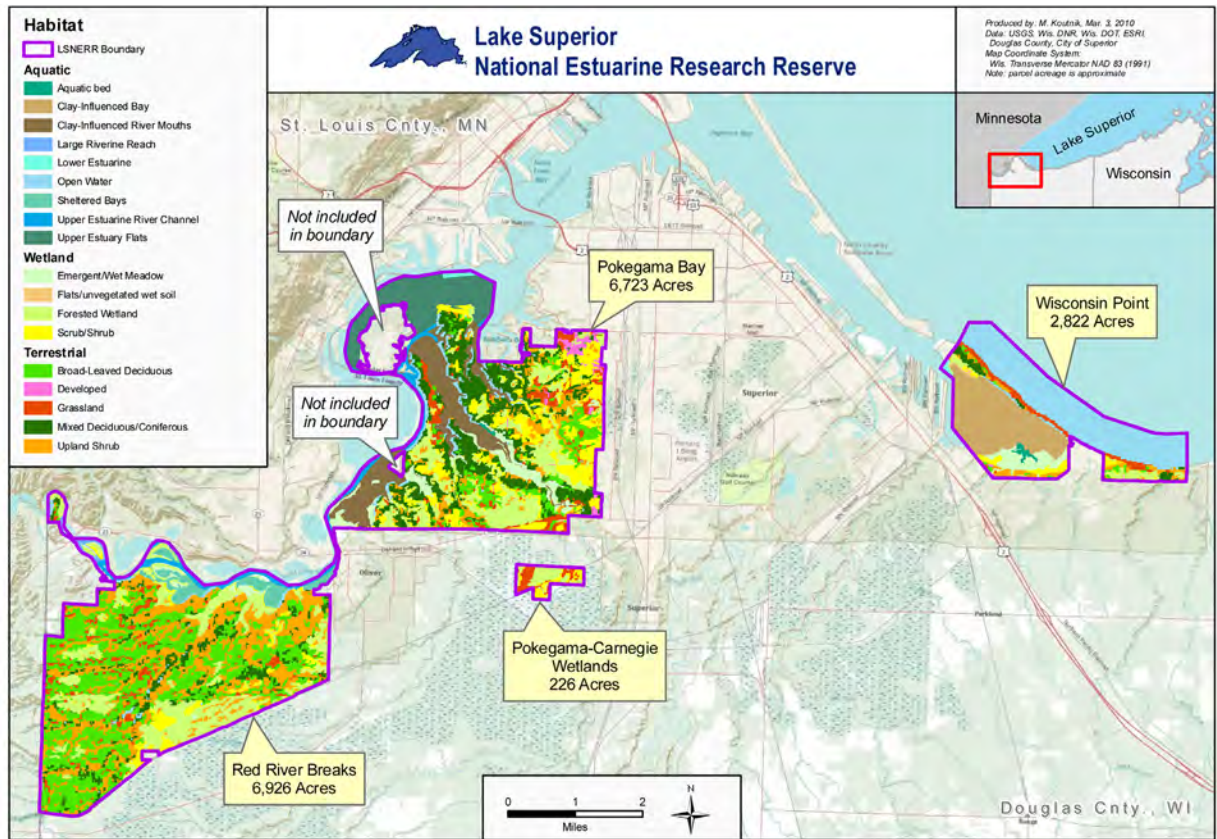


Figure 11. LSNERR Habitat

Two ecological processes—lake level fluctuations and river flow—in combination with the morphology of the estuary, are the main factors determining the nature and extent of the wetland and aquatic habitats in the estuary.

Further information on primary habitats, significant species, and archaeological sites within the proposed NERR boundary is given in the following sections. The MP habitat map<sup>xlvi</sup> (Figure 11) provides more data on the range and types of primary habitats found in the proposed NERR boundaries.

Sources for the following habitat descriptions include: the Wisconsin Wetland Inventory<sup>xlvii</sup>, Lower St. Louis River Habitat Plan<sup>xlviii</sup>, and the Wisconsin Initiative for Statewide Cooperation on Landscape Analysis and Data (WISCLAND).<sup>xlix</sup>

#### 4.7.1. Wetland Habitat

##### 4.7.1.1 Forested Wetland

Forested wetlands are secondary growth dominated by woody perennial plants, with a canopy cover greater than 10% and trees reaching a mature height of at least 6 feet. Forested Wetlands consist of white cedar (*Thuja occidentalis*), Balsam fir (*Abies balsamea*), black ash (*Fraxinus nigra*), and spruces (*Picea* spp.).

##### 4.7.1.2 Scrub/Shrub

Scrub/Shrub habitats are dominated by woody vegetation that is less than 20 feet tall, with a tree cover of less than 10%, occurring in wetland areas. Scrub/Shrub areas consist of willows (*Salix* spp.), dogwoods (*Cornus* spp.), speckled alder (*Alnus incana*)

#### ***4.7.1.3 Emergent/Wet Meadow***

This habitat is defined by persistent and non-persistent herbaceous plants standing above the surface of the water or wet soil. The Great Lakes coastal wetland complex is a mosaic of varying combinations of submergent marsh, emergent marsh, wet meadows or fens, and wet shrublands. Pondweeds (*Potamogeton foliosus*), wild celery (*Vallisneria Americana*), water lilies, wild rice, sweet flag (*Acorus L.*), and other species dominate the submergent marshes. Bulrushes, cattails, arrowhead, and other species form the emergent vegetation in shallower waters. Sedge species, and sometimes willow or alder, are found in wet meadows or fens adjacent to the emergent marshes. Willow, alder, and bog birch may dominate shrublands next to the wet meadows or the emergent marshes. Mud flats with little or no vegetation may be part of these complexes as well.

Emergent marshes and wet meadows are typically located inside the main channel's meanders, but also occur in protected, shallow bays along the upland shore. Woolgrass (*Scirpus cyperinus*) and water smartweed (*Polygonum amphibium*) are locally common.

#### ***4.7.1.4. Flats/Unvegetated Wetland Soil***

These habitats are exposed wet soils which do not support persistent vegetation

### **4.7.2 Aquatic Habitats**

#### ***4.7.2.1. Open Water***

This habitat includes areas of water with no vegetation present, such as lakes and ponds with a depth of 6 feet or less or unvegetated river sloughs. The primary water bodies of the LSNERR are Lake Superior and St. Louis River.

#### ***4.7.2.2. Clay Influenced Bays***

The clay influence bay in the proposed LSNERR

is a shallow, protected bay, with little water exchange between the bay and Lake Superior. Kimball Bay, adjacent to Dwight's Point is an example of this type of bay. However, lake level fluctuations are the primary determinant of water level in the bay. There is abundant emergent and submergent vegetation providing excellent habitat for fish and waterfowl. Mudflats are used by a plovers, falcons, ospreys, and a variety of other birds. Many species of fish spawn in Allouez Bay, including northern pike (*Esox lucius*), muskellunge (*Esox masquinongy*), bluegill (*Lepomis macrochirus*), black crappie (*Pomoxis nigromaculatus*), smallmouth bass (*Micropterus dolomieu*), and yellow perch (*Perca flavescens*).

#### ***4.7.2.3. Clay Influenced River mouths***

This habitat type is typified by a long, narrow drowned river mouth, such as where the Pokegama River enters the St. Louis River estuary. Lake level fluctuations as well as tributary stream hydrology influence this habitat. Shorelines are steep, highly erodible, and deeply incised; turbidity is usually high, especially after rain events. Altered stream hydrology causes the high turbidity. Emergent and submergent vegetation is very limited in this habitat type because of restricted light penetration associated with turbidity and water depth. The exotic ecotype of common reed (*Phragmites australis*) is present in the Pokegama Bay marshes. The diversity of fish populations is similar to sheltered bays, but the abundance is lower. Although these river mouths would have naturally experienced higher sediment levels than other estuarine habitats, past and present land uses have increased the sedimentation rates.

#### ***4.7.2.4. Upper Estuary Flats***

The flats of the upper estuary are depositional habitats with low water velocity where wind and wave action have the greatest influence on water movement. Lake level fluctuations have a stronger influence on this habitat than the river's hydrologic regime. The flats support a high abundance of forage fish, panfish, and waterfowl. These flats

have emergent vegetation around the shoreline and fairly extensive submergent vegetation.

#### **4.7.2.5. Upper Estuarine River Channel**

This habitat includes both a natural river channel and a formerly dredged channel. The upstream boundary coincides with the upstream extent of the seiche effect; the downstream boundary extends to the area where regular dredging takes place. Both lake level fluctuations and river hydrology influence this habitat. This part of the river channel was flooded by rising lake level resulting from post-glacial isostatic rebound. It is rich in fish species, is home to high numbers of native mussels, and may be an important wintering habitat for fish. The Wisconsin side is still forested but neighborhood developments abut this segment of the estuary on the Minnesota side. This habitat contains the US Steel Superfund site, a discrete area of highly contaminated sediment.

#### **4.7.2.6. Sheltered Bays**

Sheltered bays are an example of a pulse-stable wetland community; the seiche causes pulses of water and sediment to move in and out of the bays, helping to prevent the wetlands from filling in with sediment or becoming dominated by dense woody vegetation. Wind-induced resuspension of sediments may also be an important mechanism of sediment transport in shallow areas. Most bays have extensive areas of emergent and submergent aquatic vegetation interspersed with areas of open water 3-5 feet deep, thereby supporting the highest diversity of plant and animal species of any habitat type in the estuary. Some sheltered bays are surrounded by shrub swamps dominated by willow, alder, or other species. Sheltered bays provide spawning areas for many species of fish. They support a high diversity and abundance of invertebrates. The extensive emergent wetlands are very important for waterfowl and wading birds. Wild rice (*Zizania palustris*), an aquatic plant of significant ecological and native cultural importance, grows sparsely in some sheltered bays. The health of these bays varies from one location

to another; some have been impacted by excessive sediment inputs, some have been impacted by recreational boating activities and some exhibit lower than expected species diversity and/or invasion by exotic species. Purple loosestrife and other undesirable exotic plant species have become established in a number of sheltered bays.

#### **4.7.2.7. Large Riverine Reach**

Large riverine reaches are characterized by relatively high water velocity, a riverine riffle-pool-run structure, and very little emergent or submergent vegetation. This segment of the St. Louis River does not often experience the effects of the seiche and so may not be considered part of the estuary. It includes most of the prime spawning habitat for walleye, lake sturgeon, and other fish that need high velocity water over a coarse substrate.

#### **4.7.2.8. Lower Estuarine Flats**

The river channel of this habitat has been dredged regularly to maintain navigation. This creates frequently disturbed deep water habitat. It is used by some fish as wintering habitat, and it is an important feeding area for fish eating birds. The flats within this area have also been altered by industrial and commercial activity.

### **4.7.3. Terrestrial Habitats**

#### **4.7.3.1. Broad-Leaved Deciduous Forests**

Broad-leaved deciduous forests are defined as having canopies with a distinct crown closure and that are comprised of no less than two-thirds of broad leaved deciduous trees. Broad Leafed Deciduous Forests typically consist of Oak (*Quercus* spp.), Maple (*Acer* spp.), Birch (*Betula* spp.), Poplar (*Populus* spp.)

Most of the Wisconsin shoreline of Lake Superior is forested with paper birch (*Betula papyrifera*) and trembling aspen (*Populus tremuloides*). Remnant conifer stands are scattered along the clay bluffs.

Much of the Red River Breaks area is forested, with pole-sized trembling aspen dominant (*Populus tremuloides*). The canopy is sparse, with a dense understory of speckled alder (prominent). Conifers, which once dominated the landscape, occur now only as scattered individuals or in small stands, with white spruce (*Picea glauca*), white pine (*Pinus strobus*) and white cedar (*Thuja occidentalis*) the most important species. In poorly drained flats on the level ridges between ravines there are patches of black ash-dominated hardwood swamp and thickets of speckled alder and other tall wetland shrubs. Areas of standing water are infrequent, but they support small emergent marshes and broad-leaved sedge meadows. A few patches of well-drained mesic hardwood forest occur on the ridges, dominated by sugar maple (*Acer saccharum*) and yellow birch (*Betula alleghaniensis*) but these are rare.

#### **4.7.3.2 Upland Shrub**

Upland shrub habitats are areas dominated by vegetation with a persistent woody stem, low growth of less than 20 feet, and coverage of at least one-third of the land area; there is less than 10% tree cover interspersed. Upland Shrub consists of tree species such as sumac (*Rhus* spp.), speckled alder (*Alnus incana*) and other shrubs.

#### **4.7.3.3 Mixed Deciduous/Coniferous Forests**

The Mixed Deciduous/Coniferous Forests habitat is defined as upland areas whose canopies have a distinct crown closure which is comprised of no more than two-thirds from either of the species groups (coniferous or deciduous). Species can include Pines (*Pinus* spp.), Spruce (*Picea* spp.), Hemlock (*Tsuga* spp.), Tamarack (*Larix* spp.) and Oak (*Quercus* spp.), Maple (*Acer* spp.), Birch (*Betula* spp.), and Poplar (*Populus* spp.)

Trembling aspen is now dominant throughout the Superior Coastal landscape as a result of past disturbance and the succession of idle farmland, as well as active management for earlier succession forests. Boreal forest remnants consisting of spruce, balsam fir, white pine and associated

hardwoods (aspen, balsam poplar, white birch, and red maple) still exist.

The coniferous forests are composed primarily of species associated with boreal regions: dominants include white spruce, white pine, balsam fir, balsam poplar, and paper birch. In some stands, red pine, black ash or white cedar are important. Evidence of the influence of logging remains in stands of trembling aspen and paper birch. Coniferous forests have been greatly fragmented and often replaced by monotypic stands of aspen.

The mature xeric forest covering the western half of Wisconsin Point is composed of white pines and red pines, with a dense shrub layer of beaked hazel (*C. cornuta*).

#### **4.7.3.4 Grassland**

Grassland habitats are lands covered by non-cultivated herbaceous vegetation dominated by grasses, grass-like plants or forbs. Examples include: Kalm's brome grass (*Bromus kalmii*), Canada bluegrass (*Poa compressa*), sedges (*Carex* spp.), Braken fern (*Pteridium aquilinum*), Sweet fern (*Comptonia peregrina*). Much of this grassland area was historically forestland.

#### **4.7.3.5 Baymouth Bar**

The baymouth bar barrier spits are home to sandy beaches, beachgrass dunes, dune shrublands, and dune pine forests, as well as interdunal wetlands embedded within some of the surrounding communities. The beaches are located on the lake side, scoured and shaped by the waves, wind, and ice of Lake Superior. If vegetation is present at all, it is very sparse and found only in the upper part of the beach that is usually beyond the reach of the waves. A complex of wind-formed dunes lies just beyond the beach. Further away from the shoreline, these active dunes support beachgrass. Behind this front line of dunes are more stable dunes with a greater variety of vegetation, including grasses, sedges, and various forbs. This vegetation transitions into a zone dominated by juniper (*Juniperus* L.), bearberry (*Arctostaphylos*

uva-ursi), Virginia creeper (*Parthenocissus vitacea*), and lichens, which grades into the dune pine forests dominated by white pine and red pine, with a beaked hazel understory.

#### 4.8 Significant Fauna & Flora

The diversity of habitats, water depths, sediment types, and other natural features found in freshwater estuaries make them important for many wildlife species. Great Lakes coastal wetlands, like those associated with freshwater estuary systems, have long been recognized as places of increased biodiversity and abundant wildlife.<sup>l</sup>

The St. Louis River/Nemadji Rivers Watershed Plan<sup>ii</sup> description offered by WDNR states:

The estuary is a tremendous resource for wildlife, with its backwaters and islands providing nesting habitat for numerous waterfowl and other birds, as well as nursery and spawning areas for aquatic life. The portion of the St. Louis River freshwater estuary near the mouth of the Red River and St. Louis River Streambank Protection Area includes some of its last remaining shoreline wetlands, which provide prime breeding habitat for wildlife and fish, including some 300 species of birds, threatened and endangered species, game species and an estimated 50,000-90,000 spawning walleye. Lake sturgeon has been reintroduced in the area recently.

As mentioned previously, wild rice (*Zizania palustris*), an aquatic plant of significant ecological and native cultural importance, grows within boundaries of the proposed LSNERR. Although this species is not rare, it has experienced long-term declines in abundance in most wetlands where it occurs, and it has disappeared from many wetlands altogether. Wild rice has experience range-wide decline, due to water disturbances, such as wave action, at certain growth stages and increased sedimentation and turbidity. This species also has been severely impacted by contaminants, introduced species such as carp, Canada geese, and purple loosestrife, and hydrologic modifications resulting from dams and dredging. A list of plant

communities native is included in the Lower St. Louis River Habitat Plan, Appendix 2.

##### 4.8.1 Birds

The proposed LSNERR is important for many species of birds. Great Lakes coastal wetlands with a high mixture of different habitats, such as the marshes, aquatic vegetation beds, and open water areas frequently found in freshwater estuaries, are considered very valuable for waterfowl feeding, nesting, and migrating.<sup>lii</sup> The Great Lakes also serve as a corridor for large populations of migrating songbirds, shorebirds and raptors in the spring and fall.<sup>liii</sup> The coastal wetlands offer critical food and shelter for these migrants. A list of bird species that typically breed or use this area during migration is included in the Lower St. Louis River Habitat Plan, Appendix 7.

Foraging birds during the nesting season include bald eagle, osprey, common tern, merlin, and belted kingfisher. Among the common avian residents are red-winged blackbird, common yellow-throat, swamp sparrow, song sparrow, yellow warbler, and sora. Wisconsin Point has been identified as a critical habitat area for the endangered piping plover and is a state Important Bird Area.<sup>liv</sup>

##### 4.8.2 Fish

The freshwater estuary and its tributaries are unusual in having such a variety of habitat types supporting a large and diverse assemblage of native fish species, many of which inhabit the near-shore waters Lake Superior utilizing the estuary for spawning and nursery purposes. The St. Louis River estuary supports a large, diverse fish community of approximately 45 native fish species. Forage species such as emerald shiner, spottail shiner, log perch and johnny darters inhabit the estuary, along with piscivorous species such as yellow perch, smallmouth bass, musky, walleye, and northern pike. Lake sturgeon historically used the estuary for spawning but were likely extirpated during the mid twentieth century pollution era. A two decade interstate stocking program has created

an abundant sub-adult population nearing maturity (females may take thirty years to reach spawning age). Although reestablishing a self-sustaining sturgeon population is one of the last remaining fishery restoration milestones in the estuary, natural reproduction of stocked sturgeon has yet to be documented.

A list of fish species native to the Lower St. Louis River is included in the Lower St. Louis River Habitat Plan, Appendix 5.<sup>lv</sup>

**4.8.3 Macroinvertebrates**

Surveys by the Minnesota DNR have documented eight native species of freshwater mussels in the lower St. Louis River: giant floater (*Pyganodon grandis*), mucket (*Actinonaias ligamentina*), eastern elliptio (*Elliptio complanata*), creeper (*Strophitus undulatus*), fat mucket (*Lampsilis siliquoidea*), white heelsplitter (*Lasmigona complanata*), creek heelsplitter (*Lasmigona compressa*), and black sandshell (*Ligumia recta*).<sup>lvi</sup> There has not been extensive study of the freshwater mussel in this area.<sup>lvii</sup>

The exotic invasive Zebra mussel (*Dreissena polymorpha*) was first recorded in the Lower St. Louis River in 1989.<sup>lviii</sup> In the lower harbor estuary flats, observers have documented that that native mussels are being killed by the zebra mussel infestation.<sup>lix</sup> Zebra mussels are thought to be contributing to the decline of native mussel populations. The estuary is also at risk for infestation by the invasive spiny water flea (*Bythotrephes cederstroemi*), which is documented in the Cloquet River and in Lake Superior.<sup>lx</sup> Zebra

mussels, quagga mussels, and the spiny water flea are just a few of the many aquatic invertebrate invasive species that pose a threat.

**4.8.4 Endangered/Threatened Species**

The proposed site is home to six endangered species, nine threatened species, and 37 species of special concern (SOC), of these, one is federally listed as threatened and one is federally listed as endangered.

The six endangered species listed in Wisconsin including the caspian tern (*Sterna caspia*), common tern (*Sterna hirundo*), piping plover (*Charadrius melodus*), floating marsh-marigold (*Caltha natans*), slender spike-rush (*Eleocharis nitida*), and small yellow water crowfoot (*Ranunculus gmelinii*).<sup>lxi</sup> The piping plover is listed federally as endangered; and the dune thistle (*Cirsium pitcheri*) is listed federally as threatened.<sup>lxii</sup>

Decline of the piping plover (*Charadrius melodus*) is attributed to habitat loss, primarily to recreation and shoreline housing, and other related human disturbances. The piping plover nests on sandy or sand/cobble beaches with little or no vegetation. Pairs typically nest solitarily, but nests may be loosely clumped if habitat is suitable. Disturbance by people or their pets interferes with courtship and mating behavior or frightens birds from their nests. State-endangered or threatened and federally- and state- listed SOCs have no legal status under federal law and are not protected under the Endangered Species Act; however they are presented in this DEIS.

**Table 8. Endangered/Threatened Species Found in the Proposed NERR**

Common Name	Scientific Name	Listing
Piping Plover	<i>Charadrius melodus</i>	Federally Endangered
Dune Thistle	<i>Cirsium pitcheri</i>	Federally Threatened

## 4.9. HISTORICAL, CULTURAL AND ARCHEOLOGICAL RESOURCES

### 4.9.1 Pre-Industrial Resources

Human presence in the lower St. Louis River dates back to as early as 10,000 years ago, with evidence existing from the “Old Copper Culture” 5,000 years ago to around 1 A.D. (Walker and Hall). The original inhabitants are believed to have been members of Paleo-Indian cultures, followed by the “Old Copper” people, who hunted with spear points and knives and fished with metal hooks. Around 2,000 years ago, the Woodlands people, known for their burial mounds and pottery, occupied the area.<sup>lxiii</sup> Archaeologists maintain that ancestors of the present day Chippewa (also known as the Ojibwe or the Anishanabe) have resided in the area since at least 800 A.D. The Lakota and Ojibwe “co-habited” in the area for a time and also fought each other for territory, including a battle on Rice’s Point, approximately 5 miles upstream from the mouth of the St. Louis River and separating the inner harbor area from the outer harbor, in Duluth, MN. Today the region remains home to the Fond du Lac Band of Lake Superior Chippewa, with tribal reservation lands located adjacent to the city of Cloquet, Minnesota, approximately 20 miles west of Duluth, Minnesota.

Based on Chippewa migration stories, Spirit Island located in the St. Louis River estuary became the sixth stopping place of the Ojibwe, where the people were directed by the miigis “to the place where there is food (i.e. wild rice) upon the waters.” The St. Louis River Bay area became known as “the land of the Sixth Fire.” Spirit Island is considered a holy place and is extremely sacred to the many tribes that make up the Lake Superior, Mississippi and Pillager Chippewas. Consequently, burial mounds were placed on Spirit Mountain in Duluth and in Superior near where the Bong Bridge is now located. However, the mounds in Superior were all destroyed when the material was used to fill wetlands for development. As the entire area is considered

sacred, encampments were located all around Spirit Island, including Minnesota Point and Wisconsin Point.

The St. Louis River estuary contained abundant natural resources, including fish, game, wild rice and waterfowl, and served as an important center of fur trade corridors up to Knife Portage (now Cloquet), as well as at both ends of the Nemadji River. The Fond du Lac village at what is now the city of Superior, was the gateway to central Minnesota by way of the St. Louis River, with a rough nine-mile portage as the only means of access in or out. Wild rice continues to be culturally significant to the Chippewa and its restoration in the St. Louis River is an important priority for the Native American community.<sup>lxiv</sup>

European peoples’ exploration and eventual settlement of the St. Louis River began in the mid 17th century, by French fur traders and missionaries. By 1787, the North West Fur Company, an association of Montreal merchants, had established trading posts in the estuary, with a permanent post (Fort St. Louis) built at Connor’s Point in what is now Superior, Wisconsin by 1793. In 1816, a combination of events including competition from other fur trading companies and the War of 1812 led to the closing of the post and its re-establishment in Fond du Lac, MN. While the fur trade continued until the 1870s, the post itself closed in 1847 due in large part to the decline in the number of animals and Native Americans.

### 4.9.2 Post-Industrial Resources

In 1854, the U.S. government signed the LaPointe treaty with the Lake Superior Chippewa, opening the area to settlement. The treaty ceded all of the Lake Superior Ojibwe lands to the United States in the Arrowhead Region of Northeastern Minnesota, in exchange for reservations for the Lake Superior Ojibwe in Wisconsin, Michigan, and Minnesota.<sup>lxv</sup> The signatory tribes retain hunting,



fishing and gathering rights within the ceded territory.<sup>lxvi</sup> Towns quickly sprang up on either side of the St. Louis River. By 1857, Superior had a population of over 2,000, while Duluth grew less rapidly. The construction of roads, locks, railroads, and a ship canal made it possible for the area to take advantage of its position and become a primary port for the region's natural resources. Major industries that dominated the Duluth-Superior area starting in the 1850's included sawmills due to logging from the extensive forests of Minnesota and Wisconsin, and shipping of Midwestern grain, iron ore from Minnesota, steel coal, and eventually petroleum products.

### 4.9.3 Sites of Historic Interest within the Proposed Boundaries

From the earliest days of habitation by native people through the industrial era, a study by Walker and Hall (1976) identified and cataloged approximately 330 locations of archaeological, historic, and cultural interest.<sup>lxvii</sup> These include 80 wharves, 70 docks, 52 sawmills and lumberyards, 20 grain elevators, 11 flour mills, 16 shipyards, and numerous other U.S. government installations, industrial complexes, roads and bridges, early fur trading posts, shipwrecks, piers, and other sites of historic interest. In addition, based on the history of extensive population and use of the St. Louis River freshwater estuary by Paleo-Indian and Native American people, and its continued cultural and spiritual relevance to the current Native populations, it is likely that there are still many archaeological, historic, and culturally important sites remaining where the LSNER is being designated.

Known cultural sites include a 17th century Fond du Lac tribal burial ground at the end of Wisconsin Point. While the human remains at this site were relocated in 1919 to the St. Francis Cemetery in Superior, stone markers currently commemorate the historic burial grounds on Wisconsin point and visitors still honor those who were buried there by placing significant items such as tobacco, beads, feathers, and walking sticks at the site. Other historic Native American sites that have been identified in the area but that would

require additional investigations include campsites/villages on Clough Island (currently privately owned) and Nekuk Island, and Indian gardens on Amik Island. Two known historic Euro-American burial sites also exist: the Danelski Tombstone, an isolated base of a tombstone located between the St. Louis River and South Mont du Lac Road; and the Calvary Cemetery, which is cataloged and subject to consultation with the Wisconsin Historical Society. Spirit Island is also a very important cultural site, as it is the sixth stopping place in the Ojibwe (Anishanabe) migration story.

## 4.10 SOCIOECONOMIC RESOURCES

### 4.10.1 Demographics

The 2000 population estimate for Douglas County is 43,287. About 63 percent of these people live in the City of Superior. Superior's population has remained fairly constant over the last ten years as it has throughout the rest of the county. However, increasing pressure to develop areas along shorelines has had an impact. A general trend of increasing seasonal residency continues in northern Wisconsin, mostly in the St. Croix Basin around lakes and rivers. Much of what was once productive timber and agricultural land in Douglas County has been converted to recreational uses.

### 4.10.2 Urban Setting

Urban areas, like the City of Superior and its neighbor directly to the north, Duluth, MN, pose many threats to water quality. Large scale development, increasing impervious surface, storm water control structures, diking and the filling wetland areas all cause significant problems for the natural movement of water through a watershed. Additional pollutants from oil, petroleum, road salt, lawn fertilizers and herbicides, debris and industrial waste are carried down the storm drains and are generally untreated. These pollutants cause increased water temperatures, flooding, decreased oxygen levels, streambank erosion and increased sedimentation. The City of Superior

has special problems as most of the city was historically constructed on wetlands and because of its proximity to the mouth of the Nemadji River and within the Newton Creek watersheds. Just outside downtown Superior is the Murphy Oil Refinery. Similarly, within the Nemadji River watershed is the Enbridge oil storage terminal consisting of 35 oil storage tanks of varying capacity. The refinery currently has the capacity to process 35,000 barrels per day of oil. In comparison, the Embridge terminal and pipeline handles roughly 9% of the oil imported into the U.S. or 1.2 million barrels per day.<sup>lxviii</sup> Embridge is currently developing the Alberta Clipper pipeline project and would bring crude oil from the tar sands of Alberta, Canada to the United States. This project calls for the placement of two additional pipelines, one designed to bring an additional 450,000 bpd of crude to Superior and the second designed to bring “diluent” north from Superior. Both pipelines will use the existing pipeline right of way.<sup>lxix</sup> Historically, some spills and leaks to surface waters have occurred either with pipeline or refining operations that could impact water quality in the City of Superior.<sup>lxx</sup> The approved pipeline corridor is outside of the proposed LSNERR boundaries and designation will not impact its construction or future operation.

Today employment in the service industry has surpassed other sectors and adds diversity to the manufacturing and shipping base of the economy. The top employment industries overall are government, trade, leisure and hospitality, education and health services, and transportation and utilities.<sup>lxxi</sup> The “Twin Ports” cities of Duluth-Superior have become regional retail and service centers for banking, shopping, education, governmental services and medical care for northern Minnesota and northern Wisconsin. Arts and entertainment offerings as well as year-round recreation, and the natural environment have contributed to expansion of the tourist industry. Approximately 3.5 million visitors each year contribute more than \$400 million to the local economy.

### 4.10.3 Agriculture

Agriculture in Douglas County was once a main source of income for residents. Over the years, the number of farmers and farmland has declined, following the statewide trend. According to the 2007-2008 Wisconsin Blue Book, Douglas County had 391 farms in 2002, totaling 85,000 acres. The average farm size was 217 acres. In comparison with all other Wisconsin counties, Douglas County ranks 62nd in total acres devoted to agriculture. Most farms in the county are dairy and beef farms. Within the last 10 years, other activities have moved to the area including goat dairy operations, fruit production and hobby farming. Douglas County continues to produce corn and forage such as grass, trefoil, alfalfa, wheat, oats and red clover.<sup>lxxii</sup>

# 5.0 ENVIRONMENTAL CONSEQUENCES



## 5.1 GENERAL IMPACTS

The overall impact of designating the proposed LSNERR and implementing the reserve's management plan in the years to come will be environmentally beneficial and result in positive social, tribal, and economic impacts. From a national perspective, the establishment of the 28th NERR on Lake Superior will add to the system's geographic reach providing a more complete network of estuarine systems representative of the ecological diversity found in the U.S. and its territories.

A LSNERR will create research and educational opportunities and synergies to improve our understanding and appreciation of the role and health of freshwater estuaries within the Lake Superior basin. Working to achieve goals set forth in the CZMA; namely, to provide a stable environment for research and enhance public awareness and understanding of estuarine areas, the reserve will develop programming to conduct applied research and monitoring of the Lake Superior freshwater estuaries; educate students, decision-makers and the public about these estuaries to address coastal management issues; and protect and enhance the ecological health

of reserve and Lake Superior coastal habitats (Attachment A). Federal funds, along with matching funds provided by the state partner, will support enhanced and coordinated efforts with reserve partners towards these goals.

Little or no physical alteration to the present habitats or environmental conditions within the proposed reserve's boundaries will occur as a result of this action except for those activities described in the Management Plan (Attachment A). Such activities might include projects that restore native habitats. Twelve potential sites for such activities were identified within the proposed Pokegama Bay component by the City of Superior.<sup>lxxiii</sup> Additionally, research on endangered/threatened species may be conducted with partners (i.e., Lake Sturgeon fishery restoration in the Lower St. Louis River<sup>lxxiv</sup> in partnership with the Fond du Lac Band of Lake Superior Chippewa). In another potential scenario, some of this research may require local experiments that modify a portion of specific habitat or include the installation of environmental monitoring/sampling equipment. Each of these future activities may be assessed for potential impacts according to NERRS regulations and other authorities, such as the Endangered Species Act (ESA and Section 106 of the National Historic Preservation Act (NHPA). Under NERRS regulations, §921.13, modifications to habitats are allowed only within the reserve buffer and are subject to NOAA review and approval though the submission of a restoration or resource manipulation plan as part of the reserve's overall management plan. In addition, annual NOAA funding awards to the reserve may include projects that include these types of activities; as such these are subject to NEPA review.

The expected impacts of the education, stewardship and research programs will be positive (Table 7). Designation of the proposed reserve provides extensive opportunities to gather better scientific and socio-economic information about the St. Louis River freshwater estuary for the purpose of enhancing knowledge

and understanding of freshwater estuaries. This information will provide decision-makers and resource managers the necessary tools and information to address critical Lake Superior coastal management issues (food web processes, invasive species, seiche dynamics, toxics & contaminants, land use changes, and climate change). Monitoring short and long-term ecological changes within Lake Superior freshwater estuaries will support stewardship activities that protect and enhance the ecology of the area and similar estuarine systems in the Great Lakes. Research and stewardship will also support increased public awareness of the ecological and cultural significance of the estuary through educational programming directed towards students, educators and citizens.

Also included among the positive impacts is the use of reserve generated research to support coastal management decisions within the estuary and Lake Superior. Within the NERRS, research results are often transferred to managers and decision-makers to support informed management decisions that affect coastal resources. These activities could lead to improvements in resource management and land use policy decisions by local communities.

Hunting, fishing, transportation and recreation will continue to be administered by the appropriate regulatory resource agencies. Designation will not change, abolish, or negatively affect tribal reserved or treaty guaranteed rights<sup>lxxiv</sup> (i.e., off-reservation hunting, fishing and gathering rights) within the boundaries. The collaborative arrangements between UWEX, tribes and tribal interests identified within the management plan will ensure that the LSNERR's long-term research and educational activities do not conflict with tribal treaty rights. Implementation of the reserve management plan will ensure that these uses will not conflict with long-term research and educational activities. Designated core research areas are sufficiently protected to ensure a stable environment for research. However, public access to reserve components may be enhanced

in support of reserve educational activities (Attachment A).

Impacts from the construction of future facilities and land acquisition needed to support LSNERR research and education objectives as described in the MP for research and education will be relatively minimal. The LSNERR plans to utilize existing facilities provided by the UW-Superior's Lake Superior Research Institute (LSRI) and the City of Superior until a prioritized list of facilities needs is developed (Attachment A). LSRI facilities are located outside the proposed boundaries on the campus of UW-Superior and will not impact the proposed action. Any future facilities construction to support the reserve will be located within the proposed reserve buffer areas and will result in minimal environmental disturbance. All future projects after designation that may include construction and land acquisition will be reviewed and assessed for potential impacts according to NEPA and NHPA procedures, NERRS regulations, and within the context and scope of this EIS.

Establishment of a Reserve Advisory Board (RAB) upon NERR designation will help provide a mechanism to coordinate uses within the proposed reserve boundaries and guide the implementation of reserve programs based on the MP. The RAB will also serve to help the reserve develop and maintain partnerships with other research, educational, tribal institutions and tribes. Resolution will be sought through research and through the assistance of the RAB members. All decisions by the RAB must be consistent with the MP and policies, existing state and federal regulations, tribal treaties and Wisconsin case law (Attachment A, Appendix 9).

## 5.2 SPECIFIC IMPACTS

### 5.2.1 Natural Environment

Physical impacts on the natural environment through the designation of the proposed LSNERR will be minor, including those areas within the



Figure 12. NERR Weather Station

buffer where future facilities will be located. Generally, the Lower St. Louis River Habitat Plan calls for the implementation of specific actions within the proposed boundaries that will reduce stresses on native species, plant communities, aquatic habitats and ecological systems that are under significant stress from a variety of human-related sources (i.e., urban development, nutrient runoff and historical industrial sources).<sup>lxxv</sup> The actions identified are not connected to the designation but could be implemented in the future in cooperation with the LSNERR partners. None of these actions will negatively impact LSNERR habitats; rather they are strategies that will reduce future impacts of stresses on these areas.

Buildings and other facilities will be designed and constructed to minimize environmental impacts and where possible, meet sustainable or "green" building standards (Attachment A). After designation, the reserve will develop a prioritized list of facility needs. Any identified facilities needs will be sited exclusively with the reserve buffer and take advantage of existing infrastructure for access. Projects that are approved will be reviewed and

**Table 9. Programmatic Impacts of Lake Superior NERR Designation**<sup>lxxvii</sup>

<b>Lake Superior Reserve Program Areas</b>				
	<b>Research</b>	<b>Monitoring</b>	<b>Education</b>	<b>Stewardship</b>
<b>Fauna &amp; Flora</b>	Increased knowledge and understanding of species within Lake Superior freshwater estuaries.	Improved data to support species management. Enhanced baseline data.	Increased public awareness, teacher training, classroom education, and improved coastal management decisions	Restoration of native fauna and flora with partners. Management and control of invasive species.
<b>Estuarine Habitats</b>	Increased knowledge and understanding of estuarine habitats, historical ecology and data supporting management decisions	Improved data on short and long-term ecological changes. Enhanced baseline habitat data.	Same as above	Address the impacts of toxics and contaminants. Restore degraded habitats and manage others.
<b>Water Quality</b>	Increased knowledge and understanding of estuarine and lake water quality, and data supporting management decisions	Improved data on short term conditions and long-term trends	Improved coastal management decisions	
<b>Upland Habitats</b>	Increased knowledge and understanding of upland habitats, historical ecology and data supporting management decisions	Improved data on short and long-term ecological changes. Enhanced baseline habitat data.	Increased public awareness, teacher training, classroom education, and improved coastal management decisions	Reduce impacts from visitor use and manage threatened habitats
<b>Cultural &amp; Historic</b>	Increased knowledge and understanding of cultural and historic resources	Enhanced inventory of cultural and historic resources.	Increased public awareness, interpretation and identification of the socioeconomic benefits of the estuary. Increase public and student awareness of tribal history and cultural importance of the area.	Active preservation of tribal resources and historic sites.

assessed for potential impacts according to NEPA procedures and NERRS regulations.

Temporary but minor impacts associated with the installation and use of instruments for scientific research and data gathering are anticipated. The placements of instruments, such as datasondes, meteorological stations, surface elevation tables, nets, or grab samplers will support Reserve research and long-term monitoring activities. As core capability of the NERRS, the System-wide Monitoring Program (SWMP), tracks short-term variability and long-term changes in estuarine ecosystems and coastal watersheds to understand how human activities and natural events can change ecosystems.<sup>lxxviii</sup> Data collected from SWMP instruments provide researchers and managers with valuable information on water quality and weather at frequent time intervals. Coastal managers use this monitoring data to make informed coastal management decisions on issues of local or regional relevance. The proposed reserve will install four automated data loggers and one weather station strategically placed on pilings or platforms as required by each NERR site (Figure 36). The reserve system currently measures physical and chemical water quality indicators, nutrients and the impacts of weather on estuaries. NERRS is building its capacity to measure sea level rise and changes to marsh and submerged aquatic vegetated habitats. As with the current research and monitoring capabilities within the NERRS, none of these anticipated capabilities will result in major impacts to the estuarine conditions, habitats or threatened and endangered species found within the reserve boundaries. Additional research areas identified in the MP, such as research on seiche dynamics, food web processes, invasive species, climate change, and/or historic changes to the system do not have any identified potential impacts to reserve habitats (Attachment A).

Management activities will not negatively impact the quality or condition of reserve habitats or ecological conditions. UWEX, the lead state agency, does not own land within the Reserve

boundary. As such, UWEX relies upon the RAB members who have land ownership or use rights within the boundaries of the Reserve, to manage traditional uses and support reserve activities. Designation of a NERR uses existing management policies and regulations to ensure that the reserve is a stable platform for research and monitoring. No new management authorities are proposed as part of this action.

NERR designation will have positive impacts to lands and waters within the reserve boundaries. Research, stewardship and educational activities and programs within the St. Louis River watershed and surrounding coastal areas will be better coordinated. Long-term research coupled with research based educational programming by the Reserve will promote a multi-disciplinary understanding of estuaries in general and, specifically, the St. Louis River freshwater estuary and Lake Superior (Table 8). This integrated approach will support improved management decisions that address Lake Superior coastal resources.

Upon NERR designation, new educational activities, opportunities and efforts will encourage student and educator participation from the Lake Superior Basin to improve their understanding of Great Lakes freshwater estuaries and coastal habitats. In conjunction with public awareness programming, the reserve will lead to a greater understanding and appreciation of estuarine systems, and foster a sense of stewardship toward the natural environment and a desire to protect and preserve the flora and fauna within the St. Louis River freshwater estuary and Lake Superior.

### **5.2.2 Human Environment**

Designation of the LSNERR will help address current watershed, water quality, habitat, and other coastal management issues by establishing a research and monitoring program that will help researchers, the public and decision-makers better understand estuarine processes. The Management Plan will provide an opportunity for

long-term scientific observations documenting environmental changes. Future studies can begin to address the spatial and temporal scales essential to support informed management practices and decisions. Increased public awareness through the educational and interpretive activities that bring scientific research to the public sector will likely have a positive economic benefit for the region, leading to new opportunities for ecotourism and other activities compatible with Reserve goals. It is not unusual for NERR sites to see a ten-fold increase in overall student and visitor visitations to NERR sites and facilities in the years after designation.

It is further anticipated that designation of the LSNERR will help coordinate and focus research and monitoring activities to address and advise goals and objectives of the various management plans that are currently in place or being developed for the region. Example plans and initiatives include: the Land and Water Resource Management Plan for Douglas County, Wisconsin (draft); the Lower St. Louis River Habitat Plan; Great Lakes Restoration Initiative; the WDNR Lake Superior Basin Plan; the St. Louis River Area of Concern Remedial Action Plan; and the City of Superior Parks & Recreation Master Plan. Many of the members of the Management Plan Planning Process and those who will sit on the LSNERR Advisory Board are also participants on advisory boards to the other management plans. In some cases, such as the draft Land and Water Resource Management Plan for Douglas County, the opportunity will exist to coordinate and expand mutual outreach and education activities, such as development of citizen water quality monitoring programs.

#### ***5.2.2.1 Tax Revenue Impacts***

Douglas County has very large blocks of county-owned and industrial forest land, smaller blocks of state land, some municipal owned lands, and the balance is privately owned lands. There is a total of 323,245 acres of publicly owned land in Douglas County, including 270,813 acres of County parks

and forests, and 52,432 acres of land owned by the State Department of Natural Resources. There are no federally owned lands. No change in the tax status of the lands making up the proposed Reserve will result from designation of the site as a NERR. Currently, all of the lands are publicly owned; hence no taxes will be lost. The LSNERR MP for the next five years does not anticipate any future land acquisition. However, future acquisitions of private holdings for inclusion in the proposed reserve would most likely result in minimal loss of tax revenue. The use of conservation easements to protect private lands from future development could result in some foregone economic opportunities should land be valued for new development purposes.

#### ***5.2.2.2 Traffic Impacts***

It is anticipated that there will be a slight increase in vehicle and foot traffic due to increased visits by researchers and students to both the reserve facilities and component sites as the number of corresponding programmatic and research activities increase. Under the current MP, the facilities for the LSNERR will be located at the Lake Superior Research Institute (LSRI) on the UW-Superior campus. Classrooms and meeting rooms will be available in newly remodeled buildings. It is unlikely that any increase in visitors to the campus would be significant, and adverse impacts should be minimal. However, field trips to the off-campus NERR sites may be more noticeable. The LSNERR's components are spread across a large municipal area, and depending on the education program capabilities of the LSNERR program, there may be an increase of 30-50 buses a year traveling through Superior and surrounding areas (assuming 2-3 buses a week during the school year, taking into account seasonal accessibility). Reserve staff could coordinate with other educational groups to minimize traffic impacts. On-the-water educational programming could lead to additional boating traffic on the estuary. Public access is a component of the LSNERR, however, there may be potentially negative



impacts to the experience of other users of the designated LSNERR with the increase in traffic due to site visits from student groups on walking trails, boat landings, fishing, wildlife viewing, and other outdoor activities. In addition, sensitive archaeological, historical, or cultural areas could sustain negative impacts from increased access. Collaboration between reserve partners under the framework of the MP enables the tribes, the City of Superior and others to work together to minimize and mitigate potential impacts to these resources through local management actions. Under the LSNERR management framework, if impacts do occur, they are expected to be minimal.

### ***5.2.2.3 Educational and Institutional Impacts***

The development of on-site educational and research programs at the LSRI will potentially have a large, positive impact on the local and regional school systems, research communities, and local and regional government information. In addition to the annual federal funds flowing into the local research community, the LSNERR MP outlines a series of objectives and outcomes that include research and public education opportunities. These include such activities as: developing a geographic information system and associated geospatial-temporal database for the St. Louis River freshwater estuary; developing baseline habitat maps; researching the socio-economic resources and ecosystem services and quantifying its benefits; developing and distributing curriculum and lesson plans; and investigating the development of such programs as a Master Naturalist Program and sponsoring graduate research at the Reserve. The LSNERR will result in improved knowledge in the local community by developing a citizen-science program and volunteer monitoring into its research and monitoring programs.

### ***5.2.2.4 Archaeological, Historic, and Cultural Impacts***

As indicated in section 4.9, the lower St. Louis River freshwater estuary has a rich Native American tradition. Throughout development of the LSNERR site designation process, NOAA has consulted with the affected Native American tribes and tribal agencies regarding cultural resources and treaty rights. This has included consultation under Section 106 of the NHPA and under NEPA. Under NEPA, NOAA entered into a Memorandum of Agreement with the Fond du Lac Band of Lake Superior Chippewa to serve as a cooperating agency on preparation of the EIS, and ensure their expertise on any historical and cultural information. Tribes and tribal agencies are also providing review and comments to UWEX for the LSNERR MP. Ultimately, representatives from Fond du Lac will serve on the LSNERR Advisory Board. Tribal Historical Preservation Officers and Tribal Cultural Resource Specialists from several tribes have also provided input to the DEIS as well as the MP under the NHPA.

It is anticipated that the designation of the LSNERR will not have significant impacts on the archaeological, historic, and cultural resources located in the LSNERR sites. The Lake Superior Chippewa retain treaty rights in their ceded territories, some of which are included in the LSNERR. The treaty rights can only be exercised in a way that conserves natural resources and protects public health and safety. The bands have enacted off-reservation natural resource management plans and conservation codes to meet these goals. The designation of the LSNERR will not hinder or alter the Ojibwe (Anishanabe) treaty rights to fish, hunt or gather within the land and water boundaries of the ceded territories. With respect to the LSNERR, future research, monitoring, and educational activities will be conducted not only with sensitivity towards archaeological, historic and cultural resources, but also with an eye towards improving awareness of them among the community and visitors to the Reserve.

**Table 10. Impacts on USACE Permits**

	Nationwide Permits	General Permits	Individual Permits
Designation of a NERR	Yes, General Condition 25	No	No

The LSNERR MP does discuss the potential for future facility development at the NERR site. All facilities will be required to comply with appropriate federal, state and local codes and regulations. Separate Section 106 consultations will be required for future facilities development in the event it is determined that historical and cultural resources could be affected by such development.

**5.2.2.5 State and Federal**

Although many state and federal resource protection programs and regulatory requirements exist, improved coordination between the different responsible agencies and/or the programs designed to protect and manage the resources is often a goal (Attachment A). Establishment of the proposed LSNERR will facilitate bringing these different programs and requirements together through the RAB and other advisory groups to consider the comprehensive management needs of the estuary, its resources and resource users without the need for establishing new regulations. The LSNERR will enable researchers, educators, decision-makers and local citizens to protect and enhance the ecological health of the estuary. As part of the NERRS, the reserve will be able to provide opportunities for greater collaboration in research, education and outreach activities between agency programs within Wisconsin and within the reserve system. Additional benefits are possible as LSNERR leverages other federal and state resources through the various partnerships that develop under the reserve’s research, education, training or stewardship programs. For example, LSNERR could play an essential role coordinating with the U.S. Fish and Wildlife Service, the St. Louis River Alliance (formerly known as the St. Louis River Citizens Action Committee) and other partners to successfully implement future restoration activities within the estuary. Each of these organizations has long standing commitments to the estuary and have partnered on previous restoration activities

to the benefit of St. Louis River estuarine habitats supporting fish and wildlife resources. As pointed out in the draft Memorandum of Understanding (MOU) between the UWEX and the partner entities, nothing in the MOU diminishes their independent authority or their respective statutory or legal obligations. However, their purpose in participating in the program is to “assist Reserve land managing entities to develop site-specific activities consistent with the MP” including “identifying and conserving sensitive ecological resources, promoting on-site research and long-term monitoring, engaging local communities in stewardship activities that support the conservation of sensitive Reserve resources and acting as a regional education resource that serves the public” (Attachment A, Appendix 11).

**5.2.2.6 US Army Corps of Engineer Permits**

Reserve designation can potentially impact a few potential future activities if those activities require federal permits. Under Section 404 of the Clean Water Act (CWA), the United States Army Corps of Engineers (USACE) issues permits for dredging or filling activities that impact wetlands and waterways. In general, there are three types of permits issued by the USACE that one can use to carry out construction-like activities in these areas: a nationwide permit (NWP), general permit, or individual permit. NWPs are pre-approved permits for activities that have already been approved at state and federal levels. General permits are issued by USACE to states at a regional level. The permits authorize states to perform construction activities in waters of the U.S. as long as such activities are regulated and approved by a state agency. An individual permit is required for activities with potentially significant impacts to wetlands and waterways. These activities are reviewed by the USACE, which evaluates permit applications under a public interest review, as well as the environmental criteria set forth in the CWA Section 404(b)(1) Guidelines.

In many instances, designation of a NERR will affect some NWRs, because under General Condition 25, a NERR site is defined as a “designated critical resource water.” Beyond nationwide permits, designation of the LSNERR will not affect general or individual permits. General permits are pre-approved permits for specific activities that have already been approved at the state level. And individual permits are required for those activities that exceed the thresholds of NWP (Table 9).

In Wisconsin, several General Permits have been issued by the USACE, the latest on April 10, 2009. These permits authorize the WDNR to regulate dredging and filling activities to waters of the U.S. including wetlands. Contained within permit GP-002-WI is a provision excluding permitted activities within the City of Superior from regulation.<sup>lxxix</sup> The city has an approved Special Area Management Plan (SAMP) that overrides the USACE issued general permit. SAMPs are resource management plans and implementation programs developed to improve the management of a discreet geographic area. The Superior SAMP has the goal of ensuring predictability for development activities in wetland areas. The plan identifies wetlands areas within the City of Superior where local permits may be issued under the SAMP for wetland dredging or filling that adversely affect less than 10 acres.<sup>lxxx</sup> Designation of the LSNERR will not impact the SAMP permitting process as none of those areas identified as eligible for SAMP permits are within the boundaries of any component of the proposed reserve.

### 5.2.3 Cumulative Impacts

As opposed to many EIS project analyses, the preferred alternative in this document does not propose any action that would significantly disrupt the landscape. There will be no change in land ownership, and current uses (including tribal usufructary rights) of the public lands and waters within the proposed boundary will continue under present regulatory authorities. Reserve designation is largely an administrative action. An analysis

of proposed designation and other federal and non-federal actions (Table 10), determined that the combined environmental impacts are minimally adverse to beneficial.

This analysis reviews the potential impacts of two federal actions and four non-federal actions. The first federal action is a 2009 Coastal and Estuarine Land Conservation Program (CELCP) action to acquire and permanently protect a 3,995 acre parcel within the Nemadji River Watershed, the largest sub-watershed of the St. Louis River estuary. The area acquired will be managed by Douglas County to maintain its ecological, conservation, recreation, historical and aesthetic values.<sup>lxxxi</sup> This action will enhance water quality within the proposed reserve boundaries by protecting important habitats within the St. Louis River watershed.

A second federal action relates to USACE permits given to the Port of Duluth Superior. Maintenance dredging is authorized by the USACE within port areas outside of the City of Superior and not covered under the Wisconsin general permit. Approximately 110,000 cubic yards of sediment are dredged annually from the federal navigation channel to maintain deep draft (20-32 feet) commerce and is placed in the Erie Pier confined disposal facilities (CDF). Maintenance dredging will exceed the remaining capacity of the CDF within 5 years.<sup>lxxxii</sup> Current options for the disposal of future dredging include mine land reclamation. This option may impact water quality within the St. Louis River watershed depending on the location of this disposal option. For non-federal actions, in Wisconsin, the state regulates dredging and filling of wetlands under a USACE issued general permit. The State also allows for beach nourishment using dredge materials if specific criteria are met.<sup>lxxxiii</sup>

The approved SAMP permits dredging and filling activities within its boundaries superseding Wisconsin’s USACE issued general permit. None of the eligible areas for SAMP permits is located within the proposed reserve boundaries.

In 2002, the St. Louis River Citizens Action

Committee acted to develop the Lower St. Louis River Habitat Plan. The purpose of the plan is to create a vision for the estuary that set specific conservation goals to achieve specific ecological and social benefits. Out of the plan, 17 strategies for mitigating identified threats to the estuary were identified.<sup>lxxxiv</sup> The strategies, if implemented, work to protect critical habitats and resources and minimize impacts from human activities through improved local planning, permitting, and management practices. Since the reserve components are all contained within the plan's geographic area, the strategies identified will have beneficial future impacts to the reserve's key environmental components.

Another non-federal action that may impact the natural resources within the proposed reserve is the implementation of the Douglas County Forest Plan. This plan was created to promote sustainable and multiple use forest practices within the county. The plan imposes restrictions on harvest practices to protect soils, reduce recreation use conflicts, benefit wildlife management and assist in fire protection.<sup>lxxxv</sup> As proposed, only a small portion of the reserve (e.g., Oliver Marsh) is managed by the county. This area is identified as a "special use" area due to its unique habitat characteristics under the plan.<sup>lxxxvi</sup> Under this land use type, the area is protected in its natural state resulting in no change to its environmental condition.

The Wisconsin Point component borders the old Wisconsin Point landfill site. That site operated from 1950 to 1976 as a disposal area for municipal, industrial, and commercial waste from the cities of Duluth, MN and Superior, WI. Onsite groundwater monitoring has found contamination from a number of contaminants including volatile organic compounds and aromatic hydrocarbons.<sup>lxxxvii</sup> As a result, the City of Superior has developed an Environmental Contamination Assessment Work Plan to determine potential hazards to public health and the environment. The plan calls for the installation of additional groundwater wells and soil borings to monitor site

contamination. None of the activities specified within the work plan will impact the reserve resources.

As for the proposed federal action, the LS NERR will increase attention to research and educational uses of the proposed reserve. There are already several research and educational programs in the area. On field outings, large numbers of visitors have detrimental effects on fragile habitats. Rather than adding to the impacts of these groups, the proposed Reserve will promote behaviors that lessen environmental impacts through guide/teacher training, visitor education and interpretation, and coordinating large group field outing times and locations. A modest but minor cumulative impact would result from traffic associated with future visitation to Reserve associated sites and future facilities. Additionally, proposed monitoring stations will not be located in boating lanes.

A major focus of the proposed LSNERR research program will be to monitor biological and physical variables of the freshwater estuary. These variables will provide the long-term baseline data against which the proposed reserve may assess environmental changes over time, be they anthropomorphic or natural trends in the ecosystem. Enhancing our understanding of the spatial and temporal processes in the system will support informed management practices and improve stewardship of coastal natural resources in the future. In addition to these variables, the proposed reserve intends to establish baseline data on social, economic, and cultural systems influenced by the LSNERR. It is the intention of LSNERR to use this information to identify and quantify the socio-economic benefits and ecosystem services provided by the St. Louis River estuary over time. (Attachment A).

Within the estuary, the analysis of the cumulative impacts of the federal and non-federal actions as identified in Table 11 shown above are entirely beneficial to the area's natural environment.

**Table 11. Hypothetical Checklist of potential cumulative effects of LSNERR designation**

Environmental Components	Federal & Non-Federal Actions							Cumulative Impact
	Proposed Action	CELCP	Lower St. Louis River Habitat Plan	Wisconsin Pt. Landfill cleanup	Douglas Co. Forest Mgmt. Plan	USACE Dredging	SAMP	
Watershed & hydrology	@	+	+	@	@	*	@	+
Water Quality	+	+	+	@	@	*	@	+
Estuarine Habitats	+	@	+	@	@	@	@	+
Fauna & Flora	+	@	+	@	@	@	@	+

Key: \* low adverse effect \*\* moderate adverse effect \*\*\* high adverse effect  
 + beneficial effect @ no effect

Regionally, the LSNERR will be a center for freshwater estuarine research and education within the Lake Superior Basin and the Great Lakes. Thus, the proposed reserve will serve resource users, coastal decision-makers, educators and visitors throughout Lake Superior’s Wisconsin and Minnesota coastal areas and have positive effects on the entire Great Lakes region. Nationally, the cumulative impact of the proposed Lake Superior NERR designation is to further NOAA’s mission of establishing a complete system of reserves in all biogeographic subregions and estuarine types in the United States.

**5.3 Unavoidable Adverse Environmental or Socioeconomic Impacts**

Because of the nature of this federal action, it is anticipated that adverse environmental or socioeconomic impacts will be minimal, nonexistent, or avoidable. Future construction of LSNERR facilities should minimally impact surrounding environments and be confined to buffer areas. The reserve MP does not attempt to change existing local, state, or federal laws/regulations relating to current and traditional uses. Designation of the LSNERR will not constitute

an impediment to continued growth and development on lands surrounding the proposed Reserve. The MP is designed to encourage good stewardship and better understanding of the estuarine resources. Currently, there will be no change in land ownership or of tax revenue with the designation of the proposed LSNERR. Future land donations or acquisitions could result in a change in land use (e.g., donated wetlands or agriculture lands change to conservancy or preservation use) but these changes would not be considered adverse. Reserve MP updates and boundary modifications require a complete public review process using NOAA guidelines.

**5.4 Irreversible and Irretrievable Commitment of Resources**

The designation of the proposed LSNERR and implementation of its MP should not result in any irreversible or irretrievable commitment of environmental resources. No environmental change is anticipated or permitted through the program (other than minor disturbances associated with research). The proposed LSNERR will be operated and managed in partnership with the core land holding partners and other interested parties. Each partner has a vested

interest in the LSNERR, its mission and core programs. These partnerships are voluntary. Any partner could, if they choose, withdraw from the partnership. However, MOUs specifying the relationships between the partners and each partner's commitment to the proposed reserve have been developed and are available to review in the MP. It is not anticipated that this arrangement will result in a withdrawal of resources. No significant construction is anticipated until a review of facilities needs is completed. Fishing, game harvesting, tribal uses, recreational activities (i.e., skiing, archery, and snowmobiling) and other traditional uses will continue under current regulatory authorities and are not activities associated with the LSNERR implementation or management. Many of the primary objectives of the reserve support increasing public and targeted audience understanding of Lake Superior coastal management issues and the ecological, cultural and historic resources of the LSNERR to ensure irreversible or irretrievable commitment of resources does not occur.

### **5.5 Possible Conflicts Between the Proposed Action and the Objectives of Federal, State, Regional, Local, and Tribal Land Use Plans, Policies and Controls for the Areas Concerned**

It is anticipated that establishment of the proposed LSNERR will not conflict with the objectives of federal, state, regional or local land use plans, policies or controls for the areas concerned. The MP describes the activities that take place in and around the proposed Reserve and the authorities that govern those uses (Attachment A). All of the land and water areas comprising the proposed LSNERR's four components are currently under public ownership. Reserve staff will coordinate with the various land owning public entities at the programmatic and the reserve management scales on an as needed basis to address any issues that may arise after the proposed Reserve is designated. Any advice or action will be consistent with NERRS, local, state or federal regulations and policies. The proposed

reserve will schedule meetings as necessary with the various RAB members and others to share ideas, promote efficiency, and resolve conflicts. Tribal usufructary rights will be maintained and future activities coordinated with tribal entities as needed. The net impact of the existing conservation and land use plans within the proposed Reserve boundary are positive because these plans add to the existing authorities and protections for long-term research.

### **5.6 Compliance with Other Environmental and Administrative Review Requirements**

The approval of the proposed reserve and MP and award of future financial assistance are federal actions subject to authorities such as NEPA, ESA, and the federal consistency provisions of the CZMA. NOAA is responsible for ensuring that projects comply with these and other relevant authorities. Compliance with these authorities will result in few environmental, social, and economic negative impacts.

#### ***5.6.1 National Flood Insurance Program & Executive Order 11988, Floodplain Management***

The National Flood Insurance Program (NFIP) prohibits the use of funds for acquisition or construction of buildings in special flood hazard areas in communities that are not participating in the Flood Insurance Program, as identified in the NFIP's Community Status Book. Any future construction of buildings or facilities that use NOAA funds will be subject to review and compliance with appropriate building standards should such structures be located in a flood hazard area. E.O. 11988 directs federal agencies to evaluate the potential effects of proposed actions on floodplains. Research, monitoring, and education actions associated with the proposed reserve will occur in the waters or surrounding lands in floodplains; however, these are considered to be temporary or minor and not to contribute to increased future flood damages.

### ***5.6.2 Coastal Barriers Resource Act***

In order to receive federal funds, all proposed projects located on undeveloped coastal barrier islands designated in the Coastal Barriers Resource Act (CoBRA) system must be consistent with the purposes of minimizing the loss of human life; wasteful expenditures; and damage to fish, wildlife, and other natural resources. No adverse impacts as a result of implementation of the MP or expended funds are anticipated to occur to undeveloped barrier islands.

### ***5.6.3 Endangered Species Act***

LSNERR designation in and of itself will have no effect on endangered or threatened species of concern. However, after designation it sets in motion a number of potential activities that may have an effect on these species (on land or in the water) but is not likely to adversely impact them because of the procedures and protocols in place to protect them and the purposes of NERR designation. LSNERR, upon designation, is planning to conduct an assessment of future facility needs. The results of this needs assessment will identify future facility requirements and potential siting locations within the reserve buffer zone. Despite this, NEPA reviews will be conducted prior to any construction taking place. Consultation with appropriate state and federal agencies will be conducted as such facilities are developed.

Certain research methodologies require in situ placement of researchers, and equipment, or short term manipulation (i.e., capture, weighing) of the endangered or threatened species or their habitat. Those methodologies may affect endangered species but through assurances would not be likely to adversely impact them. For example, the WDNR, U.S. Fish and Wildlife Service (USFWS) and the Fond du Lac Band of Lake Superior Chippewa may sample lake sturgeon populations within the St. Louis River in partnership with the LSNERR. Future NOAA research funding (through annual grants) to the

UWEX for the LSNERR may provide funds to undertake collaborative work between WDNR, USFWS, UWEX staff and researchers to improve their understanding of Lake Sturgeon reproductive success and habitat needs. Such research would be implemented with great care to ensure, for example, least disturbance to important sturgeon spawning habitat. At this time, however, it is not possible to identify all types of research that will be conducted in the future, and therefore only policies and procedures can be assessed at this time during the development of this environmental impact statement.

The MP states that the primary research objective for the LSNERR is to “conduct and gather baseline or foundational research and activities needed for longer-term research and monitoring directed at improving the understanding of the St. Louis River Freshwater Estuary, its interactions with Lake Superior, and the short and long-term ecological changes within Lake Superior freshwater estuaries and coastal ecosystems”. To achieve that objective, it is clear that more than passive research such as ecological and water quality monitoring information obtained through SWMP instruments will be required. It is conceivable that some future research activities will require further ESA Section 7 consultation and/or State or Federal permits be issued to researchers. This, however, is not uncommon and procedures are in place to allow these activities.

### ***5.6.4 Magnuson-Stevens Fishery Conservation and Management Act***

The Magnuson-Stevens Act requires that federal agencies consult with NOAA Fisheries regarding any action authorized, funded, or undertaken that may adversely affect essential fish habitat (EFH) for federally managed fish. The proposed LSNERR will have positive impacts on EFH by improving the science associated with better understanding the important role of EFH. There is potential for this to occur in various partnerships looking at invasive species impacts on EFHs. Should any form of manipulative research be undertaken in

the future that has the potential to cause temporary adverse impacts within EFH, appropriate consultations between the granting agency and NOAA Fisheries Office of Habitat Conservation will be undertaken to avoid, minimize or offset any adverse impacts associated with the research or monitoring, ensuring no long-term or cumulative impacts result from the research. Any consultation will follow the procedures outlined at 50 CFR 600.920. Reserve research policy requires researchers to have secured all outside approvals/permits (Federal/State) prior to obtaining written approval from the research coordinator.

### ***5.6.5 Coastal Zone Management Act (CZMA) and Consistency***

The proposed LSNERR is within Wisconsin's coastal zone. The Wisconsin Coastal Management Program (WCMP) has broad opportunities through a federal consistency review authority to influence federal government activities, construction, funding, permitting and other actions proposed within the coastal zone. It promotes coordination between state and federal policies, programs and agencies. The WCMP is authorized to review the LSNERR designation for consistency with the program's enforceable policies, which are described in its federally approved program document, "Wisconsin Coastal Management Program: A Strategic Vision for the Great Lakes".  
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Section 307 of the CZMA requires that federal activities (to include financial assistance) should be certified by coastal states and territories with approved coastal management programs that the activity is consistent with the enforceable policies of the program. Prior to Reserve approval, annual grants, future acquisitions or construction projects associated with Reserve implementation, must be certified by the WIDOA that such activities are consistent with the policies of the respective coastal management programs. A consistency determination will be reviewed during the LSNERR draft EIS/MP comment period.

The Wisconsin Coastal Management Program has been closely involved in the development of the LSNERR and is represented on the Reserve Advisory Board. The Wisconsin Coastal Management Program (WCMP), in the Wisconsin Department of Administration, is a networked program that coordinates state, regional and local agencies to improve Great Lakes coastal management. The WCMP supports the management, protection and restoration of Wisconsin's coastal resources, and increases public access to the Great Lakes. The WCMP's goals are:

- To improve the implementation and enforcement of existing state regulatory and management policies and programs
- To improve the coordination of existing policies and activities of governmental units and planning agencies on matters affecting key coastal uses and areas
- To strengthen local governmental capabilities to initiate and continue effective coastal management consistent with identified state standards and criteria
- To provide a strong voice to advocate the sustainable use of the coastal environment and the recognition in federal, state, and local policies of the uniqueness of the coastal environment
- To increase public awareness and opportunity for citizens to participate in decisions affecting the Great Lakes resources
- The WCMP's relationship to the LS NERR is to provide a statewide perspective on coastal management issues in an advisory role to the Reserve manager, and to participate with the NERR in the integrated national network of ocean and coastal management programs.



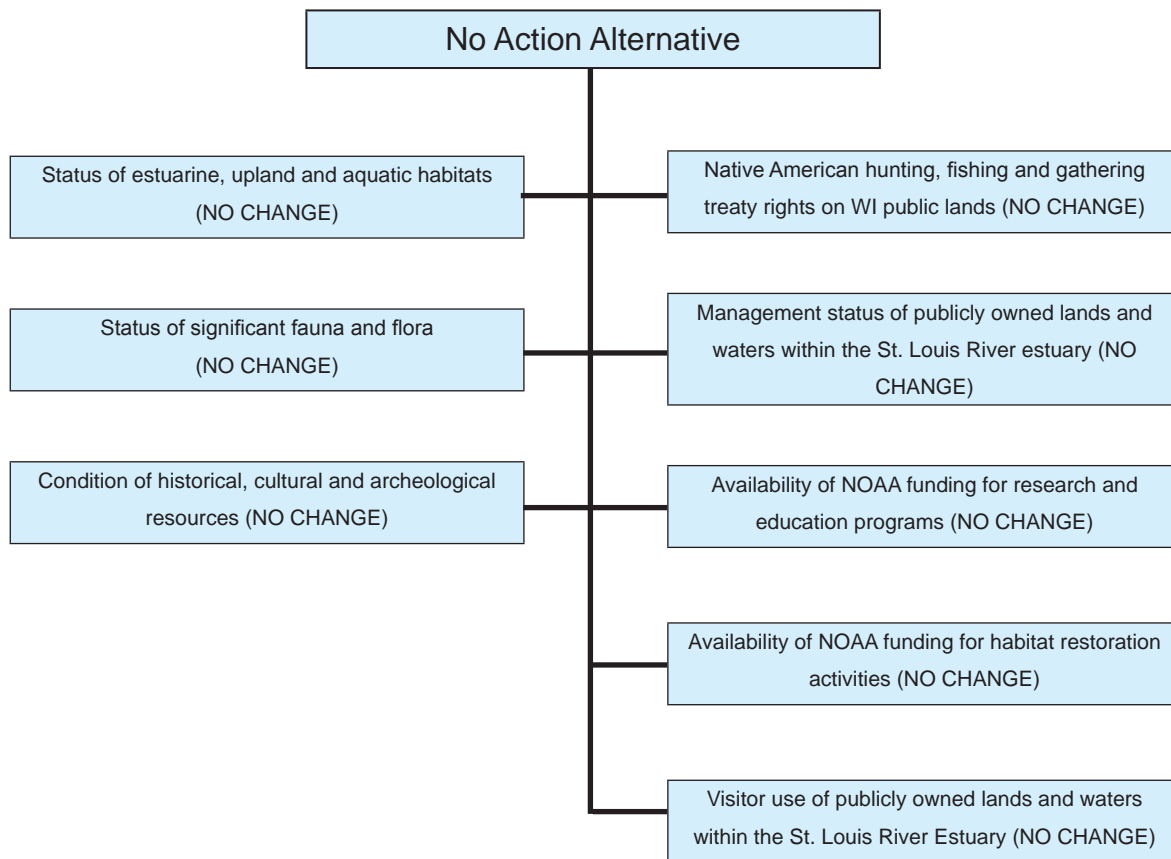
**5.6.6 National Historic Preservation Act**

Under the National Historic Preservation Act of 1966 (NHPA), the Secretary of Interior has compiled a national register of sites of significant importance. NOAA believes that the proposed reserve and associated activities will not negatively impact registered sites or eligible sites. A concurrence from the Wisconsin State Historical Society, with an opinion that reserve designation does not affect historic properties is currently being sought by NOAA. Any activities that may impact cultural resources will also be reviewed by Tribal Historic Preservation Officers and Tribal Cultural Resource Specialists.

**5.6.7 Environmental Justice**

Consistent with the President’s Executive Order on Environmental Justice (Feb. 11, 1994) and the Department of Commerce’s Environmental Justice Strategy, the designation of the proposed LSNERR will not have disproportionately adverse human health or environmental effects on minority or low income populations. No action will displace minority or low-income populations but many of the actions such as the education program to bring K-12 children to the proposed reserve will benefit all populations with active measures being taken into consideration to ensure that all schools have the opportunity to visit specific sites and participate in educational activities.

**Figure 13. Impacts of the No Action Alternative**



### ***5.6.8 Executive Order 12866***

Implementation of the proposed LSNERR and its MP does not constitute a “significant regulatory action” as defined by Executive Order 12866 because: (1) it will not have an annual effect on the economy of \$100 million or more, or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local or tribal governments or communities; (2) it will not create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) it will not materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; and (4) it will not raise novel legal or policy issues arising out of legal mandates, the President’s priorities, or the principles set forth in the Executive Order.

## **5.7 Consequences of the No-Action Alternative and Comparison of Alternatives**

The no action alternative described in Chapter 3 for the designation of a LSNERR will not result in any changes to the current status of the natural environment or the current management of the component sites (Figure 13.). However, taking no action would result in a lack of coordination and long-term cooperation in the management of the St. Louis River estuary and the components identified in the site selection process. Research and educational organizations within the area would not be eligible to compete for NOAA 315 funding for activities, impeding future efforts to improve public understanding of the St. Louis River freshwater estuary and Lake Superior. Finally, taking no action on designating the proposed LSNERR would impede NOAA’s ability to complete its mission to complete the development of a national system of reserves representative of various regions estuarine types in the United States.

# 6.0 COORDINATION AND CONSULTATION WITH OTHERS

This document is a product of the combined efforts and inputs of numerous individuals. Richard Klemme (Dean and Director, UWEX), Thomas J. Blewett (State Program Director and Assistant Dean, UWEX), Dr. Faith Hensrud (Associate Vice Chancellor for Academic Affairs and Outreach, UW-Superior), Rebecca Power (Great Lakes Regional Water Liason, UWEX), and Robin Shepard (Interim Provost and Vice Chancellor, UWEX) provided advice and consultation throughout the environmental impact statement and management plan process to help navigate through University policies and procedures.

Without the hard work of the contributing authors and reviewers including Patrick Robinson (UWEX), Cathy Techtmann (UWEX), Sue O'Halloran (UWEX/UW-Superior), and Travis Olson (WCMP), the completion of these documents would have in doubt. Their diligence and professionalism have been exemplary in the eyes of NOAA staff.

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The scoping meetings began with a brief introduction by UW-Superior Associate Vice Chancellor, Faith Hensrud. The introduction was followed a description of the environmental impact statement process by Laurie McGilvray, Chief of the Estuarine Reserves Division at NOAA. Matt Chasse of NOAA followed with an overview of the NERR system and the NERR designation process. Next, Becky Sapper of UWEX gave presentation about the development of the proposed Lake Superior NERR on the St. Louis River, including discussion of how the NERR will fit into Great Lakes regional research efforts. A question and session was then facilitated by Ms. Sapper.

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## APPENDIX 1.

MINNESOTA WATER QUALITY MONITORING DATA FOR THE ST.  
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PUBLIC RESPONSE TO DEIS/DMP COMMENTS

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U.S. FISH AND WILDLIFE SERVICE CONCURRENCE RESPONSE

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# APPENDIX 1. MINNESOTA WATER QUALITY MONITORING DATA FOR THE ST. LOUIS RIVER

The table below provides a recent summary of water quality data measured by the Minnesota Pollution Control Agency at their monitoring station SLB-1 on the St. Louis River below the I-535 Bridge at Superior (monitoring station ID S000-277). (<http://www.pca.state.mn.us/water/milestone-sites.html>)

Sample Date	Parameter	Result	Units
3/13/2008	Chloride	9.4	mg/l
3/13/2008	Dissolved oxygen (DO)	9.63	mg/l
3/13/2008	Nitrogen, Nitrite (NO <sub>2</sub> ) + Nitrate (NO <sub>3</sub> ) as N	0.38	mg/l
3/13/2008	Nitrogen, ammonia (NH <sub>3</sub> ) + ammonium (NH <sub>4</sub> )	0.15	mg/l
3/13/2008	Phosphorus as P	0.038	mg/l
3/13/2008	Solids, Total Suspended (TSS)	1.2	mg/l
3/13/2008	Specific conductance	226	uS/cm
3/13/2008	Sulfur, sulfate (SO <sub>4</sub> ) as SO <sub>4</sub>	20	mg/l
3/13/2008	Temperature, water	0.63	deg C
3/13/2008	Turbidity	2.7	FNMU
3/13/2008	pH	6.91	None
5/27/2008	Carbon, Total Organic (Toc)	21	mg/l
5/27/2008	Chloride	11	mg/l
5/27/2008	Dissolved oxygen (DO)	8.74	mg/l
5/27/2008	Escherichia coli	200	MPN/100ml
5/27/2008	Nitrogen, Nitrite (NO <sub>2</sub> ) + Nitrate (NO <sub>3</sub> ) as N	0.14	mg/l
5/27/2008	Nitrogen, ammonia (NH <sub>3</sub> ) + ammonium (NH <sub>4</sub> )	0.24	mg/l
5/27/2008	Phosphorus as P	0.047	mg/l
5/27/2008	Solids, Total Suspended (TSS)	4.8	mg/l
5/27/2008	Specific conductance	170	uS/cm
5/27/2008	Stream Physical Appearance, Minnesota (choice list)	1B.TEA-COLOR	
5/27/2008	Stream Recreational Suitability (choice list)	4.POOR	
5/27/2008	Sulfur, sulfate (SO <sub>4</sub> ) as SO <sub>4</sub>	19	mg/l
5/27/2008	Temperature, water	13.27	deg C
5/27/2008	Transparency, tube with disk	50	cm
5/27/2008	Turbidity	22.2	FNMU
5/27/2008	pH	7.48	None

Sample Date	Parameter	Result	Units
6/4/2008	BOD, Biochemical oxygen demand	1.1	mg/l
6/4/2008	Chloride	8.32	mg/l
6/4/2008	Chlorophyll a, corrected for pheophytin	1.41	ug/l
6/4/2008	Dissolved oxygen (DO)	6.67	mg/l
6/4/2008	Nitrogen, Nitrite (NO <sub>2</sub> ) + Nitrate (NO <sub>3</sub> ) as N	*Present <QL	
6/4/2008	Nitrogen, Nitrite (NO <sub>2</sub> ) + Nitrate (NO <sub>3</sub> ) as N	0.16	mg/l
6/4/2008	Nitrogen, ammonia (NH <sub>3</sub> ) + ammonium (NH <sub>4</sub> )	<0.05	mg/l
6/4/2008	Nitrogen, ammonia (NH <sub>3</sub> ) + ammonium (NH <sub>4</sub> )	*Present <QL	
6/4/2008	Nitrogen, ammonia (NH <sub>3</sub> ) + ammonium (NH <sub>4</sub> )	0.14	mg/l
6/4/2008	Pheophytin-a	2.54	ug/l
6/4/2008	Phosphorus as P	0.045	mg/l
6/4/2008	Solids, Total Suspended (TSS)	7.6	mg/l
6/4/2008	Solids, Volatile	1.6	mg/l
6/4/2008	Specific conductance	175	uS/cm
6/4/2008	Sulfur, sulfate (SO <sub>4</sub> ) as SO <sub>4</sub>	15.1	mg/l
6/4/2008	Temperature, water	14.12	deg C
6/4/2008	Transparency, tube with disk	60	cm
6/4/2008	Turbidity	11.8	FNMU
6/4/2008	pH	7.6	None
6/4/2008	pH	7.82	None
6/5/2008	Escherichia coli	220	MPN/100ml
8/18/2008	BOD, Biochemical oxygen demand	0.9	mg/l
8/18/2008	Chloride	9.4	mg/l
8/18/2008	Chlorophyll a, corrected for pheophytin	2.25	ug/l
8/18/2008	Dissolved oxygen (DO)	6.98	mg/l
8/18/2008	Nitrogen, Nitrite (NO <sub>2</sub> ) + Nitrate (NO <sub>3</sub> ) as N	0.25	mg/l
8/18/2008	Nitrogen, ammonia (NH <sub>3</sub> ) + ammonium (NH <sub>4</sub> )	*Present <QL	
8/18/2008	Pheophytin-a	3.01	ug/l
8/18/2008	Phosphorus as P	0.035	mg/l
8/18/2008	Solids, Total Suspended (TSS)	2	mg/l
8/18/2008	Solids, Volatile	*Present <QL	
8/18/2008	Specific conductance	191	uS/cm
8/18/2008	Stream Physical Appearance, Minnesota (choice list)	1B.TEA-COLOR	
8/18/2008	Stream Recreational Suitability (choice list)	3.FAIR	



Sample Date	Parameter	Result	Units
8/18/2008	Stream stage height	136.62	ft
8/18/2008	Sulfur, sulfate (SO4) as SO4	15.9	mg/l
8/18/2008	Temperature, water	20.93	deg C
8/18/2008	Transparency, tube with disk	>100	cm
8/18/2008	Turbidity	5.2	FNMU
8/18/2008	pH	7.9	None
8/18/2008	pH	7.59	None
8/19/2008	Escherichia coli	49	MPN/100ml
9/29/2008	BOD, Biochemical oxygen demand	1.4	mg/l
9/29/2008	Chloride	18	mg/l
9/29/2008	Chlorophyll a, corrected for pheophytin	2.49	ug/l
9/29/2008	Dissolved oxygen (DO)	7.09	mg/l
9/29/2008	Escherichia coli	270	MPN/100ml
9/29/2008	Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N	0.17	mg/l
9/29/2008	Nitrogen, ammonia (NH3) + ammonium (NH4)	0.17	mg/l
9/29/2008	Pheophytin-a	4.3	ug/l
9/29/2008	Phosphorus as P	0.042	mg/l
9/29/2008	Solids, Total Suspended (TSS)	2.7	mg/l
9/29/2008	Solids, Volatile	2	mg/l
9/29/2008	Specific conductance	275	uS/cm
9/29/2008	Stream Physical Appearance, Minnesota (choice list)	1B.TEA-COLOR	
9/29/2008	Stream Recreational Suitability (choice list)	4.POOR	
9/29/2008	Sulfur, sulfate (SO4) as SO4	25.2	mg/l
9/29/2008	Temperature, water	16.3	deg C
9/29/2008	Transparency, tube with disk	>60	cm
9/29/2008	Transparency, tube with disk	100	cm
9/29/2008	Turbidity	9.9	FNU
9/29/2008	pH	7.8	None
9/29/2008	pH	7.35	None
10/26/2009	Carbon, Total Organic (Toc)	13	mg/l
10/26/2009	Chloride	23.1	mg/l
10/26/2009	Dissolved oxygen (DO)	8.17	mg/l
10/26/2009	Mercury	1.9	ng/l
10/26/2009	Methylmercury (+1) ion	0.11	ng/l
10/26/2009	Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N	0.05	mg/l
10/26/2009	Nitrogen, Nitrite (NO2) + Nitrate (NO3) as N	0.23	mg/l
10/26/2009	Nitrogen, ammonia (NH3) + ammonium (NH4)	<0.05	mg/l

Sample Date	Parameter	Result	Units
10/26/2009	Nitrogen, ammonia (NH <sub>3</sub> ) + ammonium (NH <sub>4</sub> )	0.2	mg/l
10/26/2009	Phosphorus as P	0.061	mg/l
10/26/2009	Solids, Total Suspended (TSS)	2	mg/l
10/26/2009	Specific conductance	245	uS/cm
10/26/2009	Stream Physical Appearance, Minnesota (choice list)	1B.TEA-COLOR	
10/26/2009	Stream Recreational Suitability (choice list)	3.FAIR	
10/26/2009	Sulfur, sulfate (SO <sub>4</sub> ) as SO <sub>4</sub>	27.6	mg/l
10/26/2009	Temperature, water	6.93	deg C
10/26/2009	Transparency, tube with disk	>100	cm
10/26/2009	Turbidity	7.9	FNMU
10/26/2009	pH	7.8	None

## APPENDIX 2. WISCONSIN/ MINNESOTA/MICHIGAN CASE LAW & TRIBAL TREATIES

### **Tribal Treaties:**

Treaty of 1836, 7 Stat. 491  
Treaty of 1837, 7 Stat. 536  
Treaty of 1842, 7 Stat. 591  
Treaty of 1854, 10 Stat. 1109

### **Court Cases:**

Lac Courte Oreilles v. Voigt (LCO I), 700 F. 2d 341 (7th Cir. 1983), cert. denied 464 U.S. 805 (1983)  
Lac Courte Oreilles v. State of Wisconsin (LCO III), 653 F.Supp. 1420 (W.D. Wis. 1987)  
Lac Courte Oreilles v. State of Wisconsin (LCO IV), 668 F.Supp. 1233 (W.D. Wis. 1987)  
Lac Courte Oreilles v. State of Wisconsin (LCO V), 686 F.Supp. 226 (W.D. Wis. 1988)  
Lac Courte Oreilles v. State of Wisconsin (LCO VI), 707 F.Supp. 1034 (W.D. Wis. 1989)  
Lac Courte Oreilles v. State of Wisconsin (LCO VII), 740 F.Supp. 1400 (W.D. Wis. 1990)  
Lac Courte Oreilles v. State of Wisconsin (LCO VIII), 749 F. Supp. 913 (W.D. Wis. 1990)  
Lac Courte Oreilles v. State of Wisconsin (LCO IX), 758 F.Supp. 1262 (W.D. Wis. 1991)  
Lac Courte Oreilles v. State of Wisconsin (LCO X), 775 F.Supp. 321 (W.D. Wis. 1991)

Mille Lacs Band v. State of Minnesota, 861 F.Supp. 784 (D. Minn. 1994)  
Mille Lacs Band v. State of Minnesota, 952 F.Supp. 1362 (D. Minn. 1997)  
Mille Lacs Band of Chippewa Indians v. State of Minnesota, 124 F.3d 904, (8th Cir. (Minn.) August 26, 1997)  
Minnesota v. Mille Lacs Band of Chippewa Indians, 119 S.Ct. 1187 (1999).

People of the State of Michigan v. Jondreau, 384 Mich. 539, 185 N.W. 2d 375 (Mich. 1971)  
State of Wisconsin v. Gurnoe, 53 Wis. 2d 390, 192 N.W. 2d 892 (Wis. 1972).

## APPENDIX 3. PUBLIC RESPONSE TO DEIS/DMP COMMENTS

### RESPONSE TO COMMENTS FROM PUBLIC COMMENT PERIOD:

The NOAA Office of Ocean and Coastal Resource Management and the University of Wisconsin Cooperative Extension have collaborated to provide a joint response to comments received on the Draft Environmental Impact Statement (DEIS) and the Draft Lake Superior National Estuarine Research Reserve Management Plan (MP). In some cases, comments have resulted in changes in the Final Environmental Impact Statement (FEIS) and the Final Management Plan (FMP) and readers of the final document are encouraged to look at the changes.

### INDEX TO WRITTEN COMMENTS

Page No.	Commenter	Date
74.	Jason Maloney, Northern Great Lakes Visitor Center	06/08/2010
75.	Dennis Pratt, Wisconsin DNR	06/23/2010
77.	Dave Podratz, Murphy Oil Company	06/30/2010
78.	Charlene C. Johnson, City of Superior	07/07/2010
80.	Michael T. Chezick, U.S. Department of Interior	07/08/2010
82.	Mary Morgan, City of Superior	07/12/2010
83.	Katie Beilfuss, Wisconsin Wetlands Association	07/12/2010
85.	Kenneth Westlake, US EPA	07/12/2010
87.	Andrea Grygo, St. Louis County Planning & Development Department	07/13/2010*
88.	Craig Engwall, Minnesota DNR	07/13/2010*
90.	Gaylen Reetz, Minnesota Pollution Control Agency	07/13/2010*
92.	Megan O'Shea, Wisconsin DNR	07/22/2010*

\*Comments received after the public comment period officially closed.

### INDEX TO ORAL COMMENTS

Page No.	Commenter	Date
93.	Jim Hurley, University of Wisconsin Sea Grant and the University of Wisconsin Water Resources Institute	07/08/2010
93.	Kathryn MacKenzie, Douglas County Board	07/08/2010

**WRITTEN COMMENT NO.1. Northern Great Lakes Visitor Center**

June 8, 2010

Subject: Draft Environmental Impact Statement - Lake Superior NERR Comment  
From: Jason Maloney <jlmaloney@centurytel.net>  
Date: Tue, 08 Jun 2010 14:00:56 -0500  
To: Laurie.McGilvray@noaa.gov

Dear Ms. McGilvray,

I am writing to urge The National Oceanic and Atmospheric Administration (NOAA) and University of Wisconsin –Extension to consider using existing public resources like the Northern Great Lakes Visitor Center and existing expertise and educational curriculum at the NGLVC to maximize LSNERR outreach, including outreach to the freshwater estuaries that were not chosen for designation, through the String of Pearls (SOP) initiative. The NGLVC stands ready to cooperate as a “positive multiplier” that will assist and enhance the mission and vision of the LSNERR.

Sincerely,

Jason L. Maloney  
Jason L. Maloney, Center Director  
Chequamegon-Nicolet National Forest  
Northern Great Lakes Visitor Center  
29270 County Highway G  
Ashland, WI 54806  
(715) 685-2642  
www.nglvc.org

**Response to Comments from Great Lakes Northern Visitor Center**

The University of Wisconsin-Extension appreciates the willingness of the Northern Great Lakes Visitor Center (NGLVC) to assist and enhance the mission and vision of the LSNERR. As stated in Objective 7, Outcome 7C in the LSNERR Management Plan, during the first five years of operation the Reserve will explore the feasibility of establishing a formal, connected network of Wisconsin freshwater estuary sites. Partnering sites would be included in coordinated outreach, applied research, and monitoring programs designed to encourage and foster local stewardship of freshwater estuary resources at the community level. As part of that feasibility analysis, the Reserve will be considering the opportunities for partnering with existing public resources like the NGLVC.

**WRITTEN COMMENT NO. 2 Wisconsin DNR**

June 23, 2010

----- Original Message -----

Subject: Comments on L Superior NERR Draft Impact Statement and Management Plan

Date: Wed, 23 Jun 2010 11:42:33 -0500

From: Pratt, Dennis M - DNR <Dennis.Pratt@Wisconsin.gov>

To: laurie.mcgilvray@noaa.gov <Laurie.Mcgilvray@noaa.gov>

Laurie,

Much appreciate the opportunity to comment on the Draft Environmental Impact Statement for the Lake Superior NERR and the Lake Superior National Estuarine Research Reserve Management Plan.

I have one comment on each document regarding the background fisheries information as follows:

Draft Environmental Impact Statement for the Lake Superior NERR

Change Section 4.8.2 to read as follows to correctly describe the present fisheries:

#### 4.8.2 Fish

The freshwater estuary and its tributaries are unusual in having such a variety of habitat types supporting a large and diverse assemblage of native fish species, many of which inhabit the near-shore waters Lake Superior utilizing the estuary for spawning and nursery purposes. The St. Louis River estuary supports a large, diverse fish community of approximately 45 native fish species. Forage species such as emerald shiner, spottail shiner, log perch and johnny darters inhabit the estuary, along with piscivorous species such as yellow perch, smallmouth bass, musky, walleye, and northern pike. Lake sturgeon historically used the estuary for spawning but were likely extirpated during the mid twentieth century pollution era. A two decade interstate stocking program has created an abundant sub-adult population nearing maturity (females may take thirty years to reach spawning age). Although reestablishing a self-sustaining sturgeon population is one of the last remaining fishery restoration milestones in the estuary, natural reproduction of stocked sturgeon has yet to be documented.

Reason for correction 1.) replace white bass with smallmouth bass as the few white bass found in the estuary before the mid- 1980's were ballast water transports, exotics, likely from Lake Erie and additionally have not been seen since the late 1980's due to reproductive introgression with the ballast transported exotic white perch. Smallmouth bass are a very common piscivore in today's estuary fishery.

Reason for correction 2. in the same paragraph. I've updated the information on Lake Sturgeon to accurately describe the present state of condition for that species.

Lake Superior NERR and the Lake Superior National Estuarine Research Reserve Management Plan

On page 10, in the third full paragraph, it's third sentence the plan lists American Eel at the end of the sentence. Although American Eel are present in the St. Louis estuary they are actually an exotic fish that has gained access to Lake Superior through either the Erie canal, Welland Canal or the Chicago Sanitary Canal. American Eel are not native to the St. Louis Estuary fishery community. As such, American Eel should be removed from this document and also Table Two in the Appendix.

Thanks  
Dennis Pratt

Senior Fisheries Biologist  
Lake Superior Fisheries Team  
Superior Service Center  
Superior Wisconsin

\* Dennis M. Pratt  
Wisconsin Department of Natural Resources  
(\* phone: 715) 392-7990  
(\* fax: (715) 392-7993  
(\* e-mail: [Dennis.Pratt@wisconsin.gov](mailto:Dennis.Pratt@wisconsin.gov)  
(\* Web: <http://dnr.wi.gov/org/gmu/superior/>

### **Response to Comments from Wisconsin DNR:**

Section 4.8.2 of the Environmental Impact Statement was modified as suggested in comments to correctly describe the present fisheries. The reference to American Eel was also removed from the text of the Management Plan. Table Two of the Appendix was modified to clarify that although the American Eel is a species of Special Concern in Wisconsin as identified by the Wisconsin Natural Heritage Inventory, it is not a native species to the St. Louis River Freshwater Estuary. The Checklist of Wisconsin Vertebrates published by the Wisconsin Department of Natural Resources states the following:

“While native in the Mississippi River basin, the catadromous American Eel (*Anguilla rostrata*) is an introduced species in Wisconsin waters of the Great Lakes. Although some individuals may swim all the way from the Atlantic Ocean to Lake Superior, natural barriers precluded this in historical times. In addition, it is likely that individuals of this species arrive in the ballast water of ocean-going vessels.”

**WRITTEN COMMENT NO. 3 Murphy Oil Company**

June 30, 2010

----- Original Message -----

From: Dave\_Podratz@murphyoilcorp.com <Dave\_Podratz@murphyoilcorp.com>

To: laurie.mcgilvray@noaa.gov <laurie.mcgilvray@noaa.gov>

Cc: tina.oconnell@noaa.gov <tina.oconnell@noaa.gov>; morganm@ci.superior.wi.us <morganm@ci.superior.wi.us>

Sent: Wed Jun 30 14:05:32 2010

Subject: DEIS / DMP for the Lake Superior National Estuarine Research Reserve

Dear Ms. McGilvray,

I have a few comments on the Draft Environmental Statement and Draft Management Plan (DEIS/DMP) for the proposed Federal designation of the Lake Superior National Estuarine Research Reserve:

First, in Section 4.9.1 on Page 37 near the bottom of the first column, the name of the bridge is incorrect. The "Bond Bridge" is actually the "Bong Bridge" named for Major Richard Ira Bong, America's greatest ace in WWII.

Next, in Section 4.10.2 on Page 39 there are a number of errors or points that need clarification:

With the exception of just a few of our tanks, the Refinery is not within the Nemadji River watershed (the Enbridge terminal is). Water flow from the Refinery is to Newton Creek and Hog Island Inlet, not the Nemadji river.

The refinery does not handle roughly 9% of the oil imported into the U.S., or 1.2 million barrels per day. That statement applies to the Enbridge pipeline and terminal, not the Murphy Oil Refinery. Our refinery has a capacity of about 35,000 barrels per day.

The statement regarding an expansion at the refinery is several years out of date. We were at one time (2005 - 2007) considering a significant expansion to 235,000 barrels per day (~10 million gallons per day), but that project is no longer being considered.

Thank you for considering this input. Please don't hesitate to contact me if you need further information.

**Response to Comments from Murphy Oil:**

Thank you for your clarifying comments. Sections 4.9.1 and 4.10.2 of the Environmental Impact Statement have been changed to reflect your comments and the differences between the Murphy Oil Refinery and the Enbridge pipeline and terminal.



**WRITTEN COMMENT NO. 4 City of Superior**

July 7, 2010

**Public Works - SAMP**

Phone: (715) 395-7506  
 Fax: (715) 395-7346  
 E-mail: johnsoncharlene@ci.superior.wi.us  
 Website: www.ci.superior.wi.us

Charlene Johnson  
 SAMP II Technical Coordinator  
 1316 N. 14<sup>th</sup> Street  
 Superior, WI 54880

July 1, 2010

Ms. Laurie McGilvray  
 NOAA Estuarine Reserves Division  
 1305 East West Hwy, N/ORM5  
 Silver Spring, MD 20910

Dear Ms. McGilvray,

I am the administrator for the City of Superior Special Area Management Plan. My professional background includes wetland science, delineation, and mitigation specialist, natural resource management, and regulatory permitting. My comments are relative to Section 5.2.3 Cumulative Impacts relevant to the City's Special Area Management Plan (SAMP) for the Draft Environmental Impact Statement for the Lake Superior National Estuarine Research Reserve (LS-NERR), currently under public review.

The City of Superior Special Area Management Plan boundaries are described as specific staged growth areas throughout the city, excluding portions within the corporate city limits that are not included in the City's growth plans. Staged growth areas are included on the attached maps. These excluded areas include the Superior Municipal Forest, Wisconsin Point, the Nemadji River floodplains or any shoreland wetlands as defined by state and federal Shoreland Wetland Zoning rules.

The City of Superior Special Area Management Plan "SAMP" boundaries are only those wetlands that were permitted "eligible" through the SAMP II state and federal permits for dredging/filling in eligible wetlands. This is how the City governs the SAMP within our authority to do so. It is not clear to me, in my review of the LS-NERR Environmental Impact Statement what the intent of the reference to the SAMP is, as stated in Section 5.2.3. "Cumulative Impact Analysis".

For the most part, the LS-NERR boundaries lie in areas that are NOT included in the wetland areas assessed through the SAMP planning or administrative process, since these areas were in portions of the City where development was not intended. The statement on page 40, "None of the eligible areas for SAMP permits is located within the proposed reserve boundaries", is correct; however, on page 48, I would propose that the statement "In this lower St. Louis River estuary, there will be no current or future impacts from beach nourishment because the proposed reserve lies within the City of Superior SAMP boundaries." is incorrect. It is not clear that the development or administration of the SAMP is even relevant to permissions for any beach nourishment activities, especially since shoreland wetlands and wetlands in the non-development targeted areas are either not included in the SAMP or not eligible. Impacts in these areas may be considered by the state and federal wetland regulatory authorities independent of the SAMP, however.

Relevant to the City's SAMP program, there are several compensatory wetland mitigation sites established by the City in support of the SAMP included within the NERR boundaries, but these sites are independent of the SAMP assessment or regulatory boundaries.

The City owns parcels of land that are within the NERR boundaries which have been reviewed by state and federal environmental authorities (including the National Fish and Wildlife Service and Wisconsin Department of Natural Resources) for projects to improve piping plover habitat. These areas are located on the eastern portion of the "beach" near what is known as Schafer's Beach, near the end of Moccasin Mike Road (west of Dutchman's Creek). It is not certain at this time what these projects will entail, however, clearing of woody vegetation, placement of gull deterrents, or other measures may be desired to improve the nesting success of piping plover.

Sincerely,

Charlene C. Johnson, P.W.S.  
 SAMP II Technical Coordinator

**Response to Comments from the City of Superior:**

Thank you for your clarifying comments. After further review of the City of Superior SAMP II document dated August 8, 2008, the SAMP does not have jurisdiction over any potential future beach nourishment activities within its boundary. The sentence indicating that the SAMP regulates this activity in Section 5.2.3 has been removed from the final document.

## WRITTEN COMMENT NO. 5 U.S. Department of Interior

July 8, 2010



IN REPLY REFER TO:

### United States Department of the Interior

OFFICE OF THE SECRETARY  
Office of Environmental Policy and Compliance  
Custom House, Room 244  
200 Chestnut Street  
Philadelphia, Pennsylvania 19106-2904



July 8, 2010

9043.1  
ER 10/474

Ms. Laurie McGilvray  
NOAA Estuarine Reserves Division  
1305 East West Hwy, N/ORMS  
Silver Spring, MD 20910

Dear Ms McGilvray:

The U.S. Department of the Interior (Department) has reviewed the May 2010 Draft EIS and Draft Management Plan (DEIS/DMP) for the Proposed Federal Designation of the Lake Superior National Estuarine Research Reserve (LSNERR). The Department offers the following recommendation for your consideration.

#### SPECIFIC COMMENT

On page 47, under Section 5.2.2.5 State and Federal, insert: "Coordination with the U.S. Fish and Wildlife Service (Service) on this Reserve will be crucial to the Conservation interests of the region as the Coastal Program-Great Lakes has partnered with at least 3 restoration projects within the Reserve boundaries over recent years and considered additional partnerships in the vicinity. Working with the St. Louis River Citizen's Action Committee in the Coastal Program - Great Lakes, a number of projects are being completed to benefit local fish and wildlife resources. As identified in the Coastal Program - Great Lakes Strategic Plan; the Service, NOAA, State, local and nongovernmental organizations should benefit from these types of conservation partnerships into the future." after the sentence... Additional benefits are possible as LSNERR leverages other federal and state resources through the various partnerships that develop under the reserve's research, education, training or stewardship programs. The Department considers this addition important because it shows a federal investment already exists within the project area.

The Department has a continuing interest in working with the NOAA to ensure that project impacts to resources of concern to the Department are adequately addressed. For matters related to fish and wildlife resources, please coordinate with Paul Richert, U.S. Fish and Wildlife Service, 1 Federal Drive, Fort Snelling, Minnesota 55111-4056, telephone: (612) 713-5141. We appreciate the opportunity to review the document and provide comments.

Sincerely,

Michael T. Chezik  
Regional Environmental Officer

Cc: P. Richert, FWS, Ft. Snelling, MN

**Response to Comments from the U.S. Department of Interior:**

Thank you for your comment regarding the importance of recognizing existing federal investments, specifically, U.S. Fish and Wildlife Service activities, in restoring fish and wildlife resources within the St. Louis River estuary. The LS NERR will explore leveraging these and other federal and state resources through the various partnerships that develop under the reserve's research, education, training or stewardship programs. Section 5.2.2.5 of the Environmental Impact Statement has been revised to briefly discuss the importance of coordination and to provide an example of federal investment that already exists within the project area.

In addition, the following text was inserted after the sentence on pg 47 that ends with "develop under the reserve's research, education, training and stewardship programs": "For example, LSNERR could play an essential role coordinating with the U.S. Fish and Wildlife Service, the St. Louis River Alliance (formerly known as the St. Louis River Citizens Action Committee) and other partners to successfully implement future restoration activities within the estuary. Each of these organizations has long standing commitments to the estuary and have partnered on previous restoration activities to the benefit of St. Louis River estuarine habitats supporting fish and wildlife resources."

## **WRITTEN COMMENT NO. 6 City of Superior**

July 12, 2010

----- Original Message -----

Subject: LSNERR DEIS/DMP Comments

Date: Mon, 12 Jul 2010 11:50:19 -0500

From: Morgan, Mary K. <morganm@ci.superior.wi.us>

To: 'laurie.mcgilvray@noaa.gov' <Laurie.Mcgilvray@noaa.gov>

Good Morning Laurie:

I am writing to comment on what I suspect is a typographical error in the Draft Environmental Impact Statement for the Lake Superior NERR. On page 50, 5.3 Unavoidable Adverse Environmental Impacts, there is a sentence that reads: "Designation of the LSNERR will constitute an impediment to continued growth and development on lands surrounding the proposed Reserve."

The City of Superior is not comfortable with that language and would prefer that the sentence read: "Designation of the LSNERR will not constitute an impediment to growth and development on lands surrounding the proposed Reserve," as that is our understanding of the designation.

You are likely to receive comments from Charlene Johnson, SAMP II Coordinator for the City of Superior, regarding the document's characterization of the Superior SAMP.

Sincerely,

Mary Morgan  
LS NERR Representative for the City of Superior  
1316 North 14th Street  
Superior, WI 54880  
Ph 715-395-7279 (direct)

### **Response to Comments from the City of Superior:**

Thank you for your comments. The typographical error within Section 5.3 of the Environmental Impact Statement was corrected to address your concerns.

**WRITTEN COMMENT NO. 7 Wisconsin Wetlands Association**

July 12, 2010



222 S. Hamilton St. #7 Madison, WI 53703  
Phone: (608) 250-9971 Fax: (608) 287-1179  
[www.wisconsinwetlands.org](http://www.wisconsinwetlands.org)

July 12, 2010

Ms. Laurie McGilvray  
NOAA Estuarine Reserves Division  
1305 East West Hwy, N/ORM5  
Silver Spring, MD 20910

Dear Ms. McGilvray,

The Wisconsin Wetlands Association enthusiastically supports the nomination of the St. Louis River freshwater estuary and portions of the Lake Superior Shoreline as the Lake Superior National Estuarine Research Reserve. We have reviewed the Draft Environmental Impact Statement and would like to express our full support for the Preferred Alternative outlined therein as well as for the Draft Management Plan.

The Wisconsin Wetlands Association is dedicated to the protection, restoration, and enjoyment of wetlands and associated ecosystems through science-based programs, education and advocacy. We are a non-profit 501(c)(3) organization. Our members include wetland scientists and managers, wetland landowners, private consultants, hydrologists, soil scientists, hunters and anglers, paddlers, bird watchers, and private citizens from all 72 Wisconsin counties who share an interest in the protection and sustainable management of Wisconsin's wetland resources.

Wisconsin Wetlands Association has recognized the importance of the wetland systems of the St. Louis River Marshes through its designation of this site as a *Wetland Gem* – one of 100 *Wetland Gems* in the state of Wisconsin. *Wetland Gems* are high quality habitats that represent the wetland riches that historically made up nearly a quarter of Wisconsin's landscape. To understand the significance of this designation, as well as the science-based site selection process, visit [www.wisconsinwetlands.org/gems.htm](http://www.wisconsinwetlands.org/gems.htm).

Wisconsin Wetlands Association created a portfolio of outreach materials for the *Wetland Gems* initiative, including a one-page fact sheet about each and every *Wetland Gem*. (The fact sheet for the St. Louis River Marshes is attached.) These materials have been distributed widely across the state and we hope they will be helpful in promoting the Lake Superior National Estuarine Research Reserve when that designation is finalized.

**Board of Directors**

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Kelly Forman  
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Kyle Magyera  
*Wetland Policy Specialist*

Erin O'Brien  
*Wetland Policy Director*

Alexia Sabor  
*Member Services Coordinator*



Preserving Wisconsin's Wetland Heritage

Wisconsin Wetlands Association also recognizes the *international importance* of the St. Louis River Marshes. In 2009, Wisconsin Wetlands Association convened the Wisconsin Ramsar Committee to identify priority wetland sites for nomination as Wetlands of International Importance under the international Ramsar Convention on Wetlands ([www.Ramsar.org](http://www.Ramsar.org)). The St. Louis River Marshes was among the top priority sites selected by the Committee for nomination for this important and prestigious designation in the next 5-10 years.

We applaud the efforts of NOAA, UW-Extension, and all of the other many partners who have worked so hard on the nomination of the St. Louis River marshes for designation as a National Estuarine Research Reserve. We appreciate the opportunity to express our support for this designation as well as for the details outlined in the Preferred Alternative within the Draft Environmental Impact Statement.

Sincerely,



Katie Beilfuss  
Outreach Programs Director

cc: Tina O'Connell, NOAA  
Travis Olson, WI Coastal Management Program  
Becky Sapper, UWEX

## **Response to Comments from the Wisconsin Wetlands Association**

The comments made in support of the LSNERR and the management plan are appreciated. No changes to the document were necessary.

**WRITTEN COMMENT NO. 8 U.S. EPA**

July 12, 2010

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

JUL 12 2010

REPLY TO THE ATTENTION OF:

E-19J

Laurie McGilvray, Division Chief  
NOAA Office of Ocean and Coastal  
Resource Management  
1305 East West Highway, N/ORM  
Silver Spring, MD 20910

**Re: U.S. EPA Comments on the Draft Environmental Impact Statement for the Lake Superior Natural Estuarine Research Reserve - EIS No. 20100198**

Dear Ms. McGilvray:

The U.S. Environmental Protection Agency (U.S. EPA) has reviewed the National Oceanic Atmospheric Administration's (NOAA) Draft Environmental Impact Statement (EIS), which evaluates the consequences of nominating part of the St. Louis River freshwater estuary and the Lake Superior shoreline as the Lake Superior National Estuarine Research Reserve (Reserve). A Management Plan to guide the management of the site for purposes of conducting research, education and outreach activities is also evaluated as part of the Draft EIS. Our review was conducted pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR 1500-1508), and Section 309 of the Clean Air Act.

A Lake Superior Reserve would represent a significant addition to the Reserve System due to the unique estuarine types not currently represented in the System. The possibility of long- and short-term research projects and programs at the Reserve will ultimately contribute to a better understanding of the larger ecosystem. Development of a Reserve would also result in positive impacts to interpretative and educational programs for local and regional schools, collaboration among research entities operating in the area, and opportunities for federal and state agencies to collaborate with Native American tribes. The proposed integrated approach will support improved management decisions addressing Lake Superior coastal resources.

The Draft EIS documents analysis of a No Action alternative, the Preferred Alternative, and four alternatives consisting of possible alternative boundary configurations. The preferred alternative is the site recommended by the State of Wisconsin with the addition of Oliver Marsh, a small Douglas County parcel adjacent to the St. Louis River, and additional Portions of Wisconsin Point and Allouez Bay.



Based on our review of the Draft EIS, we have rated the Preferred Alternative as Lack of Objections. This rating indicates that our review did not identify any potential environmental impacts requiring substantive changes to the Preferred Alternative.

We appreciate the opportunity to be a part of NOAA's planning effort. We look forward to receiving a copy of the Final EIS. Should you have any questions concerning the contents of this letter, please do not hesitate to contact me or Kathleen Kowal of my staff at (312) 353-5206 or send email to [kowal.kathleen@epa.gov](mailto:kowal.kathleen@epa.gov).

Sincerely,



Kenneth A. Westlake  
Chief, NEPA Implementation Section  
Office of Enforcement & Compliance Assurance

Enclosure: Ratings Summary

### **Response to Comments from the U.S. EPA:**

Thank you for comments supporting the designation of the Wisconsin Lake Superior National Estuarine Research Reserve. No changes to the document were necessary.

**WRITTEN COMMENT NO. 9 St. Louis County Planning & Development Department\***

July 13, 2010

----- Original Message -----

Subject: Comments on DEIS/DMP - Lake Superior National Estuarine Research Reserve  
Date: Tue, 13 Jul 2010 09:51:40 -0500  
From: Andrea Grygo <GrygoA@co.st-louis.mn.us>  
To: Laurie.McGilvray@noaa.gov

Ms. McGilvray;

On behalf of St. Louis County Planning & Development Department I have reviewed the Draft Environmental Impact Statement and Draft Management Plan (DEIS/DMP) for the proposed Federal designation of the Lake Superior National Estuarine Research Reserve. Please note that these comments submitted do not necessarily reflect the views of St Louis County.

I have no areas of concern with the DEIS as written. I am in support of the boundary for the Preferred Alternative, and would support the boundary for Alternative B should the Preferred Alternative boundary not be used.

I believe the proposed National Estuarine Research Reserve designation will be an opportunity for long-term research in a geographic location mostly under-represented other than in contaminants research. The federal designation would open the door for research funding and provide an incentive to draw more world-class researchers and students to the area.

Kind Regards,  
Andrea Grygo

**Response to Comments from the St. Louis County Planning & Development Department:**

The comments made in support of the LSNERR and the management plan were appreciated. No changes to the document were necessary.

**WRITTEN COMMENT NO. 10 Minnesota DNR\***

July 13, 2010

Minnesota Department of Natural Resources  
Northeast Region • 1201 East Highway 2 • Grand Rapids MN • 55744



July 7, 2010

Laurie McGilvary  
NOAA Estuarine Reserves Division  
1305 East-West Highway, N/ORM5  
Silver Spring, MD 20910

Dear Ms. McGilvary:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement and Draft Management Plan (DEIS/DMP) for the proposed Federal designation of the Lake Superior National Estuarine Research Reserve (NERR) in the St. Louis River Estuary. The Minnesota Department of Natural Resources (DNR) concurs with the finding (on page X of the Executive Summary) that the *"Designation of the Lake Superior NERR within the St. Louis River freshwater estuary and the implementation of its management Plan (MP) will provide environmental, social, and economical benefits to the region."*

The Minnesota DNR continues to support the designation of the NERR in the St. Louis River estuary, a critically important area for natural resources shared by the states of Minnesota and Wisconsin. We have a long history of collaboration with Wisconsin partners in the estuary and strong working relationships have developed between agencies and citizen groups across the state border as we have worked on issues such as the St. Louis River Remedial Action Plan, the Habitat Plan for the Lower St. Louis River and the Harbor Technical Advisory Committee. We look forward to continuing to enhance these partnerships in the future and anticipate that the designation of the Lake Superior National Estuary Research Reserve will aid us in that effort.

Staff from the Minnesota DNR has been engaged in the development of this NERR through the LSNERR Steering Committee and various other teams and work groups. Additionally, the DEIS/DMP draws heavily from planning efforts that were developed in close collaboration between Wisconsin and Minnesota partners. The Habitat Plan of the Lower St. Louis River in particular, cited frequently in the DEIS/DMP as a foundational document for both the affected environment and the needs and opportunities for resource management in the estuary, was developed in a highly collaborative, inclusive process and addresses issues throughout the entire estuary ecosystem. We are encouraged by this approach to creating a NERR that is based on cross-border communication and cooperation and look forward to it continuing as the LSNERR programs and activities are implemented.

The Minnesota DNR supports the preferred boundary alternative identified in the DEIS/DMP. Boundary Alternative B, which would include waters of Minnesota directly adjacent to the Wisconsin components of the NERR would require additional consultation and coordination with the State of Minnesota and would pose several administrative questions that have not been addressed in the planning process to date. We would encourage future discussions about opportunities to ensure that education, stewardship and research opportunities in the entire estuary are maximized rather than diminished due to a boundary designation that divides what truly is one shared, cross-border ecosystem.

Thank you again for the opportunity to comment on the Lake Superior NERR. Feel free to contact me if you require additional information.

Sincerely,

Craig Engwall  
Northeast Regional Director  
(218) 999-7913  
craig.engwall@state.mn.us

**Response to Comments from Minnesota DNR:**

The comments made in support of the LSNERR and the management plan were appreciated. The Management Plan places particular emphasis on program integration and partner collaboration. These concepts have been emphasized throughout the process of establishing the LSNERR. While the LSNERR boundaries are located solely on Wisconsin waters and lands, there is a clear need and demonstrated desire to collaborate across state boundaries by both Wisconsin and Minnesota partners. As a result, Minnesota based stakeholders have also been involved with the process to designate the LSNERR and have been members of the various committees. Once designated, Wisconsin will continue to work closely with Minnesota partners and will explore potential methods for long-term engagement between Minnesota partners and the Reserve.

## WRITTEN COMMENT NO. 11 Minnesota Pollution Control Agency\*

July 13, 2010



Minnesota Pollution Control Agency

520 Lafayette Road North | St. Paul, MN 55155-4194 | 651-296-6300 | 800-657-3864 | 651-282-5332 TTY | [www.pca.state.mn.us](http://www.pca.state.mn.us)

*Rec'd  
7/13/10  
JFM*

July 8, 2010

Ms. Linda McGilvray  
NOAA Estuarine Reserves Division  
1305 East-West Highway, N/ORM5  
Silver Spring, MD 20910

Re: Lake Superior National Estuarine Research Reserve Draft Environmental Impact Statement

Dear Ms. McGilvray:

Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement (DEIS) for the Lake Superior National Estuarine Research Reserve (LSNERR or 'the Reserve') designation for the lower St. Louis River estuary and Lake Superior for portions of Superior, Wisconsin. The project consists of designation of the LSNERR as well as facilities in support of the LSNERR. The Minnesota Pollution Control Agency (MPCA) staff provides the following comments for your consideration.

The MPCA strongly supports the efforts of the state of Wisconsin regarding the proposed designation of the LSNERR. While the designation and the Reserve lie outside of Minnesota's jurisdiction, the St. Louis River estuary and western Lake Superior are significant natural resources that are shared between the two states.

There has been a long history of Minnesota and Wisconsin, along with other federal and tribal government agencies, local governments, organizations and interested parties, cooperatively working together to protect and restore our precious resources. With the LSNERR designation, these efforts and collaboration will be further reinforced and will provide a stable framework for long-term research and monitoring, protection and restoration, education, and informed decision making necessary to provide for the continued sustainability of these resources.

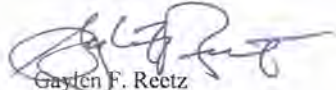
The MPCA looks forward to collaborative efforts in outreach and education regarding our estuarine resources in the St. Louis River, Bay and surrounding Lake Superior region. Active partnerships have been developed in many technical aspects of this environment; we look forward to parallel work in the outreach and education aspects of this region. The addition of the LSNERR will enhance and support this vision.

The MPCA anticipates an ongoing role on these important issues. Also, because much of the designated LSNERR area is located "downstream" from Minnesota, the MPCA and area partners will play a critical role in the restoration and protection of these ecosystems.

Ms. Linda McGilvray  
July 8, 2010  
Page 2

We appreciate the opportunity to review and comment on this project. If you have any questions concerning our review of this DEIS, please contact Tom Estabrooks of my staff at 218-302-6608.

Sincerely,



Gaylen F. Reetz  
Director  
Regional Division

GFR:mbo

cc: Craig Affeldt, MPCA, St. Paul  
Pat Carey, MPCA, Duluth  
Tom Estabrooks, MPCA, Duluth  
Marc Hershfield, MPCA, Duluth  
Mike Kennedy, MPCA, Duluth  
Suzanne Hanson, MPCA, Duluth

### **Response to Comments from Minnesota Pollution Control Agency:**

Thank you for your comments supporting the designation of the Wisconsin Lake Superior National Estuarine Research Reserve. No changes to the document were necessary.

**WRITTEN COMMENT NO. 12 Wisconsin DNR\***

July 22, 2010

Comment from Megan O'Shea received on 7/22

Hi, Matt. I met you a couple of weeks ago, and I just thought that I should submit my comment to you about water quality data that Wisconsin gathers for the St. Louis River. The data that was analyzed for the DEIS was collected by Minnesota on the Minnesota side of the river, but WI collects data in several locations in the St. Louis River. The data collected is basic water chemistry data (DO, conductivity, pH, etc.) as well as some additional parameters (nutrients, TSS). The data can be obtained through the state water quality database, SWIMS, but it can also be obtained by contacting the appropriate DNR staff (in this case, the contact would be me).

So please keep this in mind for future coordination as the NERR becomes established.

Thank you,

Megan

Megan O'Shea  
St. Louis River Area of Concern Coordinator  
Wisconsin Department of Natural Resources  
(\* phone: (715) 395.6904  
(\* fax: (715) 392.7993  
(\* e-mail: [megan.oshea@wisconsin.gov](mailto:megan.oshea@wisconsin.gov)

**Response to comments from WDNR:**

Thank you for your comment. Section 4.6 of the Environmental Impact Statement was changed to reflect that Wisconsin has similar water quality data available to the public through SWIMS and WI DNR.

**ORAL COMMENTS NO. 1 Jim Hurley, University of Wisconsin Sea Grant and  
University of Wisconsin Water Resources Institute**

Page 27

1 UW-Extension. Your comments are important to help us  
2 better understand the potential impacts that this  
3 reserve would have and to the responses to comments  
4 to -- every comment provided will be addressed fully  
5 in the consideration of the final analysis and  
6 decision-making process. So you'll see that in the  
7 final EIS.

8 You should also have -- should you have  
9 additional questions or requests for clarifications,  
10 Tina, Pat, Becky and myself can assist you after the  
11 formal part of the hearing. We appreciate your  
12 attendance here today. I know it's a nice day to be  
13 outside. And we are looking forward to your comments,  
14 observations, expressions of support or concern. And  
15 are there any questions regarding the procedures that  
16 we will use for this hearing?

17 (No response.)

18 MR. CHASSE: Okay. If not, then we can  
19 proceed with the first speaker. And when you come to  
20 the microphone, please state your name and affiliation  
21 if you have one. Thank you.

22 Jim, Jim Hurley, would you like to come up  
23 to the front?

24 MR. HURLEY: I'm first?

25 MR. CHASSE: Come on down.



1 MR. HURLEY: Thanks. Is this on?

2 MR. CHASSE: Is it on? Okay.

3 MR. HURLEY: I'll speak loudly if not. I  
4 probably don't even need the microphone. My name is  
5 Jim Hurley. I'm Assistant Director for Research and  
6 Outreach with the University of Wisconsin-Sea Grant  
7 Institute and the University of Wisconsin Water  
8 Resources Institute. I'm also a member of the  
9 Steering Committee, and Wisconsin Sea Grant is a  
10 member of the advisory -- the advisory group. So I  
11 just want to have those disclaimers up front.

12 I wanted to come today and speak for  
13 Wisconsin Sea Grant and for our Director, Anders  
14 Andren. Wisconsin Sea Grant is one of 32 programs  
15 nationwide. We're a NOAA program also. We're a  
16 Coastal program also. We fund research, outreach, and  
17 education. I don't think it should come as a surprise  
18 to anyone here that Wisconsin Sea Grant is fully  
19 supportive of the NERR and fully appreciative of all  
20 the hard work of the people that have put together  
21 this whole setup.

22 I just wanted to touch on a few -- on a few  
23 different issues. First of all, I speak -- I speak  
24 from Wisconsin Sea Grant, but I could probably also  
25 speak from Minnesota Sea Grant, which is just across

1 the river, in support of this program. And we have  
2 shown that we are in support of this program by  
3 actually putting some of our research dollars to  
4 help -- to help out, to help things move a little  
5 bit -- a little bit faster. We are currently funding  
6 a research project with Minnesota Sea Grant for the  
7 NERR. From the Wisconsin side, it's one of 21  
8 projects that we're funding on both the -- both Lake  
9 Michigan and Lake Superior. And it's our intent to do  
10 the same thing in our next biennium, which starts in  
11 2012, which will probably be a good time for starting  
12 of this NERR.

13 I also wanted to just make the point that I  
14 think that having a new NERR, having the ability to  
15 build from the ground up is a real unique opportunity  
16 for integration in this area where there are a number  
17 of NOAA programs including Sea Grant and the NERR.  
18 And we're real supportive of trying to integrate our  
19 efforts of Sea Grant in the -- in the Lake Superior  
20 area and in estuaries in general to help align. I  
21 would hope that the NERR as it's developing takes  
22 advantage of Sea Grant's strengths, Sea Grant's  
23 specialties, their outreach people, and other research  
24 projects that are part of Sea Grant.

25 I think that from an outreach side, we're

1 already showing some integration within the Great  
2 Lakes in the NOAA programs, I think, and proactive in  
3 that matter on climate change and climate change  
4 adaptation. And I think we're seeing -- we're seeing  
5 a number of NOAA programs come together on that -- on  
6 that particular issue, and I hope that we can continue  
7 the outreach side on the climate change issue to line  
8 up programs.

9 Finally, I just wanted to make a couple  
10 of -- couple points about the research side of the  
11 NERR and the importance of these next few years in  
12 establishing a research -- a research program. This  
13 is a real nice opportunity to look at a long-term  
14 research site in wetlands, in an estuary in an  
15 urbanized area that I don't think many other NERR  
16 sites can do. I was a part of their first long-term  
17 ecological research project that got established in  
18 northern Wisconsin almost 30 years ago now. And I  
19 wanted to stress how important the first two -- two or  
20 three years were in that project in determining what  
21 the monitoring needs were, what the research needs  
22 were, and it established that program for sure was one  
23 of the leaders in the long-term ecological research  
24 side.

25 So I would hope that as the research program

1 begins to develop for this NERR that we take -- we  
2 take advice from not only the Northern Lakes LTER  
3 site. There's also a Cedar Creek LTER site in  
4 Minnesota. So you can start to see that there's so  
5 much strength in long-term researchers in the area we  
6 should align with and take advantage of; also, with  
7 the research program, to take advantage of other  
8 programs that may not be NOAA -- NOAA related, LTERs,  
9 NSF, but also EPA indicative programs that they're  
10 developing, and also the use of the Great Lakes  
11 Reserving System. This would be a great place to take  
12 advantage of that.

13 So finally I just wanted to say, I just  
14 think that this is a fabulous opportunity for  
15 research, outlook, education, to bring more support in  
16 for the -- for the researchers in the area, educators  
17 and such. I think that this site is so unique with  
18 its -- with its urban influence, and then all of the  
19 different types of -- types of subsites within this  
20 site, from the shoreline of Lake Superior back into  
21 the estuary.

22 And that's about it. I would like to thank  
23 this whole team for the outstanding job that  
24 they're -- that they've done. And I thank you for the  
25 opportunity to speak. Thanks.

### **Response to Comments from Jim Hurley, University of Wisconsin Sea Grant and University of Wisconsin Water Resources Institute:**

The comments made in support of the LS NERR and the management plan were appreciated. The LS NERR will continue to work collaboratively with a diverse network of partners, including the University of Wisconsin Sea Grant Institute. The LS NERR's emphasis on partnerships and collaboration are reflected in the LSNERR Mission and Guiding Principles. No changes to the document were necessary.

## ORAL COMMENTS NO.2 Kathryn MacKenzie, Douglas County Board

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1 MR. CHASSE: Thank you, Jim. Kathryn  
2 McKenzie, you have a question mark next to whether you  
3 would like to speak or not. I guess you do.

4 MS. MCKENZIE: I'm probably the only elected  
5 official here...

6 (Whereupon the court reporter interrupted.)

7 MS. MCKENZIE: I'm on the Douglas -- am I  
8 on? I'm on the Douglas County Board, and I also serve  
9 on the Land Conservation Committee. I represent ten  
10 northwest counties on the Land Conservation State  
11 Board. I represent Wisconsin on the National  
12 Association of Conservation Districts Committee for  
13 the Great Lakes. So in that capacity I've been to  
14 lots of meetings. Beyond that, I've been part of the  
15 St. Louis River Citizens Action Committee for probably  
16 20 years.

17 So I grew up here, and I've been looking at  
18 the river awhile. So I haven't understood it, and I  
19 still don't completely. I don't know that there are  
20 any monitors looking at air speed and/or air quality.  
21 The air quality, there are none that are paid for by  
22 the public, in the public domain in the city. In  
23 Duluth yes, and maybe in Ashland eventually, but not  
24 here.

25 There are depositions potential in the

1 wetlands with methylation of mercury, and I hope that  
2 this project can help look at that. I was part of the  
3 Nemadji River Basin Project with NRCS for the two  
4 states, Minnesota and Wisconsin, for three years. And  
5 there were recommendations that were based on how much  
6 we could forest. Being an elected official, I know  
7 that there wasn't very much input from the city or  
8 from the county. And I hope that through this  
9 project, that more people will know what's going on.  
10 Beyond that, just knowing that the researchers will be  
11 here, and that there will be some coordination.

12 I sat in on an EPA, I can't remember if it  
13 was five minutes or fifteen minutes of discussion  
14 about, from each researcher talking about their work.  
15 Some were working on the same water body and didn't  
16 know it. And so this coordination, I believe, is  
17 essential.

18 There are lots of scientists working in  
19 natural resources at Stevens Point, Madison,  
20 Milwaukee, and the NRRI in Duluth, the Large Lakes  
21 Observatory. So I think this will be an opportunity  
22 to bring all of those together.

23 In this community we have long, at least in  
24 my perception, seen the economy on one hand and the  
25 environment on the other. And as an elected official,

1 it's very hard to push for money for environmental/  
2 conservation issues. I believe that this project will  
3 bring together an opportunity for citizens and elected  
4 officials, especially with that new program, that  
5 NERRS, the science collaborative. I think that's  
6 really, really good.

7 I was at Old Woman Creek with the NACD Great  
8 Lakes Committee, and I canoed in that estuary. The  
9 mouth was perched; if you can imagine, the mouth of  
10 the St. Louis River being perched. It's not possible.  
11 It was quite different. And I have been looking at  
12 this and wanting this for a long time. And I'm very  
13 hopeful that it won't be just what we've included or  
14 what you've included in the plan, but that eventually  
15 it will be more and a freestanding place for students  
16 to come and people to gather. Thank you.

17 MR. CHASSE: Thank you, Kathryn. Is there  
18 anybody else who would like to speak? I only had two  
19 cards for people who came and would like to speak at  
20 this time. I guess you guys are all for it and  
21 excited to have it.

22 Well, if there are no further comments or  
23 questions or statements that folks would like to make,  
24 then I would move to close this hearing and try to  
25 enjoy some of the rest of the evening. Okay, this

**Response to Comments from Kathryn MacKenzie, Douglas County Board:**

The comments made in support of the LS NERR and the management plan were appreciated. No changes to the document were necessary. In regards to the reference to mercury, please refer to Objective 6, Outcome 6C, which states that the LS NERR will work with partners to identify potential needs related to toxins and contaminants and their impacts on the St. Louis River Freshwater Estuary and will develop a strategy to address those needs. As stated in the Reserve's Mission and Guiding Principles, the LS NERR will continue to work collaboratively with a diverse network of partners.



# APPENDIX 4. U.S. FISH AND WILDLIFE SERVICE CONCURRENCE RESPONSE



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Green Bay ES Field Office  
2661 Scott Tower Drive  
New Franken, Wisconsin 54229-9565  
Telephone 920/866-1717  
FAX 920/866-1710.

July 27, 2010

*Received  
8/3/10*

Mr. Matthew Chasse  
National Ocean Service  
Office of Ocean and Coastal Resource Management  
Silver Spring, Maryland 20910

re: Request for Concurrence  
Lake Superior National Estuarine Research Reserve  
Bayfield County, Wisconsin


Dear Mr. Chasse:

The U.S. Fish and Wildlife Service (Service) has received your memo dated June 18, 2010, with a request for our concurrence on your determination of effects to listed species for the proposed action. This action entails the designation of an estuarine research reserve in Douglas County, Wisconsin. Our comments follow.

Based upon a review of the information provided for our review, we concur with your determination that the National Oceanic and Atmospheric Administration's (NOAA) designation of an estuarine research reserve will likely have no effect on federally-listed species. This precludes the need for further action on this project, as required by the 1973 Endangered Species Act, as amended. Should the project be modified or new information become available that indicates listed or proposed species may be affected, consultation should be initiated.

We appreciate the opportunity to respond. Questions pertaining to these comments can be directed to Ms. Jill Utrup of my staff by calling 920-866-1734.

Sincerely,

*for* 

Louise Clemency  
Field Supervisor

**MANAGEMENT PLAN**

**2010 - 2015**

# **LAKE SUPERIOR** **National Estuarine Research Reserve**



# LAKE SUPERIOR NATIONAL ESTUARINE RESEARCH RESERVE MANAGEMENT PLAN



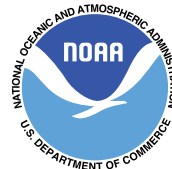
2010-2015

## Prepared by:

University of Wisconsin-Extension  
September 2010

## Prepared for:

U.S. Department of Commerce  
National Oceanic and Atmospheric Administration  
Office of Ocean and Coastal Resource Management  
Estuarine Reserves Division  
1305 East West Highway  
Silver Spring, MD 20910



University of Wisconsin - Extension  
432 North Lake Street  
Madison, WI 53706



This Management Plan has been developed in accordance with National Oceanic and Atmospheric Administration (NOAA) regulations, including all provisions for public involvement. It is consistent with the congressional intent of Section 315 of the Coastal Zone Management Act of 1972, as amended, and the provisions of the Wisconsin Coastal Management Program.



This publication is funded, in part, through a grant agreement with the Wisconsin Coastal Management Program and the National Oceanic and Atmospheric Administration, Office of Ocean and Coastal Resource Management under the Coastal Zone Management Act, Grant # NA08NOS4200405.

**Cover photography by:** Michael K. Anderson  
**Interior photography by:** Amy Elliot, Becky Sapper, Michael K. Anderson,  
Patrick Robinson, Lynelle Hanson and Frank Koshere - WDNR  
**Graphic Design by:** Amy B. Torrey - UW Extension

# LAKE SUPERIOR NATIONAL ESTUARINE RESEARCH RESERVE

2010-2015



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## List of Acronyms

CFR . . . . .	Code of Federal Regulations
CTP . . . . .	Coastal Training Program
CZMP . . . . .	Coastal Zone Management Plan
CZMA . . . . .	Coastal Zone Management Act
ERD . . . . .	Estuarine Reserves Division
GIS . . . . .	Geographic Information System
GLSLCI . . . . .	Great Lakes and St. Lawrence Cities Initiative
K-12 . . . . .	Kindergarten through twelfth grade
KEEP . . . . .	K-12 Estuarine Education Program
LSNERR . . . . .	Lake Superior National Estuarine Research Reserve
LSRI . . . . .	Lake Superior Research Institute
MOA . . . . .	Memorandum of Agreement
MOU . . . . .	Memorandum of Understanding
NERR . . . . .	National Estuarine Research Reserve
NERRS . . . . .	National Estuarine Research Reserve System
NOAA . . . . .	National Oceanic and Atmospheric Administration
OCRM . . . . .	Ocean and Coastal Resource Management
RAB . . . . .	Reserve Advisory Board
SMF . . . . .	Superior Municipal Forest
SNA . . . . .	State Natural Area
SWMP . . . . .	System-Wide Monitoring Program
UWEX . . . . .	University of Wisconsin – Extension
UWS . . . . .	University of Wisconsin – Superior
WCMP . . . . .	Wisconsin Coastal Management Program
WDNR . . . . .	Wisconsin Department of Natural Resources

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## 2 | ACKNOWLEDGEMENTS

This first Management Plan for the new Lake Superior National Estuarine Research Reserve is dedicated to the memory of two key contributors to the shared vision that guided this process.

**Karen Danielsen** (1958-2009) Karen was a strong believer in the benefits that would be brought to the upper Great Lakes region with the designation of a NERR on Lake Superior. As the forest ecologist/botanist for the Great Lakes Indian Fish and Wildlife Commission she was an active participant in the grassroots effort to garner support for the LSNERR, as well as a member of advisory committees during the site selection process.

**Kathleen Morgen** (1946-2009) As a UWEX environmental educator, Kathleen helped develop the first Lake Superior freshwater estuary curricula for K-12 students and contributed through her teaching to the foundational work supporting the LSNERR designation.



## EXECUTIVE SUMMARY

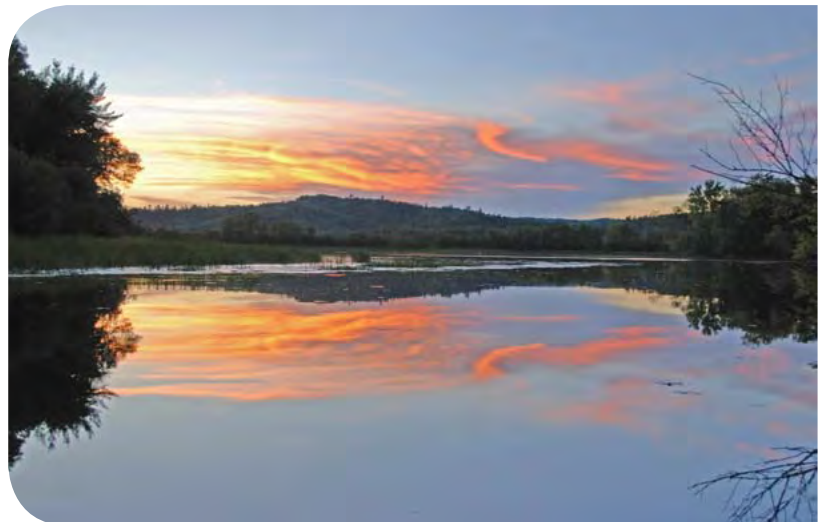
The State of Wisconsin has partnered with the National Oceanic and Atmospheric Administration (NOAA) to designate portions of the St. Louis River Freshwater Estuary as a National Estuarine Research Reserve (NERR). With passage of the Coastal Zone Management Act (CZMA) of 1972, the federal government officially recognized the national significance of coastal resources and authorized the federal Coastal Zone Management Program (CZMP) and the National Estuarine Research Reserve System (NERRS). Since 1972, twenty-seven reserves have been designated as part of the NERRS. The NERRS works with federal and state authorities to establish and operate Reserves and provide for their long-term stewardship. The Wisconsin NERR is officially referred to as the Lake Superior National Estuarine Research Reserve (LSNERR or Reserve). The State of Wisconsin has designated the University of Wisconsin-Extension (UWEX) to be the lead state agency for the Reserve.

This Management Plan describes the Reserve and how it will be managed by UWEX, in cooperation with its partners, from 2010 to 2015. The plan provides an overview of key management issues for the Reserve during its first five years of operation. In addition, the plan contains the collective vision, mission, guiding principles, goals, objectives, and outcomes for the LSNERR. This plan reflects the collective input of UWEX and a variety of partner agencies, organizations, and interested citizens.

### LSNERR Overview

The LSNERR is situated on the freshwater estuary at the confluence of the St. Louis River and Lake Superior, the largest and most pristine of the Great Lakes. The Reserve is a diverse, large complex that

contains a variety of representative terrestrial and aquatic habitats allowing for extensive research and educational opportunities. The boundaries of the LSNERR include land and water areas that are significant to supporting the Reserve's goals and will protect the integrity of core areas for long-term research and monitoring. The Reserve will provide opportunities for research and monitoring, experiential learning, and training while continuing to contribute to the protection of the ecological



health of the St. Louis River Freshwater Estuary and Lake Superior coastal habitats.

The St. Louis River is bordered by Wisconsin and Minnesota for 23 miles and has a largely forested watershed that is 1,872,807 acres in size. The combination of ecosystems within the Lower St. Louis River—estuarine wetlands and aquatic habitats, baymouth bar complex, and surrounding upland forest—are very unusual in Lake Superior, the Upper Midwest, the Great Lakes region, and the world. Many of the ecosystems and native species are rare and/or declining across their ranges. This concentration of such diverse ecosystems, along with the location on the western end of Lake

Superior, makes this freshwater estuary a critical migratory stopover and an important breeding area for many species. In spite of human impacts, the Lower St. Louis River ecosystem is both regionally and globally significant. Great Lakes wetland systems are unique from a global perspective, and the St. Louis River Freshwater Estuary is one of the largest such complexes on the Lake Superior shore, representing a significant source of productivity for the entire Lake Superior ecosystem. The freshwater estuary and its tributaries are unusual in having such a variety of habitat types supporting a large and diverse assemblage of native fish species.

### Management Planning Process

The development of the LSNERR Management Plan was a careful and deliberate process consistent with NOAA's guidelines. Five committees contributed to the development of the LSNERR Management Plan, including a Steering Committee, Coordination Team and three advisory committees. The advisory committees were formed with an emphasis on inclusiveness and broad expertise and comprised of more than 90 members representing a diverse, knowledgeable, and dedicated cross-section of professionals from many federal, state, tribal, and local agencies and organizations, as well as citizen stakeholders.

This Management Plan places particular emphasis on program integration and partner collaboration. These concepts have been emphasized throughout the process of establishing the LSNERR. While the LSNERR boundaries are located solely on Wisconsin waters and lands, there is a clear need and demonstrated desire to collaborate across state boundaries by both Wisconsin and Minnesota partners. As a result, Minnesota-based stakeholders have also been involved with the process to designate the LSNERR and have been members of the various committees. Once designated, Wisconsin

will continue to work closely with Minnesota partners and will explore potential methods for long-term engagement between Minnesota partners and the Reserve.

In addition to collaboration and integration with external partners, this plan also strives to achieve internal integration and collaboration within the LSNERR. The Management Plan objectives integrate across program sectors (research, education and stewardship) to ensure cross-disciplinary and cross-sector Reserve programming. The mission, vision, guiding principles, and goals for the Reserve reflect the principles of program integration and partner collaboration.

The LSNERR Management Plan has been organized using an objectives- and outcomes-based planning framework. The Management Plan's objectives are broad statements that describe what the LSNERR intends to accomplish within the first five years. Each objective has associated outcomes describing the specific impacts, products, or results associated with each of the objectives. The LSNERR Reserve Manager and staff will identify specific actions as they implement the Management Plan using the objectives and outcomes.

### LSNERR Administration

Administration of a NERR is accomplished through federal, state, and local partnerships. At the national level, NOAA is responsible for the administration of the NERRS. NOAA provides funding to eligible state agencies for the establishment and continued operation of reserves, as well as funding for construction and land acquisition activities; provides program guidance and oversight including review and approval of management plans; and conducts periodic evaluations to validate that operations are consistent with NERR goals and objectives.

The LSNERR will be administered by UWEX, the Reserve's designated lead agency for

the State of Wisconsin, in cooperation with NOAA and other partners. A Memorandum of Understanding (MOU) between UWEX and NOAA will establish the roles and responsibilities of both agencies. The Reserve staff for the first five years of LSNERR operation will include a Reserve Manager, Interim Assistant Reserve Manager, Research Coordinator, Monitoring Coordinator, Education Coordinator, and Coastal Training Program Coordinator and a Website Technician. Additional positions may be created as appropriate.

A Reserve Advisory Board (RAB) will provide advisory guidance to UWEX and LSNERR staff for management, research and monitoring activities, stewardship activities, and educational programs based on the approved Reserve Management Plan. The RAB shall be comprised of one member from each of the key partners: the city of Superior, Douglas County, Fond du Lac Band of Lake Superior Chipewa, University of Wisconsin Sea Grant Institute, University of Wisconsin – Superior (UWS), Wisconsin Coastal Management Program (WCMP), and the Wisconsin Department of Natural Resources (WDNR). The RAB will help enable the development and maintenance of partnerships and cooperative efforts with other research and educational institutions. The RAB will have the ability to create committees or subcommittees as necessary to gather technical information or community input related to LSNERR activities. In addition, the RAB will help ensure consistency with state-tribal intergovernmental agreements and ceded territory treaty rights.

## LSNERR Facilities

Upon designation, facilities for the LSNERR will be located at the Lake Superior Research Institute (LSRI) on the UWS campus. An analysis of long-term facilities needs for the Reserve will be completed during the initial five years of operation to help determine future LSNERR facilities needs.



Current options which could potentially be used to address facility needs include:

- Construction on existing LSNERR properties
- Renovation of UWS campus buildings
- Acquisition and renovation of appropriate waterfront facilities

In addition, the Superior Municipal Forest (SMF) with its extensive trail network, outdoor classroom, and other resources, will be an important part of LSNERR educational programming. It provides an established resource for developing programming and engaging LSNERR visitors in experiential learning activities.

# INTRODUCTION

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## Purpose and Scope of the Lake Superior NERR Management Plan

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This Management Plan describes the LSNERR and how it will be managed by UWEX, in cooperation with its partners, from 2010 to 2015. The Plan provides an overview of key management issues for the Reserve during its first five years of operation. Included within the Plan are descriptions of the following:

- ◆ Proposed boundaries for the Reserve, including core and buffer areas and future boundary expansion opportunities
- ◆ Existing ownership and resources within the Reserve
- ◆ Reserve administrative structure
- ◆ Strategies for program integration and partner collaboration
- ◆ Existing public access for the Reserve and plans for evaluating future access needs
- ◆ Existing facilities for the Reserve and potential options for future facilities
- ◆ Existing resource protection, restoration, and manipulation plans for the Reserve

In addition to the above, the Plan contains the collective vision, mission, guiding principles, goals, objectives, and outcomes for the LSNERR. This Management Plan has four goals, which state the long-term intentions of the LSNERR and extend beyond the five-year time frame of this document. The Management Plan's objectives are broad statements that describe what the LSNERR intends to accomplish in the first five years. Each objective has associated outcomes, describing the specific impacts, products, or results associated with each of the objectives. The vision, mission, guiding principles, goals, objectives, and outcomes reflect the collective input of UWEX, Memorandum of Understanding (MOU) partners, and engaged stakeholders, including the LSNERR management planning advisory committees.

This Management Plan has been developed in accordance with NOAA regulations, which includes all provisions for public involvement. It is consistent with the congressional intent of Section 315 of the Coastal Zone Management Act (CZMA) of 1972, as amended. The plan will be instrumental in guiding the future direction of the LSNERR. The implementation of this plan will be evaluated in subsequent required program evaluations as stated in the federal regulations, 15 Code of Federal Regulations (CFR) Part 921.40 (Appendix 1).

## Description of the Lake Superior NERR

The LSNERR is the only NERR located in Wisconsin and within NOAA's Lake Superior Biogeographical Subregion. It joins Old Woman Creek on Lake Erie as the second Great Lakes freshwater estuary in the NERR System. LSNERR is situated on the most western tip of Lake Superior, and represents portions of the St. Louis River Freshwater Estuary. The St. Louis River is the largest United States tributary to Lake Superior and flows 179 miles through a 3,634 square mile watershed within Wisconsin and Minnesota eventually creating 23 miles of boundary between the two states.

The 16,697-acre LSNERR will serve as a field laboratory where scientists can study naturally functioning systems and where students and the general public can learn about freshwater estuarine ecology. As a transition zone between land and water, the Reserve contains a variety of habitats including sedge meadow, emergent marshes, barrier beach, upland coniferous forests, lowland hardwoods, and open water areas of the freshwater estuary, river, and near shore Lake Superior.

## Great Lakes Freshwater Estuaries

### FRESHWATER ESTUARIES

Freshwater estuaries occur where rivers and Great Lakes water mix in shallow wetlands located near the mouth of a river. These unique coastal landforms are important components of surrounding communities. They support fish and wildlife populations, offer recreational opportunities, contribute to improved water quality, and provide economic and social benefits.

Estuary science has, for the most part, been focused on areas where freshwater from a river mixes with saltwater from the ocean. A wide range of scientists and organizations have increasingly recognized the concept of another estuary-type system occurring at the intersection of freshwater rivers and large freshwater "seas" such as the Great Lakes. NOAA, WDNR, and other state and federal natural resource agencies recognize Great Lakes freshwater estuaries. These systems have also been described and studied in numerous articles and represent an ecological system with important relevance to the Great Lakes region.<sup>i</sup>

Many definitions for freshwater estuaries exist, and, not surprisingly, the definitions vary. However, three common characteristics are frequently used to define these systems: **1)** a drowned river mouth; **2)** a zone where lake and river waters mix; and **3)** influence from seiche or wind tides. A fourth characteristic that some, but not all, freshwater estuaries have is a bar or spit that can partially and/or periodically enclose the river mouth.<sup>ii</sup>





### 1) Drowned River Mouth

A drowned river mouth is a river mouth (the end of a river where it enters another water body, such as one of the Great Lakes) that becomes submerged or flooded. At the end of the most recent Ice Age, massive amounts of ice up to several hundred feet thick retreated from much of the Great Lakes Basin. As the ice retreated, the earth's crust, which had been pushed down by the weight of the ice, started to very slowly rebound. The rebounding of the earth's crust is still occurring today. Post-glacial rebound, also known as isostatic rebound, is occurring more rapidly along the northeastern and eastern portions of Lake Superior causing uplift in the earth's crust that "tilts" the Basin toward the southwest, thereby flooding lake water into river mouths along the southwestern shore, creating drowned river mouth systems. The drowned river mouth is an important characteristic of freshwater estuaries, providing specific habitat niches for a variety of plants, fish and wildlife.

According to a 1995 study by the United States Geological Survey titled, Rapid Submergence of Lake Superior Shorelines, the water levels in the southwestern portions of Lake Superior have risen approximately 15 to 18 feet over the past 2000 years. They estimate that the lake level rise in those areas is occurring at a rate of one inch per decade and that rising Lake Superior water levels associated with the rebounding of the earth's crust will continue to flood low-lying river mouths and expand wetlands.

### 2) River-Lake Transition Zone

Freshwater estuaries have a zone of transition, where river water meets and mixes with lake water. The mixing of water in this transition zone creates unique characteristics that influence important ecological processes. For example, stream water typically has a higher temperature and more suspended solids than Great Lakes water. The mixing of river and lake water in a freshwater estuary can affect water temperature, turbidity, and chemical composition, which influences water density, currents, and the transport of sediments, nutrients, and contaminants.

### 3) Seiche and Wind Tides

The Great Lakes exhibit an important natural phenomenon called a seiche. A seiche is an oscillation, or periodic back-and-forth movement of water, that occurs in large water bodies. One way to visualize a seiche is to imagine a bowl of water that is gently shaken. After shaking the bowl, the water continues to move back and forth. The same phenomenon happens in the Great Lakes, only the factors "shaking" the Great Lakes are atmospheric disturbances such as a change in barometric pressure. In water bodies as large as the Great Lakes, the back-and-forth movements are continuous and seiche effects can be observed on a daily basis. The intervals, or periods, between seiche peaks on the Great Lakes can range from minutes to more than eight hours. Seiches cause changes in water surface elevations of a few inches to several feet depending upon atmospheric conditions and location. Freshwater estuaries experience frequent wet and dry periods, especially near the water margins, due to seiche effects.

A wind tide, or storm surge, is a vertical rise in water level on the leeward, or downwind, side of a water body as a result of strong winds. Storm surges on the Great Lakes can produce a change in water level of up to eight feet under extreme conditions. Given their association with storms and

high winds, the effects of a wind tide are often more dramatic than the effects of a seiche. Wind tides can also be a contributing factor to seiche effects.

Seiche and wind tides are important to freshwater estuaries because the water level fluctuations they produce are key to maintaining the diversity of habitats found within the freshwater estuary, as well as providing a means of mixing water and nutrients. When a seiche causes intrusion of lake water into a river, it causes opposing flow between unidirectional river current (moving horizontally) and oscillating lake current (moving vertically).<sup>iii</sup> The seiche causes an exchange of water between the lake and the river, and contributes to stratification within the river as colder lake water flows beneath warmer (and therefore, less dense) river water.

#### 4) Baymouth Bars and Barrier Spits

Freshwater estuaries are commonly separated from the adjacent main body of water by a baymouth bar or barrier spit. Spits and bars are accumulations of sand and gravel that can form entirely or partly across the mouth of a river. Many, although not all, freshwater estuaries are partially or periodically enclosed by bars or spits.

The lakeward side of baymouth bars is typically composed primarily of sand, while the landward side consists of finer sediments. Baymouth bars can shelter the freshwater estuary from the high-energy wind and waves of the Great Lakes and influence the mixing of lake and river water.

### VALUE OF FRESHWATER ESTUARIES

Freshwater estuaries are an integral part of the Great Lakes' natural ecosystem and important components of surrounding communities. They support abundant fish and wildlife populations, contribute to improved water quality, offer recreational opportunities, and provide other economic benefits.

#### Fish and Wildlife

Freshwater estuaries are both the nursery and kitchen for abundant and diverse populations of fish and wildlife that rely on them for shelter, food, and spawning areas. The fisheries of the Great Lakes and its connected river systems are closely linked to freshwater estuaries. The coastal wetlands associated with freshwater estuaries provide important rearing and refuge areas for a variety of fish species. For example, over 90 percent of the approximately 200 species of fish in the Great Lakes are directly dependent on coastal wetlands for some part of their life cycle.<sup>iv</sup>

The diversity of habitats, water depths, sediment types, and other natural features found in freshwater estuaries make them important for many wildlife species. Great Lakes coastal wetlands, like those associated with freshwater estuary systems, have long been recognized as places of increased biodiversity and abundant wildlife.<sup>v</sup>

Freshwater estuaries are especially important for many species of birds. Great Lakes coastal wetlands with a high mixture of different habitats, such as the marshes, submerged aquatic vegetation beds, and open water areas frequently found in freshwater estuaries, are considered very valuable for waterfowl feeding, nesting, and migrating.<sup>vi</sup> The Great Lakes also serve as a corridor for migrating songbirds, shorebirds, and raptors.<sup>vii</sup> The coastal wetlands of freshwater estuaries offer critical food and shelter for these migrants.

### Water Filters

Freshwater estuaries are important for cleansing water on its way to the Great Lakes. When river water reaches a freshwater estuary, it is carrying the various chemicals, nutrients, sediment, and detritus that have washed off the watershed. As the water velocity slows and the water spreads out into the surrounding water of the estuary, sediments and contaminants settle out of the water column and wetland vegetation and aquatic organisms absorb nutrients and convert chemicals into less harmful forms. The coastal wetlands within a freshwater estuary can function as flood storage, sediment traps, and water filters.

### Community Connections

Many of Wisconsin's communities, such as Green Bay, Milwaukee and Superior, developed adjacent to Wisconsin's major coastal rivers and associated freshwater estuaries. These areas offered important navigation routes and valuable sources of water and food for indigenous people and early immigrants. People are still attracted to these water resources today. The 2000 United States Census found that approximately 37% of Wisconsin's population resides in coastal counties.<sup>viii</sup> Many of the tribal reservations in Wisconsin encompass or are near freshwater estuaries, including the Oneida, Bad River, and Red Cliff Reservations. Likewise, the members of the Fond du Lac Band of Lake Superior Chippewa in Minnesota have a connection to the St. Louis River Freshwater Estuary that dates back several centuries.

Freshwater estuaries are important components of their surrounding communities and provide economic benefits for Wisconsin's citizens. Even though community members may not use the term "freshwater estuary" to describe them, communities identify with these areas in significant ways. Freshwater estuaries and their associated coastal wetlands are locally important for activities such as hunting, fishing, boating and tourism. They are also important for economic development and for their aesthetic qualities.

## Lake Superior NERR Key Attributes and Setting

The Lower St. Louis River is one of the largest and most important freshwater estuary systems.<sup>ix</sup> In spite of human impacts, the Lower St. Louis River ecosystem is both regionally and globally significant.<sup>x</sup> Great Lakes wetland systems are unique from a global perspective, and the St. Louis River Freshwater Estuary is one of the largest such complexes on the Lake Superior shore, representing a significant source of productivity for the entire Lake Superior ecosystem. The combination of ecosystems within the Lower St. Louis River—estuarine wetlands and aquatic habitats, baymouth bar complex, and surrounding upland forest—are very unusual in Lake Superior, the Upper Midwest, the Great Lakes region, and the world.

Minnesota Point and Wisconsin Point, which are part of the St. Louis River complex, are examples of baymouth bars, also sometimes referred to as baymouth barrier spits or sand spits. Not surprisingly, the plant communities supported by these baymouth bars are endemic to the Great Lakes and are rare and declining across their ranges.

The concentration of such diverse ecosystems, along with its location on the western end of Lake Superior, makes this freshwater estuary a critical migratory stopover and an important breeding area for many species. The freshwater estuary and its tributaries are remarkable in having such a variety of aquatic habitat types supporting a large and diverse assemblage of native fish species. Many of the ecosystems, such as native pine barrens, and native species, such as the peregrine falcon, are rare or declining across their ranges.

Seiche has a large influence on the St. Louis River Freshwater Estuary. The change in water level as a result of a seiche is typically less than one foot, with areas of the freshwater estuary closest to the lake most strongly influenced. A strong seiche can reverse the flow of the St. Louis River up to 11 miles upstream. River currents, which are 1-3 cm/sec under no or very low seiche conditions, can increase by a factor of 20 during high seiche conditions.<sup>xi</sup>

## HISTORICAL SETTING

Through the centuries, many tribes and cultures fought for control of the St. Louis River Freshwater Estuary.<sup>xii</sup> The abundant natural resources attracted different groups to the area. Prior to European settlement, the region was home to the Fond du Lac Band of Lake Superior Chippewa and remains so today, with tribal reservation lands located adjacent to the City of Cloquet, Minnesota, approximately 20 miles west of Duluth, Minnesota. Archaeologists maintain that ancestors of the present day Chippewa (also known as Ojibwe and self-referred to as the Anishanabe) have resided in the area since at least 800 A.D. The Lakota and Anishanabe “co-habited” the area for a time and also fought each other for territory.



According to Anishanabe migration stories, the ancestors of the Anishanabe once resided on “a moon-shaped island near the mouth of a freshwater river, which flowed in the great salt sea” (the Atlantic seaboard). The people traveled westward until they found “the land where food grows upon the water.” The food they found was wild rice (manoomin), which grew abundantly in the lakes, rivers and wetlands surrounding Lake Superior (Gitchi-Gami). Wild rice continues to be culturally significant to the Anishanabe and wild rice restoration in the St. Louis River is an important priority for the Native American community. Another native species, the lake sturgeon, has been utilized by Native American people in Wisconsin for centuries. Many tribes in northern and eastern Wisconsin held lake sturgeon in high esteem as an important source of food each spring.<sup>xiii</sup>

The great migration story also tells of the people following a giant “Miigis (turtle) shell,” which rose from the waters for the people to follow until it sank back into the waters to let the people rest.<sup>xiv</sup> Every time the Miigis shell set a fire was built. The Miigis shell set in the St. Louis River Bay at the beginning of the Sixth Fire, so the Bay area became known as “the land of the Sixth Fire.” During the time of the Sixth Fire, the Anishanabe came together to practice sacred holy rites on a small island

within the St. Louis River Bay at a place called Spirit Island. To this day, Spirit Island is considered a holy place and is sacred to the many tribes that make up the Lake Superior, Mississippi, and Pillager Anishanabe. Consequently, burial mounds were placed on Spirit Mountain in Duluth and in Superior near where the Bong Bridge is located today. The mounds in Superior, however, were all destroyed; the material was used to fill in wetlands for development. The entire area was considered sacred. Encampments were located all around Spirit Island, including Minnesota Point and Wisconsin Point.

The St. Louis River Freshwater Estuary's abundant fish, game, wild rice, and waterfowl provided a large enough food base to allow for a permanent population base at Gete-oodena (the Ojibwe word for the city of Superior, literally meaning "old town").<sup>xv</sup> During the fur trade era hundreds of people within the area supported Gete-oodena, allowing tribal members to take advantage of the community's size and its strategic position at the center of the St. Louis River and Nemadji fur trade corridors. In addition, the Anishanabe village at Fond du Lac was the gateway to central Minnesota by way of the St. Louis River (Gitchi-Gami-zibi). The estuary was crucial for giving indigenous people the resources needed for trade and daily living, including food, medicines and red clay for making pottery.

At the end of Wisconsin Point, a 17th century Fond du Lac tribal burial ground once existed. The human remains were relocated in 1919 to the St. Francis Cemetery near the Nemadji River in Superior. Currently, stone markers commemorate the historic burial grounds on Wisconsin Point and visitors still honor those who were buried on Wisconsin Point by placing significant items such as tobacco, beads, feathers, and walking sticks. The Fond du Lac Band of Lake Superior Chippewa is currently in the process of acquiring 17 acres of land at the end of Wisconsin Point, though this land does not include the burial ground. The Fond du Lac Band is especially interested in opportunities to use the land for cultural and historical interpretive purposes, and to bring attention to the problem of how the relocated ancestral remains are in danger of eroding into the Nemadji River.

French fur traders established the first trading posts in the estuary starting in the 1690s. The Hudson's Bay Company, North West fur trading post, and American Fur Trade post were all established along the St. Louis River. Once the treaties of 1836, 1837, 1842, and 1854 were signed between the United States government and various Chippewa tribes, the area changed rapidly with the arrival of thousands of European immigrants. The Handbook of Wisconsin, published in 1855, documents the St. Louis River's pre-European settlement environment:<sup>xvi</sup>

*"The head of Lake Superior is about twelve miles wide, and forms two semi-circular points. The Southern, or Wisconsin point, is four miles long, and the northern, or Minnesota point, is eight miles long. The St. Louis and Left Hand (Nemadji) Rivers meet and discharge their waters into the Lake between these points. Inside of the points the river forms a bay eight miles long, and from one to two miles wide, with from six to twenty-four feet of water. The points are from twenty to sixty rods wide, sandy grounds, covered with yellow pine and an undergrowth of whortleberry. These are the great summer camping grounds of the Chippewa Indians, and here large quantities of the Siskarwit, Trout and Whitefish are caught in the Lake and around the entry to the Bay. The St. Louis River is navigable for Lake steamers for eighteen miles to the American Fur Company's post, sometimes called Fond du Lac, and is a succession of bays, islands covered with blue joint grass, bayous, and channels, among which a stranger would easily be lost in the attempt to navigate it without a guide. The Left Hand River is a narrow, deep stream, and can be navigated with keel boats for a distance of ten miles. These rivers abound in the Muskelonge, Pickerel, Pike, Bass, and other river fish."*



Development of the river shoreline and reconfiguration of the Duluth-Superior Harbor began in earnest in 1872 when a ship canal for Duluth was cut through the baymouth bar that had separated the river and Lake Superior.<sup>xvii</sup> The next quarter of a century saw both the Duluth and the Superior lake entries entirely reconstructed, and the basins and channels in both Superior Bay and St. Louis Bay dredged into the basic contours they possess today. Dredging had significant effects on both the shoreline and the riverbed. Since initial dredging in the late 1800s, over 69,500,000 cubic yards of clay and mud mixed with sand have been dredged from the river bottom and used as fill to create docks, to replenish eroded areas on Minnesota and Wisconsin Points, and to form new islands.

Although ongoing maintenance dredging and industrial and commercial activities still result in changes to the river, the major dredging and shoreline reconstruction activities took place within a relatively short period of time, between 1870 and 1920.<sup>xviii</sup> By 1902, the harbor had 17 miles of shipping channels excavated to a standard depth of 20 feet, and by 1960 most channels had been dredged to a depth of 27 feet—a very significant change to this once-shallow freshwater estuary.

Despite this human influence on the freshwater estuary, the LSNERR lands and connecting waterways include numerous occurrences of rare species and community types.<sup>xix</sup> Within the Wisconsin portion of the St. Louis River watershed, there are records from the WDNR Natural Heritage Inventory Program for nine rare natural communities and six endangered species, nine threatened species, and 37 species of special concern; of these, two are federally listed as threatened and one is federally listed as endangered. The species include the Caspian tern, piping plover, dune thistle, fairy slipper, mystery vertigo, Franklin's ground squirrel and wood turtle. A table of these species can be found in Appendix 2. The lake sturgeon is listed as a rare species in the United States, a species of special concern in Minnesota and is on a watch list for Wisconsin. The Lake Sturgeon Rehabilitation Plan, a lake-wide effort in Lake Superior, seeks to maintain, enhance and rehabilitate self-sustaining populations where the species historically occurred.<sup>xx</sup>

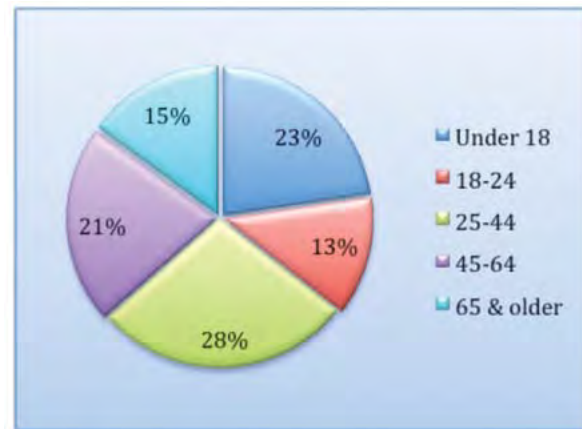
## DEMOGRAPHICS

The St. Louis River Freshwater Estuary has shaped the area's rich cultural heritage and historic traditions. With a 2000 census population of 275,486, the Duluth-Superior Metropolitan Statistical Area ranked as the 163rd largest metropolitan area in the United States.

As of 2000, approximately 27,000 people resided in the city of Superior. There were 11,609 households out of which 27.9% had children under the age of 18 living with them. The population was closely divided between married and unmarried people.

The population in the year 2000 was predominately white (94.26%) with 2.23% Native American, 0.84% Asian, 0.68% Black or African American, 0.04% Pacific Islander, 0.26% from other races, and 1.69% from two or more races. The area has a significant population of European decent, especially from Sweden, Norway and Finland, while in the year 2000, only 0.83% of the population was Hispanic or Latino.

The City's population density in 2000 was approximately 741 people per square mile. The breakdown of the population by age was as follows: 22.7% under the age of 18, 12.9% from 18 to 24, 27.9% from 25 to 44, 21.6% from 45 to 64, and 15.0% 65 years of age or older (Figure 1). The median age was 36 years.



**Figure 1. City of Superior Population by Age (2000)**

In 2009, employment in the service industry surpassed other sectors and added diversity to the manufacturing and shipping base of the economy. The “Twin Ports” cities of Duluth, Minnesota and Superior, Wisconsin have become a regional retail and service center for banking, shopping, education, governmental services, and medical care for northern Minnesota and northern Wisconsin. Arts and entertainment offerings as well as year-round outdoor recreation have contributed to expansion of the tourist industry. Some 3.5 million visitors each year, drawn in large part by the beauty and natural amenities of the St. Louis River and Lake Superior, contribute more than \$400 million to the local economy.

## Overview of the National Estuarine Research Reserve System

NERRS is administered by the U.S. Department of Commerce, NOAA, as authorized by Section 315 of the CZMA of 1972. The overall mission of the NERRS is to promote stewardship of the nation's estuaries through science and education using a system of protected areas. This is to be achieved by building federal, state, and community partnerships and promoting management and stewardship of our estuarine and coastal habitats through scientific understanding linked with public education. This is accomplished through a combination of research, education, and public outreach. The reserves serve as laboratories and classrooms where the effects of both natural and human activity can be monitored and studied.

Designation of a NERR does not result in the total preservation of the area or necessarily preclude any further development. Each NERR develops its own Management Plan that takes into consideration the beneficial consumptive (e.g., resource harvest) and non-consumptive (e.g., recreational) uses and the compatibility with adjacent land uses.

As stated in the NERRS regulations (Appendix 1), 15 CFR Part 921.1(a), the NERRS mission is:

*The establishment and management, through federal-state cooperation, of a national system of Estuarine Research Reserves representative of the various regions and estuarine types in the United States. Estuarine Research Reserves are established to provide opportunities for long-term research, education, and interpretation.*

Federal regulations, 15 CFR Part 921.1(b), provide five specific goals for the Reserve System:

- 1) Ensure a stable environment for research through long-term protection of NERR resources;
- 2) Address coastal management issues identified as significant through coordinated estuarine research within the Reserve System;
- 3) Enhance public awareness and understanding of estuarine areas and provide suitable opportunities for public education and interpretation;
- 4) Promote federal, state, public and private use of one or more reserves within the Reserve System when such entities conduct estuarine research; and
- 5) Conduct and coordinate estuarine research within the Reserve System, gathering and making available information necessary for improved understanding and management of estuarine areas.

## NERRS Strategic Plan

The NERRS has developed a Strategic Plan to guide the development and management of NERR sites.<sup>xxi</sup> The guiding principles supporting this mission are:

- ◆ Strong partnerships between NOAA, state agencies and universities, and other local partners are critical to the success of the Reserve System.
- ◆ The Reserve System integrates science, education and stewardship on relevant topics to maximize the benefits to coastal management.
- ◆ Reserves serve as a catalyst and a focal point for demonstrating and facilitating objective problem solving and best management practices.
- ◆ Reserves engage local communities and citizens to improve stewardship of coastal areas.
- ◆ Reserves implement an ecosystem-based management approach.



The strategic plan also identified the following goals for the NERRS for 2005-2010:

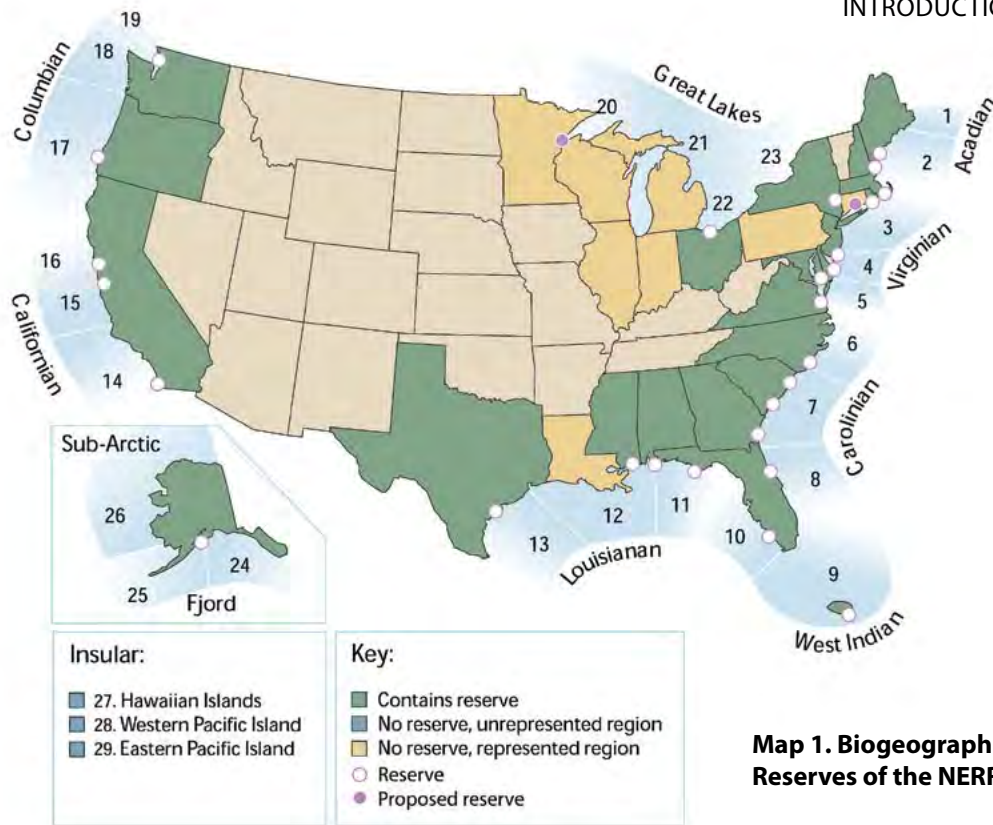
- ◆ Strengthen the protection and management of representative estuarine ecosystems to advance estuarine conservation, research and education.
- ◆ Increase the use of reserve science and sites to address priority coastal management issues.
- ◆ Enhance people's ability and willingness to make informed decisions and take responsible actions that affect coastal communities and ecosystems.

## Biogeographic Regions

The coastlines of the United States and its territories have been divided into 29 areas based on their biologic and geographic characteristics as defined in 15 CFR Part 921.3 of the federal regulations (Appendix 1). The LSNERR is located in the Lake Superior Biogeographic Subregion of the Great Lakes Biogeographic Region.

The typology system of the NERRS describes and classifies estuaries by ecosystem types and physical characteristics. Freshwater estuaries of the Great Lakes are not easily classified by the NERRS typology, which was developed to describe marine coastal systems. However, the LSNERR contains the following representative ecosystem types: Maritime Forest-Woodland (Northern Coniferous Biome, Temperate Deciduous Forest Biome), Coast Shrublands, Coastal Grasslands, Coastal Marshes, and Coastal Swamps. The Reserve also contains representative physical characteristic types, including the following basin types: Exposed Coast, Sheltered Coast, Bay, River (subject to wind tide/seiches), and Perched Wetlands (unique to clay plain wetlands of the region). The following basin structures are represented at the LSNERR site: Coastal Plains Estuary, and Bar-bounded Estuary. The inlet type is Restricted (by Wisconsin and Minnesota Points) and Permanent, and the bottom composition of the site is Sand and Mud. The hydrographic characteristics of the site include a Stratified Circulation, with the tide type clearly dominated by wind/storm tides and related seiche. Surface water runoff from the St. Louis River watershed is the primary source of freshwater into the estuarine system. The chemical characteristics of the LSNERR are especially difficult to classify within the NERRS typology because of the unique nature of freshwater estuaries. Great Lakes freshwater estuaries are characterized by pH and conductivity differentials between the incoming river water and the lake water.

The LSNERR site represents a new biogeographic sub-region (Map 1) for the NERRS and contributes to the NERRS estuary typological balance and, as a result, represents a priority and valuable addition to the NERRS.



**Map 1. Biogeographic Regions and Reserves of the NERR System**

**Acadian – Southern Gulf of Maine**

- Wells Reserve, Maine (1984)
- Great Bay Reserve, New Hampshire (1989)

**Virginian - Southern New England**

- Waquoit Bay Reserve, Massachusetts (1988)
- Narragansett Bay Reserve, Rhode Island (1980)
- Hudson River Reserve, New York (1982)

**Virginian – Middle Atlantic**

- Jacques Cousteau Reserve, New Jersey (1998)
- Delaware Reserve (1993)

**Virginian – Chesapeake Bay**

- Chesapeake Bay Reserve, Maryland (1985,1990)
- Chesapeake Bay Reserve, Virginia (1991)

**Carolinian – North Carolina**

- North Carolina Reserve (1985,1991)

**Carolinian – South Atlantic**

- North Inlet-Winyah Bay Reserve, South Carolina (1992)
- ACE Basin Reserve, South Carolina (1992)
- Sapelo Island, Georgia (1976)

**Carolinian – East Florida**

- Guana Tolomato Matanzas Reserve, Florida (1999)

**West Indian – Caribbean**

- Jobos Bay Reserve, Puerto Rico (1981)

**West Indian – West Florida**

- Rookery Bay Reserve, Florida (1978)

**Louisianan – Panhandle Coast**

- Apalachicola Reserve, Florida (1979)
- Weeks Bay Reserve, Alabama (1986)

**Louisianan – Mississippi Delta**

- Grand Bay Reserve, Mississippi (1999)

**Louisianan – Western Gulf**

- Mission-Aransas Reserve, Texas (2006)

**Californian – Southern California**

- Tijuana River Reserve, California (1982)

**Californian – Central California**

- Elkhorn Slough Reserve, California (1979)

**Californian – San Francisco Bay**

- San Francisco Bay, California (2003)

**Columbian – Middle Pacific**

- South Slough Reserve, Oregon (1974)

**Columbian – Puget Sound**

- Padilla Bay Reserve, Washington (1980)

**Great Lakes – Lake Erie**

- Old Woman Creek, Ohio (1980)

**Great Lakes – Lake Ontario**

- St. Lawrence River, New York (Proposed)

**Great Lakes – Lake Superior**

- Lake Superior Reserve, Wisconsin (2010)

**Fjord – Aleutian Islands**

- Kachemak Bay Reserve, Alaska (1999)

## National Estuarine Research Reserve System Administrative Framework

The Estuarine Reserves Division (ERD) of the Office of Ocean and Coastal Resource Management (OCRM) of NOAA administers the Reserve System. The Division establishes standards for designating and operating reserves, provides support for reserve operations and system-wide programming, undertakes projects that benefit the Reserve System, and integrates information from individual reserves to support decision-making at the national level. As required by federal regulation, 15 CFR Part 921.40, OCRM periodically evaluates reserves for compliance with federal requirements and with the individual reserve's federally approved Management Plan.

The ERD provides support for four system-wide programs: the System-Wide Monitoring Program (SWMP), the Graduate Research Fellowship Program, Coastal Training Program (CTP), and the K-12 Estuarine Education Program (KEEP). They also provide support for reserve initiatives on restoration science, invasive species, and reserve-specific research, monitoring, education, and resource stewardship initiatives and programs.



# MANAGEMENT PLAN OVERVIEW

## Summary of Management Planning Process

The development of the LSNERR Management Plan was a careful and deliberate process consistent with NOAA's guidelines (Appendix 1). The management planning process, although separate from the site selection process, was informed by the input of the site selection and public involvement teams that participated in the LSNERR site selection process. From this foundation, five committees comprised of more than 90 members provided input on the programmatic priorities and administrative framework described by this plan.

UWEX led the development of the Management Plan, with support from the WCMP. A Steering Committee, consisting of members from the city of Superior, Douglas County, Fond du Lac Band of Lake Superior Chippewa, Minnesota Department of Natural Resources, UWEX, University of Wisconsin – Sea Grant, UWS, WCMP and WDNR, provided oversight for the planning process and the plan content. Three advisory committees provided technical input on the priorities for the LSNERR.

The planning process incorporated information and recommendations from existing plans including, but not limited to, the Lower St. Louis River Habitat Plan,<sup>xxii</sup> Wisconsin's Great Lakes Strategy<sup>xxiii</sup> and Wisconsin's Great Lakes Freshwater Estuary Needs Assessment.<sup>xxiv</sup> Table 4 in the Management Plan Objectives and Outcomes section (page 58) shows each objective and how it correlates to these partner plans. University of Michigan–Ann Arbor graduate student Bryan Sederberg conducted a preliminary education needs assessment (Appendix 3) during the management planning process. The needs assessment methodology utilized a combination of literature review and interviews with members of the educational community located in the Duluth-Superior region and along Wisconsin's Lake Superior shoreline. An inventory of existing programming was conducted and 21 representatives from 13 organizations identified several potential themes for the educational aspects of the LSNERR, including:

- ◆ Coordination of Area Education Programs
- ◆ Professional Development
- ◆ Teacher Training and Curriculum Development
- ◆ Adult Education
- ◆ Focusing Education Programs on the Working Freshwater Estuary

Information from this education needs assessment was also incorporated into the LSNERR planning process.

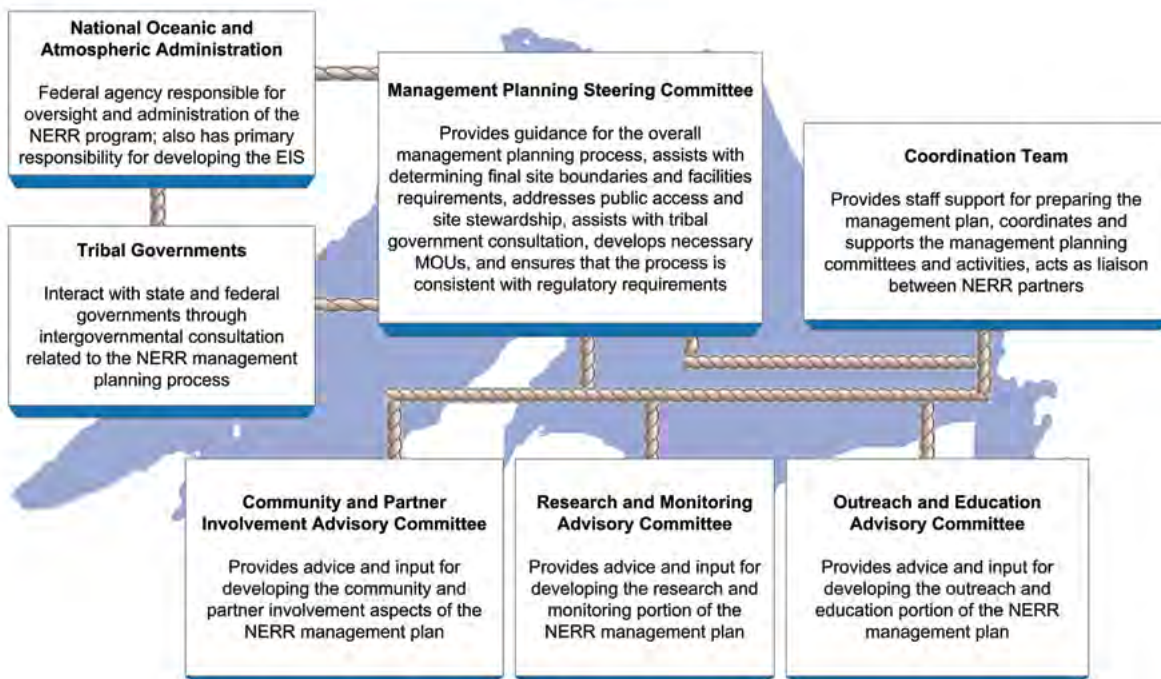
## Definition and Role of Committees

Five ad-hoc committees contributed to the development of the LSNERR Management Plan: the Steering Committee, Research and Monitoring Advisory Committee, Outreach and Education Advisory Committee, Community and Partner Involvement Advisory Committee, and the Coordination Team (Figure 2). The three advisory committees were formed with an emphasis on inclusiveness and broad expertise. Many of the committee members had also participated in the site selection process. The committees were comprised of more than 90 members representing a diverse, knowledgeable, and dedicated cross-section of professionals from many federal, state, tribal, and local agencies and organizations, as well as interested citizen stakeholders (Appendix 4). The responsibilities and membership of these committees can be found in Appendix 5. These ad-hoc committees were created specifically to assist with the LSNERR management planning process and will be dissolved after completion of the process.

The three advisory committees identified potential actions for the LSNERR Management Plan (Appendix 6). This information contributed to the identification of final Objectives and Outcomes as described in a later section. All of the actions identified by the advisory committees could not be included in this plan because of the temporal and practical constraints inherent in developing a new NERR and associated five-year Management Plan; however, all of the identified actions are being included in an appendix to this Management Plan so they can be used to help inform and guide future Management Plans of the LSNERR.

**Figure 2. LSNERR Management Planning Ad-hoc Committee Structure**

### Management Planning Committee Structure



## Tribal Consultation

Where an agency action may affect Indian lands or off-reservation treaty rights, the federal trust duty includes a substantive duty to protect these lands and treaty rights to the fullest extent possible. Consultation is the process of seeking, discussing, and considering the views of tribes, and when feasible, seeking agreement. Consultation is built upon a meaningful exchange of ideas and not just simply providing information. Consultation principals include recognizing the unique legal relationship of the United States to federally recognized Indian tribes, and conducting consultation on a government-to-government basis in recognition of tribal sovereignty. In addition, tribes are not just another interested party or government agency and tribal consultation is not public involvement. It is the government agency's responsibility to seek the views of the tribes early in the scoping process. Both the tribes and agencies have a responsibility to provide their views in a suitable format and in a timely fashion. The underlying laws that inform consultation include the wording in the relevant treaties, as well as the National Environmental Policy Act and Section 106 of the National Historic Preservation Act (Appendix 7).

Informal tribal consultation may take the form of letters, conference calls, or face-to-face meetings with the purpose of seeking, discussing, and considering views of the tribes. Formal consultation, when necessary, will occur between the Tribal Chair and the Administrator of NOAA or the Governor of Wisconsin. Any party to the consultation (tribes or agency) may invite another party to the consultation, provided the intent is to enhance the discussion and improve the understanding for a exchange of ideas and information. A record of consultation (e.g. meeting minutes) will be provided by the agency and the tribe will have the opportunity to provide feedback.

The Lake Superior Chippewa retain treaty rights in their ceded territories. Specifically, these are off-reservation hunting, fishing and gathering rights in lands the Anishanabe ceded to the United States in the Treaties of 1836, 1837, 1842, and 1854. These rights, which the Anishanabe have always had, were reserved by the bands and guaranteed by the United States to ensure that the tribes could meet subsistence, economic, cultural, spiritual, and medicinal needs.

The United States Supreme Court and other federal courts have affirmed these rights. The bands may exercise them in the ceded areas of Michigan, Minnesota and Wisconsin and are entitled to 50 percent of available resources to meet their needs. The treaty rights can only be exercised in a way that conserves natural resources and protects public health and safety. The bands have enacted off-reservation natural resource management plans and conservation codes to meet these goals. The Great Lakes Indian Fish and Wildlife Commission and 1854 Treaty Authority assist the bands in coordinating their regulations and management activities with federal and state governments and among the bands themselves.

On February 27, 2004, Wisconsin Governor Jim Doyle issued Executive Order 39, which relates to an affirmation of the government-to-government relationship between the State of Wisconsin and Indian Tribal Governments located within the State of Wisconsin. State of Wisconsin tribal consultations occurred throughout the Reserve designation process and were led by the Wisconsin Department of Administration.



In addition to the formal consultation process, tribes, tribal entities, and band members actively participated in the various advisory committees during the LSNERR site selection and management planning process. Tribal participation was a valuable contribution to the process and their continued involvement will be instrumental to the success of the LSNERR. The Fond du Lac Band of Lake Superior Chippewa, with their strong ties to the St. Louis River Freshwater Estuary, will serve on the Advisory Board and will enter into a MOU with UWEX and other partners on the Reserve Advisory Board. In addition, NOAA and the Fond du Lac Band of Lake Superior Chippewa have entered into a Memorandum of Agreement (MOA) related to the preparation of a federal Environmental Impact Statement (as required by the National Environmental Policy Act of 1969) for NOAA's proposed action to designate a NERR on the Lower St. Louis River in Wisconsin (Appendix 8).

No action regarding the designation or implementation of the LSNERR will affect the rights of Anishanabe Tribes to hunt, fish, trap, and gather within the designated LSNERR area. These rights are guaranteed by treaty or otherwise part of existing law, and are therefore beyond the scope of this designation. All parties recognize that management actions related to this site must conform to the law regarding these rights. As part of its overall efforts to discharge the federal government's trust responsibility and treaty obligations, all parties will consult with affected Indian Tribes on a government-to-government basis to ensure the protection of these rights (Appendix 9).

## Program Integration and Partner Collaboration

This Management Plan places particular emphasis on program integration and collaboration. These concepts have been emphasized throughout the process of establishing the LSNERR. A variety of partner agencies, organizations, and citizens participated in the site selection process and the management planning process (Table 1). In addition, U.S. Congressman Obey, U.S. Senator Feingold, U.S. Senator Kohl, WI State Senator Jauch, WI State Representative Milroy, WI State Representative Sherman, WI Governor Doyle and/or the staff from their offices were engaged in the process through management planning meetings and/or briefings. The level of engagement demonstrates the interest and commitment of individuals, organizations, agencies, and local, state and tribal governments.

1854 Treaty Authority	St. Louis River Alliance (St. Louis River Citizens Action Committee)
Ashland County, Wisconsin	Sugarloaf
Bad River Band of Lake Superior Chippewa	Superior Schools
Bois Forte (Nett Lake) Band of Lake Superior Chippewa	The Nature Conservancy – Minnesota Chapter
Citizens of Wisconsin	United States Coast Guard
Citizens of Minnesota	United States Fish and Wildlife Service
City of Superior, Wisconsin	United States Geological Survey
Douglas County, Wisconsin	United States Coast Guard
Environmental Protection Agency	United States Fish and Wildlife Service
Fond du Lac Band of Lake Superior Chippewa	University of Michigan
Great Lakes Aquarium	University of Minnesota
Great Lakes Indian Fish and Wildlife Commission	University of Minnesota Duluth – Center for Freshwater Research & Policy
Lac Courte Oreilles Ojibwe Community College	University of Wisconsin – Extension
Midwest Energy	University of Wisconsin – Sea Grant Institute
MinnAqua Program	University of Wisconsin – Superior
Minnesota's Lake Superior Coastal Program	University of Wisconsin Superior – Lake Superior Research Institute
Minnesota Department of Natural Resources	University of Wisconsin – Madison
Minnesota Pollution Control Agency	Washburn K12 Administration
Minnesota Sea Grant	West Wisconsin Land Trust
National Oceanic and Atmospheric Administration	West Wisconsin Land Trust
National Park Service	Wisconsin Coastal Management Program
Natural Resource Foundation	Wisconsin Department of Administration
Natural Resources Research Institute	Wisconsin Department of Natural Resources
North West Regional Planning Commission	Wisconsin Department of Tourism
Northern Great Lakes Visitor Center	Wisconsin Department of Administration
Northland College	Wisconsin Department of Natural Resources
Red Cliff Band of Lake Superior Chippewa	Wisconsin Department of Tourism

Federal regulations require that Reserves be governed by a relationship between the federal government and a single state partner. The St. Louis River, however, is bordered by both Wisconsin and Minnesota and greater than 90% of the St. Louis River watershed is located in Minnesota. While the LSNERR boundaries are located solely on Wisconsin waters and lands, there is a clear need and demonstrated desire to collaborate across state boundaries by both Wisconsin and Minnesota partners.



As a result, Minnesota-based stakeholders have been involved with the process to designate a NERR on Lake Superior, and have been members of the various LSNERR committees. Once designated, Wisconsin will continue to work closely with Minnesota partners and will develop strategies for long-term engagement between Minnesota partners and the Reserve. These strategies may include actions such as incorporation of additional Minnesota partners in the multi-partner MOU, additional membership on the Reserve Advisory Board and other actions.

In addition to collaboration and integration with external partners, this plan also strives to achieve internal integration and collaboration within the LSNERR. The Management Plan objectives integrate across the program sectors (research, education and stewardship) to ensure cross-disciplinary and cross-sector Reserve programming. The LSNERR Reserve Manager and LSNERR staff will work collaboratively across program sectors to fulfill the goals of the Reserve.

## Lake Superior NERR Mission, Vision, and Guiding Principles

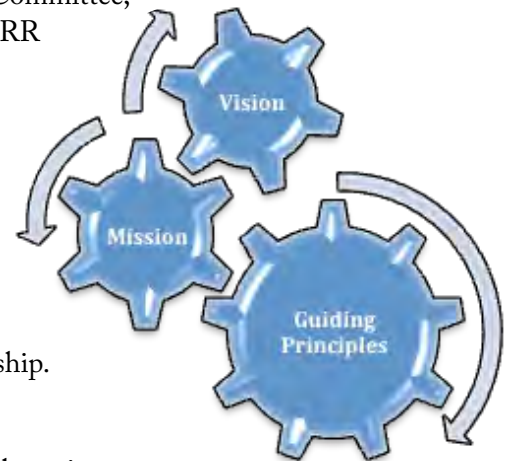
A clear vision, mission, and guiding principles, are important aspects of a Management Plan. At the beginning stages of the site selection process, the Site Selection Advisory Teams discussed the long-term benefits of a NERR on Lake Superior, regardless of its location. The results of those discussions provided the guiding principles for the LSNERR. The Steering Committee, with input from the Advisory Committees, developed the LSNERR Vision and Mission.

**Vision:** The LSNERR is an international leader in advancing understanding and stewardship of Great Lakes freshwater estuaries and coastal resources.

**Mission:** The LSNERR works in partnership to improve the understanding of Lake Superior freshwater estuaries and coastal resources and to address the issues affecting them through an integrated program of research, education, outreach, and stewardship.

### LSNERR Guiding Principles:

- ◆ Promote understanding, appreciation, and protection of the unique estuary systems of Lake Superior
- ◆ Demonstrate the application of watershed principles
- ◆ Create a vital community asset and a destination for visitors
- ◆ Become a model for long-term community involvement and inter-governmental cooperation
- ◆ Conduct research of local, statewide, regional, national, and international importance
- ◆ Provide leadership for integrated research, management, and educational outreach related to freshwater estuaries



## Lake Superior NERR Goals

The four goals identified are long-term intentions of the LSNERR and go beyond the five-year timeframe of this Management Plan. These goals, focusing on Lake Superior freshwater estuaries and coastal resources and issues, link closely to the NERRS program sectors of research, education and stewardship.

**Goal 1** – Conduct applied research and monitoring to increase the understanding of Lake Superior freshwater estuaries and coastal ecosystems

**Goal 2** – Educate youth, students, community members, and visitors about Lake Superior freshwater estuaries and coastal resources and improve their ability to address coastal issues

**Goal 3** – Increase the ability of community leaders and other decision makers to address critical Lake Superior coastal management issues

**Goal 4** – Protect and enhance the ecological health of the St. Louis River Watershed and Lake Superior coastal habitats



# ADMINISTRATION

## Federal Administration Background

Administration of a NERR is accomplished through federal, state, and local partnerships. At the national level, NOAA is responsible for the administration of the NERRS. NOAA's ERD works with state agencies in developing a national network of estuarine research reserves. NOAA provides funding to eligible state agencies for the establishment and continued operation of reserves, as well as funding for construction and land acquisition activities; provides program guidance and oversight including review and approval of management plans; and conducts periodic evaluations to validate that operations are consistent with NERR goals and objectives.

## LSNERR Administrative Structure

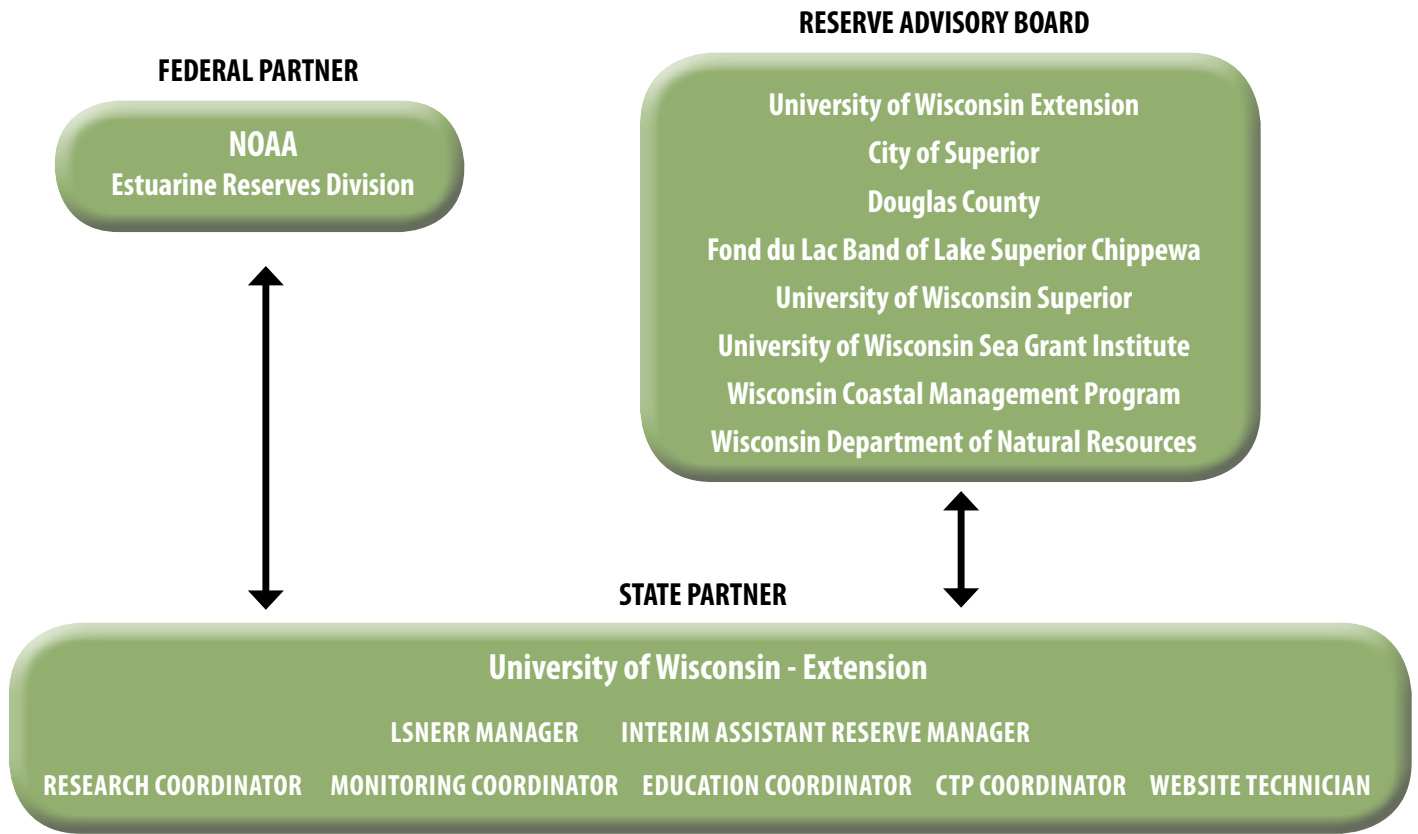
The LSNERR will be administered by UWEX, the Reserve's designated lead agency for the state of Wisconsin. An MOU between UWEX and NOAA will establish the roles and responsibilities of both agencies (Appendix 10). Other key state and local partners for the Reserve include the city of Superior, Douglas County, Fond du Lac Band of Lake Superior Chippewa, University of Wisconsin Sea Grant Institute, UWS, WCMP, and WDNR. These partners either own land within the LSNERR boundaries, and/or have mutual long-term interests in the project. The multi-party MOU that describes the relationship between these partners as it relates to the LSNERR can be found in Appendix 11.

The administrative framework for the Reserve is shown in Figure 3. While this framework shows a relatively linear structure, the LSNERR administrative framework will be, in practice, based on program integration. Thoughtful integration of research, education, and stewardship programming will be a focal point of the LSNERR and will be reinforced through the management plans and operational strategies of the LSNERR.

## Reserve Staff

The Reserve staff for the first five years of LSNERR operation are listed and described in the subsequent sections. Additional positions may be created and advisory committees may be developed as appropriate. Reserve staff will be highly qualified individuals. The level of education and experience will vary with different levels of administrative responsibilities. The Reserve manager and coordinators will hold at least a Masters degree in an appropriate field for their position; however, a Ph.D. is preferred for these positions. A brief summary of likely duties and responsibilities for the Reserve staff is shown below; a more comprehensive listing for key staff can be found in Appendix 12.

Figure 3. Administrative Framework of the LSNERR



**RESERVE MANAGER**

The Reserve Manager is responsible for the implementation of this Management Plan and supervision of Reserve staff. This individual directs, coordinates, and supervises all aspects of Reserve operations and management including administrative, research, stewardship, and education activities. The Reserve Manager is also the lead liaison with NOAA and the RAB, as well as with federal, state, and local entities in working to achieve the goals of the LSNERR.

**RESEARCH COORDINATOR**

Planning, implementing and evaluating the LSNERR research program is the responsibility of the Research Coordinator. This person interacts with potential research advisory committees and other research institutions and individuals to fulfill the research objectives of the LSNERR, in addition to serving as a liaison with the scientific community, promoting data utilization and acting as the primary contact for scientists performing research in the Reserve. Collaboration with NOAA and other Reserves on research initiatives across the NERRS is expected. This individual reports directly to the Reserve Manager and works with the Monitoring, Education and CTP Coordinators to develop integrated programming.

### **MONITORING COORDINATOR**

The Monitoring Coordinator is responsible for the planning, implementation, and evaluation of the Reserve monitoring programs. The SWMP and the associated monitoring stations are the priority for this position, which collaborates with NOAA and other Reserves on monitoring activities. The Monitoring Coordinator reports to the Reserve Manager and works closely with potential monitoring advisory committees and the Research, Education and CTP Coordinators regarding the monitoring priorities and integrated programming at the Reserve.

### **EDUCATION COORDINATOR**

The LSNERR education program is planned, implemented, and evaluated under the direction of the Education Coordinator through on-site and educational outreach activities and the development of educational facilities including trails and exhibits. This individual works with NOAA and other Reserves to collaborate on the national NERR estuary and coastal ecosystems science curriculum. In order to fulfill the Reserve's education objectives, the Education Coordinator works with the community through potential education advisory committees, environmental education institutions, and individuals. The Education Coordinator works closely with the Research, Monitoring and CTP Coordinators to develop integrated Reserve programming.

### **CTP COORDINATOR**

The responsibilities of the CTP Coordinator include the planning, implementation, and evaluation of programming that provides scientific information and skill-building training to coastal resource decision-makers. Professional training focused on NERRS priority issues such as coastal habitat conservation and restoration, mitigation, biodiversity, water quality and quantity, and sustainable resource management is conducted by the CTP Coordinator. The program targets a range of audiences, including land-use planners, elected officials, regulators, land developers, engineers, community groups, environmental non-profits, and coastal businesses and provides information and skill-building opportunities through a variety of formats.

A priority for the CTP Coordinator is to conduct initial analyses for the CTP. Initial analyses will include a market analysis and needs assessment. The market analysis will identify other training providers and partnership opportunities. The needs assessment will evaluate the training needs of the target audience. Upon completion of the assessments, an implementation strategy and marketing plan will be crafted. The CTP Coordinator will work collaboratively with the Research, Monitoring, and Education Coordinators to integrate research, monitoring, stewardship, and education activities that have objectives relevant to coastal management decision-makers.

### **ADDITIONAL STAFFING**

During the first year of operation an Interim Assistant Reserve Manager and Website Technician will be hired. The Interim Assistant Reserve Manager will provide transitional support to the Reserve Manager. A Website Technician will be responsible for establishing an on-line presence for the LSNERR.

## Reserve Advisory Board

The RAB will provide advisory guidance to UWEX and LSNERR staff for management, research and monitoring activities, stewardship activities, and educational programs based on the approved Reserve Management Plan. The RAB will also help enable the development and maintenance of partnerships and cooperative efforts with other research and educational institutions. In addition, they will ensure consistency with state-tribal intergovernmental agreements and ceded territory treaty rights. The RAB shall be comprised of one member from each of the key partners: the city of Superior, Douglas County, Fond du Lac Band of Lake Superior Chippewa, University of Wisconsin Sea Grant Institute, UWS, WCMP and WDNR. Each of these partners has been closely involved with the site selection and designation process for the Reserve and has agreed to continue their involvement as described and detailed in the LSNERR multi-party MOU (Appendix 11). The RAB will also have the ability to create committees or subcommittees as necessary to gather technical information or community input related to LSNERR activities.

## Description of Advisory Board Partners

### UNIVERSITY OF WISCONSIN-EXTENSION

Through UWEX, all Wisconsin people can access university resources and engage in lifelong learning, wherever they live and work. UWEX is a unique partnership of counties, the U.S. Department of Agriculture, and the University of Wisconsin working together to help people put knowledge to work. It reflects the vision that has become known as The Wisconsin Idea.

This partnership brings education to people where they live, through Extension offices across Wisconsin. UWEX supports educational programs for farmers, businesses, communities, families, and young people. UWEX uses education to help people understand and solve problems. Educational programs reflect local issues and apply research-based knowledge from the University of Wisconsin, other universities and the United States Department of Agriculture to help address them.

UWEX has been working with WCMP and WDNR on the Wisconsin Freshwater Estuary Initiative. The Initiative is a statewide effort to increase our understanding and stewardship of Great Lakes freshwater estuaries. One means to reach the goal of the Initiative is through the designation of a NERR on Lake Superior. UWEX is the lead state agency for the LSNERR and is responsible for the implementation of the Management Plan.

### CITY OF SUPERIOR

Superior, population 27,170, is a community covering 46-square miles in northwest Wisconsin along the shores of Lake Superior and the St. Louis River. Surrounded by outstanding natural resources, Superior offers 96 miles of shoreline on which its citizens work, play, and learn. The City is the home of UWS and the Lake Superior Research Institute (LSRI). LSRI is an educational center for environmental research, education, and public information on the Great Lakes Region.

Superior's city leaders are proud of the community connection to the Lake and the St. Louis River. They have actively protected large tracts of shoreline and inland property, most notably the State Municipal Forest (SMF) and Wisconsin Point. Mayor Dave Ross is a member of the Board of Directors of the Great Lakes and St. Lawrence Cities Initiative (GLSLCI), a collective of international community leaders representing eight states and two provinces, whose mission is the protection and restoration of the Great Lakes. A 2006 survey snapshot conducted by GLSLCI showed that the City spends in excess of \$3 million annually protecting Lake Superior.

With significant interest in the waters that surround Superior, its citizens and leaders have strongly supported the designation of a LSNERR. In the fall of 2007, the Superior Common Council and the Douglas County Board of Supervisors formally resolved to support the establishment of a NERR in Superior. The LSNERR is expected to strengthen the knowledge, stewardship, and leadership in understanding this unique watershed.

### DOUGLAS COUNTY

Douglas County, located in northwestern Wisconsin, covers approximately 1,300 square miles and is bordered by Carlton County, Minnesota to the west, Burnett and Washburn Counties to the south, Bayfield County to the east, and Lake Superior to the north. Unique natural resource characteristics found in Douglas County include the following:

- ◆ Largest county forest in Wisconsin (3rd largest in United States)
- ◆ Largest municipal forest in Wisconsin (one of the largest in United States)
- ◆ Most "Land Legacy Sites" (sites in Wisconsin that are identified by the WDNR as critical to meeting conservation and recreation needs for the next fifty years) of any county in Wisconsin
- ◆ Most "Wetland Gems" (high quality habitats identified by the Wisconsin Wetlands Association for their representation of wetland types that historically made up Wisconsin's landscape) of any county in Wisconsin



A representative of Douglas County will be a LSNERR advisory board member as county-owned property is included within the designated LSNERR boundary. Douglas County supports the mission and values of the LSNERR. As stated in the Douglas County Land & Water Resource Management Plan, the county has three conservation-based goals: **1)** protect and enhance surface waters and wetlands to preserve and restore their water quality, ecological functions, and recreational and scenic values; **2)** protect and understand groundwater quality to supply clean water for drinking and recharging surface waters and wetlands; and **3)** prevent the introduction and spread of aquatic and terrestrial invasive species to protect aquatic habitat and resource values through support and implementation of the Douglas County Aquatic Invasive Species Strategic Plan. Furthermore, the county has adopted, as guiding principles, the following statements:

- ◆ Uphold the protection of natural resources while considering the importance of the Douglas County economy
- ◆ Facilitate partnerships and support efforts of other organizations where consistent with land and water resource priorities
- ◆ Emphasize education to increase understanding of natural resource concerns and the methods to address these concerns, and encourage beneficial changes in behavior
- ◆ Restore and protect native habitats while meeting water quality objectives
- ◆ Utilize information and recommendations in partner organization water quality and habitat management plans
- ◆ Embrace Wisconsin's public trust doctrine that lakes and rivers are public resources owned in common by all Wisconsin citizens
- ◆ Plan for the potential impacts of climate change in all activities

### **FOND DU LAC BAND OF LAKE SUPERIOR CHIPPEWA**

The Fond du Lac Reservation, established by the LaPointe Treaty of 1854, is one of six Reservations inhabited by members of the Minnesota Chippewa Tribe. The Band is headed by the Reservation Business Committee, which includes one chairperson, a secretary/treasurer, and three district representatives. The Fond du Lac Resource Management Division manages on- and off-Reservation resources, including the St. Louis River Freshwater Estuary. Within the Division, the Environmental Program's Office of Water Protection manages water quality and wetland issues within Reservation boundaries. Fond du Lac has three "treatment-as-a-state" determinations under the federal Clean Water Act, which means the tribe has federally approved water regulations, including water quality certification standards for on-Reservation projects. Because of the connection Fond du Lac has with the areas proposed for inclusion in the LSNERR, a representative from the Fond du Lac Environmental Program Office of Water Protection will serve on the LSNERR Advisory Board.

### **UNIVERSITY OF WISCONSIN - SEA GRANT INSTITUTE**

The Sea Grant College Program, administered by NOAA, is a national program of research, outreach, and education dedicated to scientific inquiry for the practical use and conservation of the nation's ocean, Great Lakes, and coastal resources. Administered at the UW Aquatic Sciences



Center by the UW Sea Grant Institute in Madison, the program's funds are awarded on a competitive, peer-reviewed basis to public and private universities and colleges in Wisconsin. Research competitions are held biennially, supplemented by annual national strategic investment competitions. Outreach is conducted statewide through the Wisconsin Sea Grant Advisory Services Program and the Madison-based communications office. The Advisory Services program is organized around subject area specialists, four of whom also have a responsibility to provide general support to a multi-county area through field offices located on various University of Wisconsin campuses (UWS; UW-Green Bay; UW-Manitowoc; UW-Milwaukee). The current 2010-14 Wisconsin Sea Grant Strategic Plan for research, outreach and education is centered on three focus areas: Improve Great Lakes Ecosystem Health; Enhance Coastal Community Sustainability and Resilience; and, Support Sustainable Fisheries and Aquaculture. Together with the Minnesota Sea Grant, UW Sea Grant conducted a regional call for research proposals in support of the LSNERR. Both programs hope to continue to develop coordinated research and outreach activities with LSNERR.

### UNIVERSITY OF WISCONSIN-SUPERIOR

UWS is located in the northwest corner of Wisconsin in the city of Superior. UWS was established in 1893 and joined the University of Wisconsin System in 1971. Enrollment is approximately 2,800 students. UWS has a reputation for excellence through its academic programs and research efforts. UWS is home to LSRI as well as two other research centers focused on transportation and Great Lakes maritime commerce.

LSRI was created in 1967 with a mission focused on environmental research, environmental education, and public outreach for the Great Lakes Region. Major research efforts have focused on water quality monitoring, assessment of stream and coastal wetland aquatic communities, Great Lakes monitoring of plankton and benthos, ballast water treatment research, biodiesel fuel research, invasive species monitoring, and toxicity testing. LSRI anticipates expanding research opportunities with the establishment of the NERR. Faculty and researchers will work closely with the LSNERR staff to identify research needs and to work in partnership with NERR researchers.

Additionally, LSRI maintains a 58-foot research vessel (*L.L. Smith, Jr.*), an invertebrate taxonomy laboratory, analytical chemistry labs, aquatic animal culturing laboratory, aquatic toxicology testing lab, and a computer/data management center. The *L.L. Smith, Jr.* is used extensively for both research and education. Educational programs provide participants with an opportunity to study the biology of Lake Superior and learn about local and regional environmental issues. The *L.L. Smith, Jr.* educational programs have been developed for students, local government officials, and the public. On-board scientists give introductory lectures and slide shows while en route to sampling sites on Lake Superior. The *L.L. Smith, Jr.* and the LSRI laboratory facilities will be available for outreach programming and research conducted by LSNERR staff.

Additionally, UWS owns a 72-acre parcel of land on the south shore of Lake Superior that includes Dutchmen's Creek. This parcel of land was named the Nelson Outdoor Laboratory in 2007. The area is to be used to enhance the instruction, research, and public service missions of the University. This land is available for use by the LSNERR as the mission of a NERR is in sync with the operating agreement for the Nelson Outdoor Laboratory.

Students majoring in natural science programs have opportunities to participate in LSRI research projects as student research assistants, interns, or temporary employees upon graduation. The Department of Natural Sciences includes majors in biology; broad field science; cell/molecular biology; ecology, aquatic biology, and fishery science; plant science; chemistry; geography; geology; and physics. Faculty and students in the natural and social sciences will have expanded opportunities for research and outreach within the LSNERR.

### **WISCONSIN COASTAL MANAGEMENT PROGRAM**

The WCMP, in the Wisconsin Department of Administration, is a networked program that coordinates state, regional, and local agencies to improve Great Lakes coastal management. The WCMP supports the management, protection, and restoration of Wisconsin's coastal resources, and increases public access to the Great Lakes. The WCMP's goals are:

- ◆ To improve the implementation and enforcement of existing state regulatory and management policies and programs
- ◆ To improve the coordination of existing policies and activities of governmental units and planning agencies on matters affecting key coastal uses and areas
- ◆ To strengthen local governmental capabilities to initiate and continue effective coastal management consistent with identified state standards and criteria
- ◆ To provide a strong voice to advocate the sustainable use of the coastal environment and the recognition in federal, state, and local policies of the uniqueness of the coastal environment
- ◆ To increase public awareness and opportunity for citizens to participate in decisions affecting Great Lakes resources

The WCMP's relationship to the LSNERR is to provide a statewide perspective on coastal management issues in an advisory role to the Reserve manager, and to participate with the NERR in the integrated national network of ocean and coastal management programs.

### **WISCONSIN DEPARTMENT OF NATURAL RESOURCES**

The WDNR is dedicated to the preservation, protection, effective management, and maintenance of Wisconsin's natural resources. It is responsible for implementing the laws of the state and, where applicable, the laws of the federal government that protect and enhance the natural resources of our state. It is the one agency charged with full responsibility for coordinating the many disciplines and programs necessary to provide a clean environment and a full range of outdoor recreational opportunities for Wisconsin citizens and visitors.

The WDNR will be a LSNERR Advisory Board Member, as well as a landowner within the LSNERR boundaries with properties on the Red River Breaks and Wisconsin Point components.

# BOUNDARIES AND ACQUISITION

## Boundary Criteria

NOAA boundary requirements are outlined in the federal register (915 CFR 921.11). These requirements are summarized below:

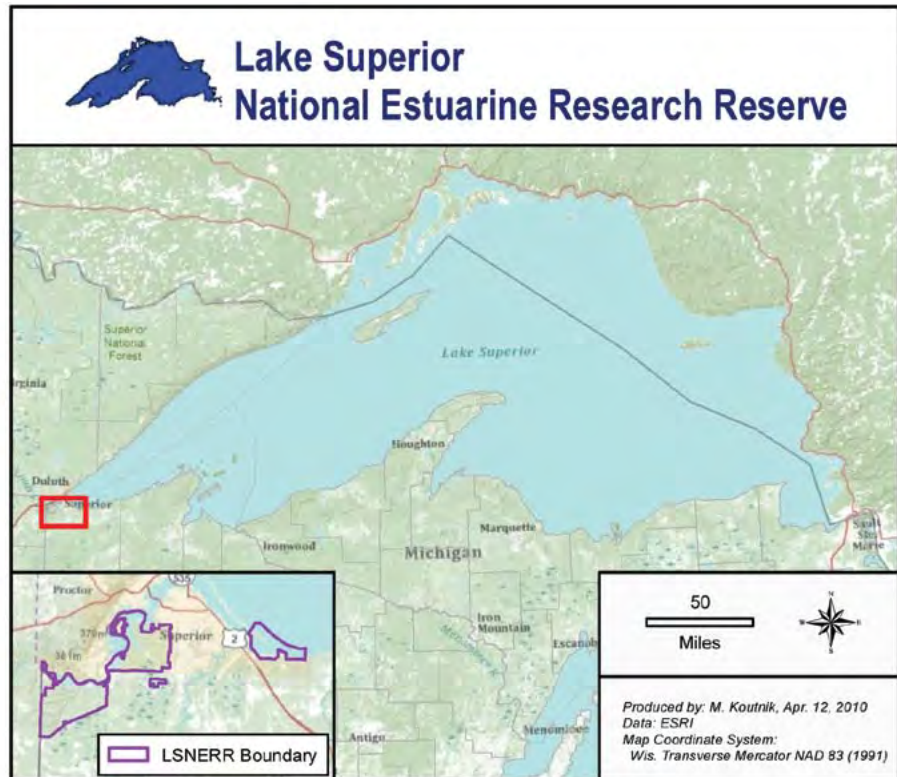
- ◆ **Key Land and Water Areas that Approximate an Ecological Unit:** Reserve boundaries must encompass an adequate portion of key land and water areas of the natural system to approximate an ecological unit and should encompass resources representative of the total biogeographic habitat.
- ◆ **Encompass Areas with Adequate Controls:** NOAA regulations require that there be a level of control over uses and activities to ensure that the ecological integrity of the Reserve is maintained for sustained research and education. Specifically, the regulations state that Reserve boundaries must encompass the area within which adequate control has or will be established by the managing entity over human activities occurring within the Reserve.
- ◆ **Management Considerations:** The administrative burden and responsibility for operating a Reserve and associated research, stewardship, and educational programs should be a significant consideration in the site selection process and in the delineation of the Reserve boundaries. Given the limited funds available to support Reserve programs, it is also important to develop a reasonable boundary that will establish a credible Reserve without creating an overwhelming administrative burden.
- ◆ **Research/Monitoring and Education Needs and Goals:** The research/monitoring and education needs and goals of the Reserve are an important consideration in developing a boundary. These needs and goals define the purpose of establishing a Reserve and should play a primary role in defining boundaries.

## Description

The LSNERR is situated on the freshwater estuary at the confluence of the St. Louis River and Lake Superior. (Map 2) Lake Superior is the largest of the Great Lakes, and the most pristine.<sup>xxv</sup> The Reserve is a diverse, large complex that contains a variety of representative terrestrial and aquatic habitats. It possesses a unique combination of pristine and altered areas, allowing for maximum research and educational opportunities. The boundaries of the LSNERR include land and water areas significant to supporting LSNERR activities and will protect the integrity of core areas for long-term research and monitoring. The boundaries also include land and water areas that provide opportunities for research and monitoring, experiential learning, and training programs. In addition, the boundaries include land and water areas that contribute to the protection of the ecological health of the St. Louis River Freshwater Estuary and Lake Superior coastal habitats.

Map 2. LSNERR Geographical Location

As stated previously, the St. Louis River is bordered by Wisconsin and Minnesota. The largely forested St. Louis River watershed is 1,872,807 acres in size. Given that 97.6% of the St. Louis River watershed is located in Minnesota<sup>xxvi</sup>, addressing relevant research, education and stewardship needs will require close collaboration between Minnesota and Wisconsin. Although the LSNERR boundaries are located solely in the Wisconsin waters and lands, there is a need and demonstrated desire to collaborate across state boundaries by both Wisconsin and Minnesota partners.



## Boundary

The LSNERR site is located on the southwestern coast of Lake Superior (Map 3) and contains approximately 16,697 acres of terrestrial (7,886 acres), wetland (4,136 acres), and aquatic (4,675 acres) habitats. These areas, under four public entity ownerships, consist of the following components (Map 4):

- ◆ **Red River Breaks** containing lands owned by Douglas County and WDNR
- ◆ **Pokegama-Carnegie Wetlands** containing lands owned by WDNR
- ◆ **Pokegama Bay** containing lands owned by the city of Superior and Douglas County
- ◆ **Wisconsin Point** containing lands owned by the city of Superior, Douglas County, UWS, and the WDNR

The Port of Duluth-Superior is the largest and busiest port on the Great Lakes.<sup>xxvii</sup> The Reserve boundary does not include areas that are directly affected by the working port and waterfront industrial and commercial uses. Most of these areas are privately owned and state control is not practical or desirable.

## CORE AND BUFFER AREA

Federal regulations state that Reserve boundaries generally encompass two areas: key land and water areas (or “core area”) and a buffer area (915 CFR 921.11). The LSNERR core area (Map 5) was selected based on the following criteria:

1. Vital to the function of the St. Louis River Freshwater Estuary
2. Maintains a sufficient level of control to ensure the long-term viability of the LSNERR for research and natural processes
3. Encompasses resources representative of the total St. Louis River Freshwater Estuary system
4. Contributes to the preservation of a full range of significant physical, chemical and biological factors essential to the diversity of fauna, flora and natural processes occurring within the St. Louis River Freshwater Estuary determined through:
  - a. Lower St. Louis River Habitat Plan
  - b. Wisconsin’s Lake Superior Coastal Wetlands Evaluation
  - c. SNA designation directly on the waters of the St. Louis River

The buffer area was selected based on the following criteria:

1. Ability to protect the core area and provide additional protection for species that rely on the core area
2. Located adjacent to, surrounding, or is essential to the integrity of the core area
3. Maintains a sufficient level of control to support the long-term viability of the LSNERR for natural processes, as well as research and education

The core (9,196 acres) and buffer (7,501 acres) areas consist of the following parts of the proposed boundary areas:

**Red River Breaks** (approximately 6,926 acres): The core area includes all adjacent islands and wetlands within the St. Louis River, the area of the St. Louis River within Wisconsin’s boundary, the uplands of the St. Louis and Red River Streambank Protection Area within one mile of the river’s shoreline, and the lands owned by Douglas County in Special Use designation. The buffer area is within the WDNR St. Louis and Red River Streambank Protection Area and located directly south of the core. (Map 6)

**Pokegama-Carnegie Wetlands** (approximately 226 acres): This entire component is buffer area and is a dedicated State Natural Area (SNA). (Map 7)

**Pokegama Bay** (approximately 6,723 acres): The core area is identified by the boundary of the Dwight’s Point and Pokegama Wetlands SNA within the SMF, connecting waters of the St. Louis River upstream to the Red River Breaks, and areas owned by Douglas County and identified as Oliver Marsh. The buffer is the remaining areas within the SMF not identified as core areas. (Map 8)

**Wisconsin Point** (approximately 2,822 acres): The core area consists of all land within the Reserve boundary on Wisconsin Point that is owned by the city of Superior and WDNR, areas adjacent to Allouez Bay owned by Douglas County, and water portions of Allouez Bay. The buffer area consists of Douglas County lands located on the Lake Superior shoreline, land surrounding Dutchman Creek that is owned by UWS, and Lake Superior waters bordering this component. (Map 9)

## SITE COMPONENTS

The site is a combination of four land components and portions of the connecting waterways. Each component of the Reserve possesses a unique combination of habitats (Map 10); descriptions of the LSNERR habitats and their sources can be found in Appendix 13. The following descriptions of each site component, unless otherwise stated, were taken with permission from the WDNR publication, *A Data Compilation and Assessment of Coastal Wetlands of Wisconsin's Great Lakes, Final Report*.<sup>xviii</sup>

### **Red River Breaks**

#### ***St. Louis and Red River Streambank Protection Area – WDNR ownership***

This rough, deeply dissected, red clay landscape drained by the Red River and its tributaries borders the St. Louis River prior to reaching the city of Superior. Much of the site is forested; the dominant tree species is pole-sized trembling aspen (*Populus tremuloides*). The canopy is rather sparse, with a dense understory of speckled alder (*Alnus incana*) prominent in many stands. Conifers, which were formerly dominant in this area, presently occur as scattered individuals or in small stands. In poorly drained “flats” on the level ridges between ravines there are patches of black ash-dominated hardwood swamp and thickets of speckled alder and other tall wetland shrubs. Areas of standing water are infrequent, but where present support small emergent marshes and broad-leaved sedge meadows. The lower slopes of the steep-sided ravines are often springy, sometimes supporting remnant stands of white cedar (*Thuja occidentalis*) and unusual herbs. Several springs flow with brightly colored orange water, the result of the presence of iron bacteria. Some of the small terraces above the streams in the ravine bottoms contain mature stands of large white spruce (*Picea glauca*), black ash (*Fraxinus nigra*), and balsam poplar (*Populus balsamifera*).

Along the St. Louis River there are stands of emergent macrophytes, shrub swamp, and small patches of black ash swamp. At least ten species of rare plants have been documented on the site. The area supports a representative diversity of the region's birds, including large populations of many neotropical migrants.

Upper portions of the LSNERR from Fond du Lac downstream to Oliver feature extensive emergent marshes. These are typically located inside the main channel's meanders, but also occur in protected, shallow bays along the upland shore. Wild rice (*Zizania aquatica*) and sweet flag (*Acorus calamus*) are locally common. The deeper waters of the marsh complexes support submergent and floating-leaved macrophytes. The patches of marsh associated with the main channel are often bordered by a natural levee adjoining the flowing river. Where well developed, the levees are vegetated with tall wetland shrubs and lowland hardwoods.

The site is used heavily by waterfowl in early fall. Foraging birds during the nesting season include bald eagle, osprey, common tern, merlin, and belted kingfisher. The Wisconsin shoreline is almost entirely undeveloped, and includes a large block of rough, forested, roadless terrain. Portions of the St. Louis and Red River Streambank Protection Area are bordered by Fond du Lac State Forest and Jay Cooke State Park. There is a primitive road in the Fond du Lac State Forest that I access to the property. There are not currently any ATV trails leading to St. Louis and Red River Streambank Protection Area, but the Fond du Lac State Forest has an existing large network of trails.

### *Douglas County Special Use Area – Douglas County ownership*

Located along the shore of the St. Louis River, this small 8-acre parcel is contiguous to the St. Louis and Red River Streambank Protection Area to the east and is managed by Douglas County as “special use lands” under the state’s County Forest Law, which recognizes the value of the land for conservation, rather than timber production.

### *St. Louis River*

The portions of the St. Louis River within the State of Wisconsin and adjacent to the St. Louis and Red River Streambank Protection Area and Pokegama Bay, and connecting the two sites, are included in the proposed NERR boundary. The portions of the St. Louis River downstream of the Pokegama Bay, including the entire Duluth–Superior Port, are not included in the proposed boundary. The St. Louis River/Nemadji Rivers Watershed Plan description offered by WDNR describes the St. Louis River as follows:<sup>xxx</sup>

*The St. Louis River is the largest tributary stream entering Lake Superior from the United States. After descending the Duluth escarpment at Fond du Lac, Minnesota, the river becomes a meandering estuary with little current due to the geologic drowning of its river valley beneath the waters of Lake Superior, creating a natural harbor at its mouth. The lower 23-mile reach of the river bounds Wisconsin and Minnesota. Numerous islands and embayments characterize this part of the river. The estuary is a tremendous resource for wildlife, with its backwaters and islands providing nesting habitat for numerous waterfowl and other birds, as well as nursery and spawning areas for aquatic life.*

*The portion of the St. Louis River Freshwater Estuary near the mouth of the Red River and St. Louis and Red River Streambank Protection Area includes some of its last remaining shoreline wetlands, which provide prime breeding habitat for wildlife and fish, including some 300 species of birds, threatened and endangered species, game species and an estimated 50,000–90,000 spawning walleye. Lake sturgeon has been reintroduced in the area recently.*



## ***Pokegama Carnegie Wetlands***

### ***Pokegama Carnegie Wetlands SNA - WDNR ownership***

The Pokegama Carnegie Wetlands SNA is part of the largest and most intact of the red clay wetlands in northwest Wisconsin. The extensive, poorly drained, red clay flats in the headwaters of the Pokegama and Little Pokegama rivers support a large wetland mosaic of shrub swamp, sedge meadow, emergent marsh, and small ponds. Of special significance are the many populations of rare plants occurring in the site's wetlands. Many of the rarities are represented by large or multiple populations. It is important to recognize that some of these species are not widespread in the Lake Superior region, but are concentrated in the vicinity of the city of Superior. In addition, the site's wetlands are home to a wide variety of amphibians and birds.



## ***Pokegama Bay***

### ***Superior Municipal Forest - city of Superior ownership***

The SMF contains a wealth of natural features unusual in the context of an urban-industrial center. More than 4,400 acres, the site is one of the largest municipal forests in the United States, and remains only slightly modified by human influence. Among the most significant of the many natural features present within the site are stands of mature coniferous forest, extensive emergent marsh, and wet clay flats supporting a mixture of shrub swamp and wet meadow habitats. The shrub swamp and meadow complex provides habitat for several rare plants. The dominant plants are typical of Lake Superior region stands on red clay and include speckled alder, willows, lake sedge, and bluejoint grass.

In 1996, 2,620 acres of this site were designated as a SNA. This designation encompassed much of the mature forest and marsh, and also included a part of the wet clay flats in which rare plants occur.

Pokegama and Kimball's Bays are long, serpentine bays. These bays are adjacent to the SMF and were identified by the Lake Superior Binational Program as habitat important to the integrity of Lake Superior. Pokegama Bay spans some 200 acres and contains the largest remaining population of wild rice in the estuary. Wetlands and emergent aquatic vegetation line the bays, which are used extensively by waterfowl.

### ***Oliver Marsh - Douglas County ownership***

This large marsh in the St. Louis River Freshwater Estuary extends from the village of Oliver to the SMF. A narrow, natural levee developed on the outside bend of a channel meander and is partially vegetated with shrubs and small lowland hardwoods. This separates the northern portion of the marsh from the main channel. The emergent beds are generally composed of tall, narrow-leaved plants, especially bulrushes, bur reeds, lake sedge, cattails, sweet flag and arrowheads. Pockets of wild rice



occur in several protected bays fed by tiny streams draining the uplands to the east. A deep central lagoon, between the natural levee and the emergent beds adjacent to the upland shore, harbors significant stands of floating-leaved and submergent aquatic plants such as waterweed, wild celery, yellow water lily and pondweeds.

Oliver Marsh is managed by Douglas County and designated as “special use lands” under the state’s County Forest Law.

### ***Wisconsin Point***

#### ***Wisconsin Point-city of Superior ownership***

Wisconsin Point is the eastern portion of a long baymouth bar separating the waters of Lake Superior from Allouez Bay. Major site features include several miles of open sand beach and dunes, small interdunal wetlands, and a xeric forest of white pines and red pines. Wisconsin Point and adjacent Allouez Bay receive heavy visitation by migrating birds in the spring; this area has been identified as an Important Bird Area of Wisconsin.

#### ***Wisconsin Point Wildlife Management Area – WDNR ownership***

The Wisconsin Point Wildlife Management Area was established in 1989 for the primary purpose of providing nesting and young-rearing habitat for common terns (WI Endangered Species) and piping plovers (WI and Federal Endangered Species). Both species require habitat that includes areas of sparse vegetation for nesting. Habitat management on the property has included construction of a tern nesting area on the peninsula in Allouez Bay and vegetation management (control) on most of the remaining portion of the property. None of the habitat management has been successful in attracting either terns or plovers to nest on the property. Common terns successfully nest on the Interstate Island Wildlife Management Area in the St. Louis River Freshwater Estuary and piping plovers no longer nest in the estuary. Since 2005 habitat management has been discontinued on the property. No decision has been made on future management of the property.

#### ***Lake Superior Frontage – Douglas County Ownership***

This parcel is located on Lake Superior and contiguous to city of Superior property on the west and UWS property on the east. The landscape of this parcel is largely forested wetland elevated on a 40-foot bluff above a sandy beach that is contiguous with Wisconsin Point dunes. The wetland forest is a mixture of deciduous and coniferous trees and a scrub-shrub complex. It is managed by Douglas County and designated as “special use lands” under the state’s County Forest Law.

#### ***Nelson Outdoor Laboratory – UWS ownership***

This parcel of land is owned and managed by UWS. The area is to be used to enhance the instruction, research, and public service missions of the University. This land is available for use by the LSNERR as the mission of a NERR is in sync with the operating agreement for the Nelson Outdoor Laboratory. Within the border of the city of Superior, adjacent to Wisconsin Point, Dutchman Creek runs for three miles and empties into Lake Superior at the Nelson Outdoor Laboratory. It has higher flows than other city of Superior streams and is relatively turbid. Though its riparian area is relatively

undeveloped, it still receives stormwater inputs from private landowners who live along the creek. It cuts through sand beaches before reaching the lake, creating a place for high-quality coastal wetlands. During low flows, the river mouth is often disconnected from Lake Superior.<sup>xxxii</sup>



### *Lake Superior*

The waters of Lake Superior extending from the shoreline of this component to one-half mile from shore are included in the boundary of the Reserve. This near-shore area provides an important buffer to the Reserve core area and offers potential opportunities for research, monitoring, and education activities.

### *Allouez Bay*

The eastern end of the bay is shallow and contains a large marsh with patches of sedge meadow and a

drowned tamarack swamp near the base of Wisconsin Point. Several streams, Bear Creek, Bluff Creek, and the Nemadji River, empty into the bay. The marsh is dominated by tall native graminoids, such as bur reeds, bulrushes, spikerush, sedges, and cattails. Broad-leaved arrowhead is also among the dominant species. Deep areas within and on the margins of the emergent marsh support populations of floating-leaved and submergent aquatic macrophytes. Sedges dominate the portions of the wetland nearest the shore. Tamarack snags are scattered throughout parts of this area.

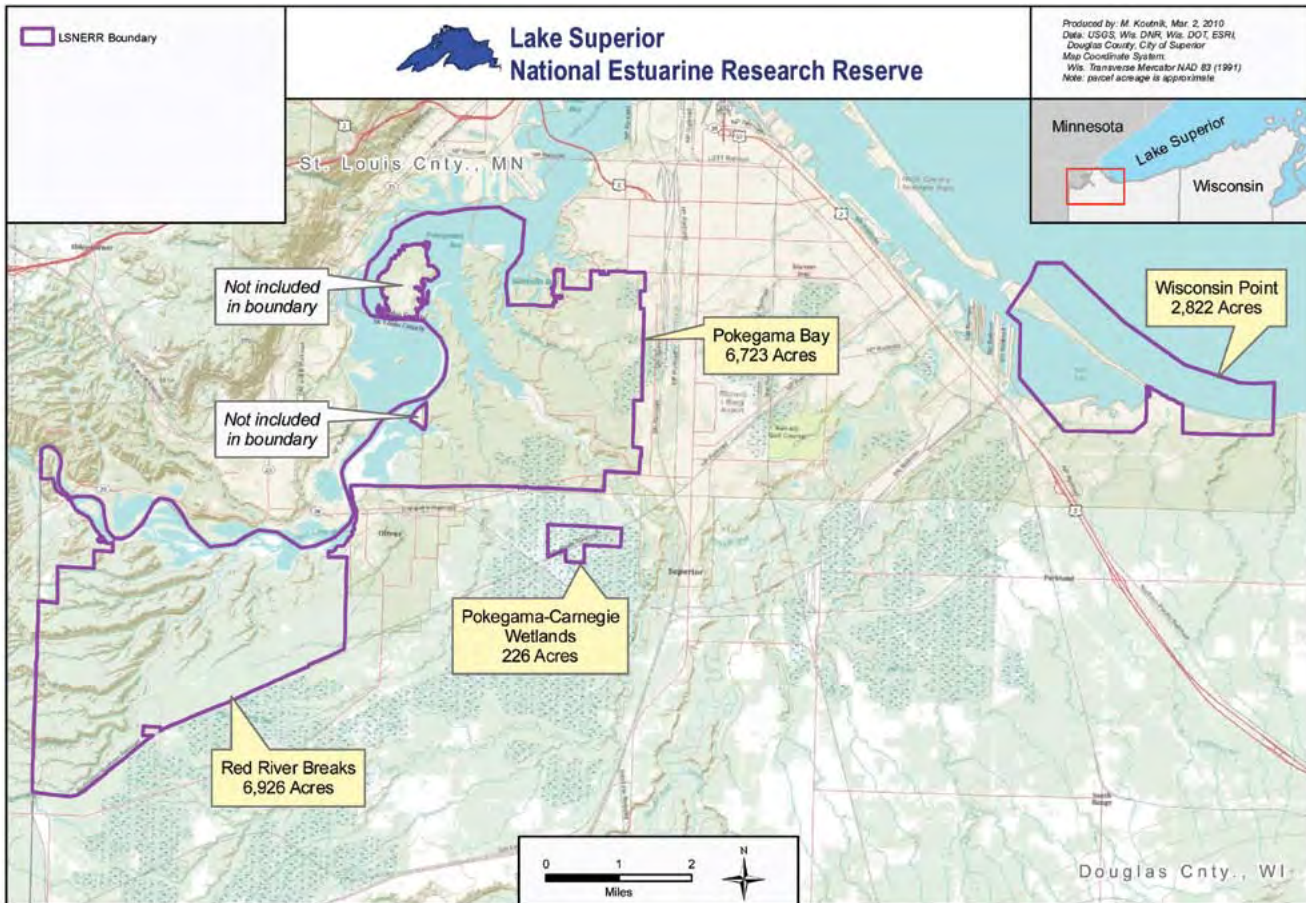
It is possible that this wetland formerly contained extensive mats of wire-leaved sedges, but eutrophication, sedimentation, and other disturbances led to changed conditions which aided the spread and eventual dominance of the coarser, more nutrient tolerant emergents. Nevertheless, this wetland is composed mostly of native species, and plant diversity and wildlife values are quite high. In the early spring, substantial numbers of water birds of many kinds congregate here.

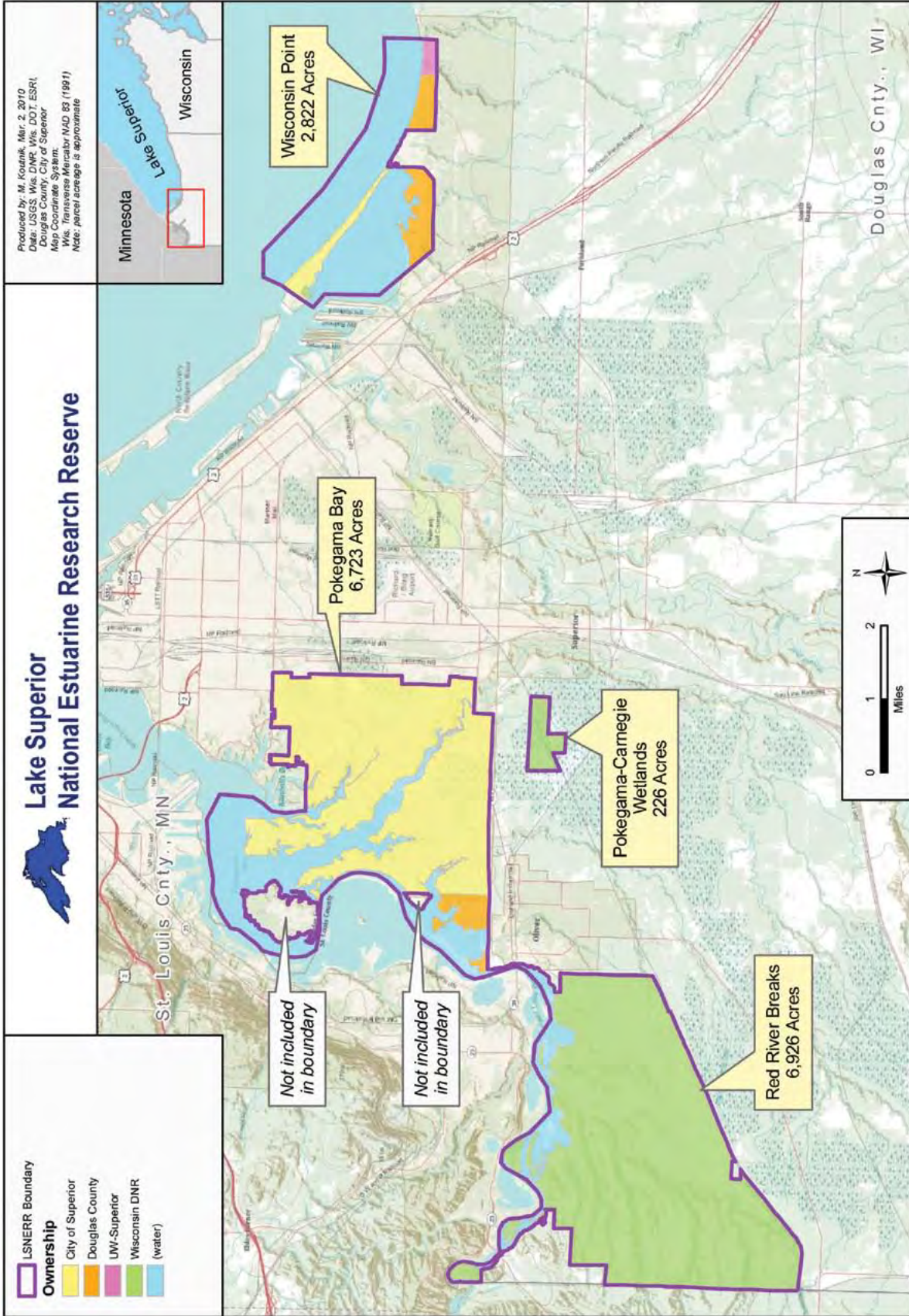
This site may be especially significant in years when the break-up of ice on Lake Superior is late, and little open water is available inland. The marsh also supports many nesting birds, including uncommon marsh species and a few rare invertebrates. This area supports many rare species and hosts major concentrations of migratory birds in the spring.

## Future Boundary Modifications

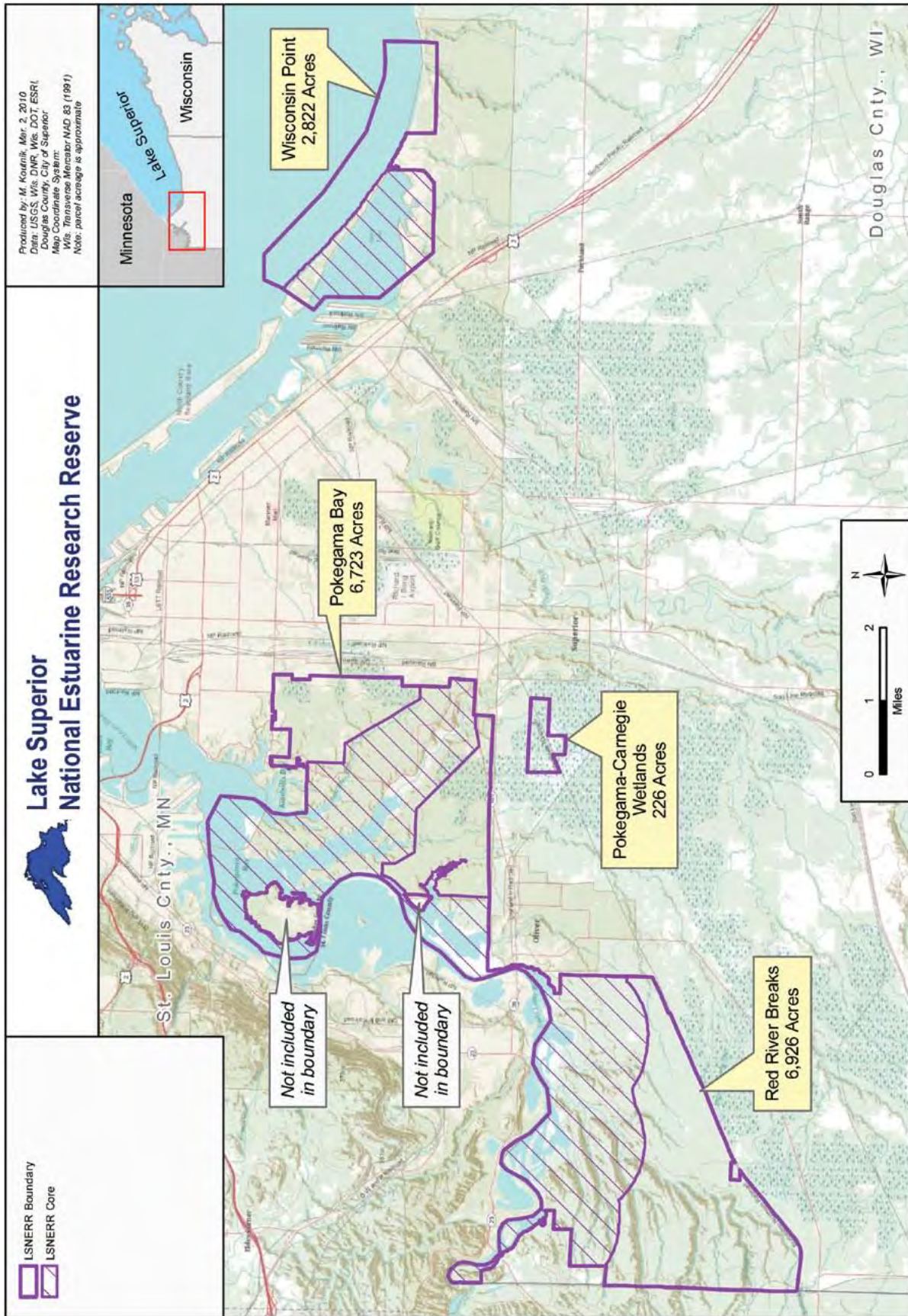
The Reserve consists of lands in public ownership and Wisconsin waters. Potential additions to the LSNERR boundaries may be considered. Any additions must be able to help fulfill the mission of the LSNERR. Additions must also meet NOAA's boundary requirements outlined in the federal register (915 CFR 921.31) and previously summarized at the beginning of this chapter. As stated in the federal regulations (915 CFR 921.33), boundaries of a NERR site also may be adjusted to remove areas previously approved as within a NERR site boundary but that no longer meet the needs or requirements of the Reserve.

**Map 3. LSNERR Boundaries**





Map 4. LSNERR Land Ownership



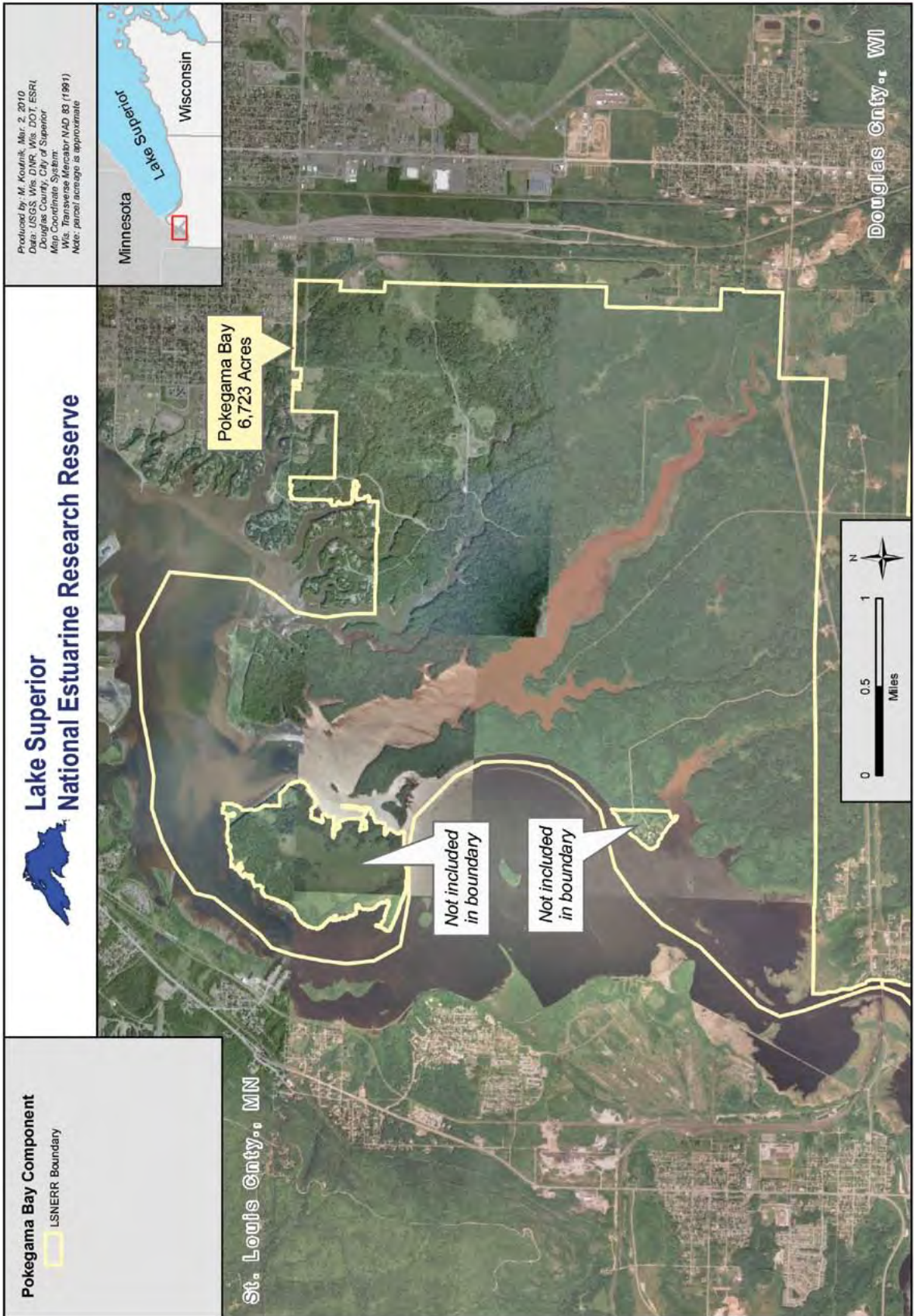
Map 5. LSNERR Boundaries with Core and Buffer Areas



Map 6. Red River Breaks Component



Map 7. Pokegama Carnegie Wetlands Component

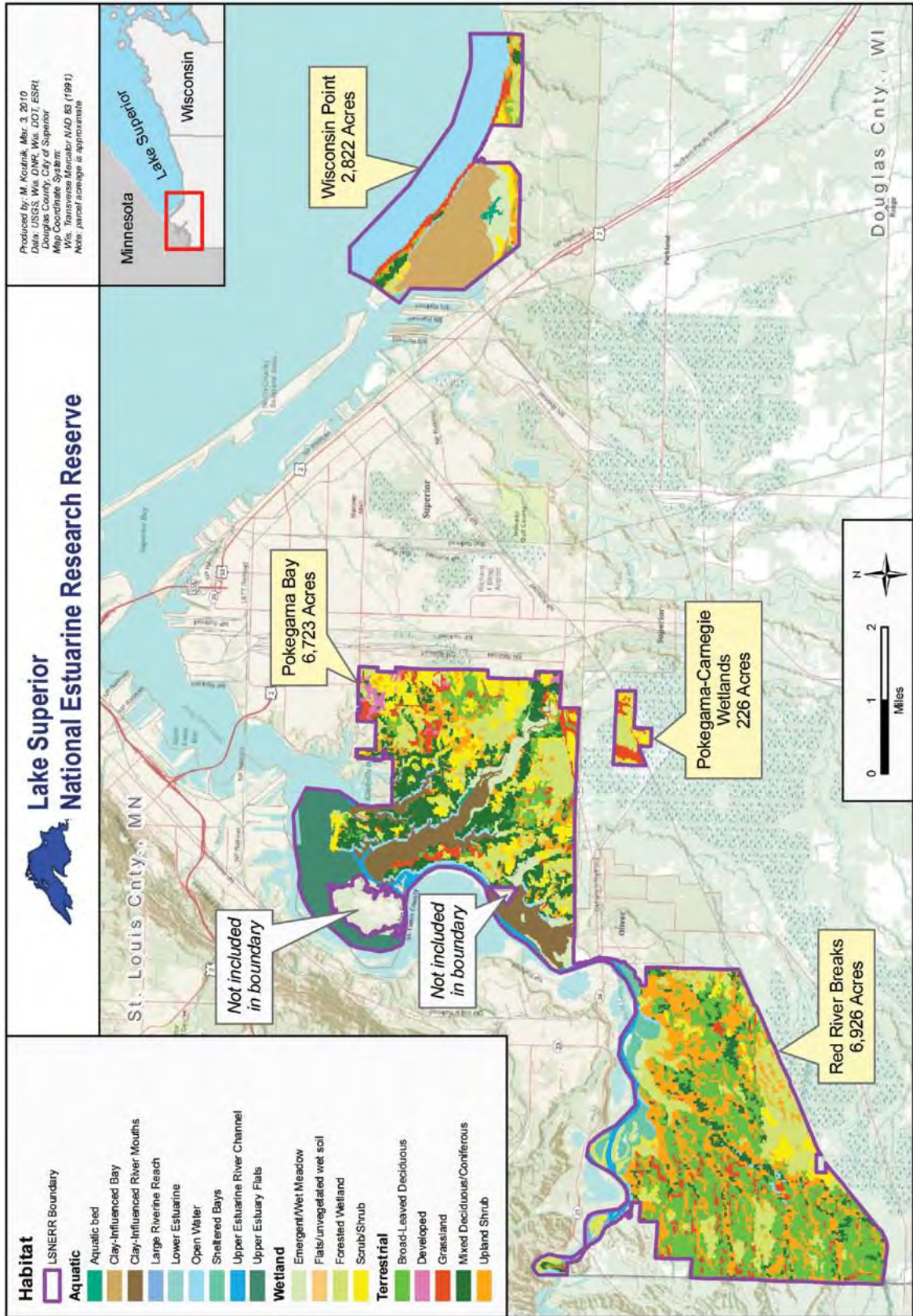


Map 8. Pokegama Bay Component





Map 9. Wisconsin Point Component



Map 10. LSNERR Habitat

# FACILITIES AND CONSTRUCTION

## Introduction

The LSNERR is responsible for providing the facilities necessary to fulfill the Reserve's mission and support its research and education programs. LSNERR facility plans include existing facilities that will be available upon designation for Reserve programming needs, potential interim facilities that may be needed from 2010 to 2015, and longer-term facilities options that will be explored to address future Reserve programming needs. During the first five years of operation, the LSNERR will closely examine long-term facilities needs and will develop a prioritized list of these needs. Facility development will proceed as funds become available based upon that prioritized list of needs. All facilities will comply with federal, state, and local codes and regulations. In addition, any new facilities will be designed and constructed using sustainable building principles and in a manner that minimizes environmental impacts to the extent feasible.

## Standard Reserve Facility Composition

NERRS has identified the facilities necessary to support the basic requirements of a typical Reserve based on a 2004 inventory and assessment of existing Reserves. The Standard Reserve facilities configuration in Table 2 identifies the common facilities and average square footage at existing Reserves and provides a basis for new reserves, such as the LSNERR, to plan for long-term facility needs. The LSNERR will use this information while conducting the long-term facilities assessment.

Administration & Support		Research		Education	
Offices & Meeting space	2,925 ft <sup>2</sup>	Laboratory	2,453 ft <sup>2</sup>	Exhibit & Reception	2,061 ft <sup>2</sup>
Kitchen	376 ft <sup>2</sup>	GIS operations	177 ft <sup>2</sup>	Offices	640 ft <sup>2</sup>
Storage	1,206 ft <sup>2</sup>	Office	789 ft <sup>2</sup>	Classroom	1,321 ft <sup>2</sup>
Restroom	584 ft <sup>2</sup>	Outside Storage	1,317 ft <sup>2</sup>	Storage	253 ft <sup>2</sup>
Maintenance	2,159 ft <sup>2</sup>	Inside Storage	428 ft <sup>2</sup>	Auditorium	1,116 ft <sup>2</sup>
Other	2,321 ft <sup>2</sup>	Dorms	1,846 ft <sup>2</sup>	Library	306 ft <sup>2</sup>
		Other	1,193 ft <sup>2</sup>	Other	1,350 ft <sup>2</sup>

## Existing Facilities

### UW-Superior Lake Superior Research Institute (LSRI)

Upon designation, facilities for the LSNERR will be located at the LSRI on the UWS campus. The analysis of the long-term future facilities needs, referenced in the introduction to this section, will identify facility needs such as office space, laboratories, dorms, classrooms, and equipment storage, which may be necessary for the successful operation of the LSNERR. The analysis will also determine the extent to which the LSNERR continues to be housed at UWS. While it is likely that there may be a longer-term LSNERR physical presence at UWS, decisions have not been made regarding which components of the LSNERR might have a long-term presence at the campus. Plans are in place, however, for locating the LSNERR at UWS upon designation, thereby ensuring that the LSNERR will have an initial facilities base for NERR operations.

LSRI is housed in two buildings: McCaskill and Barstow Halls. McCaskill Hall houses an aquatic taxonomy lab, an aquatic toxicology lab and culture unit, an analytical chemistry lab and storage areas for sampling equipment. Barstow Hall houses additional analytical chemistry labs and an aquatic invasive species lab. Staff offices are located in both buildings. The space available in these two buildings totals approximately 11,000 ft<sup>2</sup>. In addition to this space, classrooms and meeting rooms are available for education and outreach programs in McCaskill and Barstow Halls as well as in the Student Center.

A remodeling project is scheduled to begin on campus in January 2011 and will last approximately 9-12 months. The total amount of space after remodeling will be approximately 7,500 ft<sup>2</sup>. Although the floor space is less than what is currently available, the remodeling project has been specifically designed to integrate LSRI and initial LSNERR operations and will result in a more efficient and effective use of space. Facilities including offices, laboratories, classrooms, meeting rooms, and equipment storage will continue to be available to LSNERR staff during the renovations. Classrooms and meeting rooms for education and outreach programs will continue to be available after the LSNERR has moved into its remodeled space.

LSRI equipment available for use by NERR staff includes a 58-foot research vessel, two 18-foot flat-bottom boats and a 16-foot deep-V hull vessel. Sampling equipment includes sediment dredges and core samplers, plankton nets, electro shockers, fish trawls, gill nets, seines, multi-probe and other portable field meters, D-frame nets, and water quality sampling equipment.



## Superior Municipal Forest (SMF)

The SMF offers a number of amenities that will be used to augment LSNERR education and outreach programming. Those amenities include the following:

- ◆ An interconnected, extensive web of trails providing opportunities to explore the freshwater estuary forested riparian areas (a brochure showing the trail network can be found in Appendix 15)
- ◆ 16 miles of groomed cross-country ski trails
- ◆ A 1.6 mile hard-surfaced trail that runs east/west on the north side of the property
- ◆ Pedestals featuring educational messages and benches located along the trails
- ◆ An outdoor classroom with seating for 60 students
- ◆ Four parking lots that offer capacity for approximately 97 vehicles
- ◆ Canoe access points; city of Superior boat launch facilities are available at nearby sites
- ◆ A world-class archery range

The SMF, with its extensive trail network, outdoor classroom, and other resources, will be an important part of LSNERR educational programming. It provides an established resource for developing programming and engaging LSNERR visitors in experiential learning activities.

## Future Needs

LSNERR will formally identify future facility needs through a planning process. Although this planning process will provide us with the details of what facilities will be needed, it is already known that additional facilities and space will be required in order to provide the necessary space to implement a successful LSNERR program. While those long-term facilities are being planned for, there may be a need for facilities to satisfy space requirements. As the LSNERR grows during its first five years of operation, interim facilities will likely become more necessary, including items like additional storage, expanded laboratory and educational facilities, and increased office space for staff.

Current options which could potentially be used to address facility needs include:

- ◆ Construction on existing LSNERR properties
- ◆ Renovation of UWS campus buildings
- ◆ Acquisition and renovation of appropriate waterfront facilities

# PUBLIC ACCESS

Section 921.13(a) of the NERRS regulations requires planning for public access as part of the Reserve Management Plan. Current public access sites and resources within the Reserve are highlighted in Table 3 for each component of the LSNERR. Public access to the Reserve will be determined by, and compatible with, the public access policy of each of the agencies having title to the lands in question (i.e., UWS, city of Superior, Douglas County and WDNR). Specific polices for access for education, stewardship, research, and monitoring will be determined through coordination with each of the NERR partners and the LSNERR Advisory Board.

Tribal treaty rights, including access to ceded lands for hunting, fishing, and gathering will not be changed or impeded in any way by the LSNERR designation. Band members will continue to exercise their usufructuary rights on LSNERR lands as they did before the LSNERR designation and management and enforcement of treaty resources will continue under tribal law.

## Access to the Freshwater Estuary Outside of the LSNERR Boundaries

The St. Louis River Freshwater Estuary is a large system with various water access points in both Wisconsin and Minnesota. The St. Louis River Alliance, formerly the St. Louis River Citizens Action Committee, produced an *On-The-Water Guide for Canoeists, Kayakers and Boaters*, that details access points on the Minnesota and Wisconsin shores of the Lower St. Louis River. (Appendix 14)

The Northwest Regional Planning Commission is also in the process of completing a South Shore Public Access Study for the Wisconsin shore of Lake Superior. They have produced a Water Trail map that details access points, including areas within the St. Louis River Freshwater Estuary (Map 11). They also developed an interactive on-line Water Trail map and book (<http://maps.nwrpc.com/coastal/public-access-study/new-public-access-site>) with photos and detailed information on types of access, locations, parking and contact information.

Table 3. Types of Public Access and Use by LSNERR Component		Public Access and Use															
		Unimproved Boat Access	Vehicle Access	Fishing	Wildlife Viewing	Archery Range	Deer Hunting - Bow	Deer Hunting - Gun	Small Game Hunting	Waterfowl Hunting	Sand Beach	Ski Trails	Hiking Trails	Bike Trails	Snowmobile Trails	ATV Trails	Access for Ability Impaired
LSNERR Component by Ownership	<b>Red River Breaks</b>																
	WDNR (St. Louis and Red River Streambank Protection Area)						✓	✓	✓	✓							
	Douglas County						✓	✓	✓	✓							
	<b>Pokegama Carnegie Wetlands</b>																
	WDNR (Pokegama-Carnegie SNA)						✓	✓	✓	✓							
	<b>Pokegama Bay</b>																
	City of Superior (Superior Municipal Forest)	✓	✓	✓	✓	✓	✓			✓	✓		✓	✓	✓	✓	✓
	Douglas County (Oliver Marsh)						✓	✓	✓	✓							
	<b>Wisconsin Point</b>																
	City of Superior	✓	✓	✓	✓					✓	✓		✓				✓
	WDNR				✓					✓							
	Douglas County						✓	✓	✓								
	UWS (Nelson Outdoor Laboratory)		✓		✓						✓						



# MANAGEMENT PLAN

## OBJECTIVES & OUTCOMES

The LSNERR Management Plan has been organized using a “goals”, “objectives”, and “outcomes” based planning framework. The LSNERR goals, which were identified earlier in this document, describe the long-term intentions of the Reserve. The Management Plan’s objectives are broad statements that describe what the LSNERR intends to accomplish within the first five years. Each objective has associated outcomes describing the specific impacts, products, or results associated with each of the objectives. The LSNERR Reserve Manager and staff will identify specific actions as they implement the Management Plan using the objectives and outcomes stated below. UWEX and NOAA evaluation tools will be used to measure performance of the LSNERR and its ability to reach target audiences. Appropriate NERRS performance measures will be prepared and submitted to the Estuarine Reserves Division (ERD).

### **Planning Definitions:**

**Goal** – Long-term intentions of the NERR; these can span longer than the five-year time frame

**Objective** – Broad statements describing what the LSNERR intends to accomplish during the first five years

**Outcome** – Specific statements describing the impacts, products, or results associated with each of the objectives

## LSNERR Objectives and Outcomes for 2010 to 2015

**OBJECTIVE 1:** Conduct baseline or foundational research and activities needed for longer-term research and monitoring directed at improving the understanding of the St. Louis River Freshwater Estuary, its interactions with Lake Superior, and the short- and long-term ecological changes within Lake Superior freshwater estuaries and coastal ecosystems.

**Outcome 1A:** The LSNERR will complete an inventory of existing physical, chemical, biological, social, and cultural information for the LSNERR in order to build a foundation to guide future research and education activities.

**Outcome 1B:** The LSNERR will develop a geographic information system (GIS) and associated geospatial-temporal database for the St. Louis River Freshwater Estuary and contributing watershed that incorporates existing and new data from diverse sources. In addition, the LSNERR will begin work on a physical and hydrologic model of the St. Louis River Freshwater Estuary system that will be integrated into the GIS platform.

**Outcome 1C:** Information regarding past, current, and potential watershed land use patterns and impacts will be incorporated into a GIS platform for the St. Louis River Freshwater Estuary and used to identify and prioritize watershed management and research needs.

**Outcome 1D:** The LSNERR will conduct new research and collect data to enable a comprehensive site description and characterization of the St. Louis River Freshwater Estuary and will use this information to prepare and publish baseline habitat maps and a site profile.



**Outcome 1E:** The LSNERR will collaborate with other partners to identify a group of reference sites that cover a range of conditions and are appropriate for long-term study and comparison to the St. Louis River Freshwater Estuary system.

**Outcome 1F:** The LSNERR will establish a monitoring program following SWMP protocols.

**Outcome 1G:** The LSNERR will conduct new research examining the interactions between the St. Louis River Freshwater Estuary and Lake Superior. Areas of research could include, but are not limited to, seiche dynamics, food web processes, invasive species, climate change, and historic changes to the system.

**OBJECTIVE 2:** Improve understanding of the socio-economic aspects of the St. Louis River Freshwater Estuary.

**Outcome 2A:** The LSNERR will develop a research strategy that enables further identification and quantification of the socio-economic benefits and ecosystem services provided by the St. Louis River Freshwater Estuary.

**Outcome 2B:** The LSNERR will produce outreach materials that characterize and describe the socio-economic resources of the St. Louis River Freshwater Estuary.

**OBJECTIVE 3:** Increase public awareness of the ecological and cultural significance of the St. Louis River Freshwater Estuary.

**Outcome 3A:** The LSNERR will establish a publically accessible library of ecological and cultural resources relevant to the LSNERR.

**Outcome 3B:** The LSNERR will identify St. Louis River Freshwater Estuary interpretive needs in collaboration with other environmental education centers in the Lake Superior area and create at least one new interpretive resource.

**Outcome 3C:** The LSNERR will develop web-based educational materials and applications designed to improve public awareness of the ecological and cultural significance of the St. Louis River Freshwater Estuary.

**Outcome 3D:** The LSNERR will work with partners to investigate the potential need for, and benefits of, a Master Naturalist Program at the LSNERR. If deemed appropriate after this analysis, a Master Naturalist Program will be established at the LSNERR.

**OBJECTIVE 4:** Increase educator and student understanding of Great Lakes freshwater estuaries and coastal habitats.

**Outcome 4A:** The LSNERR will work with area educators to develop continuing education programming related to Lake Superior freshwater estuaries and coastal resources. Initial focus areas will include an introduction to Great Lakes freshwater estuaries, aquatic invasive species, and potential climate change impacts.

**Outcome 4B:** The LSNERR will work with partners to conduct a market analysis and needs assessment related to Lake Superior freshwater estuary and coastal resource K-12 curriculum and lessons plans. This process will be conducted in a manner consistent with KEEP.

**Outcome 4C:** Based upon the outcomes of the market analysis and needs assessment, the LSNERR will work with partners to develop appropriate curriculum, distribute the curriculum to schools, and conduct training for educators related to the curriculum.

**Outcome 4D:** The LSNERR will work with the NERRS Graduate Research Fellowship program to develop and sponsor graduate research at the Reserve.

**OBJECTIVE 5:** Provide research-based educational outreach programming and skills training that address the Lake Superior coastal management issues and needs of community leaders and other decision makers.

**Outcome 5A:** The LSNERR will work with partners to conduct a market analysis and needs assessment that identifies the coastal management issues and training needs of coastal decision-makers.

**Outcome 5B:** The LSNERR will develop a NERRS CTP based upon the results of the market analysis and needs assessment.

**OBJECTIVE 6:** Conduct stewardship activities that protect and enhance the ecological health of the LSNERR.

**Outcome 6A:** The LSNERR will work with management partners to conduct an assessment of LSNERR stewardship needs.

**Outcome 6B:** The LSNERR will design and begin implementation of applied research, monitoring, and management programs that address stewardship needs of the St. Louis River Freshwater Estuary, riparian habitats, and watershed.

**Outcome 6C:** The LSNERR will work with partners to identify potential needs related to toxins and contaminants and their impacts on the St. Louis River Freshwater Estuary and will develop a strategy to address those needs.

**OBJECTIVE 7:** Incorporate citizen-science programs and volunteer monitoring into LSNERR research and monitoring activities.

**Outcome 7A:** The LSNERR will establish citizen science and volunteer monitoring programs to address relevant issues.

**Outcome 7B:** The LSNERR will explore the feasibility of establishing a Citizen Research Center at the LSNERR.

**Outcome 7C:** The LSNERR will explore the feasibility of establishing a formal, connected network of Wisconsin freshwater estuary sites. Partnering sites would be included in coordinated outreach, applied research, and monitoring programs designed to encourage and foster local stewardship of freshwater estuary resources at the community level.

## Program Integration

As mentioned previously, the LSNERR will emphasize integration of research, education, and stewardship programming. As a result, the objectives and outcomes for the LSNERR often incorporate multiple program areas and are not discretely organized by program. The integration of each of the objectives across research, education, and stewardship programming areas is shown in Table 4.

Table 4. Integration of LSNERR Management Plan Objectives		NERR Program Sectors			Partner Plan Correlation		
		Research	Education	Stewardship	WI Great Lakes Strategies <sup>xxi</sup>	Lower St. Louis River Habitat Plan <sup>xx</sup>	Freshwater Estuary Needs Assessment <sup>xxii</sup>
P = Primary Programming Area S = Secondary Programming Area							
OBJECTIVES	1 Conduct baseline or foundational research and activities needed for longer-term research and monitoring directed at improving the understanding of the St. Louis River Freshwater Estuary, its interactions with Lake Superior, and the short and long-term ecological changes within Lake Superior freshwater estuaries and coastal ecosystems	P	S	S	✓	✓	✓
	2 Improve understanding of the socio-economic aspects of the St. Louis River Freshwater Estuary	P	P	S	✓	✓	✓
	3 Increase public awareness of the ecological and cultural significance of the St. Louis River Freshwater Estuary		P	S	✓	✓	✓
	4 Increase educator and student understanding of Great Lakes freshwater estuaries and coastal habitats		P	S			✓
	5 Provide research-based educational outreach programming and skills training that address the Lake Superior coastal management issues and needs of community leaders and other decision makers		P	P	✓	✓	✓
	6 Conduct stewardship activities that protect and enhance the ecological health of the LSNERR			P	✓	✓	✓
	7 Incorporate citizen-science programs and volunteer monitoring into LSNERR research and monitoring activities	P	P	S	✓	✓	✓

## Coastal Management Issues

The LSNERR will address important coastal management issues and examine key coastal ecosystem processes that affect the St. Louis River Freshwater Estuary, as well as other Great Lake freshwater estuaries. Important issues and processes that the LSNERR should address were identified by the Advisory Committees during the management planning process and include the following:

SEICHE DYNAMICS	FOOD WEB PROCESSES	INVASIVE SPECIES	CLIMATE CHANGE
LAND USE CHANGES	ECOSYSTEM SERVICES	TOXINS & CONTAMINANTS	

# RESOURCE PROTECTION, RESTORATION & MANIPULATION

## Introduction

The LSNERR consists of existing public property, which has an established system of authorities and management plans to ensure the protection of estuarine and watershed resources. No new authorities are proposed in this plan.

This section describes the existing protection, restoration, and manipulations of estuarine resources in the St. Louis River Freshwater Estuary. Specifically, this section satisfies the requirements of NERRS regulations 15CFR 921.13(a)(8-10).

## Resource Protection Plan

The land within the Reserve boundaries is entirely publicly owned, and is protected by authorities specific to each of the landowners. These authorities provide the required long-term protection of the Reserve's estuarine resources necessary to ensure a stable environment for research. The water area within the boundaries is protected by state and local laws governing recreational and commercial uses and public access. The Lake Superior Chippewa retain treaty rights in their ceded territories. Specifically, these are off-reservation hunting, fishing and gathering rights in lands the Anishanabe ceded to the United States in the Treaties of 1836, 1837, 1842 and 1854. These rights, which the Anishanabe have always had, were reserved by the bands and guaranteed by the United States to ensure that the tribes could meet subsistence, economic, cultural, spiritual and medicinal needs. None of these uses are inconsistent with the purposes of the Reserve, and can generally continue without modification. Surveillance and enforcement is the responsibility of the respective landowners, as well as the community law enforcement departments of the city of Superior, Douglas County, GLIFWC, UWS, and the WDNR. These agencies will continue to be responsible for enforcement in their respective jurisdictions.



## Specific Landowner Policies and Authorities

### CITY OF SUPERIOR

Since the SMF's creation in 1949, it has evolved to become an important ecologic, recreational, and open space natural resource for the city of Superior, and the region as a whole. In 1992, the City passed a referendum creating the Municipal Forest Protection Charter Ordinance:

*“The intent of this ordinance is to set aside and preserve for recreational and education activities and facilities, open for the participation and enjoyment of all citizens, the land and natural resources identified as the Superior Municipal Forest. To protect this goal it is the intent of the ordinance to exclude conflicting activities and uses. No person shall engage in any of the following activities within the Municipal Forest:*

- a) Depositing any debris, garbage, rock, sand, soil or other materials;*
- b) Moving or removing sand, soil, clay, rock, or gravel;*
- c) Construct any structure for use industrially, commercially, or as a residential dwelling;*
- d) Except that these prohibitions shall not be construed to prohibit the use or maintenance of any existing roads and trails for public recreational purposes.”*

Following the creation of the Charter Ordinance, the SMF Committee prepared a management plan to guide the preservation of this unique public resource. A system of paved and unpaved trails has been developed to accommodate public access to the forest. The paved Millennium Trail is 1.6 miles long and is designed for bicycling, inline skating and walking. It is also wheelchair accessible. An outdoor classroom is located along the Millennium Trail for use by local schools and other groups for outdoor and environmental education programs. The unpaved trail system includes 16 miles of groomed cross-country ski trails and more than 12 miles of snowmobile, winter all-terrain vehicle (ATV) and ski trails, including a shared trail for snowmobiling, ATV riding and skijoring (skiing with dogs). City permits are required for skiing and skijoring. Summer ATV use is only allowed on McClure's Landing Road. Unimproved boat access to Pokegama Bay is provided at a site along Billings Drive. Please see Appendix 15 for a map of the SMF trail system. Additional allowable uses of the SMF include archery target practice within the designated archery course, and archery hunting during the state archery hunting season. A state license and City permit are required for archery hunting.<sup>xxxii</sup> Waterfowl hunting during state hunting seasons is allowed within the waters of the St. Louis River south of the Arrowhead Pier boat launch and within the City.<sup>xxxiii</sup>

The City manages Wisconsin Point as a recreational area of the City parks system. Limited daytime use of the park is permitted, as well as nighttime fishing for smelt (during which time camping is also allowed).<sup>xxxiv</sup> Waterfowl hunting is allowed from the waters of Lake Superior and Allouez Bay, which surround Wisconsin Point. Archery hunting is allowed during the state archery hunting season. A state license and City permit are required for archery hunting.<sup>xxxv</sup> Other allowable uses include waterfowl hunting within the waters of Allouez Bay and Lake Superior during state hunting seasons.<sup>xxxvi</sup> Boating is regulated by state laws and by additional City ordinances that establish speed restrictions on Allouez Bay.<sup>xxxvii</sup>

## DOUGLAS COUNTY

Oliver Marsh is managed by the Douglas County Forestry Department. It is designated as “special-use lands” under the state’s County Forest Law, which recognizes the value of the land for conservation, rather than timber production.<sup>xxxviii</sup> The Douglas County Forest Comprehensive Land-Use Plan further describes the management objectives for the class of properties called “Special Management Areas”, which includes Oliver Marsh.<sup>xxxix</sup> Public access and use of Oliver Marsh, as well as additional Douglas County lands adjacent to Wisconsin Point and the St. Louis and Red River Streambank Protection Area, are regulated by Douglas County ordinances.<sup>xi</sup>

Douglas County maintains a system of winter snowmobile and ATV trails, and summer ATV trails (Appendix 16). Winter trails are maintained within the SMF and along the southern boundary of the St. Louis and Red River Streambank Protection Area.

## WISCONSIN DEPARTMENT OF NATURAL RESOURCES

### State Natural Areas (SNAs)

Two portions of the Reserve are designated SNAs. These SNAs protect outstanding examples of native natural communities, and harbor natural features substantially similar to those that existed prior to European settlement.<sup>xli</sup> Designation confers a significant level of land protection through state statutes, administrative rules, and guidelines. A higher level of protection is afforded by legal dedication of SNAs through Articles of Dedication, a special kind of perpetual conservation easement.

Laws establishing the SNA Program are found in Wisconsin Statutes, Sections 23.27, 23.28, and 23.29. Rules governing the use of SNAs are found in Wisconsin Administrative Code, Chapter NR 45.

The WDNR states that, *“Public use of SNAs is channeled in two directions: scientific research and compatible recreation. Natural areas serve as excellent outdoor laboratories for environmental education and formal research on natural communities and their component species. A permit issued by the DNR is required to conduct studies or collect specimens on SNAs. Natural areas are not appropriate for intensive recreation such as camping or mountain biking, but they can accommodate low-impact activities such as hiking, bird watching, and nature study. As such, many SNAs contain few or no amenities such as parking areas, restrooms, or maintained trails.”*<sup>xlii</sup>

The Dwight’s Point and Pokegama Wetlands SNA is located entirely within the SMF. It is a designated SNA established through agreement (Appendix 17) between the WDNR and city of Superior. A management plan (Appendix 18) describes the allowable and prohibited uses within the SNA, and the goals for management and restoration of natural plant and animal communities.

The Pokegama Carnegie Wetlands SNA is located south of the SMF and is composed of two separate components. The Reserve boundaries include the smaller, northern component, which is owned and managed by the WDNR. This property is subject to a pipeline easement and is crossed by power lines along utility easements. It is a designated SNA with the following allowable and prohibited uses.<sup>xliii</sup>

Allowable activities are:

- ◆ Hiking
- ◆ Hunting
- ◆ Fishing
- ◆ Trapping
- ◆ Skiing

Prohibited activities are:

- ◆ Horseback riding
- ◆ Rock climbing
- ◆ Vehicles, including bicycles, ATVs, aircraft, and snowmobiles except on trails and roadways designated for their use
- ◆ Collecting of plants (including fruits, nuts, or edible plant parts), animals, fungi, rocks, minerals, fossils, archaeological artifacts, soil, downed wood, or any other natural material, alive or dead



### **St. Louis and Red River Streambank Protection Area**

The St. Louis and Red River Streambank Protection Area was purchased to prevent erosion and protect the St. Louis River walleye spawning area based on a St. Louis and Red River Streambank Protection Area Feasibility Study (Appendix 19). The property is managed consistent with these purposes. There are no developed public access facilities on this property, although it is open for general low-impact recreational activities. The Streambank Protection Program is part of the Knowles-Nelson Stewardship Program for land acquisition. The restrictions on the allowable uses of this land include:<sup>xliv</sup>

- ◆ Alteration of vegetative cover or other natural features unless the department specifically approves the alteration.
- ◆ Planting or production of agricultural crops unless the department specifically approves the planting or production for wildlife management purposes.
- ◆ Mowing, grazing or spraying the land with chemicals, except as necessary to comply with noxious weed control laws or to control pests on an emergency basis when such control is necessary to protect public health or unless the department specifically approves the mowing, grazing, or spraying.

The WDNR also regulates and enforces the public trust doctrine in the water areas of the Reserve.<sup>xlv</sup> Both Lake Superior and the St. Louis River are subject to the protections of the public trust doctrine as outlined in the State Constitution. The water areas of the Reserve will be managed under this authority.

## UNIVERSITY OF WISCONSIN – SUPERIOR

The Nelson Outdoor Laboratory property is owned by UWS and managed as an instructional and research area for the Department of Natural Sciences. An unimproved public access site located at the mouth of Dutchman Creek is used for swimming and beach access, and can be used as a canoe or kayak launch. Activities at the Nelson Outdoor Laboratory are governed by local ordinances and state administrative rules<sup>xlvi</sup> as well as UWS campus regulations.<sup>xlvi</sup>

### Existing Resource Restoration Activities

There are few resource restoration activities within the Reserve boundaries. The SMF contains twelve sites identified as locations of wetland creation or restoration projects to mitigate development under the city of Superior Special Area Management Plan (SAMP) that expired in 2008.<sup>xlvi</sup> It is unclear how many of these creations/restorations were implemented. The current SAMP does not identify any restoration or mitigation sites within the Reserve boundaries.<sup>xlvi</sup>

The St. Louis River watershed includes numerous resource restoration activities. The St. Louis River is identified by the International Joint Commission as an Area of Concern, with a Remedial Action Plan for restoring targeted beneficial uses.<sup>1</sup> The Lower St. Louis River Habitat Plan, which establishes goals and objectives that “protect, enhance, and restore ecological functions and maximize biodiversity” of the lower St. Louis River,<sup>li</sup> has informed many of the Reserve management objectives, as described in the previous section.

### Existing Resource Manipulations

Existing resource manipulations largely consist of utility facilities and corridors, and activities associated with the Port of Duluth-Superior.

#### **Utility Corridors**

Buried petroleum product pipelines cross the St. Louis River in the vicinity of the Village of Oliver, and are located in corridors within the St. Louis and Red River Streambank Protection Area and the Pokegama Carnegie SNA. These pipelines are operated by Enbridge Energy Partners. An electricity transmission line corridor crosses the Pokegama Carnegie SNA.

#### **Railroads**

A short segment of Burlington Northern railroad crosses the southwest corner of the St. Louis and Red River Streambank Protection Area. Many other railroads and railyard facilities are located in the vicinity of the Reserve, due to the conglomeration of transportation and shipping facilities at the Port of Duluth-Superior.



**Port of Duluth-Superior**

The lower St. Louis River Freshwater Estuary has been highly modified from its pre-settlement form and function through the development of extensive port facilities and harbor improvements. The Port of Duluth-Superior is the largest and busiest port on the Great Lakes.<sup>lii</sup> The U.S. Army Corps of Engineers (USACE) maintains a navigation channel that extends through the Superior Entry at the end of Wisconsin Point, through the harbor area, and upriver to Spirit Lake. The main channel is maintained to 27 feet to accommodate the largest cargo ships. Dredging has an obvious effect on the lower estuary, but this is limited mostly to the commercial and industrial areas of the port. The proposed Reserve boundaries are located upriver and outside the USACE project area.

The 2003 Superior Port Land Use Plan describes the current and future land uses for the port facilities within the city of Superior. The plan emphasizes the importance of protecting natural habitat areas within the St. Louis River watershed and focuses development in areas previously developed for maritime industries and in areas closest to the harbor entrances.<sup>liii</sup>

Indirect impacts on the estuarine resources related to the port activities include aquatic invasive species, introduced and spread through water ballast in ships. Of the 87 non-native species introduced to Lake Superior since 1883, 35% arrived in ballast water. Significant non-native, invasive species include Eurasian ruffe, round goby, zebra mussel, quagga mussel, and spiny water flea.<sup>liv</sup>



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Code of Federal Regulations

**Title 15, Volume 3, Revised as of January 1, 2003**  
**From the U.S. Government Printing Office via GPO Access**  
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TITLE 15--COMMERCE AND FOREIGN TRADE

CHAPTER IX--NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION,  
DEPARTMENT OF COMMERCE

PART 921--NATIONAL ESTUARINE RESEARCH RESERVE SYSTEM  
REGULATIONS

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Authority: Section 315 of the Coastal Zone Management Act, as amended (16 U.S.C. 1461).

*Source: 58 FR 38215, July 15, 1993, unless otherwise noted.*

**Sec. 921.1 Mission, goals and general provisions.**

(a) The mission of the National Estuarine Research Reserve Program is the establishment and management, through Federal-state cooperation, of a national system (National Estuarine Research Reserve System or System) of estuarine research reserves (National Estuarine Research Reserves or Reserves) representative of the various regions and estuarine types in the United States. National Estuarine Research Reserves are established to provide opportunities for long-term research, education, and interpretation.

(b) The goals of the Program are to:

1. Ensure a stable environment for research through long-term protection of National Estuarine Research Reserve resources;
2. Address coastal management issues identified as significant through coordinated estuarine research within the System;
3. Enhance public awareness and understanding of estuarine areas and provide suitable opportunities for public education and interpretation;
4. Promote Federal, state, public and private use of one or more Reserves within the System when such entities conduct estuarine research; and
5. Conduct and coordinate estuarine research within the System, gathering and making available information necessary for improved understanding and management of estuarine areas.

(c) National Estuarine Research Reserves shall be open to the public to the extent permitted under state and Federal law. Multiple uses are allowed to the degree compatible with each Reserve's overall purpose as provided in the management plan (see Sec. 921.13) and consistent with paragraphs (a) and (b) of this section. Use levels are set by the state where the Reserve is located and analyzed in the management plan. The Reserve management plan shall describe the uses and establish priorities among these uses. The plan shall identify uses requiring a state permit, as well as areas where uses are encouraged or prohibited. Consistent with resource protection and research objectives, public access and use may be restricted to certain areas or components within a Reserve.

(d) Habitat manipulation for research purposes is allowed consistent with the following limitations. Manipulative research activities must be specified in the management plan, be consistent with the mission and goals of the program (see paragraphs (a) and (b) of this section) and the goals and objectives set forth in the Reserve's management plan, and be limited in nature and extent to the minimum manipulative activity necessary to accomplish the stated research objective. Manipulative research activities with a significant or long-term impact on Reserve resources require the prior approval of the state and the National Oceanic and Atmospheric Administration (NOAA). Manipulative research activities which can reasonably be expected to have a significant adverse impact on the estuarine resources and habitat of a Reserve, such that the activities themselves or their resulting short- and long-term consequences compromise the representative character and integrity of a Reserve, are prohibited. Habitat manipulation for resource management purposes is prohibited except as specifically approved by NOAA as: (1) A



restoration activity consistent with paragraph (e) of this section; or (2) an activity necessary for the protection of public health or the preservation of other sensitive resources which have been listed or are eligible for protection under relevant Federal or state authority (e.g., threatened/endangered species or significant historical or cultural resources) or if the manipulative activity is a long-term pre-existing use (i.e., has occurred prior to designation) occurring in a buffer area. If habitat manipulation is determined to be necessary for the protection of public health, the preservation of sensitive resources, or if the manipulation is a long-term pre-existing use in a buffer area, then these activities shall be specified in the Reserve management plan in accordance with Sec. 921.13(a)(10) and shall be limited to the reasonable alternative which has the least adverse and shortest term impact on the representative and ecological integrity of the Reserve.

(e) Under the Act an area may be designated as an estuarine Reserve only if the area is a representative estuarine ecosystem that is suitable for long-term research. Many estuarine areas have undergone some ecological change as a result of human activities (e.g., hydrological changes, intentional/unintentional species composition changes--introduced and exotic species). In those areas proposed or designated as National Estuarine Research Reserves, such changes may have diminished the representative character and integrity of the site. Although restoration of degraded areas is not a primary purpose of the System, such activities may be permitted to improve the representative character and integrity of a Reserve. Restoration activities must be carefully planned and approved by NOAA through the Reserve management plan. Historical research may be necessary to determine the "natural" representative state of an estuarine area (i.e., an estuarine ecosystem minimally affected by human activity or influence). Frequently, restoration of a degraded estuarine area will provide an excellent opportunity for management oriented research.

(f) NOAA may provide financial assistance to coastal states, not to exceed, per Reserve, 50 percent of all actual costs or \$5 million whichever amount is less, to assist in the acquisition of land and waters, or interests therein. NOAA may provide financial assistance to coastal states not to exceed 70 percent of all actual costs for the management and operation of, the development and construction of facilities, and the conduct of educational or interpretive activities concerning Reserves (see subpart I). NOAA may provide financial assistance to any coastal state or public or private person, not to exceed 70 percent of all actual costs, to support research and monitoring within a Reserve. Notwithstanding any financial assistance limits established by this Part, when financial assistance is provided from amounts recovered as a result of damage to natural resources located in the coastal zone, such assistance may be used to pay 100 percent of all actual costs of activities carried out with this assistance, as long as such funds are available. Predesignation, acquisition and development, operation and management, special research and monitoring, and special education and interpretation awards are available under the National Estuarine Reserve Program. Predesignation awards are for site selection/feasibility, draft management plan preparation and conduct of basic characterization studies. Acquisition and development awards are intended primarily for acquisition of interests in land, facility construction and to develop and/or upgrade research, monitoring and education programs. Operation and management awards

provide funds to assist in implementing, operating and managing the administrative, and basic research, monitoring and education programs, outlined in the Reserve management plan. Special research and monitoring awards provide funds to conduct estuarine research and monitoring projects with the System. Special educational and interpretive awards provide funds to conduct estuarine educational and interpretive projects within the System.

(g) Lands already in protected status managed by other Federal agencies, state or local governments, or private organizations may be included within National Estuarine Research Reserves only if the managing entity commits to long-term management consistent with paragraphs (d) and (e) of this section in the Reserve management plan. Federal lands already in protected status may not comprise a majority of the key land and water areas of a Reserve (see Sec. 921.11(c)(3)).

(h) To assist the states in carrying out the Program's goals in an effective manner, NOAA will coordinate a research and education information exchange throughout the National Estuarine Research Reserve System. As part of this role, NOAA will ensure that information and ideas from one Reserve are made available to others in the System. The network will enable Reserves to exchange information and research data with each other, with universities engaged in estuarine research, and with Federal, state, and local agencies. NOAA's objective is a system- wide program of research and monitoring capable of addressing the management issues that affect long-term productivity of our Nation's estuaries.

*[58 FR 38215, July 15, 1993, as amended at 62 FR 12540, Mar. 17, 1997; 63 FR 26717, May 14, 1998].*

## **Sec. 921.2 Definitions**

(a) Act means the Coastal Zone Management Act of 1972, as amended, 16 U.S.C. 1451 et seq.

(b) Assistant Administrator means the Assistant Administrator for Ocean Services and Coastal Zone Management or delegee.

(c) Coastal state means a state of the United States, in or bordering on, the Atlantic, Pacific, or Arctic Ocean, the Gulf of Mexico, Long Island Sound, or one or more of the Great Lakes. For the purposes of these regulations the term also includes Puerto Rico, the Virgin Islands, Guam, the Commonwealth of the Northern Marianas Islands, the Trust Territories of the Pacific Islands, and American Samoa (see 16 U.S.C. 1453(4)).

(d) State agency means an instrumentality of a coastal state to whom the coastal state has delegated the authority and responsibility for the creation and/or management/operation of a National Estuarine Research Reserve. Factors indicative of this authority may include the power to receive and expend funds on behalf of the Reserve, acquire and sell or convey real and personal property interests, adopt rules for the protection of the Reserve, enforce rules applicable to the Reserve, or develop and implement research and education programs for the reserve. For the purposes of these regulations, the terms ``coastal state" and ``State agency" shall be synonymous.

(e) Estuary means that part of a river or stream or other body of water having unimpaired connection with the open sea, where the sea water is measurably diluted with fresh water derived from land drainage. The term also includes estuary-type areas with measurable freshwater influence and having unimpaired connections with the open sea, and estuary-type areas of the Great Lakes and their connecting waters (see 16 U.S.C. 1453(7)).

(f) National Estuarine Research Reserve means an area that is a representative estuarine ecosystem suitable for long-term research, which may include all of the key land and water portion of an estuary, and adjacent transitional areas and uplands constituting to the extent feasible a natural unit, and which is set aside as a natural field laboratory to provide long-term opportunities for research, education, and interpretation on the ecological relationships within the area (see 16 U.S.C. 1453(8)) and meets the requirements of 16 U.S.C. 1461(b). This includes those areas designated as National Estuarine Sanctuaries or Reserves under section 315 of the Act prior to enactment of the Coastal Zone Act Reauthorization Amendments of 1990 and each area subsequently designated as a National Estuarine Research Reserve.

**Sec. 921.3 National Estuarine Research Reserve System Biogeographic Classification Scheme and Estuarine Typologies.**

(a) National Estuarine Research Reserves are chosen to reflect regional differences and to include a variety of ecosystem types. A biogeographic classification scheme based on regional variations in the nation's coastal zone has been developed. The biogeographic classification scheme is used to ensure that the National Estuarine Research Reserve System includes at least one site from each region. The estuarine typology system is utilized to ensure that sites in the System reflect the wide range of estuarine types within the United States.

(b) The biogeographic classification scheme, presented in appendix I, contains 29 regions. Figure 1 graphically depicts the biogeographic regions of the United States.

(c) The typology system is presented in appendix II..

**Sec. 921.4 Relationship to other provisions of the Coastal Zone Management Act, and to the Marine Protection, Research and Sanctuaries Act.**

(a) The National Estuarine Research Reserve System is intended to provide information to state agencies and other entities involved in addressing coastal management issues. Any coastal state, including those that do not have approved coastal management programs under section 306 of the Act, is eligible for an award under the National Estuarine Research Reserve Program (see Sec. 921.2(c)).

(b) For purposes of consistency review by states with a federally approved coastal management program, the designation of a National Estuarine Research Reserve is deemed to be a Federal activity, which, if directly affecting the state's coastal zone, must be undertaken in a manner consistent to the maximum extent practicable with the approved state coastal management program as provided by section 1456(c)(1) of the Act, and implementing regulations at 15 CFR part 930, subpart C. In accordance with section 1456(c)(1) of the Act and the applicable regulations NOAA will be responsible for certifying that designation of the Reserve is consistent with the state's approved coastal management program. The state must concur with or object to the certification. It is recommended that the lead state agency for Reserve designation consult, at the earliest practicable time, with the appropriate state officials concerning the consistency of a proposed National Estuarine Research Reserve.

(c) The National Estuarine Research Reserve Program will be administered in close coordination with the National Marine Sanctuary Program (Title III of the Marine Protection, Research and Sanctuaries Act, as amended, 16 U.S.C. 1431-1445), also administered by NOAA. Title III authorizes the Secretary of Commerce to designate discrete areas of the marine environment as National Marine Sanctuaries to protect or restore such areas for their conservation, recreational, ecological, historical, research,

educational or esthetic values. National Marine Sanctuaries and Estuarine Research Reserves may not overlap, but may be adjacent.

### **Sec. 921.10 General.**

(a) A coastal state may apply for Federal financial assistance for the purpose of site selection, preparation of documents specified in Sec. 921.13 (draft management plan (DMP) and environmental impact statement (EIS)), and the conduct of limited basic characterization studies. The total Federal share of this assistance may not exceed \$100,000. Federal financial assistance for preacquisition activities under Sec. 921.11 and Sec. 921.12 is subject to the total \$5 million for which each Reserve is eligible for land acquisition. Notwithstanding the above, when financial assistance is provided from amounts recovered as a result of damage to natural resources located in the coastal zone, such assistance may be used to pay 100 percent of all actual costs of activities carried out with this assistance, as long as such funds are available. In the case of a biogeographic region (see appendix I) shared by two or more coastal states, each state is eligible for Federal financial assistance to establish a separate National Estuarine Research Reserve within their respective portion of the shared biogeographic region. Each separate National Estuarine Research Reserve is eligible for the full complement of funding. Financial assistance application procedures are specified in subpart I.

(b) In developing a Reserve program, a state may choose to develop a multiple-site Reserve reflecting a diversity of habitats in a single biogeographic region. A multiple-site Reserve allows the state to develop complementary research and educational programs within the individual components of its multi-site Reserve. Multiple-site Reserves are treated as one Reserve in terms of financial assistance and development of an overall management framework and plan. Each individual site of a proposed multiple-site Reserve shall be evaluated both separately under Sec. 921.11(c) and collectively as part of the site selection process. A coastal state may propose to establish a multiple-site Reserve at the time of the initial site selection, or at any point in the development or operation of the Reserve. If the state decides to develop a multiple-site National Estuarine Research Reserve after the initial acquisition and development award is made for a single site, the proposal is subject to the requirements set forth in Sec. 921.33(b). However, a state may not propose to add one or more sites to an already designated Reserve if the operation and management of such Reserve has been found deficient and uncorrected or the research conducted is not consistent with the Estuarine Research Guidelines referenced in Sec. 921.51. In addition, Federal funds for the acquisition of a multiple-site Reserve remain limited to \$5,000,000 (see Sec. 921.20). The funding for operation of a multiple-site Reserve is limited to the maximum allowed for any one Reserve per year (see Sec. 921.32(c)) and preacquisition funds are limited to \$100,000 per Reserve. Notwithstanding the above, when financial assistance is provided from amounts recovered as a result of damage to natural resources located in the coastal zone, such assistance may be used to pay 100 percent of all actual costs of activities carrier out with this assistance, as long as such funds are available.

*[58 FR 38215, July 15, 1993, as amended at 63 FR 26717, May 14, 1998].*

**Sec. 921.11 Site selection and feasibility.**

(a) A coastal state may use Federal funds to establish and implement a site selection process which is approved by NOAA.

(b) In addition to the requirements set forth in subpart I, a request for Federal funds for site selection must contain the following programmatic information:

1. A description of the proposed site selection process and how it will be implemented in conformance with the biogeographic classification scheme and typology (Sec. 921.3);
2. An identification of the site selection agency and the potential management agency; and
3. A description of how public participation will be incorporated into the process (see Sec. 921.11(d)).

(c) As part of the site selection process, the state and NOAA shall evaluate and select the final site(s). NOAA has final authority in approving such sites. Site selection shall be guided by the following principles:

1. The site's contribution to the biogeographical and typological balance of the National Estuarine Research Reserve System. NOAA will give priority consideration to proposals to establish Reserves in biogeographic regions or subregions or incorporating types that are not represented in the system. (see the biogeographic classification scheme and typology set forth in Sec. 921.3 and appendices I and II);
2. The site's ecological characteristics, including its biological productivity, diversity of flora and fauna, and capacity to attract a broad range of research and educational interests. The proposed site must be a representative estuarine ecosystem and should, to the maximum extent possible, be an estuarine ecosystem minimally affected by human activity or influence (see Sec. 921.1(e)).
3. Assurance that the site's boundaries encompass an adequate portion of the key land and water areas of the natural system to approximate an ecological unit and to ensure effective conservation. Boundary size will vary greatly depending on the nature of the ecosystem. Reserve boundaries must encompass the area within which adequate control has or will be established by the managing entity over human activities occurring within the Reserve. Generally, Reserve boundaries will encompass two areas: Key land and water areas (or "core area") and a buffer zone. Key land and water areas and a buffer zone will likely require significantly different levels of control (see Sec. 921.13(a)(7)). The term "key land and water areas" refers to that core area within the Reserve that is so vital to the functioning of the estuarine ecosystem that it must be under a level of control sufficient to

- ensure the long-term viability of the Reserve for research on natural processes. Key land and water areas, which comprise the core area, are those ecological units of a natural estuarine system which preserve, for research purposes, a full range of significant physical, chemical and biological factors contributing to the diversity of fauna, flora and natural processes occurring within the estuary. The determination of which land and water areas are "key" to a particular Reserve must be based on specific scientific knowledge of the area. A basic principle to follow when deciding upon key land and water areas is that they should encompass resources representative of the total ecosystem, and which if compromised could endanger the research objectives of the Reserve. The term buffer zone refers to an area adjacent to or surrounding key land and water areas and essential to their integrity. Buffer zones protect the core area and provide additional protection for estuarine-dependent species, including those that are rare or endangered. When determined appropriate by the state and approved by NOAA, the buffer zone may also include an area necessary for facilities required for research and interpretation. Additionally, buffer zones should be established sufficient to accommodate a shift of the core area as a result of biological, ecological or geomorphological change which reasonably could be expected to occur. National Estuarine Research Reserves may include existing Federal or state lands already in a protected status where mutual benefit can be enhanced. However, NOAA will not approve a site for potential National Estuarine Research Reserve status that is dependent primarily upon the inclusion of currently protected Federal lands in order to meet the requirements for Reserve status (such as key land and water areas). Such lands generally will be included within a Reserve to serve as a buffer or for other ancillary purposes; and may be included, subject to NOAA approval, as a limited portion of the core area;
4. The site's suitability for long-term estuarine research, including ecological factors and proximity to existing research facilities and educational institutions;
  5. The site's compatibility with existing and potential land and water uses in contiguous areas as well as approved coastal and estuarine management plans; and
  6. The site's importance to education and interpretive efforts, consistent with the need for continued protection of the natural system.

(d) Early in the site selection process the state must seek the views of affected landowners, local governments, other state and Federal agencies and other parties who are interested in the area(s) being considered for selection as a potential National Estuarine Research Reserve. After the local government(s) and affected landowner(s) have been contacted, at least one public meeting shall be held in the vicinity of the proposed site. Notice of such a meeting, including the time, place, and relevant subject matter, shall be announced by the state through the area's principal newspaper at least 15 days prior to the date of the meeting and by NOAA in the Federal Register.

(e) A state request for NOAA approval of a proposed site (or sites in the case of a multi-site Reserve) must contain a description of the proposed site(s) in relationship to each of the site selection principals (Sec. 921.11(c)) and the following information:

1. An analysis of the proposed site(s) based on the biogeographical scheme/typology discussed in Sec. 921.3 and set forth in appendices I and II;
2. A description of the proposed site(s) and its (their) major resources, including location, proposed boundaries, and adjacent land uses. Maps are required;
3. A description of the public participation process used by the state to solicit the views of interested parties, a summary of comments, and, if interstate issues are involved, documentation that the Governor(s) of the other affected state(s) has been contacted. Copies of all correspondence, including contact letters to all affected landowners must be appended;
4. A list of all sites considered and a brief statement of the reasons why a site was not preferred; and
5. A nomination of the proposed site(s) for designation as a National Estuarine Research Reserve by the Governor of the coastal state in which the state is located.

(f) A state proposing to reactivate an inactive site, previously approved by NOAA for development as an Estuarine Sanctuary or Reserve, may apply for those funds remaining, if any, provided for site selection and feasibility (Sec. 921.11a)) to determine the feasibility of reactivation. This feasibility study must comply with the requirements set forth in Sec. 921.11 (c) through (e).

#### **Sec. 921.12 Post site selection.**

(a) At the time of the coastal state's request for NOAA approval of a proposed site, the state may submit a request for funds to develop the draft management plan and for preparation of the EIS. At this time, the state may also submit a request for the remainder of the predesignation funds to perform a limited basic characterization of the physical, chemical and biological characteristics of the site approved by NOAA necessary for providing EIS information to NOAA. The state's request for these post site selection funds must be accompanied by the information specified in subpart I and, for draft management plan development and EIS information collection, the following programmatic information:

1. A draft management plan outline (see Sec. 921.13(a) below); and
2. An outline of a draft memorandum of understanding (MOU) between the state and NOAA detailing the Federal-state role in Reserve management during the initial period of Federal funding and expressing the state's long-term commitment to operate and manage the Reserve.

(b) The state is eligible to use the funds referenced in Sec. 921.12(a) after the proposed site is approved by NOAA under the terms of Sec. 921.11.



### **Sec. 921.13 Management plan and environmental impact statement development.**

(a) After NOAA approves the state's proposed site and application for funds submitted pursuant to Sec. 921.12, the state may begin draft management plan development and the collection of information necessary for the preparation by NOAA of an EIS. The state shall develop a draft management plan, including an MOU. The plan shall set out in detail:

1. Reserve goals and objectives, management issues, and strategies or actions for meeting the goals and objectives;
2. An administrative plan including staff roles in administration, research, education/interpretation, and surveillance and enforcement;
3. A research plan, including a monitoring design;
4. An education/interpretive plan;
5. A plan for public access to the Reserve;
6. A construction plan, including a proposed construction schedule, general descriptions of proposed developments and general cost estimates. Information should be provided for proposed minor construction projects in sufficient detail to allow these projects to begin in the initial phase of acquisition and development. A categorical exclusion, environmental assessment, or EIS may be required prior to construction;
7. (i) An acquisition plan identifying the ecologically key land and water areas of the Reserve, ranking these areas according to their relative importance, and including a strategy for establishing adequate long-term state control over these areas sufficient to provide protection for Reserve resources to ensure a stable environment for research. This plan must include an identification of ownership within the proposed Reserve boundaries, including land already in the public domain; the method(s) of acquisition which the state proposes to use--acquisition (including less-than-fee simple options) to establish adequate long-term state control; an estimate of the fair market value of any property interest--which is proposed for acquisition; a schedule estimating the time required to complete the process of establishing adequate state control of the proposed research reserve; and a discussion of any anticipated problems. In selecting a preferred method(s) for establishing adequate state control over areas within the proposed boundaries of the Reserve, the state shall perform the following steps for each parcel determined to be part of the key land and water areas (control over which is necessary to protect the integrity of the Reserve for research purposes), and for those parcels required for research and interpretive support facilities or buffer purposes:
  - (A) Determine, with appropriate justification, the minimum level of control(s) required [e.g., management agreement, regulation, less-than-fee simple property interest (e.g., conservation easement), fee simple property acquisition, or a combination of these approaches]. This does not preclude the future necessity of increasing the level of state control;
  - (B) Identify the level of existing state control(s);
  - (C) Identify the level of additional state control(s), if any, necessary to meet the

minimum requirements identified in paragraph (a)(7)(i)(A) of this section; (D) Examine all reasonable alternatives for attaining the level of control identified in paragraph (a)(7)(i)(C) of this section, and perform a cost analysis of each; and (E) Rank, in order of cost, the methods (including acquisition) identified in paragraph (a)(7)(i)(D) of this section.

(ii) An assessment of the relative cost-effectiveness of control alternatives shall include a reasonable estimate of both short-term costs (e.g., acquisition of property interests, regulatory program development including associated enforcement costs, negotiation, adjudication, etc.) and long-term costs (e.g., monitoring, enforcement, adjudication, management and coordination). In selecting a preferred method(s) for establishing adequate state control over each parcel examined under the process described above, the state shall give priority consideration to the least costly method(s) of attaining the minimum level of long-term control required. Generally, with the possible exception of buffer areas required for support facilities, the level of control(s) required for buffer areas will be considerably less than that required for key land and water areas. This acquisition plan, after receiving the approval of NOAA, shall serve as a guide for negotiations with landowners. A final boundary for the reserve shall be delineated as a part of the final management plan;

8. A resource protection plan detailing applicable authorities, including allowable uses, uses requiring a permit and permit requirements, any restrictions on use of the research reserve, and a strategy for research reserve surveillance and enforcement of such use restrictions, including appropriate government enforcement agencies;
9. If applicable, a restoration plan describing those portions of the site that may require habitat modification to restore natural conditions;
10. If applicable, a resource manipulation plan, describing those portions of the Reserve buffer in which long-term pre-existing (prior to designation) manipulation for reasons not related to research or restoration is occurring. The plan shall explain in detail the nature of such activities, shall justify why such manipulation should be permitted to continue within the reserve buffer; and shall describe possible effects of this manipulation on key land and water areas and their resources;
11. A proposed memorandum of understanding (MOU) between the state and NOAA regarding the Federal-state relationship during the establishment and development of the National Estuarine Research Reserve, and expressing a long-term commitment by the state to maintain and manage the Reserve in accordance with section 315 of the Act, 16 U.S.C. 1461, and applicable regulations. In conjunction with the MOU, and where possible under state law, the state will consider taking appropriate administrative or legislative action to ensure the long-term protection and operation of the National Estuarine Research Reserve. If other MOUs are necessary (such as with a Federal agency, another state agency or private organization), drafts of such MOUs must be included in the plan. All necessary MOU's shall be signed prior to Reserve designation; and

12. If the state has a federally approved coastal management program, a certification that the National Estuarine Research Reserve is consistent to the maximum extent practicable with that program. See Secs. 921.4(b) and 921.30(b).

(b) Regarding the preparation of an EIS under the National Environmental Policy Act on a National Estuarine Research Reserve proposal, the state and NOAA shall collect all necessary information concerning the socioeconomic and environmental impacts associated with implementing the draft management plan and feasible alternatives to the plan. Based on this information, the state will draft and provide NOAA with a preliminary EIS.

(c) Early in the development of the draft management plan and the draft EIS, the state and NOAA shall hold a scoping meeting (pursuant to NEPA) in the area or areas most affected to solicit public and government comments on the significant issues related to the proposed action. NOAA will publish a notice of the meeting in the Federal Register at least 15 days prior to the meeting. The state shall be responsible for publishing a similar notice in the local media.

(d) NOAA will publish a Federal Register notice of intent to prepare a draft EIS. After the draft EIS is prepared and filed with the Environmental Protection Agency (EPA), a Notice of Availability of the draft EIS will appear in the Federal Register. Not less than 30 days after publication of the notice, NOAA will hold at least one public hearing in the area or areas most affected by the proposed national estuarine research reserve. The hearing will be held no sooner than 15 days after appropriate notice of the meeting has been given in the principal news media by the state and in the Federal Register by NOAA. After a 45-day comment period, a final EIS will be prepared by the state and NOAA.

### **Sec. 921.20 General.**

The acquisition and development period is separated into two major phases. After NOAA approval of the site, draft management plan and draft MOU, and completion of the final EIS, a coastal state is eligible for an initial acquisition and development award(s). In this initial phase, the state should work to meet the criteria required for formal research reserve designation; e.g., establishing adequate state control over the key land and water areas as specified in the draft management plan and preparing the final management plan. These requirements are specified in Sec. 921.30. Minor construction in accordance with the draft management plan may also be conducted during this initial phase. The initial acquisition and development phase is expected to last no longer than three years. If necessary, a longer time period may be negotiated between the state and NOAA. After Reserve designation, a state is eligible for a supplemental acquisition and development award(s) in accordance with Sec. 921.31. In this post-designation acquisition and development phase, funds may be used in accordance with the final management plan to construct research and educational facilities, complete any remaining land acquisition, for program development, and for restorative activities identified in the final management

plan. In any case, the amount of Federal financial assistance provided to a coastal state with respect to the acquisition of lands and waters, or interests therein, for any one National Estuarine Research Reserve may not exceed an amount equal to 50 percent of the costs of the lands, waters, and interests therein or \$5,000,000, whichever amount is less, except when the financial assistance is provided from amounts recovered as a result of damage to natural resources located in the coastal zone, in which case the assistance may be used to pay 100 percent of all actual costs of activities carrier out with this assistance, as long as such funds are available.

*[58 FR 38215, July 15, 1993, as amended at 62 FR 12540, Mar. 17, 1997; 63 FR 26717, May 14, 1998].*

### **Sec. 921.21 Initial acquisition and development awards.**

(a) Assistance is provided to aid the recipient prior to designation in:

1. Acquiring a fee simple or less-than-fee simple real property interest in land and water areas to be included in the Reserve boundaries (see Sec. 921.13(a)(7); Sec. 921.30(d));
2. Minor construction, as provided in paragraphs (b) and (c) of this section;
3. Preparing the final management plan; and
4. Initial management costs, e.g., for implementing the NOAA approved draft management plan, hiring a Reserve manager and other staff as necessary and for other management-related activities. Application procedures are specified in subpart I.

(b) The expenditure of Federal and state funds on major construction activities is not allowed during the initial acquisition and development phase. The preparation of architectural and engineering plans, including specifications, for any proposed construction, or for proposed restorative activities, is permitted. In addition, minor construction activities, consistent with paragraph (c) of this section also are allowed. The NOAA-approved draft management plan must, however, include a construction plan and a public access plan before any award funds can be spent on construction activities.

(c) Only minor construction activities that aid in implementing portions of the management plan (such as boat ramps and nature trails) are permitted during the initial acquisition and development phase. No more than five (5) percent of the initial acquisition and development award may be expended on such activities. NOAA must make a specific determination, based on the final EIS, that the construction activity will not be detrimental to the environment.

(d) Except as specifically provided in paragraphs (a) through (c) of this section, construction projects, to be funded in whole or in part under an acquisition and development award(s), may not be initiated until the Reserve receives formal designation (see Sec. 921.30). This requirement has been adopted to ensure that substantial progress

in establishing adequate state control over key land and water areas has been made and that a final management plan is completed before major sums are spent on construction. Once substantial progress in establishing adequate state control/acquisition has been made, as defined by the state in the management plan, other activities guided by the final management plan may begin with NOAA's approval.

(e) For any real property acquired in whole or part with Federal funds for the Reserve, the state shall execute suitable title documents to include substantially the following provisions, or otherwise append the following provisions in a manner acceptable under applicable state law to the official land record(s):

1. Title to the property conveyed by this deed shall vest in the [recipient of the award granted pursuant to section 315 of the Act, 16 U.S.C. 1461 or other NOAA approved state agency] subject to the condition that the designation of the [name of National Estuarine Reserve] is not withdrawn and the property remains part of the federally designated [name of National Estuarine Research Reserve]; and
2. In the event that the property is no longer included as part of the Reserve, or if the designation of the Reserve of which it is part is withdrawn, then NOAA or its successor agency, after full and reasonable consultation with the State, may exercise the following rights regarding the disposition of the property:
  - (i) The recipient may retain title after paying the Federal Government an amount computed by applying the Federal percentage of participation in the cost of the original project to the current fair market value of the property;
  - (ii) If the recipient does not elect to retain title, the Federal Government may either direct the recipient to sell the property and pay the Federal Government an amount computed by applying the Federal percentage of participation in the cost of the original project to the proceeds from the sale (after deducting actual and reasonable selling and repair or renovation expenses, if any, from the sale proceeds), or direct the recipient to transfer title to the Federal Government. If directed to transfer title to the Federal Government, the recipient shall be entitled to compensation computed by applying the recipient's percentage of participation in the cost of the original project to the current fair market value of the property; and
  - (iii) Fair market value of the property must be determined by an independent appraiser and certified by a responsible official of the state, as provided by Department of Commerce regulations at 15 CFR part 24, and Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally assisted programs at 15 CFR part 11.

(f) Upon instruction by NOAA, provisions analogous to those of Sec. 921.21(e) shall be included in the documentation underlying less-than-fee-simple interests acquired in whole or part with Federal funds.

(g) Federal funds or non-Federal matching share funds shall not be spent to acquire a real property interest in which the state will own the land concurrently with another entity unless the property interest has been identified as a part of an acquisition strategy

pursuant to Sec. 921.13(7) which has been approved by NOAA prior to the effective date of these regulations.

(h) Prior to submitting the final management plan to NOAA for review and approval, the state shall hold a public meeting to receive comment on the plan in the area affected by the estuarine research reserve. NOAA will publish a notice of the meeting in the Federal Register at least 15 days prior to the public meeting. The state shall be responsible for having a similar notice published in the local newspaper(s).

### **Sec. 921.30 Designation of National Estuarine Research Reserves.**

(a) The Under Secretary may designate an area proposed for designation by the Governor of the state in which it is located, as a National Estuarine Research Reserve if the Under Secretary finds:

1. The area is a representative estuarine ecosystem that is suitable for long-term research and contributes to the biogeographical and typological balance of the System;
2. Key land and water areas of the proposed Reserve, as identified in the management plan, are under adequate state control sufficient to provide long-term protection for reserve resources to ensure a stable environment for research;
3. Designation of the area as a Reserve will serve to enhance public awareness and understanding of estuarine areas, and provide suitable opportunities for public education and interpretation;
4. A final management plan has been approved by NOAA;
5. An MOU has been signed between the state and NOAA ensuring a long-term commitment by the state to the effective operation and implementation of the area as a National Estuarine Research Reserve;
6. All MOU's necessary for reserve management (i.e., with relevant Federal, state, and local agencies and/or private organizations) have been signed; and
7. The coastal state in which the area is located has complied with the requirements of subpart B.

(b) NOAA will determine whether the designation of a National Estuarine Research Reserve in a state with a federally approved coastal zone management program directly affects the coastal zone. If the designation is found to directly affect the coastal zone, NOAA will make a consistency determination pursuant to Sec. 307(c)(1) of the Act, 16 U.S.C. 1456, and 15 CFR part 930, subpart C. See Sec. 921.4(b). The results of this consistency determination will be published in the Federal Register when the notice of designation is published. See Sec. 921.30(c).

(c) NOAA will publish the notice of designation of a National Estuarine Research Reserve in the Federal Register. The state shall be responsible for having a similar notice published in the local media.

(d) The term state control in Sec. 921.30(a)(3) does not necessarily require that key land and water areas be owned by the state in fee simple. Acquisition of less-than-fee simple interests e.g., conservation easements) and utilization of existing state regulatory measures are encouraged where the state can demonstrate that these interests and measures assure adequate long-term state control consistent with the purposes of the research reserve (see also Secs. 921.13(a)(7); 921.21(g)). Should the state later elect to purchase an interest in such lands using NOAA funds, adequate justification as to the need for such acquisition must be provided to NOAA.

### **Sec. 921.31 Supplemental acquisition and development awards.**

After National Estuarine Research Reserve designation, and as specified in the approved management plan, a coastal state may request a supplemental acquisition and/or development award(s) for acquiring additional property interests identified in the management plan as necessary to strengthen protection of key land and water areas and to enhance long-term protection of the area for research and education, for facility and exhibit construction, for restorative activities identified in the approved management plan, for administrative purposes related to acquisition and/or facility construction and to develop and/or upgrade research, monitoring and education/interpretive programs. Federal financial assistance provided to a National Estuarine Research Reserve for supplemental development costs directly associated with facility construction (i.e., major construction activities) may not exceed 70 percent of the total project cost, except when the financial assistance is provided from amounts recovered as a result of damage to natural resources located in the coastal zone, in which case the assistance may be used to pay 100 percent of the costs. NOAA must make a specific determination that the construction activity will not be detrimental to the environment. Acquisition awards for the acquisition of lands or waters, or interests therein, for any one reserve may not exceed an amount equal to 50 percent of the costs of the lands, waters, and interests therein of \$5,000,000, whichever amount is less, except when the financial assistance is provided from amounts recovered as result of damage to natural resources located in the coastal zone, in which case the assistance may be used to pay 100 percent of all actual costs of activities carrier out with this assistance, as long as such funds are available. In the case of a biogeographic region (see appendix I) shared by two or more states, each state is eligible independently for Federal financial assistance to establish a separate National Estuarine Research Reserve within their respective portion of the shared biogeographic region. Application procedures are specified in subpart I. Land acquisition must follow the procedures specified in Secs. 921.13(a)(7), 921.21(e) and (f) and 921.81.

*[58 FR 38215, July 15, 1993, as amended at 62 FR 12540, Mar. 17, 1997; 63 FR 26717, May 14, 1998].*

### **Sec. 921.32 Operation and management: Implementation of the management plan.**

(a) After the Reserve is formally designated, a coastal state is eligible to receive Federal funds to assist the state in the operation and management of the Reserve including the management of research, monitoring, education, and interpretive programs. The purpose of this Federally funded operation and management phase is to implement the approved final management plan and to take the necessary steps to ensure the continued effective operation of the Reserve.

(b) State operation and management of the Reserves shall be consistent with the mission, and shall further the goals of the National Estuarine Research Reserve program (see Sec. 921.1).

(c) Federal funds are available for the operation and management of the Reserve. Federal funds provided pursuant to this section may not exceed 70 percent of the total cost of operating and managing the Reserve for any one year, except when the financial assistance is provided from amounts recovered as a result of damage to natural resources located in the coastal zone, in which case the assistance may be used to pay 100 percent of the costs. In the case of a biogeographic region (see Appendix I) shared by two or more states, each state is eligible for Federal financial assistance to establish a separate Reserve within their respective portion of the shared biogeographic region (see Sec. 921.10).

(d) Operation and management funds are subject to the following limitations:

1. Eligible coastal state agencies may apply for up to the maximum share available per Reserve for that fiscal year. Share amounts will be announced annually by letter from the Sanctuary and Reserves Division to all participating states. This letter will be provided as soon as practicable following approval of the Federal budget for that fiscal year.
2. No more than ten percent of the total amount (state and Federal shares) of each operation and management award may be used for construction-type activities.

*[58 FR 38215, July 15, 1993, as amended at 62 FR 12541, Mar. 17, 1997].*

### **Sec. 921.33 Boundary changes, amendments to the management plan, and addition of multiple-site components.**

(a) Changes in the boundary of a Reserve and major changes to the final management plan, including state laws or regulations promulgated specifically for the Reserve, may be made only after written approval by NOAA. NOAA may require public notice, including notice in the Federal Register and an opportunity for public comment before approving a boundary or management plan change. Changes in the boundary of a Reserve involving the acquisition of properties not listed in the management plan or final EIS require public notice and the opportunity for comment; in certain cases, a categorical exclusion, an environmental assessment and possibly an environmental impact statement may be



required. NOAA will place a notice in the Federal Register of any proposed changes in Reserve boundaries or proposed major changes to the final management plan. The state shall be responsible for publishing an equivalent notice in the local media. See also requirements of Secs. 921.4(b) and 921.13(a)(11).

(b) As discussed in Sec. 921.10(b), a state may choose to develop a multiple-site National Estuarine Research Reserve after the initial acquisition and development award for a single site has been made. NOAA will publish notice of the proposed new site including an invitation for comments from the public in the Federal Register. The state shall be responsible for publishing an equivalent notice in the local newspaper(s). An EIS, if required, shall be prepared in accordance with section Sec. 921.13 and shall include an administrative framework for the multiple-site Reserve and a description of the complementary research and educational programs within the Reserve. If NOAA determines, based on the scope of the project and the issues associated with the additional site(s), that an environmental assessment is sufficient to establish a multiple-site Reserve, then the state shall develop a revised management plan which, concerning the additional component, incorporates each of the elements described in Sec. 921.13(a). The revised management plan shall address goals and objectives for all components of the multi-site Reserve and the additional component's relationship to the original site(s).

(c) The state shall revise the management plan for a Reserve at least every five years, or more often if necessary. Management plan revisions are subject to (a) above.

(d) NOAA will approve boundary changes, amendments to management plans, or the addition of multiple-site components, by notice in the Federal Register. If necessary NOAA will revise the designation document (findings) for the site.

#### **Sec. 921.40 Ongoing oversight and evaluations of designated National Estuarine Research Reserves.**

(a) The Sanctuaries and Reserve Division shall conduct, in accordance with section 312 of the Act and procedures set forth in 15 CFR part 928, ongoing oversight and evaluations of Reserves. Interim sanctions may be imposed in accordance with regulations promulgated under 15 CFR part 928.

(b) The Assistant Administrator may consider the following indicators of non-adherence in determining whether to invoke interim sanctions:

1. Inadequate implementation of required staff roles in administration, research, education/interpretation, and surveillance and enforcement. Indicators of inadequate implementation could include: No Reserve Manager, or no staff or insufficient staff to carry out the required functions.
2. Inadequate implementation of the required research plan, including the monitoring design. Indicators of inadequate implementation could include: Not

- carrying out research or monitoring that is required by the plan, or carrying out research or monitoring that is inconsistent with the plan.
3. Inadequate implementation of the required education/interpretation plan. Indicators of inadequate implementation could include: Not carrying out education or interpretation that is required by the plan, or carrying out education/interpretation that is inconsistent with the plan.
  4. Inadequate implementation of public access to the Reserve. Indicators of inadequate implementation of public access could include: Not providing necessary access, giving full consideration to the need to keep some areas off limits to the public in order to protect fragile resources.
  5. Inadequate implementation of facility development plan. Indicators of inadequate implementation could include: Not taking action to propose and budget for necessary facilities, or not undertaking necessary construction in a timely manner when funds are available.
  6. Inadequate implementation of acquisition plan. Indicators of inadequate implementation could include: Not pursuing an aggressive acquisition program with all available funds for that purpose, not requesting promptly additional funds when necessary, and evidence that adequate long-term state control has not been established over some core or buffer areas, thus jeopardizing the ability to protect the Reserve site and resources from offsite impacts.
  7. Inadequate implementation of Reserve protection plan. Indicators of inadequate implementation could include: Evidence of non-compliance with Reserve restrictions, insufficient surveillance and enforcement to assure that restrictions on use of the Reserve are adhered to, or evidence that Reserve resources are being damaged or destroyed as a result of the above.
  8. Failure to carry out the terms of the signed Memorandum of Understanding (MOU) between the state and NOAA, which establishes a long-term state commitment to maintain and manage the Reserve in accordance with section 315 of the Act. Indicators of failure could include: State action to allow incompatible uses of state-controlled lands or waters in the Reserve, failure of the state to bear its fair share of costs associated with long-term operation and management of the Reserve, or failure to initiate timely updates of the MOU when necessary.

#### **Sec. 921.41 Withdrawal of designation.**

The Assistant Administrator may withdraw designation of an estuarine area as a National Estuarine Research Reserve pursuant to and in accordance with the procedures of section 312 and 315 of the Act and regulations promulgated thereunder.

Appendix 2. Rare Flora and Fauna Identified by the Wisconsin Natural Heritage Inventory Program

Scientific Name	Common Name	State Rank	Global Rank	State Status	Federal Status	Group
<i>Sterna caspia</i>	Caspian Tern	S1B,S2N	G5	END		Bird
<i>Sterna hirundo</i>	Common Tern	S1B,S2N	G5	END		Bird
<i>Charadrius melodus</i>	Piping Plover	S1	G3	END	LE	Bird
<i>Haliaeetus leucocephalus</i>	Bald Eagle	S4B,S2N	G5	SC/FL	LT, PD	Bird
<i>Dendroica tigrina</i>	Cape May Warbler	S3B	G5	SC/M		Bird
<i>Oporornis agilis</i>	Connecticut Warbler	S2S3B	G4	SC/M		Bird
<i>Ammodramus leconteii</i>	Le Conte's Sparrow	S2S3B	G4	SC/M		Bird
<i>Ixobrychus exilis</i>	Least Bittern	S3B	G5	SC/M		Bird
<i>Bartramia longicauda</i>	Upland Sandpiper	S2B	G5	SC/M		Bird
<i>Sturnella neglecta</i>	Western Meadowlark	S2B	G5	SC/M		Bird
<i>Boreal forest</i>	Boreal Forest	S2	G3?	NA		Community
<i>Emergent marsh</i>	Emergent Marsh	S4	G4	NA		Community
<i>Floodplain forest</i>	Floodplain Forest	S3	G3?	NA		Community
<i>Great lakes beach</i>	Great Lakes Beach	S2	G3	NA		Community
<i>Great lakes dune</i>	Great Lakes Dune	S2	G3	NA		Community
<i>Interdunal wetland</i>	Interdunal Wetland	S1	G2?	NA		Community
<i>Moist cliff</i>	Moist Cliff	S4	GNR	NA		Community
<i>Northern dry-mesic forest</i>	Northern Dry-mesic Forest	S3	G4	NA		Community
<i>Northern sedge meadow</i>	Northern Sedge Meadow	S3	G4	NA		Community
<i>Anguilla rostrata</i>	American Eel*	S2	G4	SC/N		Fish
<i>Clemmys insculpta</i>	Wood Turtle	S2	G4	THR		Herptile
<i>Hydroporus vittatus</i>	A Predaceous Diving Beetle	S3	GNR	SC/N		Insect
<i>Chromagrion conditum</i>	Aurora Damselfly	S3	G5	SC/N		Insect
<i>Cicindela hirticollis rhodensis</i>	Beach-dune Tiger Beetle	S2	G5T4	SC/N		Insect
<i>Sympetrum danae</i>	Black Meadowhawk	S3	G5	SC/N		Insect
<i>Somatochlora forcipata</i>	Forcipate Emerald	S2	G5	SC/N		Insect
<i>Spermophilus franklinii</i>	Franklin's Ground Squirrel	S2	G5	SC/N		Mammal
<i>Migratory Bird Concentration Site</i>	Migratory Bird Concentration Site	SU	GNR	SC		Other
<i>Caltha natans</i>	Floating Marsh-marigold	S1	G5	END		Plant
<i>Eleocharis nitida</i>	Slender Spike-rush	S2	G3G4	END		Plant
<i>Ranunculus gmelinii</i>	Small Yellow Water Crowfoot	S2	G5	END		Plant
<i>Ophioglossum pusillum</i>	Adder's-tongue	S2	G5	SC		Plant
<i>Triglochin maritima</i>	Common Bog Arrow-grass	S3	G5	SC		Plant
<i>Carex crawei</i>	Crawe Sedge	S3	G5	SC		Plant
<i>Deschampsia flexuosa</i>	Crinkled Hairgrass	S3	G5	SC		Plant
<i>Huperzia selago</i>	Fir Clubmoss	S2	G5	SC		Plant
<i>Eleocharis compressa</i>	Flat-stemmed Spike-rush	S2	G4	SC		Plant
<i>Dryopteris fragrans var. remotiuscula</i>	Fragrant Fern	S3	G5T3T5	SC		Plant
<i>Platanthera orbiculata</i>	Large Roundleaf Orchid	S3	G5	SC		Plant
<i>Equisetum palustre</i>	Marsh Horsetail	S2	G5	SC		Plant
<i>Senecio congestus</i>	Marsh Ragwort	SH	G5	SC		Plant
<i>Ribes hudsonianum</i>	Northern Black Currant	S3	G5	SC		Plant
<i>Cypripedium parviflorum var. makasi</i>	Northern Yellow Lady's-slipper	S3	G5T4Q	SC		Plant
<i>Woodsia oregana var. cathcartiana</i>	Oregon Woodsia (Tetraploid)	S1	G5T5	SC		Plant
<i>Cypripedium reginae</i>	Showy Lady's-slipper	S3	G4	SC		Plant
<i>Calamagrostis stricta</i>	Slim-stem Small-reedgrass	S3	G5	SC		Plant
<i>Carex nigra</i>	Smooth Black Sedge	S1	G5	SC		Plant
<i>Eleocharis mamillata</i>	Spike-rush	S1	G4?	SC		Plant

\*While native in the Mississippi River basin, the catadromous American Eel (*Anguilla rostrata*) is an introduced species in Wisconsin waters of the Great Lakes." Checklist of Wisconsin Vertebrates, Wisconsin Department of Natural Resources

Appendix 2. Rare Flora and Fauna Identified by the Wisconsin Natural Heritage Inventory Program

<i>Equisetum variegatum</i>	Variegated Horsetail	S3	G5	SC		Plant
<i>Juncus vaseyi</i>	Vasey Rush	S3	G5?	SC		Plant
<i>Thalictrum venulosum</i>	Veined Meadowrue	S1	G5	SC		Plant
<i>Petasites sagittatus</i>	Arrow-leaved Sweet-coltsfoot	S3	G5	THR		Plant
<i>Ribes oxycanthoides</i>	Canada Gooseberry	S2	G5	THR		Plant
<i>Cirsium pitcheri</i>	Dune Thistle	S2	G3	THR	LT	Plant
<i>Calypso bulbosa</i>	Fairy Slipper	S3	G5	THR		Plant
<i>Parnassia palustris</i>	Marsh Grass-of-parnassus	S2	G5	THR		Plant
<i>Sparganium glomeratum</i>	Northern Bur-reed	S2	G4?	THR		Plant
<i>Ranunculus cymbalaria</i>	Seaside Crowfoot	S2	G5	THR		Plant
<i>Salix planifolia</i>	Tea-leaved Willow	S2	G5	THR		Plant
<i>Zoogenetes harpa</i>	Boreal Top	S1	G5	SC/N		Snail
<i>Vertigo paradoxa</i>	Mystery Vertigo	S1	G3G4Q	SC/N		Snail

Education Needs Assessment for the Lake Superior National Estuarine Research Reserve

by:  
Bryan Sederberg

A practicum submitted  
in partial fulfillment of the requirements  
for the degree of  
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Co-advisors:  
Thomas Johengen—University of Michigan  
Ellen Brody—National Oceanic and Atmospheric Administration

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## LIST OF ACRONYMS

**GLA:** Great Lakes Aquarium  
**K-12:** Kindergarten through high school, 12<sup>th</sup> grade  
**LSNERR:** Lake Superior National Estuarine Research Reserve  
**LSRI:** Lake Superior Research Institute  
**MN:** Minnesota  
**DNR:** Department of Natural Resources  
**MPCA:** Minnesota Pollution Control Agency  
**NERR:** National Estuarine Research Reserve  
**NGLVC:** Northern Great Lakes Visitor Center  
**NOAA:** National Oceanic and Atmospheric Administration  
**OWC:** Old Woman Creek (National Estuarine Research Reserve)  
**RSPT:** Regional Stormwater Protection Team  
**SEEK:** Sharing Environmental Education Knowledge  
**UWEX:** University of Wisconsin-Extension  
**UWS:** University of Wisconsin-Superior  
**WCMP:** Wisconsin Coastal Management Program  
**WI:** Wisconsin



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**Cathy Techtmann**, University of Wisconsin Extension

## EXECUTIVE SUMMARY

This project was conducted to assist in the development of the educational component of the overall Management Plan produced for the designation of the St. Louis River as the Lake Superior National Estuarine Research Reserve (LSNERR). The study was designed to complete a preliminary education needs assessment for the region using the framework of the NOAA Coastal Services Center's Needs Assessment Training Module. An inventory of existing education programs was completed and meetings were held with 21 representatives from 13 different organizations that identified several themes for the focus of the future education programming at the LSNERR, These themes were:

- Adult Education
- Teacher Training and Curriculum Development
- Coordination of Area Education Programs
- Promoting the idea of the St. Louis River as a Working Estuary
- Professional Development

Finally, recommendations were developed for each of the identified educational themes to help ensure that the future LSNERR's education programming successfully address the program areas identified in the needs assessment. The recommendations were formulated based on the results of the needs assessment along with additional education material from the NERR system website, a review of the Old Woman Creek (OWC) NERR, primary literature, and information gathered from stakeholder meetings and surveys.

### Education Themes and Recommendations

#### **Adult Education**

**Recommendation:** *The future LSNERR should partner with local organizations already offering adult education programs to increase the variety and frequency of programs. This in turn will give the community greater appreciation for the Lake Superior Region and the resources it provides.*

An often overlooked audience and non-targeted audience are adult members of the general public. The OWC NERR offers Estuary Explorations where community members are offered opportunities to hike, kayak, or canoe the estuary to truly experience the resource. Few opportunities currently exist in the region for adult education programming related to freshwater estuaries and the future LSNERR should take the lead in developing more education programs targeting adults.

#### **Teacher Training and Curriculum Development**

**Recommendation:** *The future LSNERR should provide teacher training to assist educators in implementing estuary related curriculum. The future LSNERR needs to capitalize on the resources available in the NERR system to offer newly expanded curricula using real-time data and field trip experiences.*

Many efforts are being made to expand estuary curriculum in the K-12 classroom to improve the understanding of the Great Lakes and their coastal resources. Frequently the use of curriculum depends on whether it satisfies state education requirements. The NERR system has developed a variety of curricula and lesson plans for K-12 students that satisfy many state requirements, particularly the *Estuaries 101* curriculum targets grades 9-12. These curricula are often taught by NERR educators but most regularly by classroom teachers. The use of these curricula often depends on the teacher's ability to understand the material and content of the curriculum and the availability of proper

resources required by the curriculum. It is important that NERR educators are available to assist classroom teachers with the implementation of estuary related curriculum.

### ***Coordination of Area Education Programs***

***Recommendation:*** *The future LSNERR needs to pay specific attention to collaborating and coordinating programs with other organizations to increase the variety of outreach and environmental education programs available in the area.*

Part of the role of the future LSNERR will be to encourage and facilitate coordination and collaboration with community and regional partners, including the educational community. Several organizations offer educational programming related to estuaries in the Duluth-Superior Region. This includes the Great Lakes Aquarium (GLA), the Northern Great Lakes Visitor Center (NGLVC), University of Wisconsin – Extension (UWEX) Office, and University of Wisconsin – Superior’s (UWS) Lake Superior Research Institute (LSRI). Along with these organizations exists a collaborative group, the Regional Stormwater Protection Team (RSPT), which coordinates and organizes area education events. These organizations offer opportunities for partnerships and collaboration in the region.

### ***Promoting the idea of the St. Louis River as a Working Estuary***

***Recommendation:*** *The future LSNERR should convey the message of a sustainable harbor rich in natural and cultural resources, complemented by vibrant economic and industrial development.*

The Duluth-Superior Harbor is the largest port by volume of shipped goods in the Great Lakes and is a focal point for regional commerce. The area is home to over 275,000 residents who frequently use the estuary for various recreational purposes. The area has a rich history rooted in Native American heritage, fur trading, logging, and shipping. The future LSNERR should recognize and acknowledge the identity of the St. Louis River freshwater estuary and the importance the resource has on the region.

### ***Professional/Teacher Development***

***Recommendation:*** *The future LSNERR needs to contribute research and educational support to develop the region’s natural resource professionals.*

The Duluth-Superior region is fortunate to have several governmental and non-governmental research organizations, such as the Wisconsin Department of Natural Resources, UWS-LSRI, WI and MN Sea Grant, the University of Minnesota Duluth, the Environmental Protection Agency, United States Geological Survey, and the Minnesota Pollution Control Agency (MPCA). These organizations work on the forefront of environmental research. These experts provide a unique opportunity to the region in their ability to present and share ground-breaking research and publications. Existing groups such as the Twin Ports Freshwater Folk offer established platforms to share this knowledge through sponsored professional development opportunities.

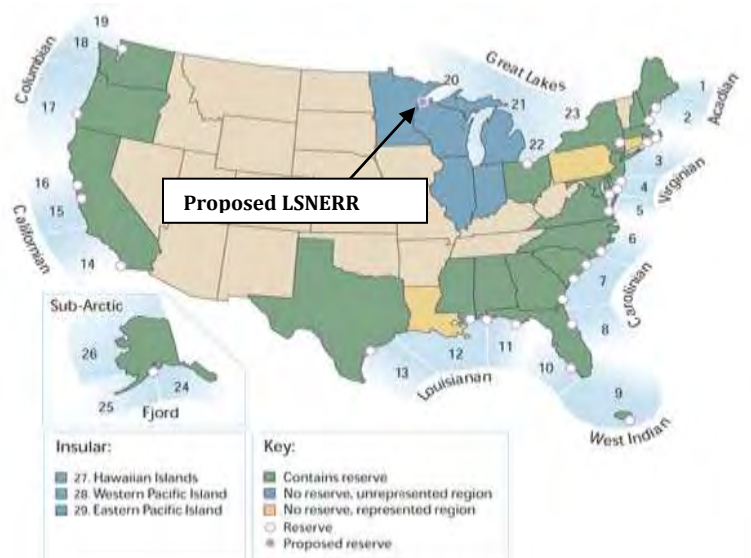
The future LSNERR has the ability to increase the types and quality of education programs in the Duluth-Superior region. These recommendations offer a good starting point to guide education programming for the newly designated reserve. It is important to note the common theme present in these recommendations: the importance of regional collaboration and partnerships. Current resource management stresses the importance of these concepts and it is crucial the future LSNERR is a strong advocate of these practices.

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## INTRODUCTION

### The National Estuarine Research Reserve System

The National Estuarine Research Reserve (NERR) System is a network of 27 reserves located throughout the United States that represent a variety of different biogeographical regions (see Figure 1). The primary goals of the reserve system are to protect fragile estuarine habitat for long-term research and monitoring, and to offer educational programming to local communities and decision makers to promote stewardships of these natural resources. The NERR system is structured as a partnership between the National Oceanic and Atmospheric Administration (NOAA) and the coastal state in which the reserve exists. NOAA's role in this partnership is to fund and guide the reserve's management which is the responsibility of the state, typically a university or state agency.

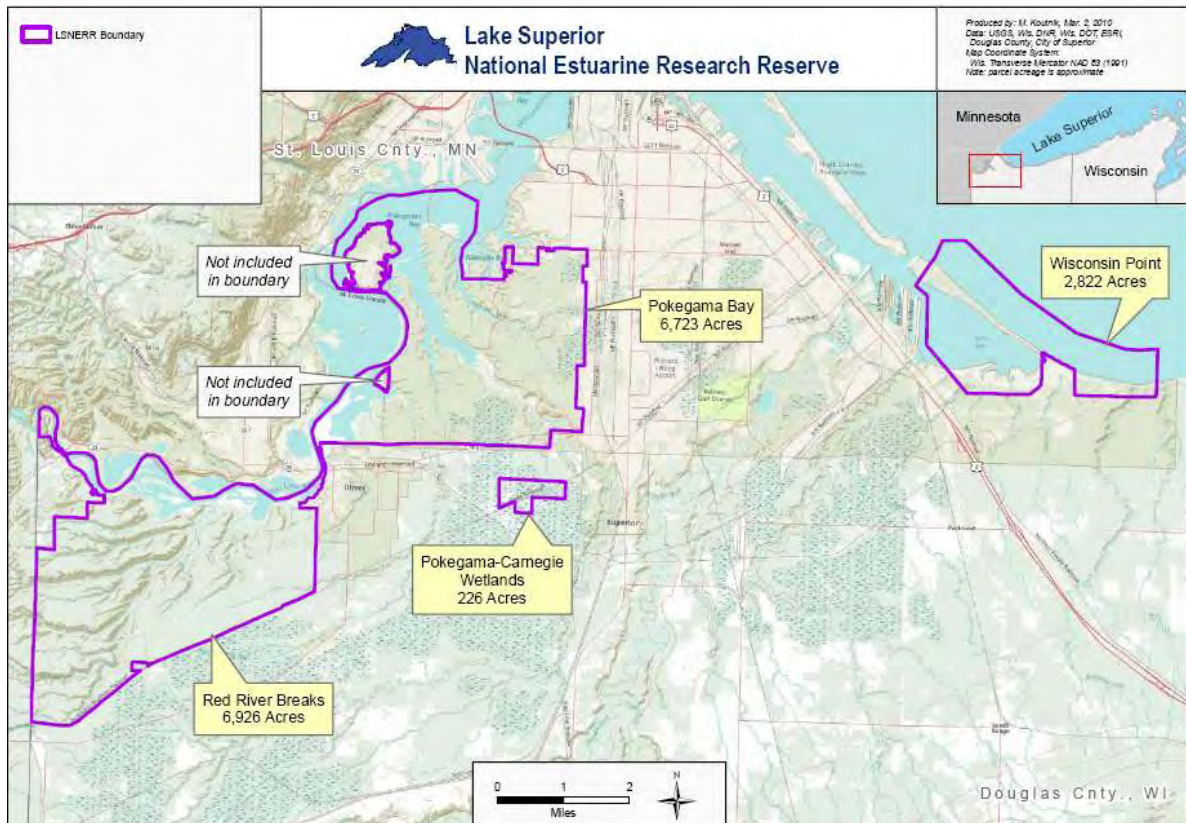


**Figure 1.** Map of the NERR System and the proposed LSNERR.

The NERR mission is to practice and promote coastal and estuarine stewardship through innovative research and education, using a system of protected areas. The reserve works at the local community and regional level to address natural resource management issues and to provide educational opportunities for K-12 students as well as coastal training for decision makers. The reserve also provides research opportunities for research professionals and college students by providing research facilities and equipment. The core management priorities the NERR system wishes to address are land use and population growth, habitat loss and alteration, water quality degradation, and the changes in biological communities. In order to effectively address these issues, the NERR system's guiding principles establish strong partnerships between federal, state, and local levels to implement an ecosystem based management approach (NERRS 2010).

### The Lake Superior National Estuarine Research Reserve

The St. Louis River is located at the western tip of Lake Superior. Portions of the freshwater estuary located on the St. Louis River are being considered for a designation as the LSNERR (Fig. 2). The LSNERR is not yet officially designated, but if designated will join the Old Women Creek NERR as the only two NERRs in the Great Lakes region. The watershed of the St. Louis River crosses state boundaries between the states of Wisconsin and Minnesota and serves as the state boundary for 23 miles before it empties into Lake Superior. The lead state, Wisconsin, plans to designate more than 16,000 acres as the future reserve to be used as the “living” laboratory for scientists and a classroom for the general public (LSNERR 2010).



**Figure 2.** Detailed map of the proposed LSNERR including the area of the St. Louis River confluence with Lake Superior

The St. Louis River is the largest United States tributary to Lake Superior and creates a large freshwater estuary as it enters Lake Superior. The estuary plays a vital role in environmental and social processes. Wisconsin’s portion of the reserve is home to nine rare natural communities and several endangered and threatened species (LSNERR 2010). The area possesses several estuarine features such as a drowned river mouth and its large bay mouth bar. The estuary also serves as the location where warmer river water meets the cold water of Lake Superior creating a unique ecosystem that is necessary for different stages of many species’ life cycles. The estuary’s water level is also affected by wind tides

and seiche events creating unique shoreline habitats that are often submerged and dry in short time periods of time.

The landscape of the estuary saw many changes during and after the 19<sup>th</sup> century when European immigrants arrived. The bay mouth bar that separated the estuary from Lake Superior was cut to create the Duluth canal. Major dredging and shoreline development occurred to allow for shipping and commercial land use. The Duluth-Superior area is now home to over 275,000 people and serves as the largest port by volume on the Great Lakes (LSNERR 2010).

#### *Designation Process*

The nomination of the St. Louis River freshwater estuary as the future site for the LSNERR is a result of a thorough site selection process where 35 sites along Wisconsin's coast of Lake Superior were evaluated. Following the site nomination, a Coordination Team (Table 1) was created with members from the University of Wisconsin-Extension (UWEX) and Wisconsin Coastal Management (WCMP). The responsibility of the team is to coordinate the Management Plan process which includes the gathering of relevant information, the holding of public advisory committee meetings, and serving as acting liaison between NERR partners.

**Table 1.** Members of the LSNERR Coordination Team

<b>Team Member</b>	<b>Member Organization</b>
Becky Sapper	University of Wisconsin-Extension
Patrick Robinson	University of Wisconsin-Extension
Cathy Techtmann	University of Wisconsin-Extension
Travis Olson	Wisconsin Coastal Management Program
Sue O'Halloran	University of Wisconsin-Extension

The planning and evaluation process for establishing a new research reserve site encompasses a rigorous process requiring over 18 months to complete (Table 2). The initial scoping meeting for the LSNERR occurred in December 2008 with a goal for the final designation to be completed in July 2010. As part of this process, NOAA requires the responsible state to develop a Management Plan and to assist NOAA with drafting an Environmental Impact Statement for the reserve. The Management Plan requires a thorough review process which includes a public comment and review period. The Management Plan outlines, in detail, a number of strategies for addressing specific issues. This includes a detailed description of the reserve goals and objectives, management issues, and strategies or actions for meeting the goals and objectives. It also includes an administrative plan that includes staff roles in administration, research, education/interpretation, and surveillance and enforcement. The writing of the Management Plan requires a large amount of information. The majority of the information is readily available, but some requires further investigation, the reason for this study.

**Table 2:** The Draft Timeline for the LSNERR Designation and Management Plan.

Step 1: Scoping Meetings in Superior	December 1, 2008
Step 2: Draft Environmental Impact Statement Draft Management Plan	November 1, 2009
Step 3: Public Hearing in Superior	December 1, 2009
Step 4: 45-day Comment Period Ends	January 1, 2010
Step 5: Final Environmental Impact Statement/ Final Management Plan	April 2010 (estimated)
Step 6: 30-day Cooling-off Period	May 2010 (estimated)
Step 7: Record of Decision	June 2010 (estimated)
Step 8: Designation Ceremony	July 2010 (estimated)

### Practicum Purpose and Objectives

The purpose of this study was to conduct an education needs assessment of the region's education community to aid in the development of education programs at the future LSNERR as part of the larger Management Plan. In this context the region is defined as the Duluth-Superior area, the Minnesota North Shore, and the Wisconsin Shoreline of Lake Superior extending to the western portion of the Upper Peninsula of Michigan. The objectives of this study were to inventory the existing education programs in the region, to assess the gaps that existed in present educational programming as related to estuaries and wetlands, and to provide a recommendation to the future LSNERR of possible "niches" the reserve can fulfill. This Practicum report has also been included as an appendix within the first management plan for LSNERR and its recommendations have been incorporated into the ongoing LSNERR designation planning process. The following is a brief discussion of each of the study objectives:

1) Inventory of existing education programs

An understanding of the existing education programs in the region provides the foundation for partnerships and collaboration. It also provides the future LSNERR with an idea of the existing programs that exist and how programming is done in the area.

2) Assessment of educational programming

An inventory of existing resources will help identify possible education program areas for the future LSNERR. Stakeholder meetings will provide participants the



opportunity to express their opinion of how they feel future LSNERR resources should best be utilized in the region.

3) Recommendation for future LSNERR education programming

Information gathered from the inventory and the assessment as well as the use of primary research and material from the NERR website will provide information to give a well formulated recommendation for future education program at the future LSNERR.

## **STUDY APPROACH**

### **A Need's Assessment**

After initial meetings with members of the Coordination Team it was determined that completing a thorough needs assessment was the best approach to accomplish the objectives of the study and aid in the development of the Management Plan. The use of NOAA's Coastal Services Center's Needs Assessment Training Module provided the proper training and framework to use for this study.

The Coordination Team was aware that valuable education programming is already occurring in the area and that a thorough analysis of the educational community was needed to determine the best possible role for the future LSNERR. NOAA's training module provided a logical sequence for completing the needs assessment and assured that the necessary steps and protocols were taken. Specifically, the needs assessment followed the steps outlined in the module's "12 Steps of a Needs Assessment" (NAT 2008). Each step played a critical role in identifying the needs of the region's education community. A summary of the desired outcomes and activities that were completed under each of the steps of the needs assessment is described below:

#### Step 1: Confirm the Issues and Audience

Confirming the issues and audience clarified the purpose of this study. Discussions with the Coordination Team made it clear that more information was needed on the education programs in the area and how the future LSNERR would fit into the community. An understanding of the available programs at the local community level would open up possibilities for partnerships as well as establish a platform for regional and national collaboration. A market needs assessment would assist in gathering necessary material for the Management Plan and provide useful information for future LSNERR education programming.

#### Step 2: Establish the Planning Team

A Planning Team plays a critical role in providing assistance in project design and support. The Planning Team must possess knowledge of the subject area to provide useful insight to the study. The Planning Team for this project included Becky Sapper(UWEX), Ellen Brody (NOAA-National Marine Sanctuaries Program), and Thomas Johengen(University of Michigan). The main role of the Planning Team for this study was to help with creating the

questions for the stakeholder meetings, structuring the secondary survey, and reviewing the study.

### Step 3: Establish the Goals and Objectives

The goals and objectives of the study were formulated with the help of both the Coordination Team and the Planning Team. The goal of the study was to learn more about existing education programs in the Duluth-Superior region and to find potential education program areas the future LSNERR. In order to attain the goal it was necessary to inventory the existing education programs in the community and assess the educational gaps that exist in current programming. This would provide the necessary information to develop recommendations for future education programs at the LSNERR.

### Step 4: Characterize the Audience

Characterizing the audience is critical to provide the scope of the study. The target audience was comprised of the region's education stakeholders who, in this context, are defined as being environmental education coordinators and managers, K-12 teachers, and outreach coordinators. The study paid particular attention to stakeholders with education programming interests in estuaries, wetlands, and coastal habitats. The main providers of education programming in the region include the NGLVC, the GLA, and LSRI. Tribes, cities, and counties also offer educational programming. There was an effort to include local K-12 schools, universities, and colleges but this had limited success.

### Step 5: Conduct Information and Literature Search

Information found on the internet and literature received from stakeholders provided crucial background information on existing education programs. The review of this information occurred throughout the study but was used the most for the inventory of existing education programs and for the formulation of the recommendations. The internet was the primary source for the education program inventory and the program evaluations overviews.

Several sources were used to assist in the formulation of the recommendations. This includes the review of the OWC NERR programs, the national NERR system website, and a review of primary literature. The recommendations also draw on information gathered from the stakeholder meetings and the survey taken by the stakeholders.

### Step 6: Select Data and Collection Methods

In addition to data collected from the internet and the review of existing literature, information was gathered using more interactive methodologies including Stakeholder Meetings and a Written Survey. The inclusion of a written survey for social science research required an application for exemption from the University of Michigan's Internal Review Board.

#### *Stakeholder Meetings*

In order to learn more about the programs offered in the area, meetings were scheduled with key stakeholders in the region. Questions (see figure 4) were developed to provide a framework for the meetings. Questions were targeted towards information that was difficult to find from the internet research. Question 1 focused on identifying existing education programs in the region, while questions 2 and 3 were asked to help identify the

goals and audiences of those programs. Lastly, questions 4, 5, and 6 were intended to identify the needs or gaps in the region's education programming. The overall goal of the meetings was to learn more about current environmental education programs and to identify education program areas for the future LSNERR.

- 1) What watershed, coastal wetlands, or freshwater estuary education programs are you aware of that are offered in the Duluth/Superior area or within the broader LS Basin?
  - *What are the agencies, organizations, schools, or other providers offering these programs?*
  - *Who are their target audiences?*
- 2) How are these programs coordinated within the basin?
  - *In your opinion are programs coordinated effectively?*
- 3) Please describe the goals of your education program.
  - *What is your program's take away message?*
- 4) What would help you in your educational programming as it relates to SLRFE and freshwater estuaries issues?
- 5) Given what you know about NERRS, how do you envision the role of the LSNERR within the education community at the SLRFE and Lake Superior Basin?
- 6) What other suggestions or ideas do you have to guide the development of educational programs at the LSNERR?

**Figure 3.** The Stakeholder Meeting Questions were sent prior to the meetings.

### *Survey*

Following the analysis of the information gathered from the stakeholder meetings, a written survey (see figure 5) was conducted to validate and further analyze the results summarized from the meetings. Several common themes for future education programs arose during the interviews and in order to authenticate these results a survey was created. The survey consists of four questions. The first two questions were used to gauge the familiarity the population had with the NERR system and whether they supported the designation or not. The third question allowed the respondent an opportunity to weigh the importance of each theme. The fourth question provided space for the participant to provide any additional comments they felt were important to share with needs assessment study. The goal of the survey was to gauge whether the themes identified in the meetings are needed by the area's education community.

**Table 3.** The questions used in the Stakeholder Survey.

<p><b>1. How familiar are you with the National Estuarine Research Reserve System?</b>                  Very Familiar                  Familiar                  Heard of it                  What is that?</p> <p><b>2. Do you support the designation of the St. Louis River as a National Estuarine Research Reserve?</b>                  Yes                  No                  Not Sure</p> <p><b>3. Please rate the importance of each "need" of the Duluth/Superior area environmental education community as it relates to freshwater estuary education.</b>  <i>Choices: Not Needed, Needed but not necessary, Important, Very Important</i></p>
<p>Teacher/Professional Development                  Coordination of Area Education Programs                  Teacher Training and Curriculum Development                  Adult Education                  Message of Working Estuary                  Education Programs for Coastal Decision Makers, etc                  Interpretative Educational Facilities</p>

Step 7: Determine Sampling Scheme

It was identified that stakeholder meetings were the best way to learn about current education programs in the area. This would also be the best way to learn of the needs of the education community. The Planning Team agreed the best way to validate the needs of the community would be the use of a Written Survey.

*Stakeholder Meetings*

Meetings were scheduled during the months of July and August 2009 using a Doodle online scheduler. Participants were identified by internet research of existing education programs, from the list of stakeholders who participated in the public advisory committees, and from stakeholder referrals. In total, emails were sent to 35 education stakeholders in the region to schedule meeting times. The majority of meetings were held either at a neutral location or at the organization's office. A few of the meetings were teleconferences. The questions for the meetings were sent to stakeholders prior to the meeting to allow them to prepare answers. During the meeting the questions provided a loose framework to work from and responses were recorded for later evaluation.

*Survey*

During the fall and early winter of 2009 results from the meetings were evaluated. In January 2010, the survey was designed and distributed to the representatives who participated in the stakeholder meetings, and to additional stakeholders who were not available to meet during the summer of 2009.

#### Step 8: Design and Pilot the Collection Instrument

The questions for the stakeholder meetings and the survey was reviewed by the Planning Team and piloted with members of the LSNERR Coordination Team. Comments were provided by the pilot group and changes were made before distribution to assure effectiveness of the questions for the stakeholder meetings and the survey.

#### Step 9: Gather and Report Data

##### *Stakeholder Meetings*

In order to increase the likelihood of participation, emails were sent to remind participants to schedule meetings. Meetings were held with 21 different representatives from 13 different agencies. Information during the meetings was recorded and later used to supplement the program overviews and in developing the recommendations.

##### *Survey*

The survey was distributed using an online survey (SurveyMonkey) to the same 35 education stakeholders who received meeting invitations. The survey was administered by surveymonkey.com and received 25 anonymous participants. Results of the survey are included in the results section.

#### Step 10: Analyze Data

##### *Stakeholder Meetings*

Analysis of the data collected during the meetings occurred following the completion of the interviews. Information from questions 1-3 were used for program overviews to supplement the information from internet research. Questions 4-6 targeted the gaps and/or needs of the region's education community. The responses were evaluated paying particular attention to recurring themes or ideas. Information from these questions was later used to formulate the survey and eventually the final recommendations.

##### *Survey*

The survey was used to validate the results found in the meetings. Question 3 of the survey allowed the themes from the meetings to be ranked. Participants were able to choose from four rankings: Very Important, Important, Needed but Not Necessary, and Not Needed. To assist the Coordination Team, two additional themes were added to the online survey to help gauge the need for programming related to the NERR system's Coastal Training Program and the perceived needs of an educational facility. These themes were not identified through the stakeholder meetings and are not directly tied to this study.

#### Step 11: Manage Data

Information collected from the meetings was analyzed and summarized for the Management Plan in this present report. The data from the survey was collected by surveymonkey.com and are also included in this report.

#### Step 12: Synthesize Data and Create Report

After validating the themes with the Survey, it is safe to say the needs identified in the stakeholder meetings are the true needs of the education community. This study goes on to develop recommendations for how the future LSNERR can address each need. A variety of information was used to develop the recommendations; this includes stakeholder input, a primary literature review, a review of the NERR system education program, and input from the Old Woman Creek NERR staff.

The Old Woman Creek NERR is the only existing NERR in the Great Lakes Region. Old Woman Creek offers similar types of programs that could be offered at the future LSNERR. A meeting was held with Old Woman Creek's reserve manager, coastal training program coordinator, and education coordinator in the fall of 2009. This study and its results were discussed and the Old Woman Creek staff provided advice and input to how they have addressed similar needs with Old Woman Creek Reserve.

## **RESULTS**

### **Review of Existing Education Programs**

Completing an inventory of the existing education programs related to estuaries was the starting point for this assessment. Information was provided by the Coordination Team of the major educational organizations in the region and further research uncovered additional educational programs. The internet was a valuable tool to learn about specific programs in the region. The internet provided useful information on individual programs, such as its purpose and contact information, but it usually lacked the detail the assessment needed. Often the information was outdated and specific information regarding the target audiences, the program's focus, and program partners were unclear. Internet research provided much of the information used for the program overviews but more information was needed for a more thorough assessment of the community.

### **Stakeholder Meetings**

Meetings were held with 22 representatives from the education community (see Table 4). Information gathered in the meetings provided useful information for the program overviews, the identification of the community's needs, and the final recommendations.

**Table 4.** These members of the education community participated in the Stakeholder Meetings.

<b>Stakeholder</b>	<b>Job Title</b>	<b>Organization</b>
Deb Anderson	Life Science & Water Resources Faculty	Lac Courte Oreilles Ojibwe Community College
Sandra Carey	Environmental Services	City of Superior
Jane Edwards	Environmental Services	City of Superior
Heather Elmer	Coastal Training Program	Old Woman Creek National Estuarine Research Reserve
Sarah Erickson	Education Director	Great Lakes Aquarium
Betty Gumm	Environmental Services	City of Superior
Jeff Gunderson	Director	Minnesota Sea Grant
Shannon Judd	Environmental Education Coordinator	Fond du Lac Reservation
Mike Kennedy	Environmental Educator	Minnesota Pollution Control Agency
Kate Kubiak	Conservation Specialist	South St. Louis Soil and Water Conservation District
Nadine Meyer	MinnAqua Coordinator	Minnesota Department of Natural Resources
Diane Nelson	Environmental Services	City of Superior
Susan O'Halloran	University of Wisconsin-Extension	Lake Superior Research Institute
Ruth Oppedahl	University of Wisconsin-Extension	Northern Great Lakes Research Institute
Carrie Sanda	Environmental Services	City of Superior
Jim Sharrow	Facilities Manager	Duluth Seaway Port Authority
Richard Stewart	Co-Director	Great Lakes Maritime Research Institute
Cathy Techtmann	University of Wisconsin-Extension	Northern Great Lakes Visitor Center
Molly Thompson	Program Manager	Sugarloaf
Jenny Thoreson	Environmental Services	City of Superior
Sarah Wilcox	Youth Development Educator	University of Wisconsin-Extension
Joan Wimpe	Youth Development Educator	University of Wisconsin-Extension
Adele Yorde	Public Relations Manager	Duluth Seaway Port Authority

The following describes the responses from the stakeholder meetings.

*Question 1: What watershed, coastal wetlands, or freshwater estuary education programs are you aware of that are offered in the Duluth/Superior area or within the broader LS Basin?*

Responses to question 1 identified several programs that were previously unknown. A large variety of environmental education programs exist in the region and it was important to focus on programming specifically related to estuaries, wetlands, and coastal resources. Internet research and information provided by question one, resulted in the inventory and review of 33 different educational programs from 13 different organizations, see Table 3.

**Table 5.** Inventory of Existing Education Programs by Organization

<b>Organization</b>	<b>Education Program</b>
City Of Superior	1. Public Education Involvement Relations
Duluth Seaway Port Authority	1. River Quest
Fond du Lac Tribal & Community College	1. St. Louis River Watch
Great Lakes Aquarium	1. Scouts 2. Voices of the Lake Speaker Series 3. Whirlgigs/Dive In Deeper (pre K- 12 Education) 4. Partners in Education(PIE)
Lake Superior Research Institute(UWEX)	1. View From the Lake/NEMO 2. Environmental Education and Stewardship 3. Elderhostel Education
MinnAqua(MN DNR)	1. Leader's Guide(Professional Development) 2. MinnAqua Educator Workshops 3. Festival of Fish
MN Sea Grant	1. Ask a Scientist Speaker Series 2. Traveling Trunk Adventure 3. Water on the Web
Northern Great Lakes Visitor Center(UWEX)	1. Paddle Through Time Curriculum 2. Fish Creek Estuary Education 3. Lake Superior Basin Stewardship Education 4. Adopt-An-Estuary
Regional Stormwater Protection Team	1. Lake Superior Streams Website 2. Lake Superior Watershed Festival 3. RSPT Workshops
South St. Louis Soil and Water Conservation District	1. Class Presentations 2. Conservation Education Curriculum 3. Watershed Friendly Service and Fundraising Projects 4. Envirothon
Sugar Loaf	1. Learning Cart
St. Louis River Citizen Action Committee	1. Watershed Guardian Program 2. Natural and Cultural History of the St. Louis River
Western UP Center	1. Great Lakes Maritime Transportation Education 2. Lake Superior Stewardship Initiative(LSSI) 3. Lake Superior Youth Symposium

*Question 2: How are these programs coordinated within the basin?*



The meetings expanded on the information found during the internet research. Question 2 asked about how the coordination of education programs occurs in the region. Many participants noted that there was no formal coordination body within the community and it mainly works on an 'everybody knows everybody' network. This meant if an event or program was to be offered it travels by word of mouth or emails. During the meetings it was not uncommon to learn of the same programs from different organizations and it was quickly recognized that several partnerships exist within the community.

### Existing Partnerships

One of the larger partnerships is the Regional Stormwater Protection Team (RSPT), which is coordinated by the South St. Louis Soil and Water Conservation District. The RSPT is comprised of 21 different municipalities and organizations whose mission is "to protect and enhance the region's shared water resources through stormwater pollution prevention by providing coordinated educational programs and technical assistance" (RSPT 2009). The focus of RSPT is stormwater prevention and their efforts are directly related to the health of the St. Louis River estuary.

The MPCA sponsors a website called SEEK, Sharing Environmental Education Knowledge. This website provides useful information on current education programming in the area. SEEK is an interactive website where education events, material, jobs, and additional materials are available specifically for Minnesota environmental education. It provides information on an array of education materials and is well maintained and updated (SEEK 2010).

Several large environmental education events sponsored by multiple organizations occur in the area. This includes the St. Louis River Watch (lead: Fond du Lac Tribal & Community College), River Quest (lead: Duluth Seaway Port Authority), and the Lake Superior Youth Symposium (lead: Western Upper Peninsula Center). These events are coordinated by the lead agency but include education material by a number of organizations in the area (see appendix 1 for partners).

### *Question 3: Please describe the goals of your education program.*

Question 3 focused on the specific goals of each education program. The purpose of this question was to learn more about each education program and to check the information found on the internet. Specifically the question sought information on the program's target audience, education goals, and take away messages. This allowed for a more thorough overview of each organization and education program (appendix 1) and added credibility to the assessment of available education programs.

### *Questions 4-6: The Needs of the Education Community*

After learning about each organization's programs, questions 4-6 probed the needs of the education community. Each question asked what is needed in terms of education programming in a slightly different way. The responses to the questions did not always pertain to education, so the answers were sorted simply two different categories, educational needs and non-educational needs:

Educational Needs

Access to River/Estuary	Market Science
Adult Education	Professional Development/Training
College Educational Programming	Promote Idea of Working Harbor/Estuary
Coordination of Education Programs	Public Programming
Educational Facilities and Materials	Real Time Data
Environmental Ed. into K-12 Curriculum	Recreational Education
Family Learning	Regional Collaboration
Historical Significance of Estuary	Sturgeon Re-introduction
Human Impacts on Estuary	Target ages 17-23
Hydrological Cycle	Teacher Training/Curriculum Dev
Internships	Volunteer Training and Education

Non-Educational Needs

Collaborative Stream Monitoring  
Interpretive Center with Technical Support/Expertise  
Invasive Species Research  
Partnerships between MN and WI  
Sustainable Development of Harbor/Twin Ports  
Volunteer Base/Volunteer Training

As the meetings progressed, it became obvious that some of the needs were of higher priority than others, and that many ideas were part of a larger theme. The common themes that arose were:

- Adult Education
- Teacher Training and Curriculum Development
- Coordination of Area Education Programs
- Promoting the idea of a Working Harbor/Estuary
- Professional/Teacher Development

These ideas were frequent topics of conversation during the stakeholder meetings and were regularly expressed as potential areas where the future LSNERR should focus its programming. Along with these specific needs arose an emphasis on community and regional collaboration. This concept wasn't identified as a particular need of the community, but as a management strategy that should be used with all of the future LSNERR programming, specifically its education programming.

**Written Survey**

In order to validate the results of the meetings, a survey was written to allow the meeting participants and other education stakeholders to rank the importance of the common themes that came out of the meetings. Two additional questions were added to the survey to gauge the familiarity participants have with the NERR system and their support for a LSNERR designation. Two additional themes, Education Programs for Coastal Decision Makers and Interpretative Educational Facilities, were added to the list to assist the Coordination Team. Twenty-five participants took part in the survey which was distributed on January 14, 2010 and collected on February 5, 2010. It is worth noting on question 3

that three themes, Professional/Teacher Development, Coordination of Area Education Programs, and Message of Working Estuary, only had 24 participants. All the others had 25. This could have been a technical error, but someone may have chosen not to rank these three.

*Familiarity and Support*

In gauging the participants familiarity with the NERR system, 44% (n=11) were very familiar, 32% (n=8) were familiar, 20% (n=5) had heard of it, and 4% (n=1) chose the response “What is that?” meaning they were not familiar. In measuring the support for the LSNERR designation 100%of the respondents indicated that yes they support it. Several participants provided comments to question two. The comments, which are in appendix 2, encouraged the designation of the future LSNERR at the St. Louis River Estuary and stressed the importance of understanding the importance of freshwater estuaries.

*Survey Results*

Based on the results of the survey, there is overwhelming support for the themes identified in the needs assessment. The pie charts in Figure 4 on the next page, shows the majority of participants ranking the themes either as very important or important. In gauging whether or not the themes should be considered, the results of the survey are grouped very important and important vs. not needed and needed but not necessary. Each theme received greater than 70% of votes in favor of very important or important with Teacher/Professional development being the lowest at 70.9% (see Table 5).

**Table 6.** The percentage of votes for Very Important/Important vs. the percentage of votes for Not Needed/Needed, but not necessary.

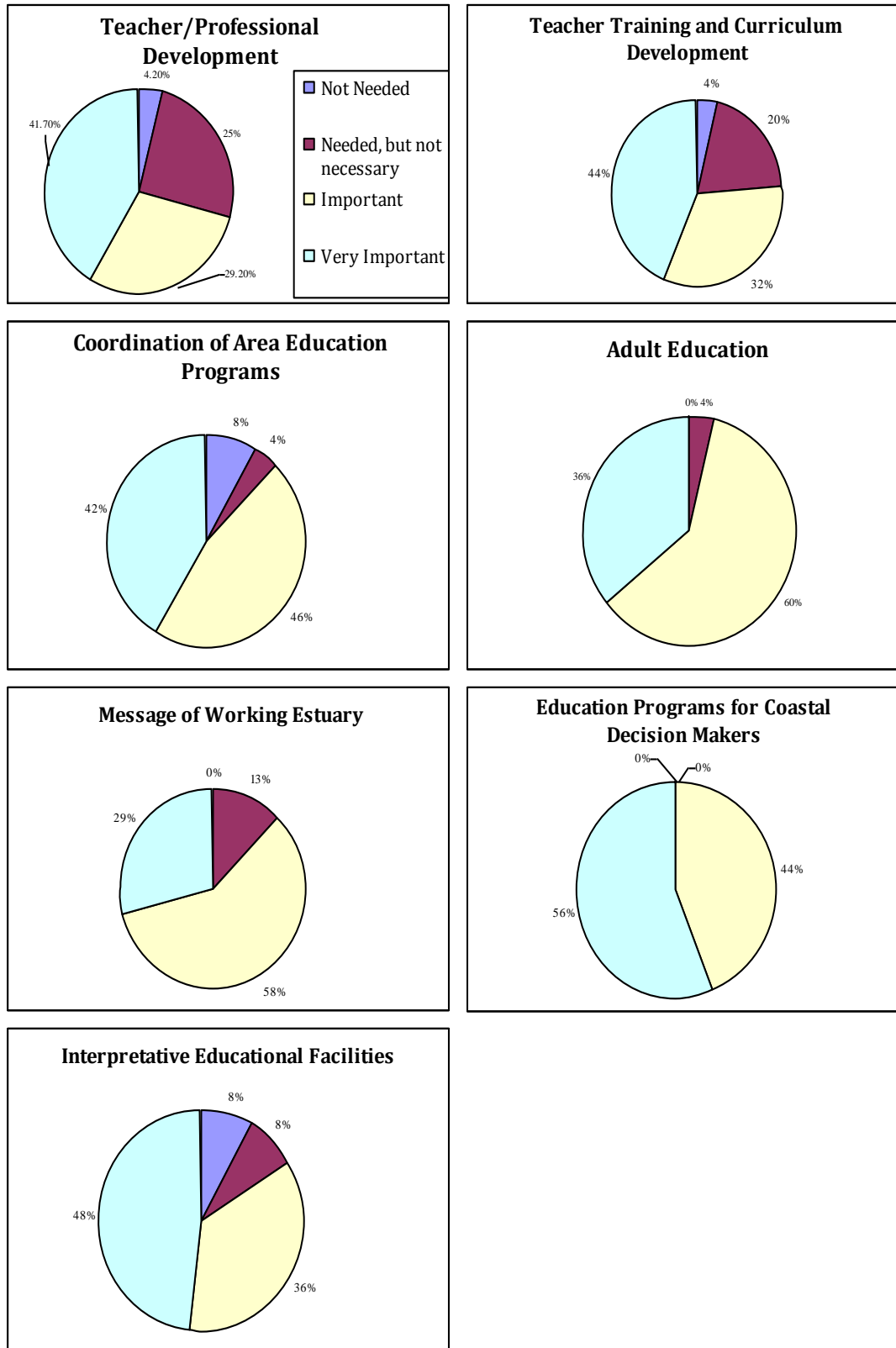
<b>Educational Theme</b>	<b>Very Important/ Important</b>	<b>Not Needed/ Needed, but not necessary</b>
Professional/Teacher Development	70.9%	29.2%
Coordination of Area Education Programs	87.5%	12.5%
Teacher Training and Curriculum Development	76.0%	24.0%
Adult Education	96.0%	4.0%
Message of Working Estuary	87.5%	12.5%
Education Programs for Coastal Decision Makers	100.0%	0.0%
Interpretative Educational Facilities	84.0%	16.0%

The results were also ranked and the average rank for each theme was calculated. Rankings were based off of Very Important (1), Important (2), Needed, but not necessary (3), and Not Needed (4). The rankings are displayed in Table 6.

**Table 7.** The themes are ranked based on the survey results.

<b>Theme</b>	<b>Average Scores</b>
Teacher/Professional Development	1.92
Coordination of Area Education Programs	1.79
Teacher Training and Curriculum Development	1.84

Adult Education	1.68
Message of Working Estuary	1.83
Education Programs for Coastal Decision Makers, etc	1.44
Interpretative Educational Facilities	1.76



**Figure 3.** The results of the survey displayed in pie graphs.

Additional ideas were provided by participants in question three. The comments included the following: on-line public access to information, education programs for the general public, on-the-water programs, development of web-based educational outreach materials, volunteer opportunities, and hands on learning (appendix 2).

#### *Additional Comments*

Several survey participants made additional comments regarding the future of education programming at the future LSNERR. The subject of the comments include: hands-on learning for teachers and students; the use of pre-existing educational infrastructure and coordination with existing programs; and the coordination and integration of the future LSNERR programs into local schools, colleges, and universities. Complete comments from the survey can be seen in appendix 2.

## **DISCUSSION**

### **Future LSNERR Education Programs**

An array of suggestions came from meeting with the area's education stakeholders. The information from these meetings will be used in the development of programming at the future LSNERR. The purpose of the survey was to validate the results of those meetings and to assure that the themes identified are truly priorities for the community. The themes included in the survey were ideas and suggestions that frequently were offered during meetings and were given more attention by stakeholders

The results of the survey indicated complete support (100%) for the designation of the St. Louis River estuary as the future site for the LSNERR. Furthermore, there was a large amount of support for each of the themes included in the survey. For example, the majority of participants voted very important or important on each of the themes. This confirms the findings of the meetings and the suggestions offered by the stakeholders interviewed. The rankings allow an order to be established among the themes. All themes received a high ranking between 1 and 2. The order of the themes identified in the needs assessment according to ranking are: Adult Education (1.68), Coordination of Area Education Programs (1.79), Message of a Working Estuary (1.83), Teacher Training and Curriculum Development (1.84), and Teacher/Professional Development (1.92).

In order to make the most of available resources, the future LSNERR should target the themes identified in the needs assessment. Each theme received a high ranking and the difference between ranking is very small, but if an order needs to be established it should be: 1) adult education programming 2) coordination of area education programs 3) promotion of the idea of a working estuary 4) teacher training and curriculum development resources and 5) teacher/professional development programs. It is important to note that the two additional themes added to the survey, Education Programs for Coastal Decision Makers and Interpretive Educational Facilities received a ranking of 1.44 and 1.76, respectively. Recommendations were not made for these themes since they did not arise from this needs assessment. But these needs need to be considered in future LSNERR education programming.

## Recommendations

Recommendations were made for future LSNERR's education programming. The recommendations use a variety of information. This includes a primary literature review, a review of the current education programs in the NERR system, stakeholder input, and the review of the Old Woman Creek NERR education programs. The following section provides a recommendation for each theme and gives justification to why resources are needed in that area. The recommendation also offers ways for the future LSNERR to address the specific area.

### Adult Education

**Recommendation:** *The future LSNERR should partner with local organizations already offering adult education programs to increase the variety and frequency of programs. The future LSNERR should also provide its own adult education programming related to estuaries and coastal resources. This in turn will give the community greater appreciation for the Lake Superior Region and take pride in the services it provides.*

Support for additional education programming came from the Minnesota DNR's MinnAqua program, the MPCA, Minnesota Sea Grant, the Duluth Seaway Port Authority, UWEX, and Fond du Lac Community College. The following are specific points from these organizations related to the need for additional adult education programs.

- The St. Louis River freshwater estuary is an epicenter for outdoor recreation including fishing, hunting, boating, canoeing, birding, and site seeing. Very little educational programming is targeted towards recreators or promotes recreation on the estuary (Gunderson 2009).
- Members of the Duluth Seaway Port Authority stressed the importance of highlighting the value of the resource and providing local residents with a sense of place in the region so they can take pride and ownership of the resource (Yorde and Sharrow 2009).
- Educational programming is often focused specifically towards children. Very seldom are there programs offered for a shared learning experience amongst a family or between adults and children (Wimme 2009).

Adult education programming is limited within the region as few opportunities are offered by different organizations in the education community. The NGLVC and the GLA use informational and interpretative displays that provide educational material targeted towards adults. The GLA has its voices of Lake Superior Speaker Series where once a month from April through October a local expert gives a presentation on a topic pertaining to local history and/or an environmental topic (Erickson 2009). Other programming is irregular and is dependent upon available funding.

### Community Partnerships

Several different techniques should be used to provide the community with additional resources for adult education. First off, the Great Lakes Aquarium offers an opportunity for a unique community partnership with the future LSNERR to offer additional adult education programming (Meyer 2009). In the future, the LSNERR and the GLA can pool resources to offer more speakers and presentations targeted towards adults. The NGLVC UWEX office

developed its Estuary Ed-venture Programs for adults that inform the community of the natural processes occurring in an estuary. The adoption and modification of this curriculum could be used on the St. Louis River freshwater estuary to get adult education programming up and running sooner (Techtman 2009). Old Woman Creek NERR staff recommend partnering with organizations already offering programs. This will enable the organizations to share the responsibility of offering programs as well as being able to pool resources together to increase the variety of programs and speakers in the community (Van Zoest 2009). Secondly, the Old Woman Creek NERR offers opportunities for hands on learning with outdoor classrooms where learners use hands-on sampling equipment to help them understand the complexities of the natural world. They also offer audio-visual presentations, interpretive field trips, guided tours, and guest lecturers. Old Woman Creek has a Volunteer Monitoring program where local citizens are trained to monitor Old Woman Creek and nearby streams as well as interpret the data collected. As part of the NERR system, the future LSNERR can collaborate with OWC to offer similar programming for the St. Louis River freshwater estuary (OWC 2009).

OWC also provides canoes for local citizens to use on the estuary to experience the resource (Lopez 2009). Although the St. Louis River freshwater estuary is much larger than OWC estuary, the future LSNERR could still provide canoes for near shore tours and larger boats or pontoons for longer and more offshore tours. Competitive grants are available through the NERR system to provide these types of equipment (Education 2009). The future LSNERR should focus its efforts on getting people out on the water to understand and appreciate its importance.

More information needs to be directed at the land—water connection in order to understand the effect humans have on the freshwater environment. The City of Superior and the RSPT offer programs with the intent of providing this information. This type of information will give the community more appreciation for the estuary and a deeper understanding of the impact they can have on the estuary's health and the overall environment. The future LSNERR needs to provide these types of resources to the region to supplement the already existing facilities and programming intended for adults.

### ***Coordination of Area Education Programs***

***Recommendation:*** *The future LSNERR must pay specific attention to collaborating and coordinating programs in the region to increase the variety of outreach and environmental education programs available in the area. The future LSNERR needs to be sure not to duplicate existing programs in the area by partnering with local organizations and becoming a member of the Regional Stormwater Protection Team.*

Many stakeholders stated there is a need within the educational community to coordinate the education programming that occurs in the area. Programming is occurring throughout the area and proper coordination and collaboration would provide an opportunity for organizations to pool resources and offer a larger variety and more in depth programs. It would also assure education programs would not duplicate pre-existing programs with similar goals and concepts. Particular points outlined by stakeholders were to:

- Coordinate education work with the pre-existing Regional Stormwater Protection Team (RSPT) (Kubiak 2009).
- Continue and promote the state partnership between Wisconsin and Minnesota (Meyer 2009).



- Market education programs on the Minnesota Pollution Control Agency's SEEK (Sharing Environmental Education Knowledge) website (Kennedy 2009).
- Promote and build community and regional collaborations within the Lake Superior and Great Lakes basin for educational programming (Techtmann 2009).

### *Community Partnerships*

The RSPT is a collaborative group in the Duluth-Superior area whose mission is "to protect and enhance the region's shared water resources through stormwater pollution prevention by providing coordinated educational programs and technical assistance." The group is comprised of 21 different organizations and municipalities (see appendix 1 for listing) (Kubiak 2009). Although the overall goal of the RSPT is to use education and outreach material for the prevention of stormwater, it provides an opportunity to connect with major organizations within the region in an existing collaborative setting. Stormwater is an issue in the Duluth-Superior area and the shared resource of the St. Louis River freshwater estuary between the states of Wisconsin and Minnesota creates a unique situation of resource management. It is essential the future LSNERR participates in the RSPT since stormwater is an identified issue and the RSPT provides an existing network of organizations. The framework of this team may provide an opportunity for future collaboration for a LSNERR education advisory committee.

The states of Minnesota and Wisconsin are working cooperatively to share resources among all of their state agencies (Meyer 2009). The state boundary created by the St. Louis River makes this an even greater priority. Many state partnerships already exist and it is important the future LSNERR continues to promote these cooperatives. The MPCA's SEEK website is one of the ways the future LSNERR can participate in sharing resources between states. The use of the SEEK website is one way for both WI and MN state agencies, local organizations, and non-profits to take advantage of the available educational resources that exist in the region.

There was a general concern shared by all stakeholders whom participated in the needs assessment to assure the future LSNERR would not duplicate pre-existing programs and efforts that already occur in the area. Several large organizations including the GLA, NGLVC, and LSRI, already offer education programming related to estuaries. Building collaborative partnerships with these organizations would allow the region to have a greater capacity to offer more programs. Upon designation, the LSNERR anticipates four state positions: reserve manager, research coordinator, education coordinator, and coastal training program (CTP) coordinator. One of the primary responsibilities of the education coordinator and the CTP coordinator is to work collaboratively with pre-existing educational organizations in the region (Barstow 2007). These coordinators will need to pay particular attention to working successfully with organizations and entities in both Wisconsin and Minnesota.

### ***Promoting the idea of the St. Louis River as a Working Estuary***

***Recommendation:*** *The future LSNERR should convey the message of a sustainable harbor rich in natural and cultural resources, complemented by vibrant economic and industrial development.*

The St. Louis River freshwater estuary is the heart of the Duluth-Superior Harbor. The Twin Ports serve as the largest port by volume in the Great Lakes and is an epicenter for regional

commerce. It is home to over 275,000 residents whom frequently use the estuary for fishing, hunting, birding, boating, and camping. Not only does the area serve as a recreation hot spot, but it is also rich with cultural history. The history of Native American settlement is culturally significant as well as the area's history of fur trading, logging, and shipping. Educational stakeholders stated that it is crucial for the history and anthropogenic uses of the estuary are highlighted in future education programming (LSNERR MP 2010).

- Emphasize the area's historical and cultural significance (Judd 2009).
- Offer specific material on how humans have shaped and influenced the estuary (Meyer 2009).
- Stress the importance the estuary plays as a sustainable working harbor with a healthy balance of environmental and economic education (Sharrow & Yorde 2009).
- Incorporate the idea of a working estuary by including both shipping and tourism (Stewart 2009).

#### *Local History*

It is crucial to include Native American culture and settlement into the environmental education programs at the future LSNERR (Judd 2009). This can be done in several different ways, but Mike Kennedy of the MPCA suggested a living history scene that incorporates Native American heritage and fur trading, similar to that of Thunder Bay's Old Fort William (Kennedy 2009). There are other organizations that touch on this idea and can provide useful insight in program development. The Fond du Lac Band of Lake Superior Chippewa volunteered to help provide the necessary information to develop education materials for all ages (Judd 2009). The NGLVC has informational displays that highlight the development and founding of the Chequamegon Bay area as well as programming on Native American culture and traditions. UWEX, at the NGLVC, has also developed a portion of its Lake Superior Basin Stewardship Education Curriculum to target European Migration and Lake Superior Resources (Techtmann 2009). Coordinating the use of this material can provide a good starting point for the future LSNERR until further material is developed in cooperation with Fond du Lac Band of Lake Superior Chippewa.

#### *Working Estuary*

The NERR system outlines in its "Estuary Principles and Concepts" how humans rely on goods and services that are supplied by estuaries and that human activity can impact estuary. It is recognized by the NERR system that educational material related to human influences and development of estuaries is necessary (Education 2009). The Western Upper Peninsula Center for Science, Mathematics and Environmental Education with cooperation with Michigan Tech and the Duluth Seaway Port Authority, has developed a curriculum based on Great Lakes Maritime Transportation Education. The curriculum offers resources for K-12 teachers such as lesson plans, photos, and teaching activities all based off of maritime commerce (GLMTE 2009). The St. Louis River estuary plays a significant role in not only natural processes, but also in many human's day to day lives. Curriculum based on the development of the St. Louis River estuary needs to be developed to show the impact and importance the estuary has had on the community, region, and country. The future LSNERR should promote the use of existing curriculum while further educational material on other anthropogenic influences is developed.

### ***Teacher Training and Curriculum Development***

***Recommendation:*** *The future LSNERR should provide teacher training to assist educators in implementing estuary curriculum. The future LSNERR needs to capitalize on the resources available in the NERR system to offer newly expanded curricula using real-time data and field trip experiences. The use of estuary related curriculum depends on the material's ability to satisfy state and federal education standards. In order to see the successful implementation of the material, teachers and educators must fully understand the concepts and ideas used in the curriculum. Several regional organizations can provide assistance to the future LSNERR in getting curriculum available sooner.*

After the stakeholder meetings there exists a need for more expansive and in-depth curriculum related to freshwater estuaries. Many educators themselves were not familiar with what an estuary was and the role they have in the environment. Specific points made by stakeholders follow:

- A partnership should exist with the NGLVC to assist in implementation and development of estuary related curriculum (Techtmann 2009).
- Estuary learning programs should be integrated into local school curriculum (Oppedahl 2009).
- Provide an education curriculum that satisfies state education requirements (Stewart 2009).
- Use real-time data on estuaries for service learning and lesson plans (Meyer 2009).
- The development of curriculum related to freshwater estuaries that uses real-time data (Gunderson 2009).

A variety of educational curricula exists in the region's education community but only a few of them relate directly to estuaries. The NGLVC offers an *Adopt-An-Estuary* and *Fish Creek Estuary Curriculum*. The *Adopt-An-Estuary Curriculum* is an issue based curriculum where students learn to resolve real world problems that harm estuaries every day. The *Fish Creek Estuary* material deals directly with the estuary of Fish Creek located just west of Ashland, WI (Techtmann 2009).

#### *Community Partnerships*

The estuary curriculum developed by the NGLVC provides a clear starting point for the implementation of estuary curriculum. The staff at the NGLVC possess the knowledge and ability to develop and implement the necessary types of curriculum needed by the St. Louis River freshwater estuary and other nearby estuaries. The use of NGLVC's pre-existing curriculums can be used to get the future LSNERR programming off and running earlier with slight modifications to apply to the St. Louis River freshwater estuary (Techtmann 2009). It is important that a cooperative partnership exists between the future LSNERR and the NGLVC.

Other resources and opportunities exist in the community. Fond du Lac Tribal and Community College coordinates the St. Louis River watch program and the Duluth Seaway Port Authority coordinates the River Quest program. Both of these programs offer opportunities for field work and service learning projects. It is very important the future LSNERR supports these programs because it was recently found these types of learning methods are infrequently done in environmental education programs (Barstow 2007).

### *NERR System Resources*

The NERR system provides a number of resources for the implementation of estuary related curriculum. Curriculum is available on the NERR system website for grades 5-12 with resources related to estuarine biology, natural and human disturbances, the estuarine ecosystem, and estuaries and humans (Education 2009). The NERR system offers the *Estuaries 101* curriculum as its first component of its *K-12 Environmental Education Program* (KEEP)(Barstow 2008). It is intended for high school students and consists of 4 different modules: Earth Science, Life Science, Physical Science and the Chesapeake Bay (Education 2009). It is important to note, that in some cases the material only pertains to salt water estuaries and it needs to be tailored for the application to freshwater estuaries. But this should not inhibit its application at the future LSNERR.

The Old Woman Creek NERR provides opportunities for hands on learning with outdoor classrooms. It was recommended by Old Woman Creek's education coordinator, Phoebe Van Zoest, for the future LSNERR to focus curriculum on research-based ideas and develop lesson plans to specific research projects (Van Zoest 2009).

The NERR system also provides real-time data for educational materials and curriculums to be based off of. This is found in the *System Wide Monitoring Program* (SWMP) and with the *EstuariesLive* program. SWMP occurs at all reserves across the country providing real time monitoring data of different environmental parameters (Ibanez 2006). *EstuaryLive* uses the internet to allow for real-time contact between educators, scientists, and students. This can help eliminate logistical issues that arise from field trips and the additional costs associated with these trips (Ibanez 2005). It was also found that teachers had interest in using real time data, but preferred having the data already incorporated into some type of lesson plan. The NERR system provides this with its *EstuariesLive* program and other material available on the *estuaries.gov* website (Ibanez 2006). The future LSNERR will have access to these resources and the capacity to offer these types of programs. The use of these programs will increase the variety and effectiveness of the area's education programs.

### *Successful Implementation*

It has been found that the use of educational material depends on the material's ability to satisfy state education requirements and the teacher's understanding of the material(Barstow 2007). Before the future LSNERR adopts the *Estuaries 101* curriculum, it is important to review both Wisconsin's and Minnesota's state education requirements to assure the curriculum satisfies the necessary requirements. In a comparison study that looked at how well *Estuaries 101* satisfied several different states requirements, *Estuaries 101* modules gave insight to big ideas of life, physical, and earth science as well as the important concepts and processes that are required by most state and national education standards. It was also found that most state standards call for the use of hands-on experiments, direct observations, and the active use of data, all of which are accomplished with the use of the *Estuaries 101* curriculum (Barstow 2008).

In order to see the implementation and use of the *Estuaries 101* curriculum it is important to explain to school administrators and teachers how curriculum pertaining to estuaries is able to satisfy state education requirements (Barstow 2008). It will also be useful for the future LSNERR to offer assistance and training to teachers in order to see the successful use of estuary based curriculum. Upon designation, the use of NGLVC's *Adopt-An-Estuary* will not only help with faster program offerings, but it provides a useful background section for teachers to be able to review and learn important concepts and to advise them of any relevant safety issues (Techtmann 2009). The NERR system also provides teacher training

for its high school *Estuaries 101* curriculum, label *TOTE* or *Teaching On The Estuary program* (Education 2009). In order for programs to be used, it is key for teachers to feel comfortable with the curriculum material.

It may be beneficial to adopt similar training methods as OWC NERR. This would allow OWC NERR and the future LSNERR to pool resources in the formation and development of training materials and programs for educators. Currently OWC uses several different ways to offer teacher development programs. OWC hosts workshops three times a year and uses *Project Wet and Wild* for teacher development. These workshops are often held during the summer to try to get more interest from area teachers by getting them on the water to experience and understand the function of an estuary (OWC 2009). Locally, the LSRI uses the L.L. Smith in its *View from the Lake* education program for coastal decision makers. Similar types of programs could be offered for teacher development to get teachers on the water to truly understand the resource.

Several studies have been done to find the most effective ways of offering teacher development programs. First off, it is important to regularly review reserve education programs. This will allow local teachers to provide input to how the reserve can improve its programming (Pandion Systems 2003). Another study on the state of estuarine education, found that NERR education coordinators should be available for consulting support so teachers can use them as a resource when necessary (Barstow 2007). Teachers also preferred development programs relevant to their local community that gave them a personal understanding of how they and their students can effect the environment. This gave teachers a sense of responsibility to develop their students as responsible citizens who can make a difference with environmental issues (Barstow 2007). The future LSNERR needs to establish a good relationship with local school districts so they can work cooperatively on the implementation of estuary related curriculum.

### ***Professional/Teacher Development***

***Recommendation:*** *The future LSNERR needs to contribute research and educational support to develop the region's natural resource professionals by providing the opportunity for a dialogue between scientific experts.*

The region is home to a wealth of federal, state, tribal and non-profit organizations whom are leaders in environmental science. The area also possesses several colleges and universities who are on the forefront of many research areas. Some more informal groups, such as the Twin Ports Freshwater Folk, provide an opportunity for local professionals in the environmental field to meet and discuss current topics of research, policy, and regulation issues (Twin Ports Freshwater Folk 2010). The stakeholder meetings unveiled a need to increase the amount of professional development opportunities in the area. The specific requests were to:

- Provide a dialogue with local scientific experts (Erickson 2009).
- Offer training opportunities in a variety of fields (Meyer 2009).
- Host “brown-bag lunches” for informal discussions (Oppedahl 2009).

The future LSNERR has the potential to provide these types of opportunities to the region. First, the future LSNERR should attempt to join the Twin Ports Freshwater Folk. It is a great avenue for the future LSNERR to learn of local efforts and to also make the community aware of the potential resources available as part of the NERR system. Eventually, the future

LSNERR may be able to coordinate the meetings as well as bring in key note speakers from outside the region.

The NERR system provides professional workshops that are offered all year round at various reserves throughout the country. The NERR website displays a calendar of events with the location and details of these workshops (Education 2009). The Old Woman Creek reserve hosts a brown bag lunch series for local professors, researchers, and regulators (OWC 2009). As the future LSNERR establishes itself within the community and eventually the region, the ability of the reserve to host training opportunities and “brown bag lunches” will increase. Upon designation, the LSNERR should participate in local meetings and events to learn how it can specifically fit into the area’s professional community.

## **CONCLUSION**

The material produced by this study has been given to the future LSNERR staff for their own use, as well as incorporated into the LSNERR Management Plan. Upon designation of LSNERR, it will be important for the reserve’s staff to occasionally review the current education programs offered in the area to be sure the results of this assessment are up to date.

During the course of this study it proved difficult to meet with local school districts. This difficulty may have occurred because the timing of this study took place mainly during the summer when teachers were on vacation. The sample population of this study mainly consisted of environmental educators and outreach agents. Meeting with teachers and school administrators may provide more insight to the conclusions of this study, but it is not expected to alter the recommendations in this paper.

### *Future Research*

There exist several areas where more research could be done. It may be useful to distribute a survey with all the needs that arose from the assessment to gauge the importance of each theme. An assessment of the local universities, colleges, and schools districts would help indicate the specific programming each organization desires.

Many opportunities for collaboration exist within the community and even at a larger regional and national level. The review of other reserves and their programming may identify possible means of addressing similar types of needs. The NERR system consists of a large variety of reserves throughout the country and many of them have probably have programming that could be adopted at the future LSNERR.

### *Final Recommendation*

The future LSNERR should address the educational themes found in the present needs assessment by providing 1) Adult Education programs 2) Coordination of Area Education Programs 3) Promoting the idea of the St. Louis River as a Working Estuary 4) Teacher Training and Curriculum Development Resources 5) Professional/Teacher Development programs. The recommendations made for each theme provide a good starting point for the future LSNERR and will assist future staff in the implementation and management of the reserve’s education programs. The idea of community and regional collaboration was a recurring theme that was emphasized in each recommendation. This focus is recommended for current resource management and should be used at the future LSNERR. The future LSNERR has the ability to an international leader in advancing understanding and stewardship of Great Lakes freshwater estuaries and coastal resources.

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## Appendix 1: Program Overviews

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### **Organization:** City of Superior: Environmental Services

The City of Superior provides a variety of services for wastewater treatment and collection, stormwater treatment, and inspects construction of roads, streets, and sidewalks. The City of Superior also offers educational material for these services. The availability of these programs depends on contracts and availability of grants.

The City of Superior maintains a website providing information on a number of Environmental Services including wastewater, stormwater, and pollution prevention.

*Wastewater:* This portion of the site goes through the process of wastewater treatment and the facilities used to do so. Virtual tours of both primary and secondary treatment processes can be taken to help understand the role of each step.

*Stormwater:* Under the Stormwater tab exists information about the water cycle, the ways watersheds become impaired, stream sampling methods, and northern Wisconsin Watersheds. The stormwater section also provides information on ways local residents can help and improve the health of their watershed. This includes information on rain gardens and rain barrels. The Environmental Services division has held workshops on how to build rain gardens and rain barrels.

*Pollution Prevention:* This site provides information on preventing specific pollution including: Mercury, Medicines, Battery recycling, burn barrels, and E-waste (Environmental Services Divisions of Public Works 2009).

**Program:** Public Education Involvement Relations (PEIR)

**Website:** <http://www.ci.superior.wi.us/index.aspx?NID=116>

**Contact:** Carrie Sanda

**E-mail:** [sandac@ci.superior.wi.us](mailto:sandac@ci.superior.wi.us)

**Phone:** 715-394-0392

### **Summary:**

PEIR is the Environmental Services' outreach committee who is responsible for their workshops and events. In the past they hosted rain barrel workshops where people were able to purchase a barrel and learn the proper use and installation of rain barrels. Currently, the PEIR program is focusing on collecting and recycling mercury pollutants, dioxins, and PCBs along with trying to reduce the use of burn barrels. They also host an annual Lake Superior Day celebration, Beech Sweep cleanup day, and a tour of Superior's wastewater treatment facility to Superior Schools' fifth graders. The PEIR program is also working closely with the Wisconsin DNR and Douglas County on organizing a stream bank restoration project to take place in the Spring of 2010 (Edwards, Gumm, Nelson, Thoreson, Carey 2009).

**Organization:** Duluth Seaway Port Authority

The Duluth Seaway Port Authority(DSPA) is an independent public agency created by the Minnesota Legislature to promote maritime and trade development for the port of Duluth Superior. The DSPA does this primarily through marketing and the promotion of legislative initiatives. The DSPA aims to enhance the regional economy with environmentally sustainable industrial development(Sharrow & Yorde 2009).

**Program:** St. Louis River Quest Environmental Educational Program

**Website:** <http://www.duluthport.com/rqfs.html>

**Contact:** Adele Yorde

**E-mail:** AYorde@duluthport.com

**Phone:** 218-727-8525

**Partners:** City of Duluth, Duluth Power Squadron, Como Oil, MN Pollution Control Agency, MN Sea Grant, EPA, Great Lakes Aquarium, Hallet Docking Company, Murphy Oil, US Army Corps of Engineers, US Coast Guard, Western Lake Superior Sanitary District

**Summary:**

The River Quest program began in 1993 with a goal to teach area 6<sup>th</sup> graders the importance of environmental stewardship and conservation. The program also teaches the students the idea of a “working harbor” with the industrial, commercial, and recreational uses that occur on the St. Louis River. Over a three day period over 800 sixth graders visit learning stations hosted by area organizations such as the Minnesota Pollution Control Agency and Murphy Oil(St. Louis River Quest Environmental Education Program 2009).

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**Organization:** Fond du Lac College

Fond du Lac Tribal and Community College is the leading organization responsible for the St. Louis River Watch program. Fond du Lac College is located in Cloquet and offers a variety of academic programs. The St. Louis River Watch Program is funded by the US Department of Agriculture(Welcome to the St. Louis River Watch 2006).

**Program:** St. Louis River Watch

**Website:** <http://www.sriverwatch.org/>

**Contact:** Courtney Kowalczak

**E-mail:** ckowalcz@fdltcc.edu

**Phone:** (218) 879-0789

**Summary:**

The St. Louis River Watch program is a youth based water quality monitoring program for the St. Louis River and its tributaries in Northeastern Minnesota. In past years, teachers and students from 25 different schools collect chemical, biological, and physical data from the St. Louis River Watershed twice during the year. The majority of

the schools incorporate the monitoring directly into their science curriculum. The program began in 1997 and has been organized and hosted by Fond du Lac Tribal and Community College with funds from the US Department of Agriculture(St. Louis River Watch Project 2009).

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**Organization:** Great Lakes Aquarium(GLA)

The Great Lakes Aquarium was established in 2000 as a not-for-profit organization whose mission is to “capture the wonder and excitement of Lake Superior, inspire responsibility for the world’s large lakes and fresh waters and create understanding of their value.” The aquarium mostly features the flora and fauna of the Great Lakes Basin but also has changeable displays for other topics including the Amazon River and some saltwater animals and habitats.

The GLA provides on-site education programming along with outreach services for all ages. Daily programming gives learners the opportunity to see native and exotic animals feed and interact. The aquarium has provided educational programming to over 10,000 pre K-12 students each year and also offers teacher development and adult learning opportunities(Educational Resources 2009).

**Program:** Partners in Education

**Website:** <http://www.glaquarium.org/index.php>

**Contact:** Sara Erickson

**E-mail:** [serickson@glaquarium.org](mailto:serickson@glaquarium.org)

**Phone:** 218-740-FISH

**Partners:** MN Sea Grant, University of Minnesota Duluth

**Summary:**

MN Sea Grant, the University of Minnesota Duluth, and the GLA train undergraduate education students to provide free outreach programs to twin ports schools. Undergraduate students travel to area schools to teach k-12 students Great Lakes and aquatic issues. The teaching opportunity also counts towards the undergraduate’s education degree(Erickson 2009).

**Program:** Scouts

**Website:** <http://www.glaquarium.org/index.php>

**Contact:** Sara Erickson

**E-mail:** [serickson@glaquarium.org](mailto:serickson@glaquarium.org)

**Phone:** 218-740-FISH

**Summary:**

The GLA offers workshops for Boy Scouts, Girl Scouts, and Brownies to earn badges. The GLS will tailor specific programs in order to do so(Erickson 2009).

**Program:** Voices of the Lake Speaker Series

**Website:** <http://www.glaquarium.org/visitor/speakerseries.php>

**Contact:** Sara Erickson

**E-mail:** serickson@glaquarium.org

**Phone:** 218-740-FISH

**Summary:**

The voice of the Lake Speaker Series is an adult learning opportunity hosted by the Great Lakes Aquarium. Once a month from October-April local experts give a presentation on local cultural history and/or an environmental topic(Erickson 2009).

**Program:** Whirlgigs/Dive In Deeper (pre K- 12 Education)

**Website:** <http://www.glaquarium.org/education/index.php>

**Contact:** Sara Erickson

**E-mail:** serickson@glaquarium.org

**Phone:** 218-740-FISH

**Summary:**

Whirlgigs and dive in deeper education programs are designed specifically for pre K-12 education. Each program has a curriculum tailored specifically to particular age groups and are offered for classroom visits and fieldtrips(Erickson 2009).

**Program:** Voices of the Lake Speaker Series

**Website:** <http://www.glaquarium.org/visitor/speakerseries.php>

**Contact:** Sara Erickson

**E-mail:** serickson@glaquarium.org

**Phone:** 218-740-FISH

**Summary:**

The voice of the Lake Speaker Series is an adult learning opportunity hosted by the Great Lakes Aquarium. Once a month from October-April local experts give a presentation on local cultural history and/or an environmental topic(Erickson 2009).

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**Organization:** MinnAqua: Minnesota Department of Natural Resources( MN DNR)

The MN DNR created the MinnAqua education program to teach angling recreation and stewardship along with conservation and ecology of aquatic habitats. MinnAqua is a statewide project with coordinators in Duluth, the Twin Cities, and New Ulm. MinAqua focuses on professional development to target children less than 16 years of age(MinnAqua-Fishing Education 2009).

**Program:** MinnAqua Leader's Guide/Professional Development

**Website:** <http://www.dnr.state.mn.us/minnaqua/leadersguide/index.html>

**Contact:** Nadine Meyer

**E-mail:** [nadine.meyer@dnr.state.mn.us](mailto:nadine.meyer@dnr.state.mn.us)

**Phone:** 218-740-2063

**Summary:**

The Leader's Guide, titled *Fishing: Get in the Habitat*, provides the necessary information in order to plan an easy, safe, and fun fishing trip. The guide is intended for teachers, youth leaders, and environmental educators. It includes lessons on aquatic habitats, Minnesota Fish, water stewardship, fisheries management, fishing equipment and skills, and safety during the fishing trip. The lesson guide assists with the completion of Minnesota Academic Standards for grades 3-5, Boy Scout badge requirements, Junior Girl Scout badge requirements, and 4-H fishing sports project requirements(Meyer 2009).

**Program:** MinnAqua Educator Workshops

**Website:** <http://www.dnr.state.mn.us/minnaqua/index.html#>

**Contact:** Nadine Meyer

**E-mail:** [nadine.meyer@dnr.state.mn.us](mailto:nadine.meyer@dnr.state.mn.us)

**Phone:** 218-740-2063

**Summary:**

Workshops are lead by MinnAqua education coordinators who train environmental educators using the Leader's Guide, *Fishing: Get in the Habitat*. Workshops are held at various locations and are scheduled throughout the year(Meyer 2009).

**Program:** Festival of Fish

**Website:** <http://www.dnr.state.mn.us/minnaqua/index.html#>

**Contact:** Nadine Meyer

**E-mail:** [nadine.meyer@dnr.state.mn.us](mailto:nadine.meyer@dnr.state.mn.us)

**Phone:** 218-740-2063

**Summary:**

The festival of fish is a meeting of Minnesotan's to learn and celebrate the role fishing plays in the history, foods, traditions, art, recreation, and social customs of our many cultures. The DNR shares information and gives presentations to participants to teach them more about outdoor recreational activities including fishing(Meyer 2009).

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**Organization:** Minnesota Sea Grant

Minnesota Sea Grant is part of a network of Sea Grant offices spread along the nation's coastline. Minnesota Sea Grant's goal is to improve Minnesota's coastal environment and economy through research and public education programs(Outreach & Education 2009). Sea Grant aims to do this by conveying the needs of communities, industries, and management agencies to state university scientists and by promoting the best and most current resource management practices regarding Lake Superior and inland lakes to resource users, managers, and policy-makers(Gunderson 2009).

**Program:** Water On the Web(WOW)

**Website:** <http://www.waterontheweb.org/>

**Contact:** Jeff Gunderson

**E-mail:** [jgunder1@umn.edu](mailto:jgunder1@umn.edu)

**Summary**

Water on the Web is a web-based curriculum intended for college and high school students to help learn about real-world environmental problems using advanced technology. WOW contains two sets of curriculum to provide knowledge in a plethora of different scientific fields(Outreach & Education 2009).

**Program:** Traveling Trunk Adventure

**Website:** <http://www.seagrant.umn.edu/educators/tt>

**Contact:** Doug Jensen

**E-mail:** [djensen1@umn.edu](mailto:djensen1@umn.edu)

**Summary**

Traveling Trunk Adventure is an educational program given by Minnesota Sea Grant to teach age's 8 to adult about invasive species and the effect they have on the region's aquatic ecosystems. Two different programs exist: Exotic Aquatics for ages 9 to adult and Zebra Mussel Mania for ages 8 to 14(Outreach & Education 2009).

**Program:** Ask A Scientist Speaker Series

**Website:** <http://www.seagrant.umn.edu/news/aas/>

**Contact:** Sharon Moen

**E-mail:** [smoen@umn.edu](mailto:smoen@umn.edu)

**Summary**

The speaker series is held once a month during the summer where a café hosts a free coffee hour for people to come and listen to a scientific expert. The science topics discussed usually have societal, political, and/or business ramifications for Lake Superior's coastal waters and communities(Outreach & Education 2009).

**Other Environmental Education Programs**

Center for Ocean Sciences Education Excellence(COSEE) Great Lakes

Habitattitude Campaign

Stop Aquatic Hitchhikers!

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**Organization:** Regional Stormwater Protection Team

The Regional Stormwater Protection Team's(RSPT) mission is "to protect and enhance the region's shared water resources through stormwater pollution prevention by providing coordinated educational programs and technical assistance." The RSPT is comprised of 21 different municipalities and organizations. A major part



of RSPT's plan is education and outreach of material to help the prevention of stormwater pollution(Regional Stormwater Protection Team 2009).

**Members**

MN Sea Grant  
MN Pollution Control Agency  
South St. Louis Soil and Water Conservation District.  
City of Duluth, Cloquet, Hermantown, Oliver, Proctor, Superior, Duluth, Rice Lake, and Midway Townships, Village of Superior  
St. Louis County  
St. Louis River Citizens Action Committee  
University of WI Superior  
Fond du Lac Reservation  
Lake Superior College  
MN Department of Transportation  
MN Department of Natural Resources  
WI Department of Natural Resources  
Natural Resources Research Institute  
University of Minnesota Extension  
Western Lake Superior Sanitary District  
MN Coastal Program

**Program:** Lake Superior Streams Website

**Website:** <http://www.duluthstreams.org>

**Contact:** Chris Kleist, Rich Axler

**E-mail:** [ckleist@duluthmn.gov](mailto:ckleist@duluthmn.gov), [raxler@nrri.umn.edu](mailto:raxler@nrri.umn.edu)

**Partners:** City of Duluth, Natural Resources Research Institute, MN Sea Grant, University of Minnesota Extension, MN Pollution Control Agency, Western Lake Superior Sanitary District, South St. Louis Soil and Water Conservation District, MN Coastal Program

**Summary**

The Lake Superior Streams website is a collaborative effort among local agencies who provide real time data and other information regarding Western Lake Superior Streams. Information on stormwater, local streams, and the region is available for public viewing. The website also provides material for volunteering, and educational resources for teachers and students(Lakesuperiorstreams 2009).

**Program:** Lake Superior Watershed Festival

**Website:** <http://www.lakesuperiorstreams.org/stormwater/watershedFestival/index.html>

**Contact:** Kate Kubiak

**E-mail:** [kate.kubiak@southstlouisswcd.org](mailto:kate.kubiak@southstlouisswcd.org)

**Phone:** 218-723-4867

**Partners:** City of Duluth, City of Superior, Great Lakes Aquarium

**Summary:**

The festival provides information and activities to stress the value and importance of protecting Lake Superior and its watershed. Attention is focused on how activities at home affect the health of Lake Superior and its tributaries. The festival hosts several workshops on a variety of topics including fly-fishing, gardening and rain-barrel construction. Overall, the festival offers information to the community about water resource protection and conservation(Regional Stormwater Protection Team 2009)..

**Program:** Regional Stormwater Protection Team Workshops

**Website:** <http://www.lakesuperiorstreams.org/stormwater/workshops.html>

**Contact:** Kate Kubiak

**E-mail:** [kate.kubiak@southstlouisswcd.org](mailto:kate.kubiak@southstlouisswcd.org)

**Phone:** 218-723-4867

**Summary:**

The RSPT offers a variety of workshops including: Winter Parking Lot and Sidewalk Maintenance, Learn to be Eco-Friendly, Tips for Managing Excess Water on your Property, and Erosion and Sediment Control. The availability of workshops depends on grant money(Kubiak 2009).

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**Organization: St. Louis River Citizen’s Action Committee(SLRCAC)**

The SLRCAC is a local group who serves to monitor the activities and projects aimed at restoration and protection of the St. Louis River. The SLRCAC works to improve the communication between local industries, businesses, and stakeholders with public and tribal agencies(Projects 2009).

**Program:** Natural & Cultural History of the St. Louis River

**Website:** <http://www.stlouisriver.org/projects.html>

**Contact:** Julene Boe

**E-mail:** [slrcac@StLouisRiver.org](mailto:slrcac@StLouisRiver.org)

**Phone:** 218-733-9520

**Summary:**

The SLRCAC provides visitors with an on the water guide to the Lower St. Louis River from Fond du Lac to Grassy point. The guide provides information on the history and cultural heritage of the “Head of the Lakes” region. Fishing spots, birding opportunities, and parking areas are also identified(Projects 2009).

**Program:** Watershed Guardian Program

**Website:** <http://www.stlouisriver.org/projects.html>

**Contact:** Julene Boe

**E-mail:** [slrcac@StLouisRiver.org](mailto:slrcac@StLouisRiver.org)

**Phone:** 218-733-9520

**Summary:**

The SLRCAC assists school groups and volunteers with creating stencils for storm drains that have educational messages written on them. The Guardian program also trains school groups and volunteers to monitor water quality of the lower St. Louis River(Projects 2009).

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**Organization:** South St. Louis Soil and Water Conservation District(SSLSWCD)

The SSLSWCD is a state government agency that provides technical, educational, and financial resources to landowners who chose land management techniques that protect and conserve water quality and other natural resources. The SSLSWCD has several grant based programs related to non-point source pollution, small acreage land management, as well as construction workshops for erosion and stormwater, these programs' availability varies with financial resources(Conservation Education 2007).

**Program:** Class Presentations

**Website:** <http://www.southstlouisswcd.org/education.html>

**Contact:** Kate Kubiak

**E-mail:** [kate.kubiak@southstlouisswcd.org](mailto:kate.kubiak@southstlouisswcd.org)

**Phone:** 218-723-4867

**Summary:**

SSLSWCD staff will visit classrooms to speak on forestry, water quality, soils, and careers in the Natural Resources(Kubiak 2009).

**Program:** Conservation Education Curriculum

**Website:** <http://www.southstlouisswcd.org/education.html>

**Contact:** Kate Kubiak

**E-mail:** [kate.kubiak@southstlouisswcd.org](mailto:kate.kubiak@southstlouisswcd.org)

**Phone:** 218-723-4867

**Summary:**

The curriculum consists of a series of activities targeted specifically at K-12 in Carlton and South St. Louis County. The curriculum is broken into four topics: water, soil, forests, and conservation. Each topic has a variety of lessons aimed at giving the student a better understanding of the resource(Kubiak 2009).

**Program:** Watershed Friendly Service and Fundraising Projects

**Website:** <http://www.southstlouisswcd.org/education.html>

**Contact:** Kate Kubiak

**E-mail:** kate.kubiak@southstlouisswcd.org

**Phone:** 218-723-4867

**Summary:**

The SSLSWCD provides a guide to boy scouts, girl scouts, youth groups, church groups, service fraternities, or any group looking for service learning or fundraising activities that help protect and conserve the regions water resources. These activities include car washing, stream clean ups, and storm sewer stenciling(Conservation Education 2007).

**Program:** Envirothon

**Website:** <http://www.southstlouisswcd.org/education.html>

**Contact:** Kate Kubiak

**E-mail:** kate.kubiak@southstlouisswcd.org

**Phone:** 218-723-4867

**Partners:** local businesses in St. Louis, Carleton, Lake, and Cook Counties

**Summary:**

The SSLSWCD hosts an outdoor environmental competition that helps high school aged students learn more about natural resources and the environment. In 2009 over 25 area schools registered for the competition. Teams of students compete in 5 different topic areas: aquatics, forestry, soils, wildfire, and current events. The topics are administered by a natural resource professional who gives general information about each topic before the competition. The top three teams from each area qualify for the state Envirothon. The Envirothon encourages students to learn about the environment and provides them with skills to practice basic resource management and ecology(Conservation Education 2007).

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**Organization:** Sugarloaf Cove

Sugarloaf is a membership funded organization promoting the conservation and understanding of Minnesota's North Shore. At Sugarloaf Cove, located 73 miles north of Duluth, exists an interpretive center teaching the natural and human history of the North Shore. The center offers daily informational sessions by the Cove's own naturalist and hosts guests speakers weekly. Sugarloaf also works closely with private land owners to promote stewardship and the use of environmentally friendly land management(About Sugarloaf Cove 2009).

**Program:** Learning Cart

**Website:** <http://www.sugarloafnorthshore.org/index.html>

**Contact:** Molly Thompson

**E-mail:** molly@sugarloafnorthshore.org

**Phone:** 218-525-0001

**Partners:** local businesses, MN Coastal Program

**Summary:**

Learning cart is a mobile informational display containing materials for local parks, businesses, and tourist attractions. The cart spends the majority of its time in Canal Park located in Duluth, MN, but also travels to area state parks including Tettegouche and Gooseberry State Parks. The learning cart provides information about available recreation and informational resources that are available in the area(Thompson 2009).

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**Organization:** Lake Superior Research Institute- University of WI-Extension

The Lake Superior Research Institute(LSRI), based at the University Wisconsin Superior campus, was created in 1967 with a mission that includes environmental research, environmental education, and public information for the Great Lakes Region. Research and education areas include biological monitoring, ballast water treatment research, biodiesel fuel research, invasive species research, and toxicity tests. LSRI operates and maintains a 58-ft research vessel for research and educational purposes(Lake Superior Research Institute 2008).

**Program:** View from the Lake/ Non-point source pollution Education for Municipal Officials(NEMO)

**Website:** <http://www.seagrant.umn.edu/vfl/>

**Contact:** Sue O'Halloran

**E-mail:** SOHallor@uwsuper.edu

**Partners:** Minnesota Sea Grant

**Summary:**

View from the Lake is a 3 hour educational cruise onboard LSRI's research vessel the LL Smith. The tour goes along Lake Superior's coastline where participants learn the importance of lake monitoring and are able participate first hand with different sampling techniques. LSRI staff explain how lake monitoring allows researchers to evaluate the economic and environmental sustainability of Lake Superior and its coastal communities. Visitors learn the concepts of sustainability and how they are implemented with local projects in progress(View from 2009).

The View from the Lake is a tool for the NEMO education program aimed at providing education to elected and appointed decision makers addressing the relationships between land use and natural resources, especially water. The NEMO mission is to "help Minnesota and Wisconsin communities better protect natural resources while accommodating growth and redevelopment"(Northland NEMO 2009).

**Program:** Environmental Education and Stewardship

**Website:** <http://www.seagrant.umn.edu/vfl/>

**Contact:** Sue O'Halloran

**E-mail:** SOHallor@uwsuper.edu

**Summary:**

The Kimmes-Tobin wetland area was set aside directly for wetland education activities. K-12 students sample and identify aquatic insects, learn about aquatic plants, and measure water quality parameters. By visiting the wetland students are exposed to a variety of wildlife and also learn the importance wetlands play in naturally processes(Lake Superior Research Institute 2008).

**Program:** University of Wisconsin Elderhostel Program

**Website:** <http://www.seagrant.umn.edu/vfl/>

**Contact:** Sue O'Halloran

**E-mail:** SOHallor@uwsuper.edu

**Summary**

Senior citizens have the opportunity to learn more about our natural resources, specifically the Great Lakes issues and concerns(Lake Superior Research Institute 2008)..

**Other Educational Programming**

Teacher Workshops

Volunteer Stream and Marsh Monitoring

Aquatic Invasive Species Education

Land Use and Watershed Health

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**Organization:** University of Wisconsin Extension- Northern Great Lakes Visitor Center

The Northern Great Lakes Visitor Center(NGLVC) is located just west of Ashland, WI and provides information and displays of the Lake Superior region and its heritage. The University of Wisconsin Extension uses the NGLVC to offer a variety of education programs aligned with WI Academic Standards. Programs are supported in part by grants from the WI Environmental Education Board and WI Coastal Management Program(Center Educational Program 2009).

**Program:** Adopt-An-Estuary Curriculum

**Website:** [http://www.nglvc.org/nglvc\\_educational\\_programs.htm](http://www.nglvc.org/nglvc_educational_programs.htm)

**Contact:** Cathy Techtmann

**E-mail:** catherine.techtmann@ces.uwex.edu

**Phone:** 715-685-2671

**Summary:**

The Adopt-An-Estuary Curriculum is comprised of 12 sequential lessons that target high school learners and older. It is modeled off of the National Oceanic Administration's Estuaries 101 curriculum which is based off of field-based lessons with supplementary classroom activities(Techtman 2009).

**Program:** Fish Creek Estuary Education

**Website:** [http://www.nglvc.org/nglvc\\_educational\\_programs.htm](http://www.nglvc.org/nglvc_educational_programs.htm)

**Contact:** Cathy Techtmann

**E-mail:** catherine.techtmann@ces.uwex.edu

**Phone:** 715-685-2671

**Summary:**

The Fish Creek Curriculum consists of 8 different lesson plans each focusing on different estuarine issues. The classroom, field, and on-the-water curriculum is intended for children ages 12 and above and is often used for local school field trips. The intent is to learn how the region's geology, culture, and history have shaped the unique estuarine habitats. The course covers watershed health, coastal wetland restoration, and estuarine processes(Techtmann 2009).

**Program:** Lake Superior Basin Stewardship Curriculum

**Website:** [http://www.nglvc.org/nglvc\\_educational\\_programs.htm](http://www.nglvc.org/nglvc_educational_programs.htm)

**Contact:** Cathy Techtmann

**E-mail:** catherine.techtmann@ces.uwex.edu

**Phone:** 715-685-2671

**Summary:**

The Lake Superior Basin Stewardship Curriculum uses 12 separate lesson plans intended for pre-K children all the way through high school. The lessons range from Lake Superior's aquatic and terrestrial biota to the different native tribes and European settlements. The lessons use both classroom and field experiences. This curriculum uses the lessons from estuaries education for junior and high school students, but also includes Lake Superior Watershed Education(Techtmann 2009).

**Program:** Paddle Through Time Curriculum

**Website:** [http://www.nglvc.org/nglvc\\_educational\\_programs.htm](http://www.nglvc.org/nglvc_educational_programs.htm)

**Contact:** Cathy Techtman

**E-mail:** catherine.techtmann@ces.uwex.edu

**Phone:** 715-685-2671

**Summary:**

Paddle through Curriculum is given on board a 34 foot voyageur canoe intended for ages 12 and above. The focus of the voyage is to teach participants the role estuaries and wetlands have in the region's sustainability from Native American settlement until today(Techtmann 2009).

**Other Education Material:**

*String Of Pearl series*

Coastal Wetlands and Estuaries Exhibit at NGLVC

Coastal Wetlands Interpretive Trail Signs at NGLVC

**Organization:** Western Upper Peninsula Center for Science, Mathematics and Environmental Education(Western UP Center)

The Western UP Center is a partnership of the western counties of the Upper Peninsula Michigan to promote the teaching and learning of science and mathematics. The center's main goal is to build an education work force by providing quality learning opportunities for students and professional teacher development training[WUPCSMEE 2009].

**Program:** Lake Superior Stewardship Initiative(LSSI)

**Website:** <http://lakesuperiorstewardship.org/>

**Contact:** Joan Chadde

**E-mail:** [jchadde@mtu.edu](mailto:jchadde@mtu.edu)

**Summary:**

The LSSI focuses on Lake Superior and its watershed, specifically the natural environment and development. The initiative uses three strategies: 1) implementing classroom curriculum covering the community, the watershed, and the cultural heritage to give students a sense of place in the Great Lakes, 2) providing student and teacher learning opportunities to expand their knowledge of the Great Lakes and the region's resources, and 3) create school-community partnerships with local governments to better address local needs[WUPCSMEE 2009].

**Program:** Great Lakes Maritime Transportation Education

**Website:** [http://wupcenter.mtu.edu/education/great\\_lakes\\_maritime/index.htm](http://wupcenter.mtu.edu/education/great_lakes_maritime/index.htm)

**Contact:** Joan Chadde

**E-mail:** [jchadde@mtu.edu](mailto:jchadde@mtu.edu)

**Partners:** Great Lakes Maritime Research Institute(UWS)

**Summary:**

Great Lakes Maritime Transportation Education provides workshops and materials for teacher development and training. The program also includes lesson plans and curriculums for teachers to use in the classroom. Information is provided to help educators teach students how vital the Great Lakes are to the region's economy and world commerce[WUPCSMEE 2009].

**Program:** Lake Superior Youth Symposium

**Website:** <http://lakesuperioryouth.org/>

**Contact:** Joan Chadde

**E-mail:** [jchadde@mtu.edu](mailto:jchadde@mtu.edu)

**Summary:**

Every other year the Lake Superior Youth Symposium is held in Wisconsin, Michigan, Minnesota, or Ontario for students and teachers who care about Lake Superior and the Great Lakes. The symposium takes place over 4 days that includes many events such as



keynote lecturers, guest presentations, a variety of field trips, and student presentations[WUPCSMEE 2009].

## Appendix 2: Survey Comments

2. Do you support the designation of the St. Louis River as a National Estuarine Research Reserve? Comments:

- 1) we need to have estuarine reserves where research can occur over the long-term in a manner in which it is readily made understandable to the general public in order to improve environmental decision-making
- 2) Because it will bring additional resources to the region, especially in the areas of education and research.
- 3) It is important to learn more about how freshwater estuary processes work. Since only one other freshwater NERR exists, current understanding of these processes is very limited. The designation of the Lake Superior NERR will greatly increase our understanding.
- 4) There is only one other freshwater NERR in the nation and another one showcasing the estuaries on the largest great lake in the nation would be a valuable national resource.
- 5) I was on the site selection team and agree with the results!
- 6) Best option for NERR objectives in the Lake Superior region.
- 7) To bring the resources of NOAA to Lake Superior to learn more about freshwater estuaries. To connect more with agencies and governments for research, education and management. To share that info with others in freshwater estuaries.
- 8) The area is the largest, most diverse and logistically very critical
- 9) It's one of the largest Tributaries to Lake Superior and the Great Lakes, has a large estuary that meets many if not most of the criteria set out for such a nomination. It also is a working industrial port which provides even more research and educational opportunities.
- 10) after air and shelter from the elements, clean water is critical to life; we need to know more about how to protect and restore the headwaters to the great lakes
- 11) It is a valuable natural resource that needs to be protected. To protect it, people in general need to be taught about it. Once they are taught, they are more likely to want to protect it.

3. Please rate the importance of each "need" of the Duluth/Superior area environmental education community as it relates to freshwater estuary education. Others(Please specify)

- 1) On-line public access to information (data and interpretation)
- 2) Education programs for the general public, on-the-water programs, development of web-based educational outreach
- 3) Volunteer opportunities - hands on learning
- 4) Students

4. Please provide any comments related to the future of educational programming of the Lake Superior NERR.

- 1) Hands-on learning is the best. Get the teachers and students out in the environment (the estuary) as much as is possible.
- 2) Capitalize on existing educational infrastructure and programs that take people to the resources.
- 3) I think it's important that the educational programming at the Lake Superior NERR be coordinated and integrated with the schools, colleges, universities and other educational institutions in the Lake Superior Basin and area.
- 4) The above needs in my reasoning were based on "Yes our community needs these things" not necessarily that there is a gap in materials or a need for new materials, materials and professional are already available to do the task - just tweaks are needed for specific messaging and coordination. The only new project that is needed, from my perspective, is the Interpretive Educational Facility.
- 5) It is important to coordinate with estuary programming already being done across the Lake Superior Basin and to use existing curricula if appropriate.
- 6) Behavior consistent with the message: lots of hands-on involvement, minimal brochures, no plastic advertising trinkets, no Styrofoam cups and lack of recycling at events etc
- 7) There are some great local organizations in place currently that are working towards the same goals. I think it should be a priority to work with these groups to streamline operations and reach the largest audience possible.

## Lake Superior NERR Management Plan – Participation Lists

### NOAA Representatives

Matt Chasse NOAA  
Tina O'Connell NOAA

### Steering Team

Robin Shepard UWEX  
Thomas Blewett UWEX  
Mary Morgan City of Superior  
Christine Ostern Douglas County  
Bob Browne Douglas County  
Kari Hedin Fond du Lac  
Pat Collins MN DNR/Coastal Program  
Faith Hensrud UW-Superior  
Jim Hurley UW-Sea Grant Institute  
Jordy Jordahl WI DOA  
Michael Friis WCMP - DOA  
Bill Smith WDNR  
Rebecca Schroeder WDNR  
Thomas Jerow WDNR

### Coordination Team

Patrick Robinson UWEX  
Becky Sapper UWEX  
Cathy Techtmann UWEX  
Sue O'Halloran UWEX/UWS  
Travis Olson WCMP - DOA

### Research & Monitoring Advisory Committee

Brian Frederickson MPCA  
Daryl Peterson MN TNC  
Deb Anderson LCO Ojibwe Comm. College  
Diane Nelson City of Superior  
Eric Epstein WDNR  
Gene Clark WI Sea Grant  
Glenn Guntenspergen USGS  
Janet Keough EPA  
Joan Elias NPS  
Joel Hoffman EPA  
John Jereczek WDNR  
John Lindgren MN DNR  
Joy Zedler UW-Madison  
Kari Hedin Fond du Lac Band  
Lynelle Hanson UWEX  
Marc Hershfield MPCA  
Mary Balcer UW-Superior  
Matt Hudson GLIFWC  
Mike Seider WDNR  
Mike Koutnik Citizen  
Philip Moy WI Sea Grant  
Randall Hicks UMD CFRP  
Rich Axler NRRRI  
Rick Gitar Fond du Lac Band  
Steve Leppala MPCA  
Tom Hollenhorst EPA  
Valerie Brady MN Sea Grant

### Outreach & Education Advisory Committee

Bob Browne Douglas County  
Bob Cragin St. Louis River Alliance  
Bonita Martin St. Louis River Alliance  
Bruce Lindgren Citizen  
Deb Anderson LCO Ojibwe Comm. College  
Dennis Pratt WI DNR  
Diane Daulton Citizen  
Diane Nelson City of Superior  
Diane Parr Teacher  
Janna Stevens Superior Schools  
Jeff Gunderson Univ. of MN  
Jill Jacoby Citizen  
Joan Wimpe UW-Extension  
Lori Danz Teacher  
Michael Anderson Citizen  
Mike Kennedy MPCA  
Mike Koutnik Citizen  
Molly Thompson Sugarloaf  
Nadine Meyer MinnAqua  
Philip Moy UW-Sea Grant Institute  
Rich Axler NRRRI  
Rick Gitar Fond du Lac Reservation  
Sarah Erickson Great Lakes Aquarium  
Sarah Wilcox UWEX  
Sue Masterson K12-Administration  
Tom Fratt Ashland County  
Tom Hollenhorst EPA  
Willard Munger Citizen

### Community & Partner Involvement

#### Advisory Committee

Bob Browne Douglas County  
Bob Cragin St. Louis River Alliance  
Bonita Martin St. Louis River Alliance  
Brian Frederickson MPCA  
Daryl Peterson MN TNC  
Diane Nelson City of Superior  
Gene Clark WI Sea Grant  
Jason Laumann NWRPC  
Julene Boe St Louis River Alliance  
Kari Hedin Fond du Lac Band  
Kathryn McKenzie Douglas County  
Mike Koutnik Citizen  
Nancy Larson WI DNR  
Philip Moy WI Sea Grant  
Ricky W. Defoe Fond du Lac Band  
Rick Gitar Fond du Lac Band  
Ruth Oppedahl UWEX  
Tom Nicodemus Midwest Energy  
Will Munger Citizen

## Lake Superior NERR Management Plan – Participation Lists

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### Tribal Governments and Organizations

Deb Anderson	LCO Ojibwe Comm. College
Karen Danielsen	GLIFWC
Matt Hudson	GLIFWC
Rick Gitar	Fond du Lac
Erv Soulier	Bad River
Matt Symbal	Red Cliff
Chris Holm	Bois Forte (Nett Lake)
Darren Vogt	1854 Treaty Authority
Kari Hedin	Fond du Lac

### Political Representatives/Gov. offices

Bryce Luchterhand	Governor Doyle's Office
Marjorie Bunce	Sen. Kohl's Office
Matt Rudig	Rep. Obey's Office
Nick Milroy	WI Assembly
Bob Jauch	WI Senate
Jason Serck	City of Superior
Mayor Ross	City of Superior
Larry MacDonald	WCMP
Sarah Pischer	Dept of Tourism

### Interested Parties/ Stakeholders (cc:list)

Bob Banks	Citizen
Bryan Sederberg	Univ. of Michigan
David Clutter	Natural Resource Foundation
Ed Monroe	City of Ashland
Ellen Brody	NOAA
Fred Strand	WDNR
Gene Lemmenes	Citizen
Glenn Cunningham	Citizen
Jane Anklam	WWLT
Jim Meeker	Northland College
Matt Gove	NOAA
John Gozdziwski	WDNR
Julie Van Stappen	NPS
Kimberly Walz	WDNR
Kurt Schmude	UW-Superior LSRI
Matt Dallman	WI TNC
Matt TenEyck	UW-Superior LSRI
Megan O'Shea	WDNR
Mike Gardner	Northland College
Nick Danz	UW-Superior Biology Dept
Pam Dryer	USFWS
Paul Hlina	UW-Superior LSRI
Randall Hicks	UMD CFRP
Randy Hoffman	WDNR
Ryan Magana	WDNR
Steve Schram	WDNR
Steve Hoecker	N. Great Lakes Visitor Center
Steven W Miller	WDNR
Ted Cox	UW-Superior LSRI
Ted Smith	Citizen



# Lake Superior National Estuarine Research Reserve Project

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## Management Planning Steering Committee (Ad-hoc)

### Purpose

- \* To provide guidance for the Lake Superior National Estuarine Research Reserve (NERR) Management Planning process and assist with determining the administrative relationships that will guide a Wisconsin NERR.

### Responsibilities

- \* Assist with developing the Management Plan for the Lake Superior NERR.
- \* Assist with determining the final boundary for the NERR.
- \* Work with the state lead agency (UW-Extension) to determine the administrative relationships, operating budget, and facility requirements necessary for a Lake Superior NERR over the next five years.
- \* Assist with developing a five-year administrative plan, research plan, education plan, public access plan, construction plan, and acquisition plan for the NERR.
- \* As necessary, assist NOAA with development of an Environmental Impact Statement for the NERR.
- \* Assist with tribal government consultation.
- \* Develop necessary Memorandums of Understanding between NERR partners and the lead state agency (UW-Extension).

### Membership

- \* Membership will be comprised of proposed management and operation partners for the NERR (UW-Extension, UW-Superior, City of Superior, Wisconsin Department of Natural Resources, and Wisconsin Department of Administration – Wisconsin Coastal Management Program). Depending upon NERR final boundary determinations, Douglas County may also be included.
- \* Staff from UW-Extension, UW-Superior, and the Wisconsin Coastal Management Program will provide support and meeting coordination assistance for the committee.

### Time Requirements

- \* Attend committee meetings and complete tasks between meetings as necessary during the management planning process. Management Plan development is expected to be completed by the end of 2010.
- \* This is an ad-hoc committee that will dissolve upon completion of the Management Plan. The Memorandums of Understanding developed through the management planning process will determine the final relationships between the NERR management and operation partners.



# Lake Superior National Estuarine Research Reserve Project

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## Coordination Team (Ad-hoc)

### Purpose

- \* To provide staff support and coordination assistance for the Lake Superior National Estuarine Research Reserve (NERR) Management Planning process and to act as a liaison between the NERR partners.

### Responsibilities

- \* Implement guidance provided by the Steering Committee.
- \* Provide staff support and assist with developing and preparing the Management Plan for the Lake Superior NERR.
- \* Coordinate and support all of the management planning committees and activities.
- \* As necessary, assist NOAA with development of an Environmental Impact Statement for the NERR.
- \* Assist with liaison activities between NERR partners and with NOAA.
- \* Assist with tribal government consultation.

### Membership

- \* Membership will be comprised of staff from UW-Extension, UW-Superior, and the Wisconsin Coastal Management Program.

### Time Requirements

- \* Provide representation at all committee meetings and complete tasks between meetings as necessary during the management planning process. Management Plan development is expected to be completed by the end of 2010.
- \* This is an ad-hoc committee that will dissolve upon completion of the Management Plan.



## Lake Superior National Estuarine Research Reserve Project

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### **Community and Partner Involvement Advisory Committee (Ad-hoc)**

#### **Purpose**

- \* To provide advice and input to the Lake Superior National Estuarine Research Reserve (NERR) Management Planning Steering Committee regarding the community and partner involvement goals, objectives, and strategies that should be included in the NERR Management Plan.

#### **Responsibilities**

- \* Respond to requests for advice and input from the Steering Committee related to community and partner involvement goals, objectives, and strategies for the Lake Superior NERR.
- \* Assist with the review of draft portions of the management plan detailing the community and partner involvement goals, objectives, and strategies for the NERR.

#### **Membership**

- \* Membership will be comprised of individuals and organizations with expertise relative to community and partner involvement, especially as it relates to Lake Superior freshwater estuary issues.
- \* Membership in the committee is voluntary and, as a result, membership in the committee may change over time.
- \* Staff from UW-Extension, UW-Superior, and the Wisconsin Coastal Management Program will provide support and meeting coordination assistance for the committee.

#### **Time Requirements**

- \* Attend committee meetings and complete tasks between meetings as necessary to provide community and partner involvement advice and input. The exact time commitment that this may require is uncertain. Two to four meetings are anticipated during the management planning process, but additional meetings may be necessary. Management Plan development is expected to be completed by the end of 2010.
- \* This is an ad-hoc committee that will dissolve upon completion of the Management Plan. Opportunities for future input regarding NERR community and partner involvement will likely be provided through standing committees or other arrangements developed after NERR designation.





# Lake Superior National Estuarine Research Reserve Project

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## Outreach and Education Advisory Committee (Ad-hoc)

### Purpose

- \* To provide advice and input to the Lake Superior National Estuarine Research Reserve (NERR) Management Planning Steering Committee regarding the outreach and education priorities, goals, and objectives that should be included in the NERR Management Plan.

### Responsibilities

- \* Respond to requests for advice and input from the Steering Committee related to outreach and education priorities, goals, and objectives for the Lake Superior NERR.
- \* Assist with the review of draft portions of the management plan detailing the outreach and education priorities, goals, and objectives for the NERR.

### Membership

- \* Membership will be comprised of individuals and organizations with expertise relative to Lake Superior freshwater estuary outreach and education.
- \* Membership in the committee is voluntary and, as a result, membership in the committee may change over time.
- \* Staff from UW-Extension, UW-Superior, and the Wisconsin Coastal Management Program will provide support and meeting coordination assistance for the committee.

### Time Requirements

- \* Attend committee meetings and complete tasks between meetings as necessary to provide outreach and education advice and input. The exact time commitment that this may require is uncertain. Two to four meetings are anticipated during the management planning process, but additional meetings may be necessary. Management Plan development is expected to be completed by the end of 2010.
- \* This is an ad-hoc committee that will dissolve upon completion of the Management Plan. Opportunities for future input regarding NERR outreach and education priorities will likely be provided through standing committees developed after NERR designation.



# Lake Superior National Estuarine Research Reserve Project

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## Research and Monitoring Advisory Committee (Ad-hoc)

### Purpose

- \* To provide advice and input to the Lake Superior National Estuarine Research Reserve (NERR) Management Planning Steering Committee regarding the research and monitoring priorities, goals, and objectives that should be included in the NERR Management Plan.

### Responsibilities

- \* Respond to requests for advice and input from the Steering Committee related to research and monitoring priorities, goals, and objectives for the Lake Superior NERR.
- \* Assist with the review of draft portions of the management plan detailing the research and monitoring priorities, goals, and objectives for the NERR.

### Membership

- \* Membership will be comprised of individuals and organizations with expertise relative to Lake Superior freshwater estuary research and monitoring.
- \* Membership in the committee is voluntary and, as a result, membership in the committee may change over time.
- \* Staff from UW-Extension, UW-Superior, and the Wisconsin Coastal Management Program will provide support and meeting coordination assistance for the committee.

### Time Requirements

- \* Attend committee meetings and complete tasks between meetings as necessary to provide research and monitoring advice and input. The exact time commitment that this may require is uncertain. Two to four meetings are anticipated during the management planning process, but additional meetings may be necessary. Management Plan development is expected to be completed by the end of 2010.
- \* This is an ad-hoc committee that will dissolve upon completion of the Management Plan. Opportunities for future input regarding NERR research and monitoring priorities will likely be provided through standing committees developed after NERR designation.

**Lake Superior NERR**  
***Community and Partner Involvement Advisory Committee Meeting***

University of Wisconsin-Superior

May 19, 2009

9:00 am – 12:00 pm

**Minutes**

Becky Sapper welcomed the Advisory Committee and introductions were made, please see the attached participants list.

Becky provided an overview of the work that has been done on the framework of the management plan by the Steering Committee and Coordination Team since the last meeting in February, including the draft LSNERR Mission, Vision and Guiding Principles listed below. The Guiding Principles were identified by the participants of the Site Selection Teams as the vision for a LSNERR prior to their work. These points remain important and are now identified as the Guiding Principles.

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**Vision:** The Lake Superior NERR is an international leader in advancing understanding and stewardship of Great Lakes freshwater estuaries and coastal resources.

**Guiding Principles for the Lake Superior NERR at the St. Louis River Freshwater Estuary:**

- Promote understanding and protection of Lake Superior freshwater estuary systems
- Demonstrate the application of watershed management practices
- Create a vital community asset and a destination for visitors
- Model long-term community involvement and inter-governmental cooperation
- Conduct applied research of local, statewide, national, and international importance
- Provide leadership for integrated applied research, management, education and outreach related to freshwater estuaries

Five Goals were identified for the LSNERR. They include:

**Goal 1-Research** Conduct applied research and monitoring to increase the understanding of Lake Superior freshwater estuaries and coastal ecosystems.

**Goal 2-Education** Educate youth, community members, and visitors about Lake Superior freshwater estuaries and coastal resources and improve their ability to address coastal issues.

**Goal 3-CTP (Coastal Training Program)** Increase community leaders' and other decision makers' ability to address critical Lake Superior coastal management issues.

**Goal 4-Stewardship** Protect and enhance the ecological health of the St. Louis River watershed and Lake Superior coastal habitats.

**Goal 5-Collaboration** Collaborate on estuary and coastal issues at local, regional, and international levels.

There are 8 chapters of the Management plan that need to have objectives and actions included. They are the Administration, Public Access, Boundaries, Facilities, Research & Monitoring, Education, Stewardship and Volunteer

Chapters. The Steering Committee and Coordination Team identified objectives for the each of the Chapters as it related to the 5 identified Goals. These objectives were placed in the attached matrix.

The Advisory Committee was asked to take two specific objectives and to share with the group action items that could be placed under these objectives. These actions were shared by round robin, facilitated by Patrick Robinson and recorded on flipcharts and can be found below. After ideas were exhausted, themes were identified where these action items could be placed, which is also identified below. The meeting concluded with the Coordination Team given the task to take the actions and place them in the most logical themes to be brought back to the Advisory Committee for prioritization.

***Question based on Objective 1: What actions should be taken to incorporate partners and volunteers into LSNERR education and outreach programs and activities?***

Actions:

1. Develop a list of existing and proposed education and outreach activities/programs
2. Establish volunteer monitoring program for selected taxa and communities (bird, frog counts) with a focus on training in environmental education (integrate existing programs)
3. Develop communication tools for youth, community members and visitors (ongoing communication plan or strategy)
4. Connect the NERR to citizens through engagement of staff through workshops, lectures, etc. Build upon existing work
5. Define volunteer needs (skill levels, expectations, awards) Develop volunteer plan
6. Provide tours of the SLR system to engage/educate potential volunteers (land & water modes and with targeted audiences)
7. Develop a volunteer naturalist educators (docents)
8. Institutionalize volunteer programs (AmeriCorps) and tie them into existing UWS Programs; provide institutionalized internship opportunities
9. Develop methods for sharing results of volunteer activities with volunteers(use web/internet)
10. Develop a field research projects for retirees
11. Make sure that research projects have a requirement to share results/engage the public
12. Create a detailed list of existing volunteer groups and their roles/interest/activities
13. Identify opportunities to collaborate with the public school systems
14. Develop a targeted contact package to engage volunteers and partners
15. Establish a volunteer and visitor based phenology program coordinated by NERR; share results with public
16. Develop education modules for elementary through college teachers and modules for decision makers
17. Develop a Master Naturalist program
18. Develop a messaging/marketing tool about why we want people engaged/interested; share history
19. Hold annual Volunteers Day
20. Hire a media relations/PR person
21. Hire a volunteer coordinator for the NERR (or volunteer=volunteer coordinator)
22. Engage volunteers in special events
23. Develop a volunteer recognition program
24. Co-sponsor activities with other organizations/partners

25. Develop specific identifiable volunteer monitoring or 'Adopt A' programs
26. Share information with volunteers about the importance of long-term monitoring and trends and the importance of individual observations to long-term trends
27. Identify regional and national events that are already occurring and engage where appropriate
28. Hold monthly thematic volunteer events
29. Evaluate all NERR research, education and outreach program to ID volunteer opportunities
30. Apply for lots of grants to support volunteer activities
31. Develop and maintain a list of service learning projects by location
32. Stewardship award recognition program – commercial entities
33. River expert lecture series with many aspects (history, ecology, etc)
34. Incorporate volunteers into a governance role (education advisory committee)
35. ID areas where the NERR provide leadership relative to existing and future volunteer opportunities
36. Engage frequent river users/workers in volunteer activities
37. Develop innovative programs for engaging people outside of the area (science cafe)
38. Develop a public outreach and community involvement plan
39. Develop self guided land and water tours specific to the NERR
40. Engage experts and those with relative stories so that they can share their expertise including experts from outside the area
41. Targeting programming related to green businesses and homeowners; highlight positive stories
42. Consider promoting tax incentives for certain activities, such as green activities
43. Help facilitate monitoring at Lake Superior freshwater estuaries and possibly Lake Michigan
44. Work with political activities on land use planning and policies that protect the quality of the estuary
45. Engage a volunteer librarian to support the education program
46. Assist other community groups with similar missions and goals by providing meeting space for activities, meetings, etc
47. Develop a concept for a citizen research center

## **Themes**

- Inventory of Existing Programs (BMPs)
- Logistics/Mechanics Developing and Managing of Volunteer Program
  - Plan
  - Recruitment
  - Retention/recognition
  - Management
- Citizen Research/Education/Monitoring (needs)
- Recruitment of Volunteers
- Education Program
- Outreach Planning and Implementation (Outreach)
- Volunteers as Ambassadors/Advocates
  - (Green business, landowners)
- Collaborative Opportunities

**Question based on Objective 2:** *What actions should be taken to develop a locally based Friends organization to support LSNERR activities and programs?*

Actions:

1. ID Regions (geography) for the Friends organization
2. ID messaging regarding what makes this a unique NERR (i.e. working waterfronts)
3. ID audiences and stakeholders (community leaders or funders) including consideration of potential collaborators local regional, etc...members?
4. Include divers representation
5. Initiate Friends group ASAP
6. The Friends group should not be involved in governance; fundraising, public support, etc
7. Establish position/role and responsibilities and support for the Friends group; NERR staff need to do this and help with initial establish
8. Establish purpose and possible limitation of group
9. NERR staff need to develop mechanics for involvement of the group both actively and productively
10. Establish incorporated status early – non profit
11. Develop visibility items (logos, t-shirts, decals, bumper stickers)
12. Examine and explore fundraising opportunities and creative opportunities
13. Develop Friends activities and events
14. Training orientation materials for new friends

**Meeting Attendees**

Patrick Robinson	University of Wisconsin-Extension
Becky Sapper	University of Wisconsin-Extension
Travis Olson	Department of Administration – Wisconsin Coastal Mgmt Program
Christine Ostern	Douglas County
Bob Cragin	St. Louis River Alliance
Bonita Martin	St. Louis River Alliance
Diane Nelson	City of Superior
Gene Clark	WI Sea Grant
Jason Laumann	Northwest Regional Planning Commission
Julene Boe	St Louis River Alliance
Kathryn McKenzie	Douglas County
Pat Collins	MN DNR/Coastal Program
Ruth Oppedahl	University of Wisconsin-Extension
Matt Rudig	Rep. Obey’s Office
Bryan Sederberg	University of Michigan
Jim Hurley	Wisconsin Sea Grant
Stephen Wittman	Wisconsin Sea Grant
Megan O’Shea	WDNR



## Lake Superior National Estuarine Research Reserve

### Lake Superior NERR

#### *Outreach and Education Advisory Committee Meeting*

University of Wisconsin-Superior

May 19, 2009

1:00 – 4:00 pm

#### **Minutes**

Becky Sapper welcomed the Advisory Committee and introductions were made, please see the attached participants list. Bryan Sederberg, graduate student from University of Michigan-Ann Arbor, was introduced. Bryan will be assisting the Coordination Team with an inventory of existing outreach and education programming already occurring, helping to identify gaps and finding linkages to existing national NERR programs and curriculum. Bryan will be trying to make contact with Advisory Committee members to help him with this work.

Becky provided an overview of the work that has been done on the framework of the management plan by the Steering Committee and Coordination Team since the last meeting in February, including the draft LSNERR Mission, Vision and Guiding Principles listed below. The Guiding Principles were identified by the participants of the Site Selection Teams as the vision for a LSNERR prior to their work. These points remain important and are now identified as the Guiding Principles.

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#### **Guiding Principles for the Lake Superior NERR at the St. Louis River Freshwater Estuary:**

- Promote understanding and protection of Lake Superior freshwater estuary systems
- Demonstrate the application of watershed management practices
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- Model long-term community involvement and inter-governmental cooperation
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- Provide leadership for integrated applied research, management, education and outreach related to freshwater estuaries

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**Goal 3-CTP (Coastal Training Program)** Increase community leaders' and other decision makers' ability to address critical Lake Superior coastal management issues.

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There are 8 chapters of the Management plan that need to have objectives and actions included. They are the Administration, Public Access, Boundaries, Facilities, Research & Monitoring, Education, Stewardship and Volunteer Chapters. The Steering Committee and Coordination Team identified objectives for the each of the Chapters as it related to the 5 identified Goals. These objectives were placed in the attached matrix.

The Advisory Committee was asked to take two specific objectives and to share with the group action items that could be placed under these objectives. These actions were shared by round robin, facilitated by Patrick Robinson and recorded on flipcharts and can be found below. After ideas were exhausted, themes were identified where these action items could be placed, which is also identified below. The meeting concluded with the Coordination Team given the task to take the actions and place them in the most logical themes to be brought back to the Advisory Committee for prioritization.

**Question based on Objective 1:** *What actions should be taken to increase public awareness of the cultural and ecological significance of the St. Louis River and Lake Superior Freshwater Estuary and coastal resources?*

Actions:

1. Develop consistent brand for NERR educational materials (logos, letterheads)
2. Involve local political bodies engaged with direct lectures and/or tours for those bodies
3. Explore existing programs/curriculum/resource people and develop inventory
4. Develop web-based modes of education (tourism, facebook, etc) Making it interactive with video, audio (virtual tour) of estuary (defines and demonstrates relationships between natural and human world) Streaming water data, especially after storm events, outdoor recreation reports, phenology) Establish a blog.
5. Create speaker's bureau – professionals who can speak on and off site about cultural and ecological topics
6. Conduct special events
7. Provide on the water experiences to explore the estuary
8. Targeted publications to different user groups
9. Encourage PBS, Public Radio, and commercial media to develop their own nature stories
10. Develop outreach programming, continuing education, cooperative education and Extension type programming
11. Provide hands on experiences in the field
12. Generate a list of significant cultural and ecological resources
13. Engage in ongoing special events (such as Lake Superior Day)
14. Incorporate past and current Native American history & culture
15. Host events at state capitols
16. Establish geo-cache program to lead them around the NERR site
17. Establish a sister NERR program to educate those here about other NERRS
18. Establish a list of national and local ecological and cultural experts that can be drawn upon
19. Gathering and summarize existing cultural and ecological information to develop appropriate message
20. Develop a Friends group
21. Develop lesson plans for local high schools related to history, geology, ecology, etc
22. Develop interpretive signs and exhibits
23. Establish webcams with live feeds (including underwater) (video or research activities cam)



24. Use distance learning tools and modes of education
25. Train local community members as information outlets and advocates
26. Establish time frame for interpretation – relative to the resource
27. Create billboards
28. Produce public awareness ads
29. Expand out of class experience for college students
30. Facilitate the sharing of cultural history stories to develop a sense of place and cultural awareness
31. Develop a library of resources
32. Incorporate other languages (ie. Native American) into exhibits
33. Develop material about the unique aspects of SLR compared to other NERR sites
34. Develop education programming about what's been lost culturally/ecologically
35. Allow the target audience experts to develop mechanisms to deliver the messages
36. Communicate/partner with industry
37. Develop/acquire tools/capacity for PR outreach; maintain extensive contacts database
38. Develop mechanisms for building a funding base
39. Develop programming for the occasional/short term visitor
40. Collaborate on displays/signage with local EE centers
41. Ensure equal access for people of all abilities
42. Develop/build a site for NERR education activities
43. Online library of viewable and downloadable presentation materials/podcasts
44. Involving kids/youth through the school system
45. Include list of culturally significant plants/animals/geology into educational programming (field visits)
46. Involve teachers in direct experiences with researchers
47. Kiosks around the working waterfront
48. Incorporate volunteer monitoring
49. Develop an auto/boat self guided tour using GPS (audio or brochure information, accessible to all audiences)
50. Establish long-term relationships with schools (school forest); Make relative to academic standards
51. Aligning programs with teacher certification requirements
52. Establish an artist in residence or other artist partnership
53. Develop a mascot
54. Connecting to issue based group (storm water protection, sustainability, etc)
55. Develop service learning opportunities (partner with schools)
56. Educate people about what they can do/Develop action items for general public
57. Media coverage (weekly radio spot- nature notes; regular columns in newspapers)
58. Collaborate with local educators and naturalists and when presenting (creating a tagline presentation that can be used to represent NERR that can be shared with others to add to their programming)
59. Establish annual award program
60. Establish scholarship program
61. Develop internship based
62. Coordinating volunteers



63. Evaluate baseline public awareness and then measure success overtime; identify gaps; create performance measures
64. Explore and utilize social networking opportunities

#### **THEMES**

- Outreach tools
- Formal Education
- Informal Education
- Volunteers
- Media/PR/Marketing
- Multi-media (podcast, web-based)
- Experiential Learning
- Collaboration
- Interpretive
- Non-personal interpretation
- Cultural Education
- Audiences (students, teachers, visitors, mass medias)

**Question based on Objective 2:** *What actions should be taken to provide research-based educational programming and skills training to community leaders and other decision makers related to Lakes Superior coastal management issues?*

#### Actions:

1. Host issue-based workshop for planning professionals, county commissioners, homeowners, large landowners
2. Develop a 'View from the Estuary' boat/auto trips (community leaders, decision makers)focusing on estuary information
3. Provide opportunities for individuals to experience and enjoy LSNERR by canoe/kayak
4. Continue Lake Superior Basin Educator position
5. Consider the NERR as an advocate for important issues
6. Conduct issue based lunch and/or issue based white papers for elected officials
7. Podcasts and distance learning tools and incorporate decision makers as part of the process
8. Build on the NEMO program
9. Develop a certificate program
10. Take your legislator down the river program
11. Regular report/communications to partner committees/councils/boards
12. Conduct annual research conference
13. Round tables
14. Require research projects to incorporate concepts for sharing info with decision makers
15. Develop a program for allowing elected officials to visit/present in other communities /NERRS
16. Partner with people that have similar messages



# Lake Superior National Estuarine Research Reserve

17. Doing presentation at elected officials conferences (Wisconsin Associations of Counties, School Boards) wide range of decision makers and target audiences
18. Maintain the focus on "research based" information
19. Develop an organizational framework and long-term support for watershed associations
20. Engage industries; take opportunities to share positive and
21. Use polls and surveys and focus groups of resource values to demonstrate the public's interest related to issues.
22. Engage unions
23. Engage decisions-makers in research
24. Develop literature targeted at decision makers
25. Develop newsletter for NERR
26. Conduct programming related to working waterfronts /green ports
27. Have a NERR representative on HTAC (and vice versa)
28. Include information about the NERR at the Thompson Hill Visitor Center
29. Encourage bi-state decision-making groups and communications

## Meeting Attendees

Faith Hensrud	University of Wisconsin - Superior
Patrick Robinson	University of Wisconsin - Extension
Becky Sapper	University of Wisconsin - Extension
Sue O'Halloran	University of Wisconsin - Extension /UWS
Gene Clark	WI Sea Grant
Bob Cragin	St. Louis River Alliance
Deb Anderson	LCO Ojibwe Community College
Dennis Pratt	WI Department of Natural Resources
Diane Nelson	City of Superior
Jeff Gunderson	University of Wisconsin - Extension
Molly Thompson	Sugarloaf
Nadine Meyer	MinnAqua
Rich Axler	Natural Resource Research Institute
Sarah Erickson	Great Lakes Aquarium
Sarah Wilcox	University of Wisconsin - Extension
Tom Hollenhorst	EPA
Bonita Martin	St. Louis River Alliance
Ruth Oppedahl	University of Wisconsin - Extension
Kari Hedin	Fond du Lac
Bryce Luchterhand	Governor Doyle's Office
Bryan Sederberg	University of Michigan
Jim Hurley	WI Sea Grant

## Lake Superior NERR



## Research and Monitoring Advisory Committee Meeting

University of Wisconsin-Superior

May 18, 2009

1:00 – 4:00 pm

### Minutes

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The Advisory Committee was asked to take one objective and to share with the group action items that could be placed under this objective. These actions were shared by round robin, facilitated by Patrick Robinson and recorded



on flipcharts and can be found below. After ideas were exhausted, themes were identified where these action items could be placed, which is also identified below. The meeting concluded with the Coordination Team given the task to take the actions and place them in the most logical themes to be brought back to the Advisory Committee for prioritization.

**Question based on Objective 1:** *What research and monitoring should the NERR undertake to improve the understanding of short and long-term ecological changes within LSFE's and coastal ecosystems?*

Actions:

1. Find out what data is out there and already available and set up geospatial and temporal database of information in a format that others can access and utilize (Physical, chemical and biological baselines)
2. How anthropogenic activities on land affect temperature changes near shore
3. Fully understand benthic composition and its relationship to larger food web and overall health
4. Establish basic monitoring criteria to be conducted for the SLR and other FE
5. Establish protocol and infrastructure (vessel, etc) for monitoring
6. Comprehensive land cover map, over time – public land survey 1800, 1930 survey, beyond NERR boundaries
7. Mapping over time (time lapse visual) of all ecological parameters and other relevant features
8. Map and characterize bottom sediments and chemistry, bathymetry and SAV distributions -Using context that can be used
9. Impacts of 5 hydroelectric dams on SLR to understand management better
10. Improve understanding of economics of the area and the role it plays in natural resource mgmt – commercial shipping and commercial fishing
11. Changes in mercury deposition and transportation (mining) and how that may be changing with regulations and policies of CO2 and Mercury restrictions in long-term
12. Creating ecosystem benchmarks that have relevance over time
13. Use total prevention plan/Rapid Response Action to prevent the next introduction and establishment of AIS
14. Link landscape stressor indices to environmental indicators and conditions (birds, amphibians, paleo, fish)
15. ID places thought to be at risk to detrimental change
16. Value and ensure ecosystem services
17. Research wild rice (condition, occurrence and abundance)
18. Effects of lake level change and precipitation levels
19. Better understand the hydrostatic rebound and seiche effects on vegetation, especially wild rice
20. Quantify and model midterm hydrologic shifts in the watershed and it's impacts on aquatic macrophytes, etc
21. Long-term monitoring of nutrients and sediment loading to the estuary from the lake and to lake from the estuary
22. Improve understanding of the food web and impacts of invasives on the food web
23. Understand contaminant transport associated with sediments
24. Determine carrying capacity of watershed relative to sentinel species tailored to SLR
25. Develop a physical/hydrologic model of the system
26. Conduct socio-economic surveys to understand perceived values (monetary and non-monetary)

27. Select a group of reference sites for study and comparison based on the work of the Site Selection Technical Team
28. Ensure that reference sites cover a breadth of conditions and provide a foundation for future work. Lock in some specific sites for long-term research
29. Long term monitoring program for atmospheric deposition and local air quality (NPS and Great Lakes sites have good monitoring models)
30. ID source of pollutants and containments in SLR
31. Research dredge management options
32. Identify ecologic and socio-economic vulnerabilities to the lake level extremes, especially to climate change scenarios
33. Use and information database and network to help inform long-term research and monitoring strategies
34. ID locations of positive change on the SLRFE
35. Use paleo-coring to determine past and present changes in SLRFE (algae, zooplankton)
36. Quantify value of estuary for migratory and breeding birds
37. Analyze market trends to understand future land use change and potential impacts
38. Monitor changes in fish contaminant levels with respect to fish consumption practices and advisories
39. Assessing condition and function of wetlands at a system level
40. Comparative analysis of capping versus removing sediments
41. Research and monitor restoration activities especially in relation to AOC rehabilitation to inform current and future activities
42. Inventory riparian and adjacent upland vegetation to understand composition health, etc
43. Researching how landscape changes affect water clarity and productivity
44. Determine water quality chemistry related to beach closing and pathogens
45. Establish spatially intensive monitoring
46. Characterize how hydrologic flux (short, medium, long) mediates ecosystem connectivity
47. ID potential priorities for these systems
48. Understand reforestation/deforestation and impacts
49. Impacts at urban/suburban watersheds
50. ID land use issues that connect the research to the decision makers
51. Develop robust long-term monitoring programs (herps, birds, habitats, vegetation)
52. Long-term hydrologic monitoring program , stream gauges, precipitation and groundwater
53. Monitor environmental literacy, knowledge, and practices
54. Ensure that monitoring efforts occur on Wisconsin Streams
55. Establish a network among the research community that encourages collaboration, potentially including MOUs
56. NERR funding to do monitoring already occurring, funding to new research
57. Detailed soils, geomorphology and detailed topography
58. Research the economic valuation of water



# Lake Superior National Estuarine Research Reserve

## THEMES

- Toxics
- Database/Networking/Communication
- Food webs/Habitat/Biota (Aquatic and Terrestrial)
- Water Quality
- Climate Change
- Sediment/Benthic Health
- Long-term Monitoring/Baseline/Data/Reference Sites
- Invasive Species
- Hydrology
- Socio-Economics
- Mapping-GIS-Land Use

## Meeting Attendees

Robin Shepard	University of Wisconsin - Extension
Patrick Robinson	University of Wisconsin - Extension
Becky Sapper	University of Wisconsin - Extension
Sue O'Halloran	University of Wisconsin - Extension / University of Wisconsin – Superior
Travis Olson	Dept of Administration – Wisconsin Coastal Mgmt Program
Brian Frederickson	MN Pollution Control Agency
Deb Anderson	LCO Ojibwe Comm. College
Charlene Johnson	City of Superior
Eric Epstein	WI Department of Natural Resources
Janet Keough	Environmental Protection Agency
Joel Hoffman	Environmental Protection Agency
John Jereczek	WI Department of Natural Resources
John Lindgren	MN Department of Natural Resources
Marc Hershfield	MN Pollution Control Agency
Mary Balcer	UW-Superior
Matt Hudson	Great Lakes Indian Fish & Wildlife Commission
Stephen Wittman	WI Sea Grant
Sharon Moen	MN Sea Grant
Tom Hollenhorst	Environmental Protection Agency
Rick Gitar	Fond du Lac
Darren Vogt	1854 Treaty Authority
Kari Hedin	Fond du Lac
Bryan Sederburg	University of Michigan
Jane Anklam	West Wisconsin Land Trust
Matt TenEyck	UW-Superior Lake Superior Research Institute
Paul Hlina	UW-Superior Lake Superior Research Institute

## **Tribal Consultation**

### **The Federal Trust Responsibility toward Indian Tribes**

The federal government's trust responsibility emanates from the Constitution, Indian treaties, statutes, case law, executive orders, and the historic relationships between the federal government and Indian tribes. It applies to all federal agencies. Each agency defines the scope of its own trust responsibility towards tribes.

This trust responsibility is rooted, in large part, in the treaties through which Indian tribes ceded large portions of their aboriginal lands to the United States in return for promises to protect tribal rights as self-governing nations within the reserved lands (reservations) and certain reserved rights (i.e. aboriginal hunting, fishing, and gathering rights) to resources outside of those reserved lands.

If a project requires compliance with both the National Historic Preservation Act (NHPA) and the National Environmental Policy Act (NEPA), it may be helpful to carry out consultation in a comprehensive manner by including discussions about historic properties and natural resources in the same meetings. (Note: The ACHP regulations at 36 CFR. Section 800.8 set out principles and requirements for coordinating or combining NHPA and NEPA procedures.)

Federal agencies should talk with interested Indian tribes as *early in the planning process as possible* to identify any special legal authorities that carry additional requirements for consultation or consideration, such as a treaty that reserves certain tribal rights that could be impinged upon by a proposed project.

### **National Historic Preservation Act**

Many different statutes, regulations, executive orders, and federal policies direct the responsibilities of federal agencies regarding Indian tribes. Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. Section 470f, requires federal agencies to take into account the effects of their undertakings on historic properties and provide the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on those undertakings. The ACHP has issued the regulations implementing Section 106 (Section 106 regulations), 36 CFR Part 800, "Protection of Historic Properties." The NHPA requires that, in carrying out the requirements of Section 106, each federal agency must consult with any Indian tribe that attaches religious and cultural significance to historic properties that may be affected by the agency's undertakings.

Amended in 1992, the National Historic Preservation Act of 1966 (NHPA) is the basis for tribal consultation in the Section 106 review process. The two amended sections of NHPA that have a direct bearing on the Section 106 review process are:

- Section 101(d)(6)(A), which clarifies that properties of religious and cultural significance to Indian tribes may be eligible for listing in the National Register of Historic Places; and
- Section 101(d)(6)(B), which requires that federal agencies, in carrying out their Section 106 responsibilities, consult with any Indian tribe that attaches religious and cultural significance to historic properties that may be affected by an undertaking.



Agencies are required to consult with Indian tribes at specific steps in the Section 106 review process. A common misunderstanding is that tribal consultation is only required for undertakings on tribal lands, when, in fact, consultation is also required for undertakings that occur off tribal lands. Tribal consultation for projects off tribal lands is required because the NHPA does not restrict tribal consultation to tribal lands alone and those off tribal lands may be the ancestral homelands of an Indian tribe or tribes, and thus may contain historic properties of religious and cultural significance to them.

### **The National Environmental Policy Act**

The National Environmental Policy Act of 1969 (NEPA) requires the preparation of an environmental impact statement (EIS) for any proposed major federal action that may significantly affect the quality of the human environment. While the statutory language of NEPA does not mention Indian tribes, the Council on Environmental Quality (CEQ) regulations and guidance do require agencies to contact Indian tribes and provide them with opportunities to participate at various stages in the preparation of an environmental assessment or EIS. CEQ has issued a Memorandum for Tribal Leaders encouraging tribes to participate as cooperating agencies with federal agencies in NEPA reviews.

Per the memo dated July 28, 1999 from the Executive Office of the President, CEQ, federal agencies are urged “to more actively solicit in the future the participation of state, tribal and local governments as “cooperating agencies” in implementing the environmental impact statement (EIS) process under the National Environmental Policy Act (NEPA), 40 C.F.R. §1508.5. As soon as practicable, but no later than the scoping process, federal agency officials should identify state, tribal and local government agencies that have jurisdiction by law and or special expertise with respect to reasonable alternatives or significant environmental, social or economic impacts association with a proposed action that requires the preparation of an environmental impact statement.”

### **Executive Order 13175, “Consultation and Coordination with Indian Tribal Governments”**

This executive order, issued in 2000, directs federal agencies to respect tribal self-government and sovereignty, tribal rights, and tribal responsibilities whenever they formulate policies “significantly or uniquely affecting Indian tribal governments.” The executive order applies to all federal agencies other than those considered independent federal agencies, encouraging “meaningful and timely” consultation with tribes, and consideration of compliance costs imposed on tribal governments when developing policies or regulations that may affect Indian tribes.

### **Executive Order 13007, “Indian Sacred Sites”**

This executive order, issued in 1996, applies to all federally owned lands except “Indian trust lands.” It encourages land managing agencies to:

- accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners; and
- avoid adversely affecting the physical integrity of such sites.

**COOPERATING AGENCY AGREEMENT  
and  
MEMORANDUM OF AGREEMENT**

**THE FOND DU LAC BAND OF LAKE SUPERIOR CHIPPEWA  
and the  
THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
ESTUARINE RESERVES DIVISION**

This Memorandum of Agreement (MOA) is entered into by The Fond du Lac Band of Lake Superior Chippewa (Fond du Lac), a federally recognized Indian tribe, and the National Oceanic and Atmospheric Administration's (NOAA) Estuarine Reserves Division (ERD) (hereinafter the Parties). The MOA provides a framework for cooperation and coordination throughout the preparation and completion of the procedures required by the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. § 4321 *et seq.*, for ERD's proposed action to designate a National Estuarine Research Reserve (NERR) on the St. Louis River near Superior, Wisconsin (hereinafter the Proposed Action). The MOA is consistent with the guidance and regulations of the Council on Environmental Quality (CEQ) at 40 C.F.R. Parts 1500-1508.

Whereas, NOAA ERD is the lead agency for the Proposed Action to establish a National Estuarine Research Reserve on the St. Louis River, in and adjacent to Superior, Wisconsin;

Whereas the Fond du Lac Band of Lake Superior Chippewa is a sovereign entity that enjoys government-to-government relationship with the United States;

Whereas NOAA ERD recognizes the special expertise of the Fond du Lac Band of Chippewa in evaluating any impacts that the Proposed Action may have on the Fond du Lac's exercise of its treaty rights, treaty trust resources, and cultural and historic resources related to the Fond du Lac;

The Parties agree as follows:

**I. PARTIES and AUTHORITIES**

**NOAA Estuarine Reserves Division** enters into this MOA pursuant to the Coastal Zone Management Act, 16 U.S.C. §§ 1451, 1461 (CZMA), and its implementing regulations; the National Environmental Policy Act, 42 U.S.C. § 4321 *et seq.* (NEPA), and its implementing regulations; and Executive Order No. 13175, Consultation and Coordination with Indian Tribal Governments, 65 Fed. Reg. 67249-52 (November 9, 2000).

**Fond du Lac Band of Lake Superior Chippewa** enters into this MOA pursuant to its inherent authority pursuant to its sovereignty, created by the La Point Treaty of

September 30, 1854, 10 Stat. 1109; the sovereign obligation of the Fond du Lac Reservation Business Committee, as the governing body of the Fond du Lac Band, under the Indian Reorganization Act, 25 U.S.C. § 461 *et seq.*, and in accordance with the Indian Self-Determination Act, 25 U.S.C. § 450 *et seq.*; the Executive Office of the President memorandum to the Council on Environmental Quality, dated July 28, 1999; and the cooperating agency status responsibilities found in 40 C.F.R. § 1501.6.

## II. OBJECTIVES

The Parties enter into this MOA to memorialize their responsibilities and expectations and to further coordination and cooperation during the preparation of an Environmental Impact Statement (EIS) analyzing the impacts to the human environment of the Proposed Action to establish a National Estuarine Research Reserve (NERR) near the St. Louis River and Superior, Wisconsin.

## III. RESPONSIBILITIES

NOAA Estuarine Reserves Division is the lead agency for the purposes of NEPA, with obligations for fulfilling the requirements of NEPA. NOAA ERD will provide necessary and appropriate expertise and coordination and will ensure all information relevant to the Proposed Action is included and analyzed in the NEPA documents in accordance with the requirements of NEPA and the CEQ regulations;

NOAA Estuarine Reserves Division will work cooperatively with Fond du Lac to ensure full access to non-privileged data, information, analysis, expertise, and public comments received during and until the conclusion of the NEPA process;

Fond du Lac will use its best efforts to act as a cooperating agency and will review and identify information relevant to the Proposed Action with particular attention to historic and past use of the relevant area, associated historical and cultural information, habitat characterization, and its expertise in the treaty resources in and around the area proposed for designation as a NERR.

## IV. CONFLICT RESOLUTION

Every effort will be made by the Parties to reach mutual agreement regarding issues addressed and analyzed during the NEPA process. In the event a conflict arises between the Parties, the following procedures will be followed:

- 1) The designated Points of Contact for each Party will use their best efforts to resolve the dispute;
- 2) In the event the Points of Contact are unable to resolve the dispute, the immediate supervisor within the government or agency of each Point of Contact shall meet and use their best efforts to resolve the dispute;

3) In the event the second level of dispute resolution is unsuccessful, either Fond du Lac or NOAA ERD may request formal government-to-government consultation in such a format as is acceptable to both Fond du Lac and NOAA ERD to resolve their concerns.

**V. AMENDMENT AND TERMINATION**


This MOA may be amended by written agreement signed by all of the Parties. Any Party may withdraw and terminate its participation in this MOA upon 30 days written notice to each of the other Parties. This MOA will remain in effect until the Record of Decision concluding the NEPA process for the Proposed Action is signed by the designated NOAA official.

**VI. NO FUNDS WILL BE TRANSFERRED**

This MOA does not authorize or effect any transfer of funds. In addition, all obligations of NOAA ERD pursuant to this MOA are subject to and dependent upon the availability of funds. Nothing in this MOA creates any right, benefit, or legal obligation, substantive, procedural, or enforceable by any Party or non-party to the MOA.

**SIGNATURES**

For the Fond du Lac Band of Lake Superior Chippewa:

 Date: 10/29/09  
Karen R. Diver, Chairwoman, Fond du Lac Reservation Business Committee

For NOAA Estuarine Reserves Division:

 Date 10/2/09  
Laurie McGilvray, Division Chief

**COOPERATING AGENCY AGREEMENT**

**THE FOND DU LAC BAND OF LAKE SUPERIOR CHIPPEWA  
and the  
THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
ESTUARINE RESERVES DIVISION**

**POINTS OF CONTACT**

**Matthew Chasse  
NOAA Office of Ocean and Coastal Resource Management  
Estuarine Reserves Division  
1305 East West Highway  
Silver Spring, MD 20910**

**Richard Gitar  
Kari Hedin  
1720 Big Lake Road  
Cloquet, MN 55720**

**Copies provided to:**

**Jonathan Gilbert  
Ann Soltis  
Great Lakes Indian Fish and Wildlife Commission  
P. O. Box 9  
Odanah, WI 54861**

## General Authorities of Lake Superior Ojibwe Tribes:<sup>1</sup>

Tribal authority predates the creation of the United States. Tribal authority extends from those rights and powers that they have not voluntarily relinquished or that Congress has not abridged. As a general rule, the right to tribal self-government remains intact unless tribal powers have been modified by treaty or by Congressional action.

Tribal rights to hunt, fish and gather are codified in treaties between tribes and the federal government. Three treaties negotiated in 1837, 1842, and 1854, stipulate to the reservation of harvest rights of Ojibwe Bands in the United States.<sup>2</sup> Some Ojibwe tribes are legally called Bands, such as the Fond du Lac, Red Cliff and Bad River Bands of the Lake Superior Chippewa Tribe. Each “Band” has the same legal role as a “tribe.” And in some instances, Bands have collectively created intertribal organizations to advise and help them manage fish and game related matters, such as the Great Lakes Indian Fish and Wildlife Commission. Typically, the legal “rights” to hunt, fish and gather are retained by the federally recognized tribe or Band unless responsibility regarding these resources are formally delegated to the intertribal organization. A suite of Court decisions have articulated how the three treaties apply today.<sup>3</sup> The proposed Lake Superior National Estuary Research Reserve (LSNERR) is located within the 1842 ceded territory.

Each Tribal Nation or Band is legally, politically, socially and culturally unique:

- Tribal governments are established in accordance with each Tribal Nation’s own laws and traditions, as well as within the framework of how Tribal Nations have been brought into the U.S. Constitution.

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<sup>1</sup> Most of the following material is derived from a paper given by James Zorn of the Great Lakes Indian Fish and Wildlife Commission entitled “Great Lakes Regional Collaboration - Tribal Nations Issues and Perspectives,” dated April 26, 2005, with permission.

<sup>2</sup> See Treaty of 1837, 7 Stat. 536, “Article 5. The privilege of hunting, fishing, and gathering the wild rice, upon the lands, the rivers and the lake included in the territory ceded, is guaranteed [sic] to the Indians, during the pleasure of the President of the United States;” Treaty of 1842, 7 Stat. 591, “Article 2. The Indians stipulate for the right of hunting on the ceded territory, with other usual privileges of occupancy, until required to remove by the President of the United States, and that the laws of the United States shall be continued in force, in respect to their trade and inter course with the whites, until otherwise ordered by Congress;” Treaty of 1854, 10 Stat. 1109, “Article 11. All annuity payments to the Chippewa of Lake Superior, shall hereafter be made at L’Anse, La Pointe, Grand Portage, and on the St. Louis River; and the Indians shall not be required to remove from the homes hereby set apart from them. And such of them as reside in the territory hereby ceded, shall have the right to hunt and fish therein, until otherwise ordered by the President.”

<sup>3</sup> See *People v. Jondreau*, 384 Mich 539, 185 N.W. 2d 375 (1971); *State of Wisconsin v. Gurnoe*, 53 Wis. 2d 390 (1972); *United States v. Michigan*, 653 F.2d 277 (6th Cir. 1981); *Lac Courte Oreilles v. Voigt (LCO I)*, 700 F. 2d 341 (7th Cir. 1983), cert. denied 464 U.S. 805 (1983); *Lac Courte Oreilles v. State of Wisconsin (LCO III)*, 653 F.Supp. 1420 (W.D. Wis. 1987); *Lac Courte Oreilles v. State of Wisconsin (LCO IV)*, 668 F.Supp. 1233 (W.D. Wis. 1987); *Lac Courte Oreilles v. State of Wisconsin (LCO V)*, 686 F.Supp. 226 (W.D. Wis. 1988); *Lac Courte Oreilles v. State of Wisconsin (LCO VI)*, 707 F.Supp. 1034 (W.D. Wis. 1989); *Lac Courte Oreilles v. State of Wisconsin (LCO VII)*, 740 F.Supp 1400 (W.D. Wis. 1990); *Lac Courte Oreilles v. State of Wisconsin (LCO X)*, 775 F.Supp. 321 (W.D. Wis. 1991); *Mille Lacs Band v. State of Minnesota*, 861 F.Supp. 784 (D. Minn. 1994); *Mille Lacs Band v. State of Minnesota*, 952 F.Supp. 1362 (D. Minn. 1997); *Mille Lacs Band v. State of Minnesota*, 124 F.3d 904 (8<sup>th</sup> Cir. 1997); *Minnesota v. Mille Lacs Band*, 199 S.Ct. 1187 (1999); *Fond du Lac v. Carlson*, Case No. 5-92 159, Slip Opinion (D. Minn. March 18, 1996).

- The powers of tribal governments generally are set forth in tribal Constitutions or similar organic documents, but also might be determined in accordance with a Tribal Nation’s customs and traditions.

Tribal “on-reservation” rights and authority may extend outside of reservation boundaries. For example, many reservations are located on the shores of Lake Superior precisely to secure access to the Lake for fishing and other purposes. In addition to reservation-based rights and interests, many Ojibwe tribes retain treaty-guaranteed off-reservation hunting, fishing and gathering rights in the entire area cede to the federal government. These are commonly referred to as ceded territory treaty rights because they pertain to areas that Tribal Nations ceded (or sold) to the United States in various treaties.

The government-to-government relationship implicit in federal treaty making and in the federal trust responsibility toward Ojibwe tribes and individual tribal members have been expanded over time to include the full gamut of federal policy implementation by all federal agencies. Federal agencies have “Indian trust responsibilities” specific to their jurisdictional sphere to insure those tribal rights are protected.

#### Legal Requirements that Apply to All Actions Regarding the LSNERR Designation:

- No action regarding the designation or implementation of this Lake Superior National Estuary Research Reserve (LSNERR) will affect the rights of Ojibwe Tribes to hunt, fish, trap, and gather within the designated LSNERR area. These rights are guaranteed by treaty or otherwise part of existing law, and are therefore beyond the scope of this designation. All parties recognize that management actions related to this site must conform to the law regarding these rights. As part of its overall efforts to discharge the federal government's trust responsibility and treaty obligations, all parties will consult with affected Indian Tribes on a government-to-government basis to ensure the protection of these rights.

**DRAFT Memorandum of Agreement**  
**between the**  
**National Oceanic and Atmospheric Administration**  
**and**  
**The University of Wisconsin System**  
**Detailing the State-Federal Roles in the**  
**Wisconsin Lake Superior National Estuarine Research Reserve**

This Memorandum of Agreement (MOA) serves to establish the contractual framework for coordination, cooperation, collaboration, and communication regarding the Wisconsin Lake Superior National Estuarine Research Reserve (Reserve). Subject to the MOA's conditions, this MOA is a contractually binding contract that is entered into by the Office of Ocean and Coastal Resource Management (OCRM), National Ocean Service, National Oceanic and Atmospheric Administration (NOAA), whose address is 1305 East-West Highway N/ORM, Silver Spring, Maryland, 20910, and The University of Wisconsin System (UW), a state institution of higher education, whose address is 1720 Van Hise Hall, 1220 Linden Drive, Madison, Wisconsin, 53706.

WHEREAS, the State of Wisconsin (Wisconsin) has determined that the waters and coastal habitats of the St. Louis River Freshwater Estuary (SLRFE) provide representative opportunities to study natural estuarine and human processes occurring within an estuarine ecosystem; and

WHEREAS, Wisconsin finds that within the SLRFE the resources of the SLRFE and its value to the citizens of Wisconsin and the United States will benefit from the management of the SLRFE as part of the National Estuarine Research Reserve System (NERRS); and

WHEREAS, NOAA has concurred with the above finding of Wisconsin, and NOAA may designate the SLRFE as a National Estuarine Research Reserve (NERR) in Wisconsin, pursuant to NOAA's authority under Section 315 of the Coastal Zone Management Act of 1972, as amended, (CZMA, P.L. 92-583, 16 U.S.C. 1461) and in accordance with implementing regulations at 15 CFR 921.30; and

WHEREAS, University of Wisconsin–Extension (UW-Extension) has been designated by Wisconsin and in the Wisconsin National Estuarine Research Reserve Management Plan (Plan) as a state educational institution that will serve as the Wisconsin entity responsible for managing the Reserve, as defined in the Plan; and

WHEREAS, the Plan describes the goals, objectives, plans, administrative structure, and institutional arrangements for the Reserve, including this MOA and others; and

WHEREAS, UW acknowledges the need and requirement for continuing State-Federal cooperation in the long-term management of the Reserve in a manner consistent with the purposes sought through its designation.

NOW THEREFORE, in consideration of the mutual covenants and agreements contained in this MOA, it is agreed by and between UW and NOAA as follows:

**ARTICLE 1: STATE-FEDERAL ROLES IN RESERVE MANAGEMENT**

This Article describes the roles and responsibilities of the UW (on behalf of Wisconsin) and NOAA (on behalf of the Federal Government) as the Reserve partners. The obligations



described for each Reserve partner are subject to available funding.

A. State Role in Reserve Management

UW, as the principal contact for Wisconsin in all matters concerning the Reserve, will be responsible for exerting its reasonable best efforts to ensure that the Reserve complies with management objectives of the Plan, the Wisconsin Coastal Management Program, other applicable provisions of Wisconsin law, Section 315 of the Federal Coastal Zone Management Act (CZMA), and the federal regulations of the NERRS. UW will be the grant receiving office for the Reserve under Section 315 of the CZMA. Subject to available and authorized appropriations, UW's responsibilities for Plan implementation include exerting its reasonable best efforts to perform the following activities:

1. Annually apply for, budget, and allocate funds received for Reserve operations, (e.g., education, research and monitoring programs), as well as for acquisition and facilities;
2. Conduct active research and monitoring programs that draw scientists from various institutions to work together on understanding coastal issues;
3. Conduct and maintain programs that provide materials, activities, workshops, and conferences that translate the research results to the resource users, regulators, and the public;
4. Provide staff and endeavor to secure state-funding for positions to coordinate research, education, and translate research results;
5. Secure facilities that will, among other things, include research laboratory, classroom, library, office, meeting, field equipment storage and interpretive display space;
6. Secure equipment to facilitate research and outreach activities that, among other things, will include boats, laboratory and field equipment, audiovisual, curriculum, reference materials and databases;
7. Maintain effective liaison with local, regional and state policy makers, regulators and the general public;
8. Serve as principal negotiator on issues involving proposed boundary changes and/or amendments to the Plan;
9. Respond to NOAA's requests for information and respond to evaluation findings made pursuant to Section 312 of the CZMA;
10. Expend funds in accordance with federal and state laws, the Reserve management plan, and annual appropriations; and
11. Exert reasonable best efforts to provide for enforcement of the applicable provisions of Wisconsin law, including the rules and regulations of the Wisconsin Coastal Management Program, to protect the Reserve.
12. NOAA understands that UW's primary mission is education and the advancement of knowledge and research, and consequently UW's activities under this MOA are designed to carry out that mission.
13. UW shall have the right to use, publish, and disclose information relating to this MOA without prior reference to or approval of NOAA.

## B. Federal Role in Reserve Operation

The Office of Ocean and Coastal Resource Management (OCRM) of NOAA will serve to administer the provisions of Section 315 of the CZMA to ensure that the Reserve operates in accordance with the goals of the NERRS and the Plan. These responsibilities are subject to the availability of appropriated funds. In carrying out its responsibilities,

OCRM will:

1. Review and process applications for financial assistance from UW, consistent with 15 CFR Part 921 for acquisition, development, management, and operation of the Reserve;
2. This MOA does not create any obligation on the part of OCRM to award financial assistance.
3. Make periodic evaluations in accordance with Section 312 of the CZMA to measure UW's performance in Plan implementation;
4. Advise UW of existing and emerging national and regional issues; and
5. Establish an information exchange network cataloging all available research data and educational material developed on each NERR (including the Reserve) included within the NERRS.

## C. General Provisions

1. Nothing in this MOA or subsequent financial assistance awards shall obligate any party in the expenditure of funds, or for future payments of money, in excess of appropriations authorized by law.
2. Both parties agree to comply with all applicable federal or state laws regulating ethical conduct of public officers and employees.
3. Each party will comply with all applicable laws, regulations, and executive orders relative to Equal Employment Opportunity.
4. Upon termination of this MOA or any subsequent financial assistance awards, any equipment purchased by a party for studies initiated in furtherance of this MOA will be retained by the party that made the initial purchase.
5. A free exchange of research and assessment data among the parties is encouraged and is necessary to insure the success of these cooperative studies.

## D. Other Provisions

1. Nothing in this MOA diminishes the independent authority or coordination responsibility of either party in administering its respective statutory obligations. Nothing in this MOA is intended to conflict with current written directives or policies of either party. If the terms of this MOA are inconsistent with existing written directives or policies of either party entering into this MOA, then those portions of the MOA which are determined to be inconsistent with such written directives and policies shall be invalid; but the remaining terms not affected by the inconsistency shall remain in full force and effect. At the first opportunity for revision of this MOA, all necessary changes will be made by either an amendment

to this MOA or by entering into a new superseding MOA, which ever is deemed expedient to the interest of all parties.

2. Should disagreement arise on the interpretation of the provisions of this MOA, or amendments and/or revisions to the MOA, that cannot be resolved by negotiations at the operating level of each party, the area(s) of disagreement shall be stated in writing by each party and promptly presented to a mutually approved mediator for non-binding mediation. If the parties cannot agree on the choice of a mediator or if the mediation does not resolve the dispute to the mutual approval of the parties, the parties are free to pursue any other legal remedies that are available.

## **ARTICLE II: REAL PROPERTY ACQUIRED FOR THE PURPOSE OF THE RESERVE**

As well as agreeing to adhere to the rest of the provisions set forth at 15 CFR Part 921, the UW agrees to the conditions set forth at 15 CFR 921.21(e), which specify the legal documentation requirements concerning the use and disposition of real property acquired for Reserve purposes with Federal funds under Section 315 of the CZMA.

## **ARTICLE III. PROGRAM EVALUATION**

OCRM of NOAA will schedule periodic evaluations of UW's performance in meeting the terms of financial assistance awards, in implementing the Plan, and in meeting the provisions of this MOA. Where findings of deficiency occur, NOAA may initiate action in accordance with the designation withdrawal procedures established by the CZMA and applicable regulations.

## **ARTICLE IV. EFFECTIVE DATE, REVIEW & AMENDMENT, TERMINATION, AND OTHER MISCELLANEOUS PROVISIONS**

- A. This MOA is effective (Effective Date) on the date of designation of the Reserve by NOAA, pursuant to NOAA's authority under Section 315 of the Coastal Zone Management Act of 1972, as amended, (CZMA, P.L. 92-583, 16 U.S.C. 1461) and in accordance with implementing regulations at 15 CFR 921.30. The term of this MOA shall run on an on-going basis from the Effective Date unless terminated as stated in this MOA.
- B. The MOA will be reviewed periodically by the parties. This MOA may only be amended by the mutual written consent and approval of the parties.
- C. This MOA may be terminated by mutual written consent of the parties, or by NOAA if NOAA withdraws designation of the Reserve as a NERR, pursuant to applicable provisions of the CZMA and its implementing regulations as described under 15 CFR Part 923 Subpart L. This MOA can be terminated by UW with or without cause. Should this MOA be terminated, UW shall be paid for its expenses up to the date of termination including non-cancelable commitments (including but not limited to graduate student appointments and other appointees for the term of the appointment) and UW shall return any unexpended or uncommitted funds as of the time of termination.
- D. This MOA is subject to availability of appropriated funds.

- E. This MOA is the entire agreement between the parties regarding the subject matter contained in this MOA.
- F. The parties are independent entities and are not legal partners or joint venture parties. Neither party's employees are to be considered employees of the other party.
- G. UW SHALL NOT BE LIABLE TO NOAA FOR ANY INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF OR RELATED TO THIS MOA.
- H. UW IS NOT MAKING ANY EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, FREEDOM OF INFRINGEMENT, OR ANY OTHER WARRANTIES OF ANY KIND OR NATURE.
- I. This MOA shall be binding on the successors and/or assigns of the parties.
- J. This MOA shall be construed and enforced in accordance with the laws of the State of Wisconsin, exclusive of its choice of law provisions, as well as any applicable United States federal laws and regulations.
- K. If any clause, sentence or other portion of this MOA shall become illegal, null or void for any reason, the remaining portions of this MOA shall remain in full force and effect.
- L. No waiver of right by either party of any provision of this MOA shall be binding unless expressly confirmed in writing by the party giving the waiver.
- M. Neither party shall be liable to the other party for delays in performing the MOA due to factors beyond the reasonable control of such party.
- N. Those provisions of this MOA which, by their nature, extend beyond termination or expiration of this MOA shall survive such termination or expiration.

IN WITNESS THEREOF, the parties have caused this MOA to be executed.

UNDERSTOOD AND AGREED

\_\_\_\_\_  
Director  
Office of Ocean and  
Coastal Resource Management  
National Ocean Service  
National Oceanic and  
Atmospheric Administration  
U.S. Department of Commerce

\_\_\_\_\_  
Controller  
University of Wisconsin Extension

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

**DRAFT MEMORANDUM OF UNDERSTANDING BETWEEN UNIVERSITY  
OF WISCONSIN-EXTENSION, CITY OF SUPERIOR, DOUGLAS COUNTY,  
FOND DU LAC BAND OF LAKE SUPERIOR CHIPPEWA, UNIVERSITY OF  
WISCONSIN SEA GRANT, UNIVERSITY OF WISCONSIN SUPERIOR,  
WISCONSIN COASTAL MANAGEMENT PROGRAM, AND WISCONSIN  
DEPARTMENT OF NATURAL RESOURCES**

## MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (MOU) serves to establish the contractual framework for coordination, cooperation, collaboration, and communication regarding the Lake Superior National Estuarine Research Reserve (Reserve) among the following eight parties (parties-in-interest): The University of Wisconsin-Extension (UWEX), a state institution of higher education and a component of the University of Wisconsin System serving as the state lead entity; City of Superior; Douglas County; Fond du Lac Band of Lake Superior Chippewa; University of Wisconsin Sea Grant; University of Wisconsin Superior; Wisconsin Coastal Management Program; and Wisconsin Department of Natural Resources. Subject to the MOU's below-conditions, this MOU is a binding contract that is entered into by the parties-in-interest.

WHEREAS, the State of Wisconsin (Wisconsin) has received a grant (Grant) from the United States Department of Commerce (DOC), National Oceanic and Atmospheric Administration (NOAA) for the development and operation of certain portions of the St. Louis River Freshwater Estuary (SLRFE), described below in Attachment A, as the Lake Superior National Estuarine Research Reserve (Reserve), and

WHEREAS, the purpose of the DOC grant is to create new opportunities for coordinated SLRFE coastal resource management, research, monitoring, stewardship, and public education (Program), and

WHEREAS, such Program has wide public support, as evidenced by the documented public support throughout the Reserve feasibility study, site selection process, site nomination, and designation process, and

WHEREAS, the parties-in-interest have evidenced support for such a Program through their approval of the 2008 Site Nomination Proposal for the Reserve,

NOW THEREFORE, in consideration of the mutual covenants and agreements contained in this MOU as well as the mutual benefits to be derived from implementing this Program, the parties-in-interest agree to the following:

1. The lands described in Attachment A (attached to this MOU and incorporated into this MOU by this reference) are designated as sites participating in the Reserve.
2. There is a program management plan (Plan) for the Reserve that provides a framework for conducting a specified Program on Reserve sites (Attachment B). Revisions of the Plan shall be developed by the Reserve staff and reviewed by an advisory board (Board) composed of the parties-in-interest, as defined in Article 6a. The Plan shall be reviewed every five (5) years and revised in consultation with the Board and NOAA.
3. A primary purpose of the Program is to provide funding, staff, and other resources and guidance that will assist Reserve land managing entities to develop site-specific activities that are consistent with the Plan. This Program will focus on identifying and

conserving sensitive ecological resources, promoting on-site research and long term monitoring, engaging local communities in stewardship activities that support the conservation of sensitive reserve resources, and acting as a regional educational resource that serves the public of the Reserve region.

4. Parties-in-interest agree to exert their reasonable best efforts to support the implementation of the Plan. Nothing in this MOU diminishes the independent authority or coordination responsibility of any party-in-interest in administering its respective statutory and legal obligations. Nothing in this MOU is intended to conflict with current written directives or policies of any party-in-interest. If the terms of this MOU are inconsistent with existing written directives or policies of any party-in-interest entering into this MOU, then those portions of the MOU that are determined to be inconsistent with such written directives and policies shall be invalid; but the remaining terms not affected by the inconsistency shall remain in full force and effect. At the first opportunity for revision of this MOU, all necessary changes will be made by either an amendment to this MOU or by entering into a new superseding MOU, whichever is deemed expedient to the interest of all parties. Issues that arise that may be contrary to the terms or intent of the Plan will be brought to the Board for discussion and resolution by consensus or majority vote of its members. Should disagreement arise on decisions of the Board or in the interpretation of the provisions of this MOU, or amendments and/or revisions to the MOU, that cannot be resolved by negotiations at the operating level of each party-in-interest, the area(s) of disagreement shall be stated in writing by each party-in-interest and promptly presented to a unanimously approved mediator for non-binding mediation. If the parties-in-interest cannot agree on the choice of a mediator or if the mediation does not resolve the dispute to the unanimous approval of the parties-in-interest, the parties-in-interest are free to pursue any other legal remedies that are available or to terminate their participation in this MOU.
5. Multiple uses of Reserve lands are encouraged to the extent that such uses are compatible with the Program and its purpose as expressed in the Plan. The parties-in-interest having jurisdiction over the Reserve site (or sites) will exert their reasonable best efforts to ensure uses or levels of use are consistent with the goals of the Plan.
6. Management Structure
  - a. Board membership. The Board shall be comprised of members from the parties-in-interest. The University of Wisconsin-Extension, City of Superior, Douglas County, Fond du Lac Band of Lake Superior Chippewa, University of Wisconsin Sea Grant, University of Wisconsin Superior, Wisconsin Coastal Management Program, and Wisconsin Department of Natural Resources shall each have one representative on the Board. Board terms shall be of three years duration, commencing on (date) and ending three years thereafter.
  - b. Board role. The Board shall act on behalf of the agencies/entities having jurisdiction over sites comprising the Reserve and/or an operational interest in the Reserve. Members of the Board will serve without compensation from the Reserve. In addition, the purpose of the Board is to advise UWEX regarding

implementation of the Plan. The Board shall review the Plan every five (5) years and shall advise UWEX regarding modification of the Plan.

- c. Board meetings. Board members will be provided notice ten (10) working days in advance of a meeting. Fifty percent (50%) plus one (1) members of the parties-in-interest present in person or by proxy shall constitute a quorum for transaction of business at all meetings of the Board. Each member of the Board will have one vote in decisions put before the Board. Decisions regarding advice to UWEX shall be made by an eighty percent (80%) majority vote of the Board members present at a meeting.
  - d. Program implementation. UWEX shall implement the Program by hiring and directing Reserve staff, supervising and coordinating implementation of the provisions of the Plan, and by receiving and acting upon the recommendations of the Board and participating site managers. The Reserve staff will be directly responsible for Program coordination with agency/entity representatives having jurisdiction over Reserve sites. UWEX's obligation to implement the Plan is contingent upon continued receipt of Grants for the purpose of operating the Program.
  - e. Advisory committees. The Board may create committees or subcommittees to provide technical information or linkage to the broader community pertaining to the three main missions of the Reserve Program: research, education, and stewardship. Members of committees or subcommittees will serve without compensation from the Reserve.
  - f. New Board members affiliated with new parties-in-interest may be added to the Board by a majority vote.
7. No projects shall be carried out on Reserve lands without the approval of the agency/entity having jurisdiction over such lands.
  8. The Reserve staff, Board, and appropriate advisory participants, if any, shall confer regularly to ensure coordination between the Reserve Program and the broader goals and mandates of regional coastal management programs that affect the Reserve.
  9. This MOU shall not be construed to preclude additional transfers of property among the parties-in-interest, or to preclude additions or subtractions of appropriate lands to Reserve sites.
  10. This MOU shall continue on an on-going basis so long as the Reserve Program is funded and remains viable. This MOU may be amended or terminated by the parties-in-interest at any time by majority vote and by written amendment to all parties-in-interest. Nothing in this MOU shall preclude the partial or unilateral withdrawal of any of the parties-in-interest. In such an eventuality, it is understood that the lands of the withdrawing party-in-interest would be de-designated from the Reserve, and it is further understood that, should the withdrawing party-in-interest have received federal awards



related to the Reserve Program, it will notify such federal agencies as required with respect to modification or termination of current or pending grants.

11. All parties-in-interest agree to exert their reasonable best efforts to cooperate with the Reserve Program so that it can achieve its mission to serve as a regionally-scaled scientific and educational resource to help promote and recover the ecological health of the SLRFE and to foster continued support and expansion of regional Great Lakes freshwater estuary research, education, and stewardship.
12. The parties-in-interest understand that UWEX's primary mission is education and ensuring that all Wisconsin people can access university resources and research and engage in lifelong learning, wherever they live and work. Consequently UWEX's activities under this MOU are designed to carry out that mission.
13. The manner of performance of UWEX's activities under this MOU shall be determined by UWEX. UWEX does not guarantee specific results. UWEX is free to continue similar research and educational activities on other projects. UWEX may discuss its activities under this MOU with other entities and individuals.
14. UWEX shall have the right to use, publish, and disclose data, information, or writings generated by UWEX activities under the Program.
15. Nothing in this MOU or subsequent financial assistance awards shall obligate any party-in-interest in the expenditure of funds, or for future payments of money, in excess of appropriations authorized by law.
16. The parties-in-interest agree to comply with all applicable federal, state, and local laws regulating ethical conduct of public officers and employees.
17. Each party-in-interest will comply with all applicable laws, regulations, and executive orders relative to Equal Employment Opportunity.
18. Each party-in-interest will comply with all applicable laws, regulations, and executive orders relative to Indian Tribal governments, their sovereignty, and their treaty rights.
19. Upon termination of this MOU, any equipment purchased by a party-in-interest for activities initiated in furtherance of this MOU will be retained by the respective party-in-interest, as permitted if purchased with third party or federal funds, that made the initial purchase.
20. A free exchange of data and information among the parties-in-interest is encouraged and is necessary to insure the success of these cooperative activities.
21. This MOU is subject to availability of appropriated funds.
22. The parties-in-interest shall not be liable for any incidental, indirect, special or

consequential damages arising out of or related to this MOU.

23. The parties-in-interest are not making any express or implied warranties of merchantability, fitness for a particular purpose, freedom of infringement, or any other warranties of any kind or nature.
24. This MOU shall be binding on the successors and/or assigns of the parties-in-interest.
25. This MOU shall be construed and enforced in accordance with the laws of the State of Wisconsin, exclusive of its choice of law provisions, as well as any applicable United States federal laws and regulations.
26. If any clause, sentence or other portion of this MOU shall become illegal, null or void for any reason, the remaining portions of this MOU shall remain in full force and effect.
27. No waiver of right by any party-in-interest of any provision of this MOU shall be binding unless expressly confirmed in writing by the party-in-interest giving the waiver.
28. No party-in-interest shall be liable for delays in performing the MOU due to factors beyond the reasonable control of such party-in-interest.
29. Those provisions of this MOU which by their nature extend beyond termination or expiration of this MOU shall survive such termination or expiration.

**UNDERSTOOD AND AGREED**

**University of Wisconsin-Extension**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**City of Superior**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**Douglas County**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**Fond du Lac Band of Lake Superior  
Chippewa**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**University of Wisconsin Superior**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**University of Wisconsin Sea Grant**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**Wisconsin Coastal Management  
Program**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**Wisconsin Department of Natural  
Resources**

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

## ATTACHMENT A

Properties included in the Reserve.

## ATTACHMENT B

### The Lake Superior National Estuarine Research Reserve Management Plan

## Sample Responsibilities and Duties of Key LSNERR Staff

*These samples of responsibilities and duties listed below are representative of the range of work that may be needed of the key LSNERR staff. Formal position descriptions will be created that detail the required responsibilities and duties.*

Reserve Manager: The Reserve manager's duties and responsibilities could include:

- managing the Reserve operation on a day-to-day basis; preparing grant applications, proposals, budgets, and reports; maintaining necessary records;
- facilitating meetings of the RAB, and potential research, monitoring, stewardship and education committees;
- representing the Reserve and its policies at public meetings and hearings;
- overseeing the research, monitoring, stewardship, and education programs of the Reserve;
- coordinating with other partners and stakeholders on pertinent activities and issues related to the LSNERR and Great Lakes freshwater estuaries;
- monitoring day-to-day operation of the Reserve and progress of research, monitoring, stewardship, and education plans;
- supervising Reserve staff members;
- overseeing facilities development, site selection and changes in Reserve boundaries with advice from RAB and other advisory committees;
- preparing required semi-annual, and annual reports and work plans for NOAA and other possible sources of funding;
- directing and coordinating with NOAA on any changes in the Reserve management plan;
- working with NOAA in the development of national policy for the NERRS; and

Research Coordinator: The research coordinator's duties and responsibilities could include:

- assisting the Reserve manager and other participating agencies and entities in preparing and updating an annual list of LSNERR priorities for research projects;
- implementing the research program for the Reserve;
- serving as a liaison with the scientific community, promoting data utilization and acting as the primary contact for scientists performing research in the Reserve;
- providing staff support for any potential Research Advisory Committee(s);
- coordinating all special studies and research activities within or related to the Reserve;
- coordination, interpretation, and application of research results;
- coordinating training of research volunteers, research assistants and interns, also monitoring and evaluating their performance;
- recommending locations for research stations within the Reserve and providing technical advice and assistance to scientists conducting research and monitoring;
- ensuring that field journal and photographic records of on-going research activities are maintained;
- representing the Reserve at public meetings;
- working with the Reserve manager and monitoring, education, and CTP coordinators to develop integrated programming;

- developing additional research guidelines and policy statements as new issues arise;
- coordinating with the Reserve manager in the performance of these responsibilities; and
- participating in the development of research facilities and the purchase, maintenance and upkeep of research equipment.

Monitoring Coordinator: The monitoring coordinator's duties and responsibilities could include:

- assisting the Reserve manager and other participating agencies and entities in preparing and updating an annual list of LSNERR priorities for monitoring projects;
- working with NOAA on system wide projects, such as the System Wide Monitoring Program (SWMP);
- implementing the SWMP for the Reserve;
- serving as a liaison with the scientific community, promoting data utilization and acting as the primary contact for scientists performing monitoring in the Reserve and on the St. Louis River Freshwater Estuary;
- providing staff support for any potential Monitoring Advisory Committee(s) coordinating all monitoring activities within or related to the Reserve;
- coordination, interpretation, and application of monitoring data;
- coordinating training of monitoring volunteers, assistants and interns, and evaluating their performance;
- recommending locations for monitoring stations within the Reserve and providing technical advice and assistance to scientists conducting monitoring;
- ensuring that field journal and photographic records of on-going monitoring activities are maintained;
- representing the Reserve at public meetings;
- working with the manager, research, education and CTP coordinators to develop integrated programming;
- developing additional monitoring guidelines and policy statements as new issues arise;
- coordinating with the Reserve manager in the performance of these responsibilities; and
- participating in the development of monitoring facilities and the purchase, maintenance and upkeep of monitoring equipment.

Education Coordinator: The education coordinator's duties and responsibilities could include:

- assisting the participating agencies in preparing and updating an annual list of priorities for education, interpretation and visitor use programs to be developed for the Reserve;
- coordinating development of proposals for Reserve education, interpretation and visitor use programs and projects;
- coordinating approved education, interpretation and visitor use activities within the Reserve and networking with other reserves, especially relating to education and volunteer programs;
- providing staff support for any potential Education Advisory Committee(s)
- upon request, advising and coordinating government agencies on particular issues, questions or projects and their impacts on or relationship to the Reserve;

- assisting in training and supervising volunteers in education programs, also monitoring and evaluating their performance;
- keeping a photographic record of on-going education, interpretation and visitor use activities for use in slide presentations and exhibits;
- representing the Reserve at public meetings, civic groups, professional societies and other environmental organizations upon request, as available;
- working with the research, monitoring, and CTP coordinators to develop integrated programming;
- working with NOAA to develop national education policies for the NERRS;
- coordinating with the Reserve manager in the performance of these responsibilities; and
- participating in the development of educational materials and facilities, including trails and exhibits, and the purchase, maintenance and upkeep of education equipment.

Coastal Training Program Coordinator: The CTP Coordinator's duties and responsibilities could include:

- conducting the initial analyses for the CTP, including a market analysis to identify other training providers and partnership opportunities, target audience selection and assessment of their training needs, and development of an implementation strategy and a marketing plan for the training program;
- conducting social science research relevant to the NERR;
- planning, designing and implementing CTP events including conferences, workshops, skills trainings and collaborative problem solving processes; and
- working collaboratively with the research, monitoring, and education coordinators to integrate research, monitoring, stewardship and education activities that have objectives relevant to coastal management decision-makers.



## Lake Superior National Estuarine Research Reserve Habitat Descriptions

The habitat descriptions for the Lake Superior National Estuarine Research Reserve (LSNERR) that can be found in this Management Plan were adapted from three primary sources:

Wisconsin Initiative for Statewide Cooperation on Landscape Analysis and Data (WISCLAND) - Formed in 1993, WISCLAND is a partnership of public and private organizations seeking to facilitate landscape geographic information system data development and analysis. The WISCLAND consortium was instrumental in the funding and implementation of a 5-year work effort to interpret the state's land cover from satellite images. The WISCLAND land cover data are derived primarily from 1992 satellite imagery. After processing, the data have a minimum mapping unit of 5 acres, meaning that most land cover features 5 acres or larger can be resolved in the data. The classified land cover types can be summarized to indicate how much of each land cover is present over large areas of interest, such as counties or watersheds. More sophisticated analyses, such as assessing proximity or delineating land cover corridors, are possible with the appropriate application software.

Lower St. Louis River Habitat Plan – This plan was prepared by the St. Louis River Citizens Action Committee in 2002. It was prepared to help facilitate protection of the ecological diversity of the Lower St. Louis River. A full description of the historic and current habitats of the Lower St. Louis River is contained within the plan. Geographic information system data layers for the described habitats have also been developed.

Wisconsin Wetland Inventory - The Wisconsin Wetland Inventory was established in 1978 to help protect the state's wetlands. The Wisconsin Department of Natural Resources (WDNR) mapped and described the state's wetlands and completed the initial inventory in 1984. Wetland maps are available for the entire state. Wisconsin Wetland Inventory maps show graphic representations of the type, size and location of wetlands in Wisconsin. These maps have been prepared from the analysis of high altitude imagery in conjunction with soil surveys, topographic maps, previous wetland inventories and field work. This information is available digitally from the WDNR.

### *Descriptions of Habitat Classifications Used in the LSNERR Management Plan*

#### Aquatic

Aquatic Bed<sup>1</sup> – Beds of submersed or floating aquatic vegetation located within a water body.

Clay-Influenced Bay<sup>2</sup> - Shallow, protected bays with little water exchange between the bay and the lake. These bays are influenced by surface runoff-dominated tributary streams and characterized by abundant emergent and submergent vegetation, which provides excellent habitat for fish and waterfowl, and mudflats.

Clay-Influenced River Mouths<sup>2</sup> - Long, narrow drowned river mouths influenced by lake level fluctuations and tributary stream hydrology. The shorelines of these areas are steep, highly erodible, and deeply incised; turbidity is usually high, especially after rain events. Emergent and submergent vegetation is very limited in this habitat type because of restricted light penetration associated with turbidity and

water depth. Although these river mouths would have naturally experienced higher sediment levels than other estuarine habitats, past and present land uses have increased the sedimentation rates.

Large Riverine Reach<sup>2</sup> - This habitat is characterized by relatively high water velocity, a riverine riffle-pool structure, and very little emergent or submergent vegetation. These reaches do not often experience seiche effects.

Lower Estuarine<sup>2</sup> - The river channel of this habitat has been dredged regularly to maintain navigation. This creates frequently disturbed deep-water habitat. It is used by some fish as wintering habitat, and it is an important feeding area for fish-eating birds. The flats within this area have also been altered by industrial and commercial activity.

Open Water<sup>1 and 3</sup> - Areas of water with no vegetation present, such as lakes and ponds with a depth of 6 feet or less or unvegetated river sloughs

Sheltered Bays<sup>2</sup> - Sheltered bays are an example of a pulse-stable wetland community; the seiche causes pulses of water and sediment to move in and out of the bays, helping to prevent the wetlands from filling in with sediment or becoming dominated by dense woody vegetation. Wind-induced resuspension of sediments may also be an important mechanism of sediment transport in shallow areas. Most bays have extensive areas of emergent and submergent aquatic vegetation interspersed with areas of open water 3-5 feet deep, thereby supporting the highest diversity of plant and animal species of any habitat type in the estuary. Some sheltered bays are surrounded by shrub swamps dominated by willow, alder, or other species. Sheltered bays provide spawning areas for many species of fish. They support a high diversity and abundance of invertebrates. The extensive emergent wetlands are very important for waterfowl and wading birds. Wild rice, an aquatic plant of significant ecological and native cultural importance, grows in some sheltered bays. The health of these bays varies from one location to another; some have been impacted by excessive sediment inputs, and some exhibit lower than expected species diversity and/or invasion by exotic species.

Upper Estuarine River Channel<sup>2</sup> - This habitat includes both natural river channel and formerly dredged channel. The upstream boundary coincides with the upstream extent of the seiche effect; the downstream boundary extends to the area where regular dredging takes place. Both lake level fluctuations and river hydrology influence this habitat. This part of the river channel was flooded by rising lake level resulting from post-glacial isostatic rebound. It is rich in fish species, is home to high numbers of native mussels, and may be an important wintering habitat for fish.

Upper Estuary Flats<sup>2</sup> - These are depositional habitats with low water velocity where wind and wave action have the greatest influence on water movement. Lake level fluctuations have a stronger influence on this habitat than the river's hydrologic regime. Some areas support submergent or emergent marshes in various conditions. The flats of the upper estuary have relatively unmodified shorelines. The flats support a high abundance of forage fish, panfish, and waterfowl.

### Wetland

Emergent/Wet Meadow<sup>1 and 3</sup> - Persistent and non-persistent herbaceous plants standing above the surface of the water or wet soil

Filled/Drained Wetland<sup>1</sup> – Areas which were wetlands in their natural state but have since been filled or drained.

Flats/Unvegetated Wetland Soil<sup>1</sup> – Exposed wet soils which do not support vegetation.

Forested Wetland<sup>1 and 3</sup> - Wetlands dominated by woody perennial plants, with a canopy cover greater than 10% and trees reaching a mature height of at least 6 feet.

Scrub/Shrub<sup>1 and 3</sup> - Woody vegetation, less than 20 feet tall, with a tree cover of less than 10%, and occurring in wetland areas.

### Terrestrial

Broad-Leaved Deciduous<sup>3</sup> - Upland areas whose canopies have a distinct crown closure which is comprised of no less than two-thirds of broad-leaved deciduous trees.

Developed<sup>3</sup> - Areas associated with intensive human activity and/or land use.

Grassland<sup>3</sup> - Lands covered by non-cultivated herbaceous vegetation predominated by grasses, grass-like plants or forbs.

Mixed Deciduous/Coniferous<sup>3</sup> - Upland areas whose canopies have a distinct crown closure which is comprised of no more than two-thirds from either of the species groups (coniferous or deciduous).

Upland Shrub<sup>3</sup> – Upland areas dominated by vegetation with a persistent woody stem, low growth of less than 20 feet, and coverage of at least one-third of the land area; there is less than 10% tree cover interspersed.

Sources of habitat descriptions:

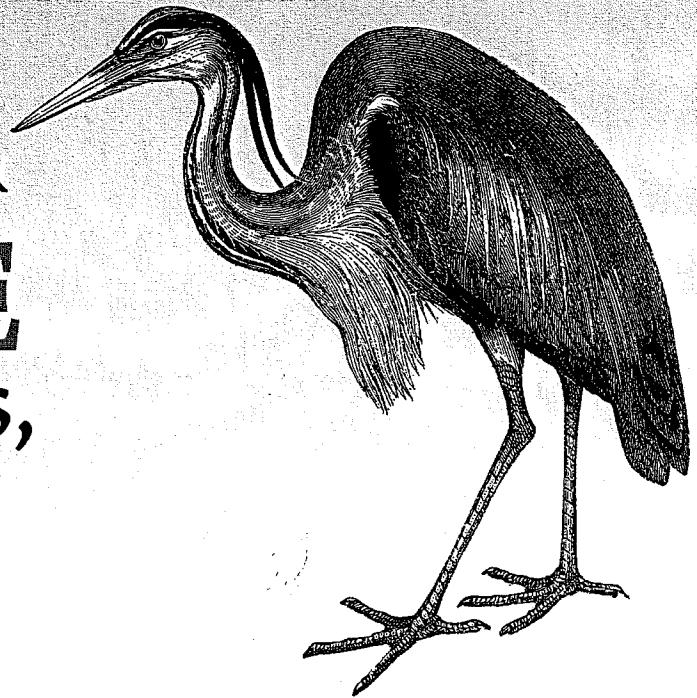
<sup>1</sup>Wisconsin Wetland Inventory

<sup>2</sup>Lower St. Louis River Habitat Plan

<sup>3</sup>Wisconsin Initiative for Statewide Cooperation on Landscape Analysis and Data (WISCLAND)

# NATURAL & CULTURAL HISTORY OF THE LOWER ST. LOUIS RIVER

## ON-THE-WATER GUIDE for Canoeists, Kayakers & Boaters



ST. LOUIS RIVER CITIZENS ACTION COMMITTEE



For More Information

St. Louis River Citizens Action Committee

394 Lake Avenue S., Suite 303B

Duluth, Minnesota 55802

Tel: (218) 733-9520

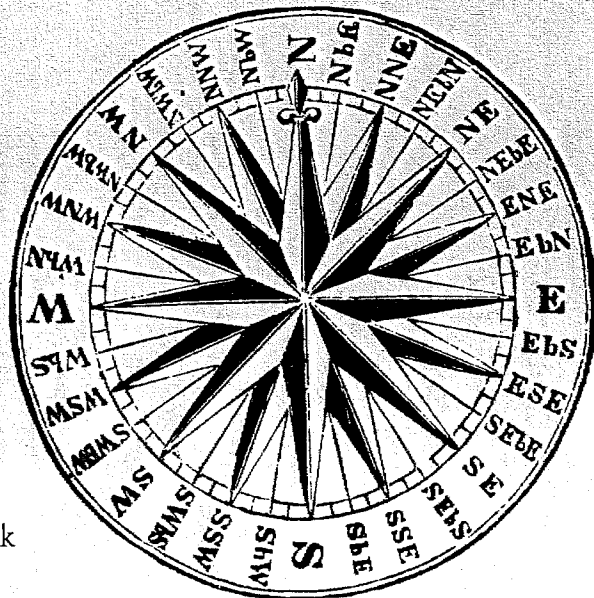
Email: [slrcac@StLouisRiver.org](mailto:slrcac@StLouisRiver.org)

Website: [www.StLouisRiver.org](http://www.StLouisRiver.org)

© St. Louis River Citizens Action Committee

The booklet is available directly from the  
ST. LOUIS RIVER CITIZENS ACTION COMMITTEE  
and is available from many other information outlets in the area.

# EXPLORE THE ST. LOUIS RIVER



The St. Louis River. Largest U.S. tributary to the largest freshwater lake in the world. Always a place of passing through and coming together. Spirit Island was the second-to-last stop of the Anishinabe in their migration west. The search for the water passage to the Orient through these great lakes ended here and took to the land. The fates of geography linked with history, creating Minnesota's oldest European settlement. And now the riches of the west and east are loaded, unloaded, reprocessed and then passed through.

For three centuries the human hand has affected the river. Yet nature continues. Now we see the beauty of bridge and marsh, track and forest. Industry emerging from the still-green shoreline reminds us that we have a place in the dynamic system of the St. Louis River. And responsibility for it.



394 Lake Avenue S., Suite 303B, Duluth, Minnesota 55802

Tel: (218) 733-9520

Email: [slrcac@StLouisRiver.org](mailto:slrcac@StLouisRiver.org)

Website: [www.StLouisRiver.org](http://www.StLouisRiver.org)

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## ABOUT THE ST. LOUIS RIVER

The St. Louis River, the largest U.S. tributary to Lake Superior, drains 3,634 square miles, entering the southwestern corner of Lake Superior between Duluth, Minnesota and Superior, Wisconsin. The river flows 179 miles through three distinct areas: coarse soils, glacial till and outwash deposits at its headwaters; a deep, narrow gorge at Minnesota's Jay

*Over 230 bird species have been documented in the lower St. Louis River.*

Cooke State Park; and red clay deposits in its lower reaches. Below the Fond du Lac dam, as the river approaches Lake Superior, it slows down and spreads out, covering

12,000 acres, to a freshwater estuary. The upper estuary has some wilderness-like areas, while urban development, an industrial harbor, and a major port characterize the lower estuary. The lower estuary

includes St. Louis Bay, Superior Bay, Allouez Bay and the lower Nemadji River.

The St. Louis River Area of Concern is the area being addressed by the St. Louis River System Remedial Action Plan (RAP), which focuses primarily on cleaning up and improving river quality in the lower 39 miles of the

St. Louis River below Cloquet, Minnesota. The RAP began in 1989, as a collaborative effort between the Minnesota Pollution Control Agency and the Wisconsin Department of Natural Resources. At that time, the agencies created a Citizens Advisory Committee. In 1997, with agency assistance, the Committee incorporated as an independent nonprofit

*The St. Louis River is the heart of our region, the gateway to the Great Lakes. It flows 179 miles and is the largest U.S. tributary to Lake Superior.*

organization known as the St. Louis River Citizens Action Committee. Many of the original citizen and agency partners are still active in implementing the plan today.

## CITIZENS ACTION COMMITTEE/REMEDIATION ACTION PLAN PARTNERSHIP

The CAC received financial support for this project in part from the Beneficiary Group for Environmental

*The St. Louis River was named by the French explorer Verendrye in honor of being awarded the Order of St. Louis by the King of France in 1749.*

Improvement for the St. Louis River/ Interlake/ Duluth Tar Agreement and has received funding from several organizations to implement projects in the St. Louis and Nemadji River watersheds.

We would like to extend a special thanks to Jerome Blazevic and members of the St. Louis River Stewardship Committee.

## FOR MORE INFORMATION ABOUT THE RIVER

For more information about the river's history, please refer to the *Historic Reconstruction of Property Ownership and Land Uses along the Lower St. Louis River* or the *St. Louis River Remedial Action Plan*, available in the local library and on the St. Louis River Citizens Action Committee web site at [www.StLouisRiver.org](http://www.StLouisRiver.org).

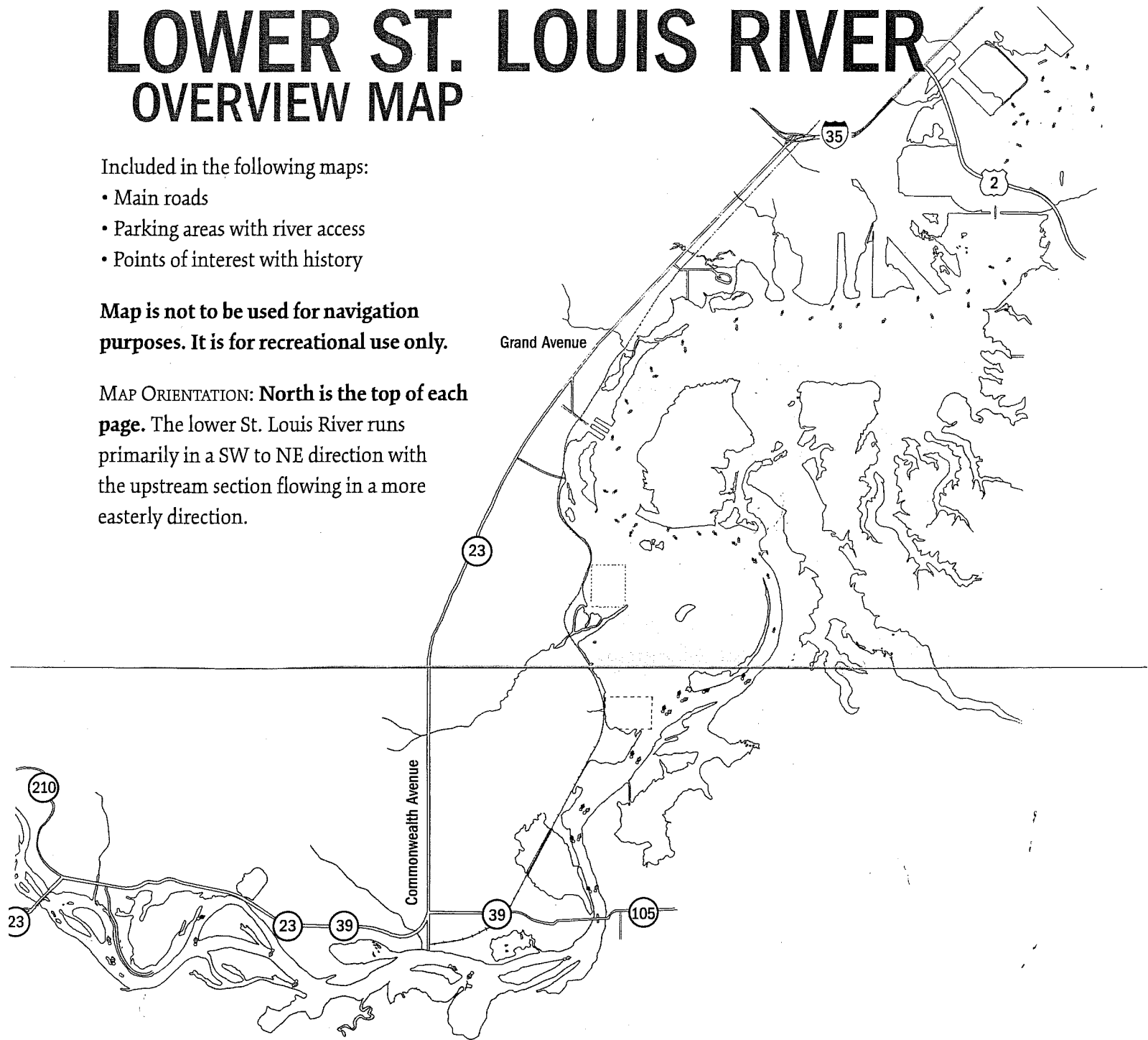
# LOWER ST. LOUIS RIVER OVERVIEW MAP

Included in the following maps:

- Main roads
- Parking areas with river access
- Points of interest with history

**Map is not to be used for navigation purposes. It is for recreational use only.**

**MAP ORIENTATION: North is the top of each page.** The lower St. Louis River runs primarily in a SW to NE direction with the upstream section flowing in a more easterly direction.



**MAP LEGEND**

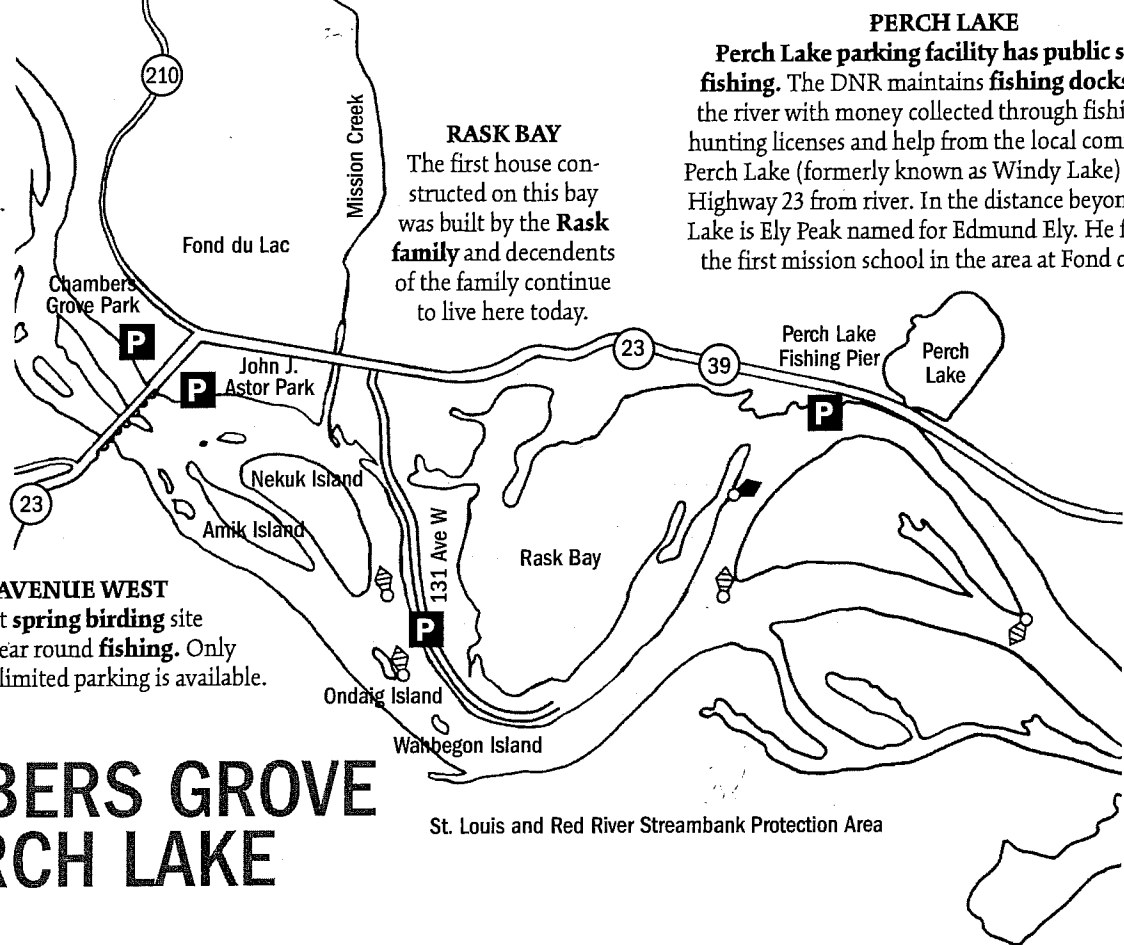
<b>P</b> Canoe launch & parking	Railroad
Point of interest	Road
Green buoy	Land
Red buoy	Water

**CHAMBERS GROVE PARK**  
 Chamber's Grove Park in the 1900s had a French log building that later became an enclosed pavilion and is now a pillared pavilion. A fishing pier is located here. A private campground is just downstream of the park.

**131ST AVENUE WEST**  
 Excellent **spring birding** site and great year round **fishing**. Only limited parking is available.

**RASK BAY**  
 The first house constructed on this bay was built by the **Rask family** and decedents of the family continue to live here today.

**PERCH LAKE**  
**Perch Lake parking facility has public shore fishing.** The DNR maintains **fishing docks** along the river with money collected through fishing and hunting licenses and help from the local community. Perch Lake (formerly known as Windy Lake) is across Highway 23 from river. In the distance beyond Perch Lake is Ely Peak named for Edmund Ely. He founded the first mission school in the area at Fond du Lac.



# CHAMBERS GROVE TO PERCH LAKE

## FOND DU LAC

Fond du Lac has a rich history and was one of the earliest settlements in the region. All original treaties with local **Native Americans** were made at Fond du Lac. There was a Native American and later a trading post cemetery located at the site of Fond du Lac. The **cemetery** was relocated to the top of hill in 1870 when the railroad was put through middle of the town.

The **Mountak Steamer** came as far up river as Fond du Lac until 1942. It was a very popular pleasure cruise and allowed gambling aboard. Many of the islands near Fond du Lac used to be privately owned. Ondaig Island was named **Treasure Island** due to the slot machines built on it by the owner for gambling.

Fond du Lac played host to many **sawmills and shingle mills**. You can still find sawdust in the bottom of Rask Bay.

The oldest house in the Duluth area, the **Peterson House** built in 1867, is located at 13328 West 3rd Street in Fond du Lac. It has a brownstone foundation made from local stone quarried approximately half a mile up Mission Creek. All of the houses along the river have **artesian wells**. The town reservoir is on top of the clay hill.

## JOHN J. ASTOR PARK

John J. Astor Park is named for the **first American fur trader** in the region. He built a fur trading post at this site. The backyard of the house next to the park used to be a bay where canoes pulled up to be stored and repaired. Later, Mission Creek was dredged and used to fill in the bay. A municipal dock and store were built here.

The first mission in the area was built next to **Mission Creek** in 1834. The first Christian marriage was conducted here later in that year.

Two islands are slightly downstream from the park. **Nekuk Island**, had Native American farms and later settler farms on it. **Amik Island**, played host to a hotel from about the 1890s until 1915. The islands were cribbed to prevent erosion after the dredging of the river occurred.

**Eelpout fishing** is good in the river near the park in early winter, as fish can only go upstream as far as Fond du Lac Dam.

A **boat launch and parking** is available here.



**BOY SCOUT LANDING**

Boy Scout Landing used to be an old **municipal dock**. A coolerator plant located here made iceboxes (refrigerators). The **Duluth Ice House**, also located here, shipped ice packed in sawdust to keep it from melting. **Western Steel** was also located here. It melted iron for cast iron furnaces and made tin ceilings and mailboxes.

This site was the location of the **Duluth Paint and Varnish Company**. The company made varnish, putty, enamels, lacquers, and had a print shop. It was widely known for creating blister proof house paint and a Christmas tree coating to help prolong tree life and prevent needle loss. It was a division of the Marshall-Wells Company and reached its peak production in the 1930s. During this peak it produced 300,000 gallons of varnish and an equal amount of paint each day, employed 61 workers, and made annual sales in excess of \$1 million. The bosses for the steel company and paint company lived on top of the hill. Gardens and pasture for animals were located next to the houses. Now River Place condos are located where the Duluth Paint and Varnish Company operated.

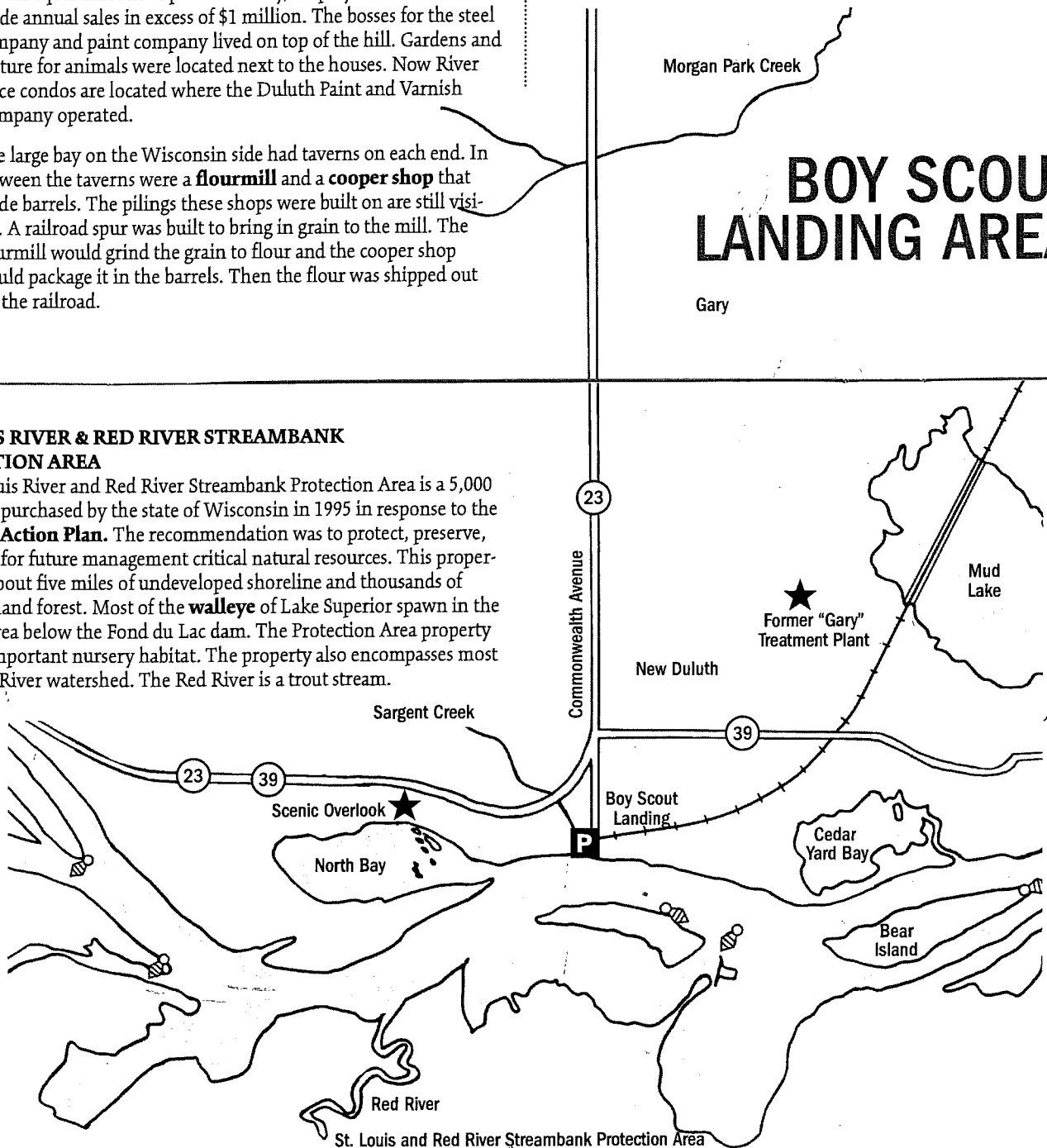
The large bay on the Wisconsin side had taverns on each end. In between the taverns were a **flourmill** and a **cooper shop** that made barrels. The pilings these shops were built on are still visible. A railroad spur was built to bring in grain to the mill. The flourmill would grind the grain to flour and the cooper shop would package it in the barrels. Then the flour was shipped out via the railroad.

Boy Scout Landing was maintained and cared for by a local Boy Scout troop for 27 years before the city took over—hence the name of the park. A large lot for parking is at this boat launch. Camping is available at **River Place Campground** just downstream from Boy Scout Landing.

The New Duluth water tower near treeline is filled with water from **artesian wells**. The overflow runs into Sargent Creek.

The **Eagle Scout Trail** leads from Boy Scout Landing to a scenic overlook just up the river. The **Red River** is visible across from the overlook and **Perch Lake** is visible to the NW. An iron staircase (taken from old benzene plant in New Duluth) at the overlook leads down to the river. The local Boy Scouts maintain this trail.

**BOY SCOUT LANDING AREA**



**ST. LOUIS RIVER & RED RIVER STREAMBANK PROTECTION AREA**

The St. Louis River and Red River Streambank Protection Area is a 5,000 acre parcel purchased by the state of Wisconsin in 1995 in response to the **Remedial Action Plan**. The recommendation was to protect, preserve, and insure for future management critical natural resources. This property covers about five miles of undeveloped shoreline and thousands of acres of upland forest. Most of the **walleye** of Lake Superior spawn in the 1/2-mile area below the Fond du Lac dam. The Protection Area property provides important nursery habitat. The property also encompasses most of the Red River watershed. The Red River is a trout stream.

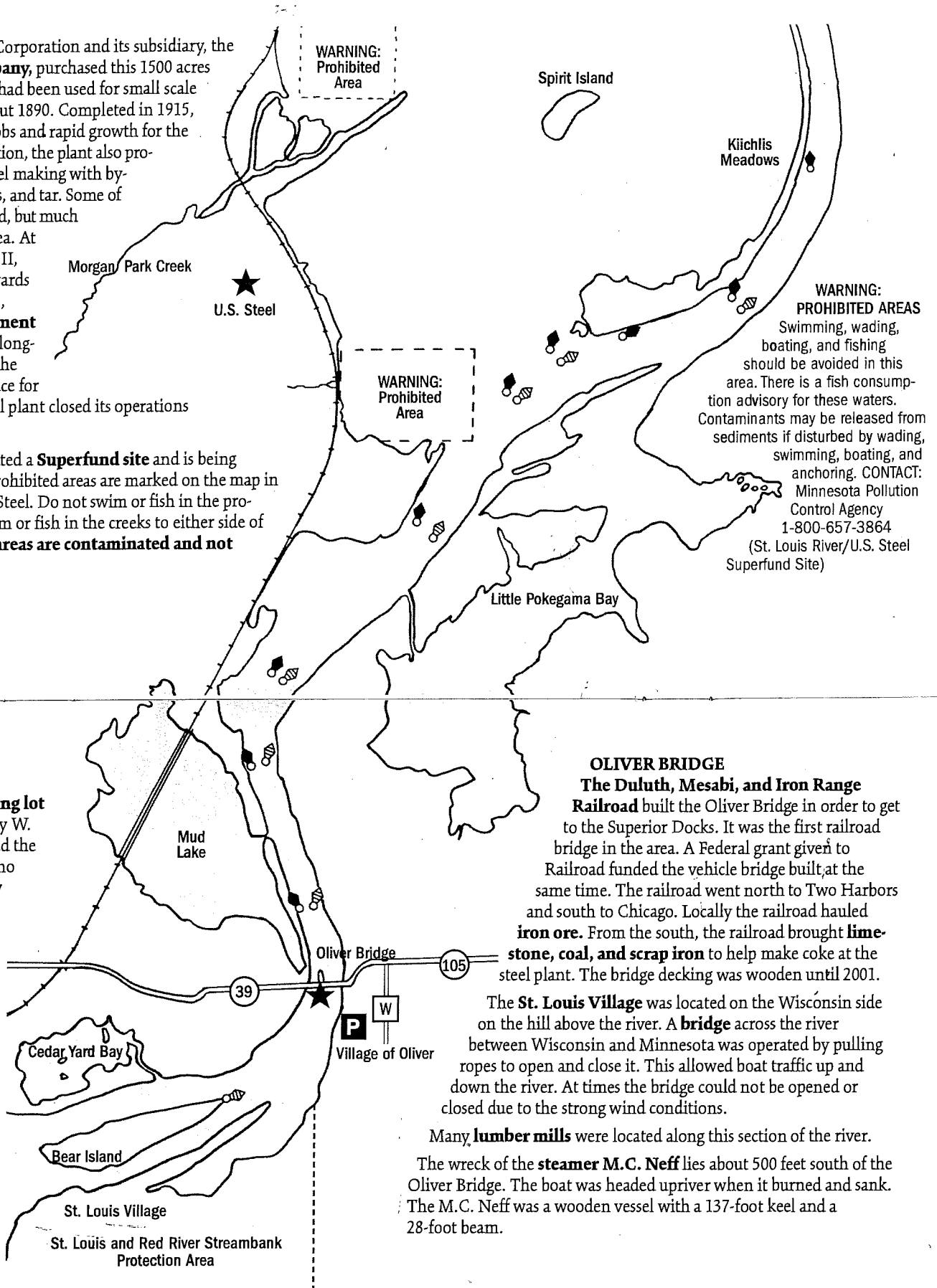
**U.S. STEEL**

The United States Steel Corporation and its subsidiary, the **Minnesota Steel Company**, purchased this 1500 acres of land in 1907. The site had been used for small scale **steel smelting** since about 1890. Completed in 1915, the plant created many jobs and rapid growth for the area. Besides steel production, the plant also produced **coke** for use in steel making with by-products of gas, heavy oils, and tar. Some of these by-products were sold, but much was disposed of in the area. At the height of World War II, U.S. Steel employed upwards of 3,000 workers. In 1911, **Universal Portland Cement Company** built a plant alongside the steel mill to use the slag waste from the furnace for making cement. The steel plant closed its operations in 1973.

Today, the area is designated a **Superfund site** and is being slowly cleaned up. The prohibited areas are marked on the map in dotted lines next to U.S. Steel. Do not swim or fish in the prohibited areas. Do not swim or fish in the creeks to either side of U.S. Steel either. **These areas are contaminated and not safe for recreation.**

**VILLAGE OF OLIVER**

A **boat launch** and **parking lot** is located west of Highway W. Loggers originally founded the town of Oliver. It was a "no name" town and virtually dried up when the last of the timber was harvested. In 1917, the population of Oliver boomed again when the **United States Steel Corporation** began scouting for a suitable site for their steel plant. Oliver was incorporated as a village in that same year and named after the **Oliver Mining Company** of the Mesabi Range. When U.S. Steel decided to settle their plant in Morgan Park, the boom died slightly but was rekindled with the talk of founding manufacturing and shipping industries linked with the Great Lakes/St. Lawrence Waterway.



**OLIVER BRIDGE**  
**The Duluth, Mesabi, and Iron Range**

**Railroad** built the Oliver Bridge in order to get to the Superior Docks. It was the first railroad bridge in the area. A Federal grant given to Railroad funded the vehicle bridge built at the same time. The railroad went north to Two Harbors and south to Chicago. Locally the railroad hauled **iron ore**. From the south, the railroad brought **limestone, coal, and scrap iron** to help make coke at the steel plant. The bridge decking was wooden until 2001.

The **St. Louis Village** was located on the Wisconsin side on the hill above the river. A **bridge** across the river between Wisconsin and Minnesota was operated by pulling ropes to open and close it. This allowed boat traffic up and down the river. At times the bridge could not be opened or closed due to the strong wind conditions.

Many **lumber mills** were located along this section of the river.

The wreck of the **steamer M.C. Neff** lies about 500 feet south of the Oliver Bridge. The boat was headed upriver when it burned and sank. The M.C. Neff was a wooden vessel with a 137-foot keel and a 28-foot beam.

**MUD LAKE TO SPIRIT LAKE**

**SPIRIT LAKE MARINA**

Spirit Lake Marina is located on Spring Street. It was the location of **Barnes Shipyard**. The community of **Riverside** was built to house shipyard workers and was a railroad stop. Today, Spirit Lake Marina has a **boat launch** and access to the **Western Waterfront Trail**. The **Tate and Lyle Company** owns the yellow building located on the waterfront. Nutrasweet® is made here. The **barge Alice Vivian** burned and is at the bottom of the St. Louis River at approximately the intersection of S. 67th Ave. W. and the river.

**CLYDE AVENUE LANDING (Smithville or Munger Landing)**

Located on Clyde Avenue, the landing has a **fishing pier** and a developed **boat launch**. This site was used for the making of the movie **"Iron Will"** in 1991. You'll see a good view of Clough Island and Spirit Island, in the middle of Spirit Lake. Located on the hill to the north of the boat launch is a large white apartment house that at one time was a **Finnish College**.

**MORGAN PARK**

Morgan Park was built by the local U. S. Steel plant to house workers. Designed as an **"ideal community,"** it had yacht and athletic clubs. A **streetcar** ran next to the highway from downtown to the cement plant.

**CLOUGH ISLAND (or Whiteside or Big Island)**

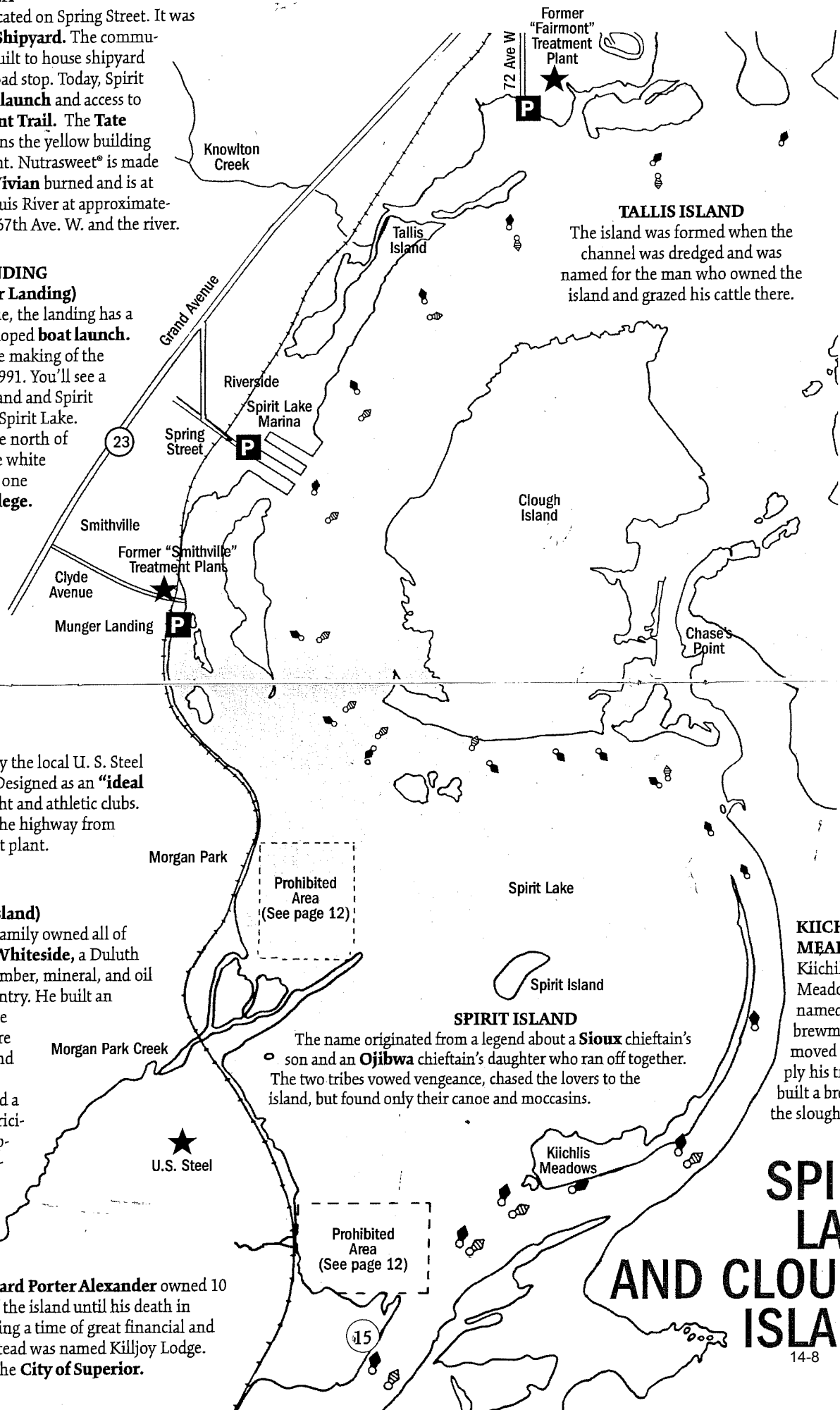
By 1939, the Whiteside family owned all of Clough Island. **Robert Whiteside**, a Duluth pioneer, had extensive timber, mineral, and oil holdings around the country. He built an L-shaped barn and a huge house on the island where the family grew wheat and raised race horses, cattle, and sheep. The house had a 600-foot deep well, electricity from Duluth (via a copper cable across the channel), a racetrack, an orchard, and a boat launch to ferry people to Duluth. The homestead burned down in May 1956. **Edward Porter Alexander** owned 10 acres on the SE corner of the island until his death in February 1939. Built during a time of great financial and personal loss, the homestead was named Killjoy Lodge. Clough Island is part of the **City of Superior**.

Former "Fairmont" Treatment Plant



**TALLIS ISLAND**

The island was formed when the channel was dredged and was named for the man who owned the island and grazed his cattle there.



**KIICHLIS MEADOWS**  
Kiichilis Meadows is named for a brewman who moved here to ply his trade and built a brewery in the slough.

**SPIRIT ISLAND**

The name originated from a legend about a **Sioux** chieftain's son and an **Ojibwa** chieftain's daughter who ran off together. The two tribes vowed vengeance, chased the lovers to the island, but found only their canoe and moccasins.

**SPIRIT LAKE AND CLOUGH ISLAND**

# INDIAN POINT AREA

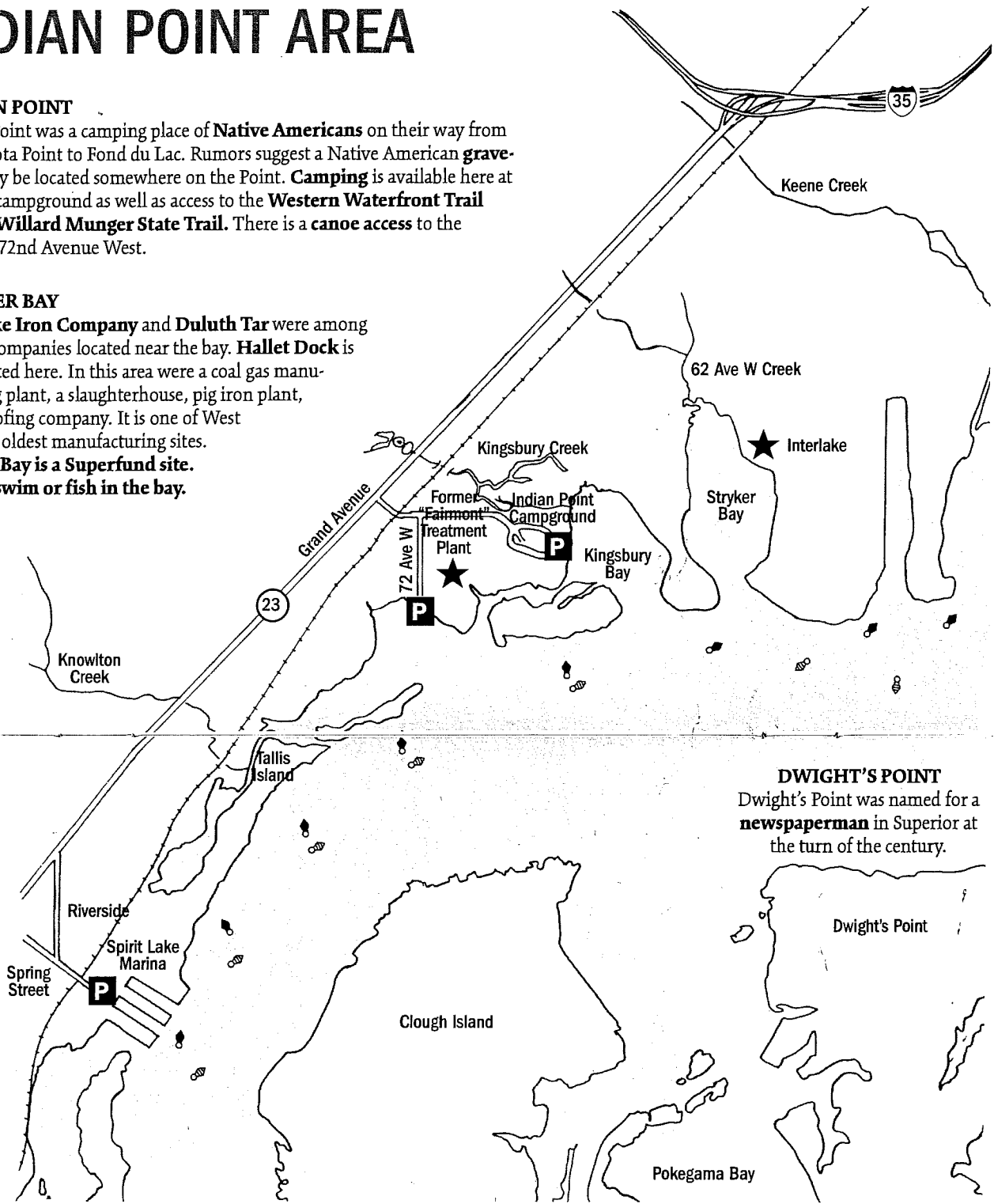
## INDIAN POINT

Indian Point was a camping place of **Native Americans** on their way from Minnesota Point to Fond du Lac. Rumors suggest a Native American **graveyard** may be located somewhere on the Point. **Camping** is available here at the city campground as well as access to the **Western Waterfront Trail** and the **Willard Munger State Trail**. There is a **canoe access** to the river on 72nd Avenue West.

## STRYKER BAY

**Interlake Iron Company** and **Duluth Tar** were among several companies located near the bay. **Hallet Dock** is still located here. In this area were a coal gas manufacturing plant, a slaughterhouse, pig iron plant, and a roofing company. It is one of West Duluth's oldest manufacturing sites.

**Stryker Bay is a Superfund site.**  
**Do not swim or fish in the bay.**



## DWIGHT'S POINT

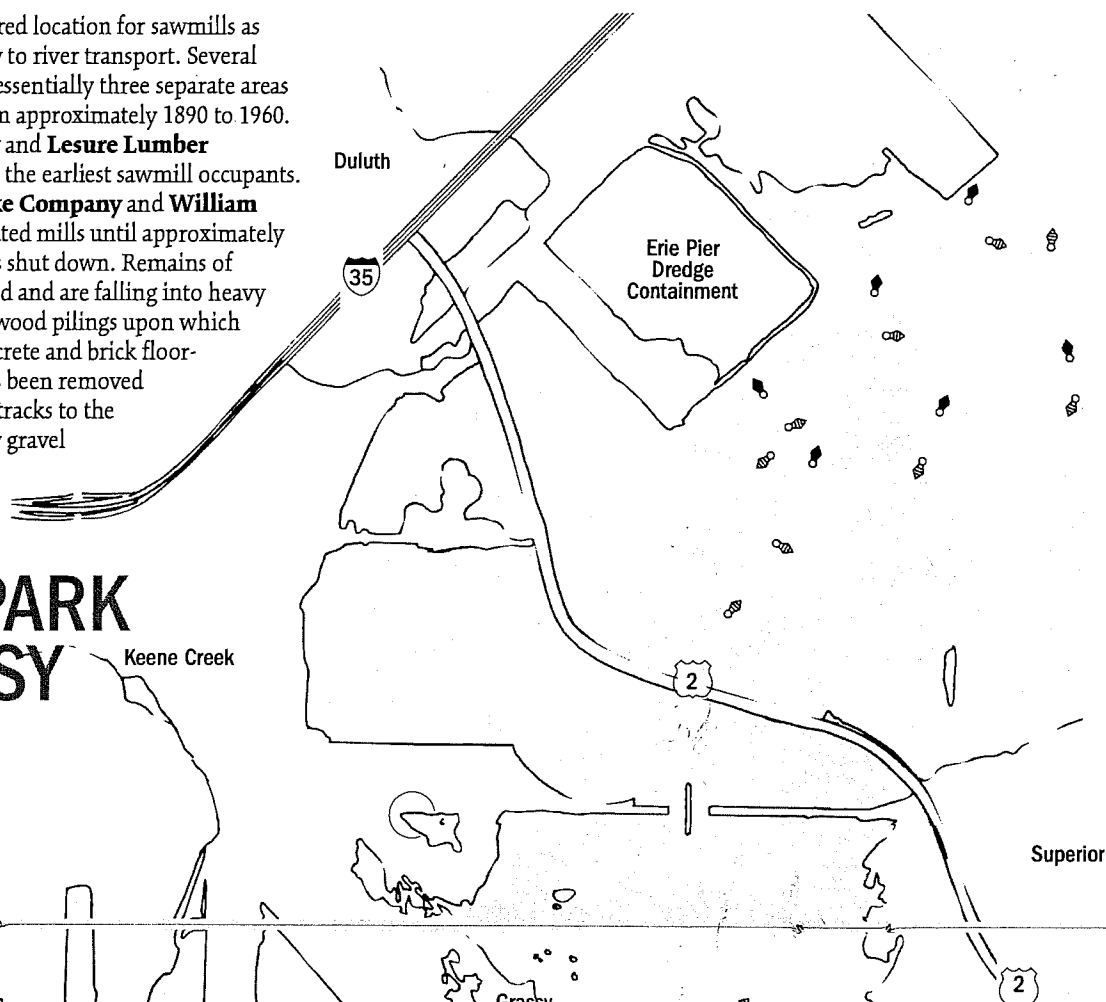
Dwight's Point was named for a **newspaperman** in Superior at the turn of the century.

### Stryker Bay WARNING: Contaminated Sediments

Boating and swimming should be avoided in this area. There is a fish consumption advisory for these waters. Contaminants may be released from sediments if disturbed by wading, swimming, boating, and anchoring. Should this oil and tar substance come into contact with skin, wash off immediately with soap and water. Contact: Minnesota Pollution Control Agency 1-800-657-3864 (St. Louis River/Interlake/Duluth Tar Superfund Site)

**GRASSY POINT: SAWMILLS**

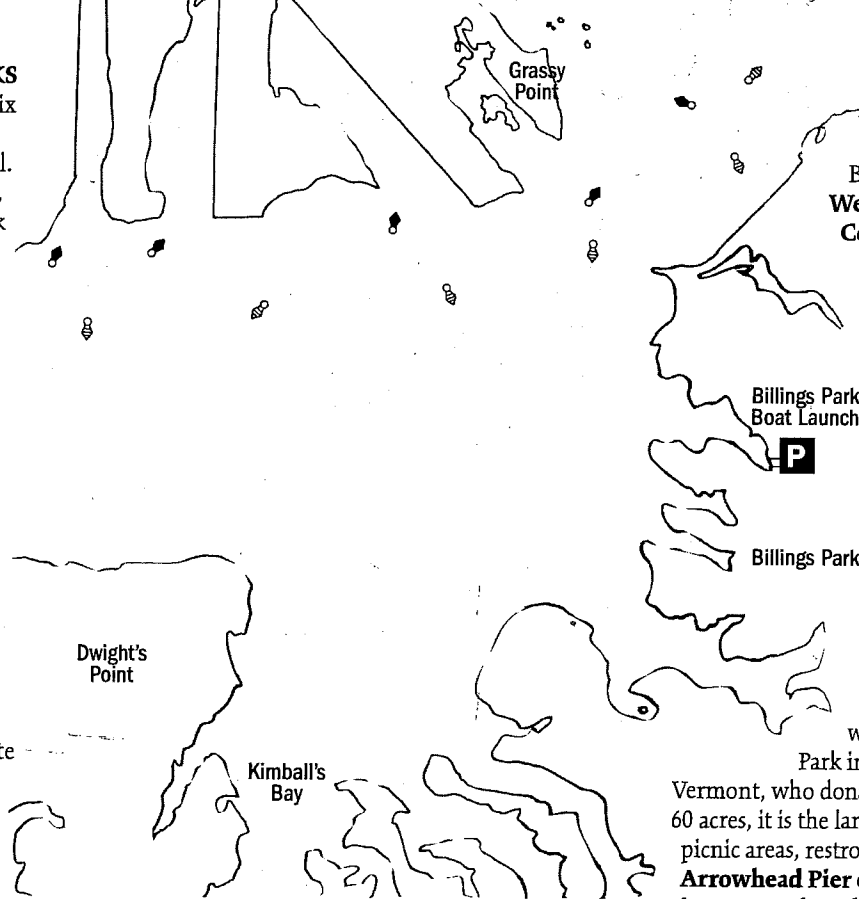
The Grassy Point parcel was a desired location for sawmills as early as 1890 due to its accessibility to river transport. Several lumber companies have occupied essentially three separate areas of the parcel at different times from approximately 1890 to 1960. The **St. Louis Lumber Company** and **Lesure Lumber Company** and a **Planing Mill** are the earliest sawmill occupants. Later the **Virginia** and **Rainy Lake Company** and **William O'Brien Lumber Company** operated mills until approximately 1924 when the last of the mills was shut down. Remains of sawmills have been long abandoned and are falling into heavy disrepair. Visible remains include wood pilings upon which a wood platform was located. Concrete and brick flooring also remain. All machinery has been removed from these locations. The railroad tracks to the buildings have been removed; only gravel foundations are still present.



**BILLINGS PARK AND GRASSY POINT**

**GRASSY POINT: SHIPWRECKS**

The 1918 **Cloquet Fires** burned six scows, a dredge and three historic tugboats in the Grassy Point parcel. All were out of service at the time, burned to the water level and sank in place. The **Northern Dredge and Dock Company** of Duluth owned all but one of the vessels. They were likely associated with dredging, transporting or towing vessels and dredge spoil in the **Duluth-Superior harbor**. Much of the salvageable equipment was removed from the vessels after the fire, so their historical significance has diminished. The slip located on the south area of the Grassy Point property contains the hull remains of a nondescript wooden scow measuring approximately 16x60 feet. Site verification and a 1930s era aerial photograph indicate that this is an insignificant vessel abandoned in the slip sometime after the 1918 fires. The rest of the slip is extensively floored with wood timbers and slabs.



**BILLINGS PARK**  
Billings Park is the birthplace of **West Superior Iron and Steel Company** in 1887, a **pipe foundry** in 1889, and in 1890 a **plant** that manufactured iron and steel for railroad construction and parts and tools for a steel plate mill.

These companies were first owned by **John D. Rockefeller** and later by his rival, **Andrew Carnegie**. During its heyday, 400-600 workers were employed and a community of around 2,000 grew in the **Steel Plant** area. The community was also known as the **"City of Churches"** for its 12 churches. In 1903, the "Steel Plant" area was officially renamed Billings Park in honor of **Frederick Billings** of Vermont, who donated the property to Superior. At 60 acres, it is the largest park in Superior with two picnic areas, restrooms, and a trail along the river. **Arrowhead Pier** on Belknap Street is a **great fishing spot**. A **boat launch** is also located here.

### KIMBALL'S BAY

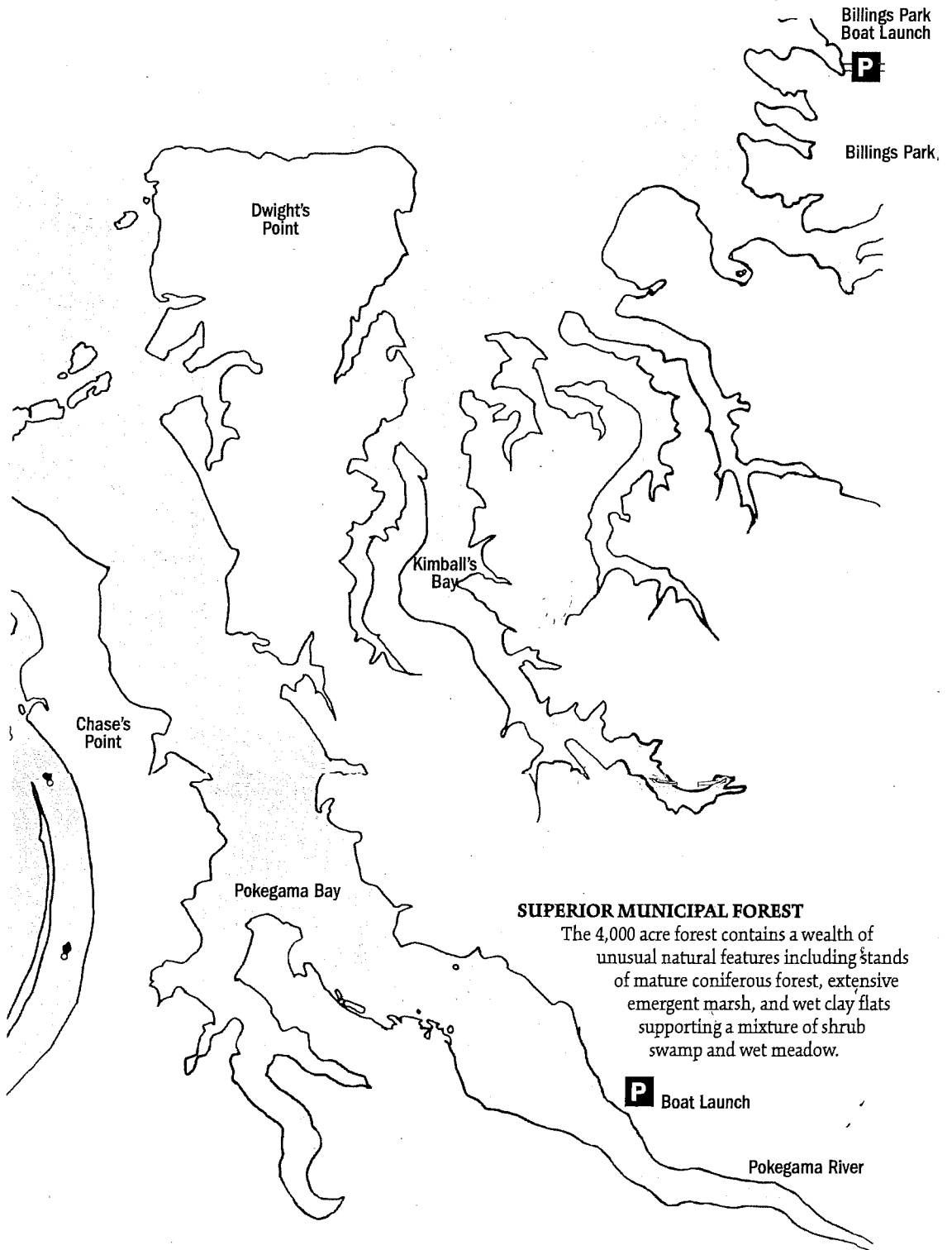
The Kimball family settled in Superior in the 1850s. The earliest mention of the name is in connection with a **sawmill** located on **Connor's Point**. In 1863, **William Kimball** was in charge of the construction of a stockade in Superior to protect against attacks from **Ojibwa**.

### CHASE'S POINT

Chase was the name of an early family in Superior.

### POKEGAMA BAY

The Pokegama River flows into the St. Louis River at the far end of Pokegama Bay. Pokegama Bay is a **clay-influenced river mouth**. The shorelines are steep, highly erodible, and deeply incised. After rain events, the water is very turbid.



# POKEGAMA BAY AREA

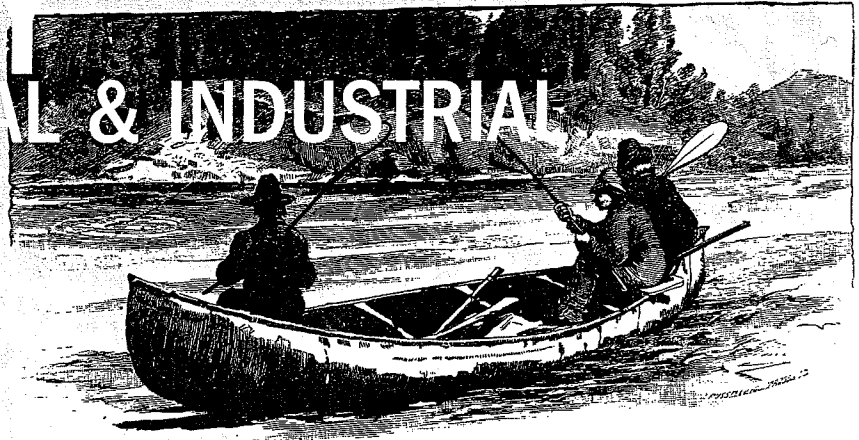
# HISTORY

## GEOLOGIC, NATURAL & INDUSTRIAL

### GEOLOGIC HISTORY OF THE LOWER ST. LOUIS RIVER

The geologic history can be reconstructed from the rocks and sediments exposed in the river bed and along the shoreline. The bedrock over which the river flows is part of the **Canadian Shield**, the stable ancient core of the North American continent.

The present St. Louis River channel was shaped primarily by the **glaciers** of the Pleistocene epoch. As glaciers advanced and retreated across the land, receding



for the last time about 10,000 years ago, the slowly melting ice and flowing meltwater left behind complex patterns of sediment—moraines, drumlins, and lake bottom clays. These **glacial deposits**, which form many of the surface features we see today, greatly influence the flow and habitat conditions of the river.

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The lower St. Louis River flows through high banks of **red clay, silt, and sand**. These sediments were deposited when a large lake, known as **Glacial Lake Duluth**, covered the area. Glacial Lake Duluth formed as meltwater was trapped in front of the Superior Lobe

*The St. Louis River forms a  
12,000 acre freshwater estuary  
before emptying into  
Lake Superior.*

ice when it filled the basin to the northeast. The red clay—so typical of the lower St. Louis River and Nemadji River basin—was deposited in the deep water of this glacial lake. As the ice receded farther north, lower outlets were exposed in other areas, dropping the lake level significantly as the water drained away to the east. This allowed water to flow into the lake at the western end, cutting a deep channel—the ancestral St. Louis River—into the easily eroded red clay. Then, as the heavy weight of the ice was removed, the land began to rebound. Since the

land to the north was the last to lose its covering of ice, it was the last to rebound. As the land rose, the water in Lake Superior shifted toward the western end of the lake and flooded the channel of the St. Louis River and its tributaries, forming the freshwater estuary that we see today.

A **baymouth sand bar** formed across the western end of the lake, separating the estuary from the open water of the lake, creating a sheltered harbor. Historically, there was only one break in **Allouez Bay** where both the St. Louis River and the **Nemadji River** flowed out into Lake Superior.

*The lower St. Louis River provides vital habitat for fish reproduction, nesting colonial water birds and waterfowl, migratory shorebirds and songbirds, and many other animals.*

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## NATURAL HISTORY OF THE LOWER ST. LOUIS RIVER

The lower St. Louis River is an amazingly diverse and complex area. This section of the river flows through thick deposits of **red clay**. When the level of Lake Superior was lower, the river and its tributaries cut deeply incised valleys through this easily eroded clay. When the lake level rose, the St. Louis River and its tributaries were flooded by the rising water, creating a complex **estuary** with an irregular shoreline and bays at the mouth of each tributary.

The bay mouth bar that creates the protected water of the harbor is typical of estuary systems. The lake side of the bar is composed primarily of sand, and the landward side is made up of finer sediments. The bay-mouth bar as a whole protects the **wetland habitats** of the bay from the high energy wind and waves of the lake.

Remnants of older baymouth bars are found within the estuary. Grassy Point, located about five miles from the mouth of the river, represents a baymouth bar from an earlier glacial lake stage when the water level was at least three feet higher than the current level.

When first charted by **William Hearing** in 1861, the St. Louis River estuary was relatively shallow and bordered by a variety of wetlands and riparian forest communities. The **forests** of the surrounding uplands were dominated by coniferous and mixed deciduous/coniferous stands that lengthened the spring snow melt period, slowing runoff. A thick layer of organic material on the forest floor also slowed the runoff. A variety of **fish, waterfowl, and other wildlife** used the area for breeding and migration.

***Important wetland communities along the lower St. Louis River occur nowhere else in the world outside of the Great Lakes region.***

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Since Hearing's time, filling the wetlands and open water areas for river-side **development** has caused a loss of about 3,000 acres of shallow wetland habitat. Another 4,000 acres of the estuary have been **dredged** or deepened for navigation. Despite these significant changes, the lower St. Louis River still provides **vital habitat** for fish reproduction, nesting colonial water birds and waterfowl, migratory shorebirds and songbirds, and many other animals. The estuary supports a **large, diverse warm-water fish community of approximately 54 species**, including lake sturgeon, walleye, yellow perch, northern pike, burbot (eelpout), black crappie, emerald shiner, spottail shiner, and white sucker.

## PRE-INDUSTRIAL HISTORY OF THE LOWER ST. LOUIS RIVER

### **Fond du Lac Region—"Head of the Lakes."**

Although Native Americans have lived in northeastern

Minnesota for thousands of years, they left few descriptions of life along the St. Louis River. Written records arrived with the Europeans who came to the area in the 1600s to explore, trade, and introduce Christianity. Today the Fond du Lac neighborhood is located approximately 20 miles upstream from Lake Superior, but in the early days of exploration, the entire Duluth/Superior/Lower St. Louis River area was often referred to as Fond du Lac or "head of the lake."

**Native American Life at Fond du Lac.** Prior to the early 1800s, reports indicate that the Fond du Lac Band consisted of nomadic villages scattered along the St. Louis River at what is now Fond du Lac, Superior, Minnesota Point, and Cloquet. They also had seasonal camps at Spirit Lake and Indian Point, living primarily on wild rice, game, fish, and other wild plants. After the 1800s, the influx of fur traders to the region enabled the local tribes to settle in one place and trade furs for food and European goods.

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**Exploration.** The St. Louis River was the scene of much activity by Native Americans, fur traders, missionaries, and other intrepid explorers. During the days of canoe travel it was a very important waterway, and two well known trade routes passed over it. Canoe travelers enroute from Lake Superior south to the Upper Mississippi region or north to Lake Vermilion would ascend the river to the Grand Portage, a mile and a half above Fond du Lac. Here they carried their canoes and cargo seven miles in order to avoid the rapids and falls of the river. The portage terminated at the lower end of Maple Island, a mile or so below Scanlon. From here they could go by water to Knife Falls where the mile long Knife Portage had to be crossed. Daniel Greysolon Sieur du Lhut, in the summer of 1679, was one of the first European explorers to arrive in the area. The city of Duluth now bears his name.

**Fur Trading.** Many French and British fur traders had been venturing to the Fond du Lac region as early as

the 1750s, but the two best known were Jean Baptiste Cadotte and Jean Baptiste Perrault. In 1793 they built Fort St. Louis as a permanent post in the area. Fort St. Louis was located near the present day City of Superior and was surrounded by a stout palisade of posts twenty feet high, sharpened at both ends and driven into the ground. There were thick double ribbed gates in the front and rear. A grim two storied log tower formed a bastion at one corner, bristling with port holes and cannon. Inside were stores, magazines, and workshops, with an open court in the middle where the Native Americans brought their game and pelts. Inside also were dwellings of heavy timber, mortised Canadian fashion and painted white. In 1816, Fort St. Louis on the Superior Bay front was closed. The American Fur Trading Company built a new post some 20 miles up the river at the town of Fond du Lac. The new post included large gardens planted with potatoes and other crops; Native American lodges and gardens were located on an island in the river.

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As the fur trade declined, fur companies had to find other lines of business. In 1834 the American Fur Company established commercial fisheries to exploit the Lake Superior trout and whitefish. They located one of their packing stations at the Fond du Lac trading post, which operated until the late 1840s.

**The First Missionary.** President Ramsay Crooks and the other officials of the American Fur Company encouraged missionary work at the trading posts. In those days there were no public schools in the wilderness regions and the only way the Native American children could be educated was at the mission schools. The main duty of missionaries was to teach, but they also encouraged the Native Americans to accept Christianity. Some missionaries were ordained ministers while others were laymen sent as teachers. The first mission was built at the present day site of Fond du Lac by Reverend Edmund Franklin Ely and the area's first marriage was performed there in 1834.

## POST-INDUSTRIAL HISTORY

**Lake Superior and Mississippi Railroad.** Between Fond du Lac and Thomson are traces of an abandoned railway, the Lake Superior & Mississippi Railroad. In the 1850s and 1860s there was demand for a rail line that would connect the Mississippi River with Lake Superior to provide lower transportation costs for farm products, lumber and other commodities. This railroad was organized in 1861, but due to financing problems and the advent of the Civil War, it was not completed until 1870. The last spike was driven on August first of that year, and on that day the first train arrived at Duluth from St. Paul. The section between Thomson and Fond du Lac, being close to the river, presented many spectacular views of the wild river with its numerous waterfalls and rapids. It also presented many dangers: high wooden trestles were built to cross the deep ravines along the riverbank, but the wooden structures were constantly threatened by fires started

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by the wood burning locomotives. The grade was long and steep, and mud slides in the spring often caused delays. At least one train slid down the bank into the river.

**Bridges.** The railroad industry developed the first bridges that linked Duluth and Superior. In 1887, a railroad bridge was built to span the area between Grassy Point and Superior. This bridge was designed for train passage across the harbor to each city and had a swing span that would allow the shipping trade to continue upstream on the St. Louis River. Farther upstream, another railroad bridge

*The region was considered one of the world's largest lumber producing areas. In less than fifty years the white pine forests had largely disappeared.*

—the Oliver Bridge—was built connecting Gary/New Duluth and Oliver, Wisconsin. The Oliver Bridge accommodated vehicular traffic as well as trains.

**Logging Era.** The coming of railroads brought towns and industries. Lumber was one of the first industries to develop in the area, which at one time was considered to be one of the world's largest lumber producing regions. As the white pine forests were clear-cut, logs were brought to saw mills on the lower river; large numbers of logs were stored in the river at Fond du Lac, surrounded by floating booms, while waiting to be cut into lumber at sawmills. By 1894, Duluth's lumber industry included 15 sawmills, all located along the St. Louis River. But the logging boom was over quickly. By 1925 only one mill in Duluth remained in operation. The white pine forests, which in 1895 had been estimated to hold a virtually inexhaustible forty billion feet of lumber, had largely disappeared.

In early days, the region was virgin forest and the Fond du Lac/Jay Cooke Park area contained fine stands of conifers and hardwoods. Lieutenant Allen, of the Schoolcraft Expedition, described pine trees eighteen feet in circumference along the Grand Portage trail.

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Old stumps near Brownell indicate that a stand of very large white pine grew there, no doubt the ones that impressed Lieutenant Allen.

**Quarries.** Three sandstone quarries were operated near Fond du Lac—one along Mission Creek and another on the south side of the river about a mile above Fond du Lac. The third was on the north side of the river. When these quarries were active, the shipping channel was dredged all the way to Fond du Lac to facilitate transport of the rock. The scars left by the quarries can still be seen.

**Dredging.** By 1960, all major channels had been dredged to a depth of 27 feet, a major change to this once shallow freshwater estuary. Dredging had drastic effects on the shoreline, riverbed and habitat. Over 69,500,000 cubic yards of clay and mud mixed with sand were dredged from the river bottom. This dredge material was used as fill to create docks, replenish eroded areas on Minnesota and Wisconsin Points, and form new islands.

**Iron Ore Mining.** The United States Steel Corporation was organized in 1901, and a subsidiary thereafter known as Oliver Mining Company was also formed. In 1907, United States Steel Corporation (through its subsidiary, the Minnesota Steel Company) purchased 1,500 acres of land on the St. Louis River in West Duluth, where previous smelting operations had been attempted on a small scale dating back to 1890. The plant was completed in 1915, creating rapid growth in the populations of Gary and New Duluth. This plant produced coke for use in steelmaking. Coking byproducts include gas and heavy oils. The heavy oils were captured and sold, but the gas was allowed to escape. In 1911, Universal Portland Cement Company built a plant alongside the steel operation to use the furnace slag created for cement making. The nearby Morgan Park community was built to house the steel and cement plant workers.

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The downfall of the local iron ore industry can be attributed to two major factors. The Reserve Mining Company built its Iron Range complex and was producing taconite (pellets made from low-grade iron ore) by 1955. Taconite became so economical to steel producers that high-grade iron ore mines were abandoned—not because they were depleted, but because they were no longer economical. In 1959, the opening of the St. Lawrence Seaway allowed freighters to haul competitive foreign ores to lower ports on the Great Lakes that were previously served solely by Minnesota's Iron Range. By 1973, U.S. Steel closed its facility in Morgan Park completely. Today, this is the "USX" Superfund site, and is being slowly cleaned up.

**Coal.** The West Duluth Blast Furnace erected a plant soon after the opening of the Mesabi Range, but it shut down within a few years. In 1902, it reopened as the Zenith Furnace Company. It was a "three-unit" plant, which included a wholesale coal trade, the production of pig iron, and the coking of bituminous coal.

This site later became Interlake Iron. Coking operation at this site included the capture and sale of coking byproducts: heavy oils were sold to Duluth Tar and Chemical, and manufactured coal gas ("town gas") was sold to the City of Duluth. This gas was piped to a city pumping station on Garfield Avenue, then to residences where it was burned, producing heat and light. Today, the St. Louis River/ Interlake/ Duluth Tar Superfund site is slowly being cleaned up.

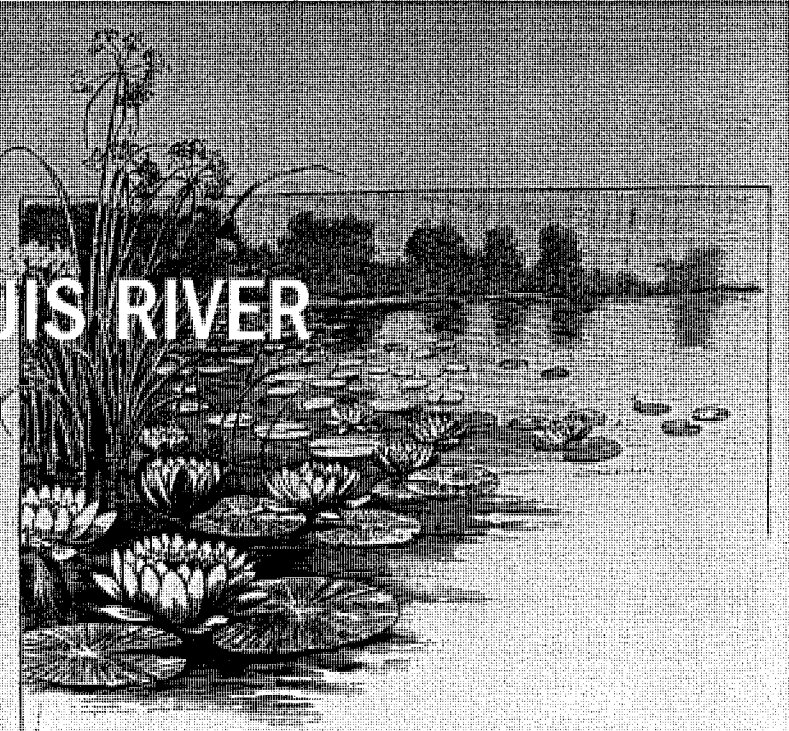
**Superfund Sites.** In the past, people were less aware of how dumping chemical wastes might adversely affect public health and the environment. Thousands of properties with intensive or continuous dumping have resulted in uncontrolled hazardous waste sites, and warehouses and landfills that were abandoned. Citizen concern over the extent of this problem led Congress to establish the Superfund Program in 1980 to locate, investigate, and clean up the worst sites nationwide. The Environmental Protection Agency administers the Superfund Program in cooperation with individual state and tribal governments.

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# HABITAT OF THE LOWER ST. LOUIS RIVER

**Several natural processes have a strong influence on the habitats of the lower St. Louis River.** These include water depth, water temperature, water clarity, substrate composition (e.g. gravel, sand, silt, mud), and nutrient abundance.

**Changes in water depth** within the river are strongly influenced by the **seiche**, which occurs when winds or atmospheric pressure cause oscillations in Lake Superior water levels similar to the effect of tides in oceans. The change in the water level is usually less than a foot, but it is enough to influence the habitats. **The seiche influence** reaches upstream to the Fond du Lac area, with areas closest to the harbor more influ-



enced by the seiche than areas farther upstream. A strong seiche can actually reverse the direction of the river's flow as far upstream as the Fond du Lac dam.

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The seiche leads to an exchange of water between the harbor and the lake at varying rates. It can also contribute to stratification within the river as colder lake water sinks and warmer river water rises to the surface.

**Sediment and water clarity** are also very important to aquatic habitats. Sediment is carried into the river by the tributary rivers and streams. Sediment load is greatest following heavy rains. Changes in water clarity are also related to climate and rainfall. The upper reaches of the river drain many boggy areas. In years of heavy rain, the bogs are flushed, moving more tannic acid/bog stain into the river. These changes in water clarity influence the amount of submerged vegetation by impacting the amount/depth of light penetration.

Many **human activities** also have a major influence on the habitats of the lower St. Louis River. One of the major human influences is the **construction of dams** on the river. The dams influence water flow, water level, and the amount of sediment transported by the river. Dams act as sediment traps which alter the rate at

which the upper part of the estuary is replenished by sediment.

**Industrialization** along the shore and **dredging of the shipping channel** have occurred for over 100 years. Currently more dredge material is being taken out of the harbor than is being added by tributaries. This, along with the gradual rebounding of the land after the retreat of the last glaciers, results in an overall deepening of the harbor.

**Erosion** caused by ship wakes and associated wave action also has an impact on habitats. As more open water is created in the harbor, the distance wind has to build up strength increases, wave strength increases, and erosion of the shoreline increases.

**Many of the changes that humans have made to the surrounding landscape have resulted in speeding up the movement of water from the land into the river.** Pavement and storm drains move water quickly into streams and ditches. In addition, today's

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early successional forests and deciduous forests do less to slow snow melt than did the original coniferous forests. Faster runoff results in greater peak flows in streams and greater erosion of stream banks.

The **plant communities** of the river include both upland and wetland habitats. **Upland habitat** is the elevated region from which rivers gather drainage. While the upland plant communities are not directly connected to the river or the estuary, they have a strong influence on the wetland and aquatic habitats by influencing erosion of upland areas.

**Wetlands** are the transitional areas between the uplands and open water. Wetlands are habitats where water is the primary factor that controls the environment and the associated plant and animal life. Wetlands are areas where the groundwater is at or near the surface of the land, or where the land is covered by shallow water that may be up to six feet deep.

Throughout the world wetlands are a source of great

productivity. In the lower St. Louis River, **wetlands provide food and shelter** for unique fish and mussel assemblages, a wide range of shore birds, waterfowl, passerines and raptors, and other species too numerous to count. Although altered by dredging and filling, many of the present wetlands of the lower St. Louis River probably have species compositions and occur in patterns relative to each other that mimic the patterns prior to human influences.

*The estuary supports approximately 54 species of fish, including lake sturgeon, walleye, yellow perch, northern pike, burbot (eelpout), black crappie, emerald shiner, spottail shiner, and white sucker.*

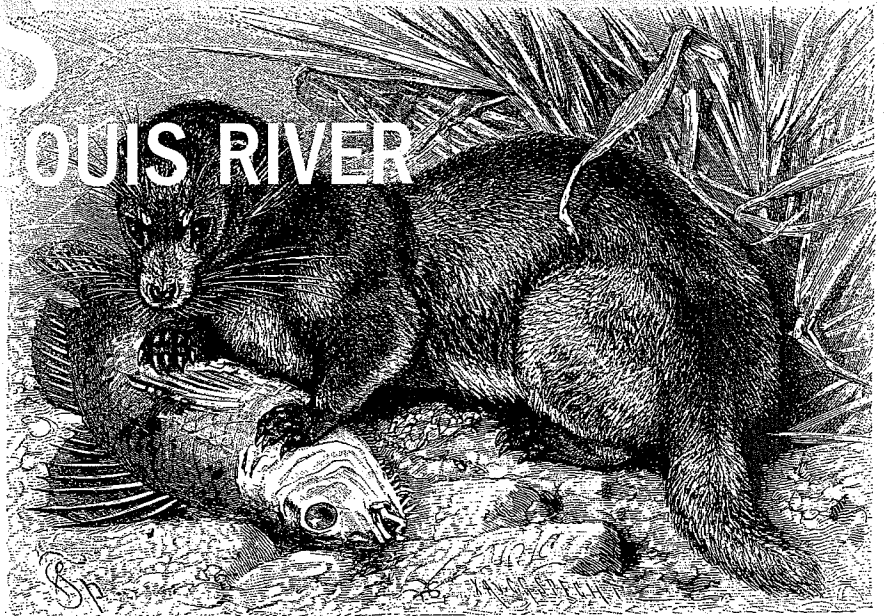
Important **wetland communities** along the lower St. Louis River include marshes, wet meadows, wet shrublands, mud flats, seeps, and fens. **Some of these wetlands occur nowhere else in the world outside of the Great Lakes region.**

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# PLANTS, ANIMALS & BIRDS OF THE LOWER ST. LOUIS RIVER

## MAMMALS

Woodchucks, Ground Squirrels, Chipmunks, Red Squirrels, Beavers, Muskrats, Porcupine, Black Bears, Raccoons, Mink, Otters, White-tailed deer, Skunks, Coyotes, and Red Fox are the most commonly seen animals near the St. Louis River.



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## FISH

The most popular fish in the St. Louis River is the **walleye**. It lives most of the year in Lake Superior, but returns to the river in the spring for spawning. The walleye remains in the river for most of the summer before heading back to the lake for the winter. Other gamefish such as the **muskellunge**, **northern pike**, and **smallmouth bass**, as well as panfish such as **crappies**, **bullheads**, and **yellow perch** are year-round residents of the river.

## MUSSELS

There are several native freshwater mussels found in the lower St. Louis River. Mussels require a firm substrate on which to attach; so far, they have only been documented in the stretch below the Fond du Lac dam, the undredged river channel, and the industrial harbor flats. The lower St. Louis River has not yet been extensively sampled for its mussel life; additional

surveys are planned for 2001 and will add to the understanding of mussel distribution and habitat in the lower St. Louis River. To date, eight native species have been documented.

## TREES

Red and White and Jack Pines, White and Red and Burr Oaks, Red and Sugar and Silver Maples, Balsam Fir, Black and White Spruces, Quaking and Big-Toothed Aspens, Northern White Cedar, and Paper and Yellow Birches can be found shading the river.

## FLOWERING PLANTS

Cattails, Black-eyed Susans, Clovers, Water Lilies, Milkweed, Indian Paintbrushes, Smartweeds, Wild Rice, Buttercups, Wild Iris, Wild Roses, Arrowhead Plants, Fringed Sedges, Pickerel-weeds, Trilliums, and Sumac are flowering plants located in or near the river.

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## EXOTIC SPECIES

Exotic species are one of the primary threats to the ecosystems of the lower St. Louis River. By competing for space, food, light, and other resources, exotic

*Exotic species already here include the zebra mussel, purple loosestrife, and non-native fish populations of ruffe, round goby, carp, alewife, rainbow smelt, rainbow trout, and brown trout.*

species can cause native species populations to drop or even disappear. In the St. Louis River, and the Great Lakes in general, exotic aquatic species are introduced when ships dump untreated ballast water.

Exotic species that have already arrived include the zebra mussel, purple

loosestrife, and non-native fish populations of ruffe, round goby, carp, alewife, rainbow smelt, rainbow trout, and brown trout.

## HELP PREVENT THE SPREAD OF EXOTIC SPECIES!

- **Rinse off your boat or canoe immediately after leaving the river.** Do not place it in another body of water for a week.
- **Do not empty bilge water or live well water from one body of water into another.** Empty it immediately after leaving the river.
- **Do not dump or reuse minnows between bodies of water.** If you use a minnow as bait in the St. Louis River, throw it out once you reach land. Do not replace it in your minnow bucket and reuse it at another lake. Do not dump minnow water from one lake or river into another.
- **Remove all weeds from boats after leaving the river.** This will help prevent the spread of exotic plants, eggs, or seeds to other lakes and streams.

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## BIRDS

The lower St. Louis River and its environs are home to a diverse array of native animal species. **Over 230 bird species** have been documented in the lower St. Louis River. This area is both a critical migratory stopover and an important breeding area.

**In addition to songbirds, high numbers of raptors, shorebirds, waterbirds, gulls, and terns migrate through the area each spring and fall.** Several factors make the lower St. Louis River an important stopover site. Many migrants will not fly over large bodies of water, so they are effectively channeled along the western edge of Lake Superior through the area of the estuary. The estuary contains large expanses of wetlands, which provide an important source of food both for migrants and for residents. Sandy beach habitats are far from common in the upper Midwest; the lower St. Louis River is one of the few desirable places for shorebirds to stop during their migrations. The estuary is especially important during the spring

migration because it is often the only place with open water. During these times, migrating birds are concentrated in a relatively small area. Some years, observers have reported seeing tens of thousands of birds. The diversity of habitat and extent of wetland and shoreline habitats make the lower St. Louis River ideal for breeding birds as well.

**Birds of particular concern** are the Piping Plover, Black Tern, Common Tern, American Bittern, Least Bittern, Yellow Rail, Yellow-headed Blackbird, Golden-winged Warbler, Sedge Wren, Black-throated Blue Warbler, Wood Thrush, Northern Waterthrush, Green Heron, Bald Eagle, and Peregrine Falcon. All of these birds have declined in the St. Louis River region and are very rarely seen. Given the loss of wetland and shoreline habitats across the Great Lakes region and beyond, and the importance of such habitats to the declining bird species, the importance of retaining these habitats in the lower St. Louis River is easily seen.

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# LOWER ST. LOUIS RIVER BIRD CHECKLIST

- |   |   |   |   |
|---|---|---|---|
| <input type="checkbox"/> Pied-billed Grebe        | <input type="checkbox"/> Red-breasted Merganser | <input type="checkbox"/> Belted Kingfisher      | <input type="checkbox"/> Yellow-rumped Warbler  |
| <input type="checkbox"/> Double-crested Cormorant | <input type="checkbox"/> White Pelican          | <input type="checkbox"/> Northern Flicker       | <input type="checkbox"/> American Redstart      |
| <input type="checkbox"/> Great Blue Heron         | <input type="checkbox"/> Bald Eagle             | <input type="checkbox"/> Eastern Phoebe         | <input type="checkbox"/> Ovenbird               |
| <input type="checkbox"/> Turkey Vulture           | <input type="checkbox"/> Peregrine Falcon       | <input type="checkbox"/> Blue Jay               | <input type="checkbox"/> Common Yellowthroat    |
| <input type="checkbox"/> Canada Goose             | <input type="checkbox"/> Red-tailed Hawk        | <input type="checkbox"/> American Crow          | <input type="checkbox"/> Chipping Sparrow       |
| <input type="checkbox"/> Tundra Swan              | <input type="checkbox"/> Broad winged Hawk      | <input type="checkbox"/> Tree Swallow           | <input type="checkbox"/> Song Sparrow           |
| <input type="checkbox"/> Mallard                  | <input type="checkbox"/> Sharp-shinned Hawk     | <input type="checkbox"/> Rough-winged Swallow   | <input type="checkbox"/> Swamp Sparrow          |
| <input type="checkbox"/> Blue-winged Teal         | <input type="checkbox"/> Killdeer               | <input type="checkbox"/> Bank Swallow           | <input type="checkbox"/> White-throated Sparrow |
| <input type="checkbox"/> Green-winged Teal        | <input type="checkbox"/> Spotted Sandpiper      | <input type="checkbox"/> Barn Swallow           | <input type="checkbox"/> Rose-breasted Grosbeak |
| <input type="checkbox"/> Ring-necked Duck         | <input type="checkbox"/> Ring-billed Gull       | <input type="checkbox"/> Black-capped Chickadee | <input type="checkbox"/> Purple Finch           |
| <input type="checkbox"/> Scaup                    | <input type="checkbox"/> Herring Gull           | <input type="checkbox"/> Red-breasted Nuthatch  | <input type="checkbox"/> Red-winged Blackbird   |
| <input type="checkbox"/> Common Goldeneye         | <input type="checkbox"/> Common Tern            | <input type="checkbox"/> American Robin         | <input type="checkbox"/> Common Grackle         |
| <input type="checkbox"/> Hooded Merganser         | <input type="checkbox"/> Rock Dove              | <input type="checkbox"/> Bohemian Waxwing       | <input type="checkbox"/> American Goldfinch     |
| <input type="checkbox"/> Common Merganser         | <input type="checkbox"/> Mourning Dove          | <input type="checkbox"/> Yellow Warbler         | <input type="checkbox"/> Indigo Bunting         |

## ST. LOUIS RIVER CITIZENS ACTION COMMITTEE

WORKING TOGETHER TO RESTORE, PROTECT AND ENHANCE THE ST. LOUIS RIVER

### SIGN ME UP!

#### MEMBERSHIP

- Individual \$10
- Family/Household \$15
- Organization/School \$50
- Other \$\_\_\_\_\_

Business memberships are welcome—  
call (218) 733-9520 for details.

The St. Louis River is the heart of our region,  
the gateway to the Great Lakes, and awash with  
pollution. We are working for a healthy St. Louis  
River System.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

WORK TEL. \_\_\_\_\_

FAX \_\_\_\_\_

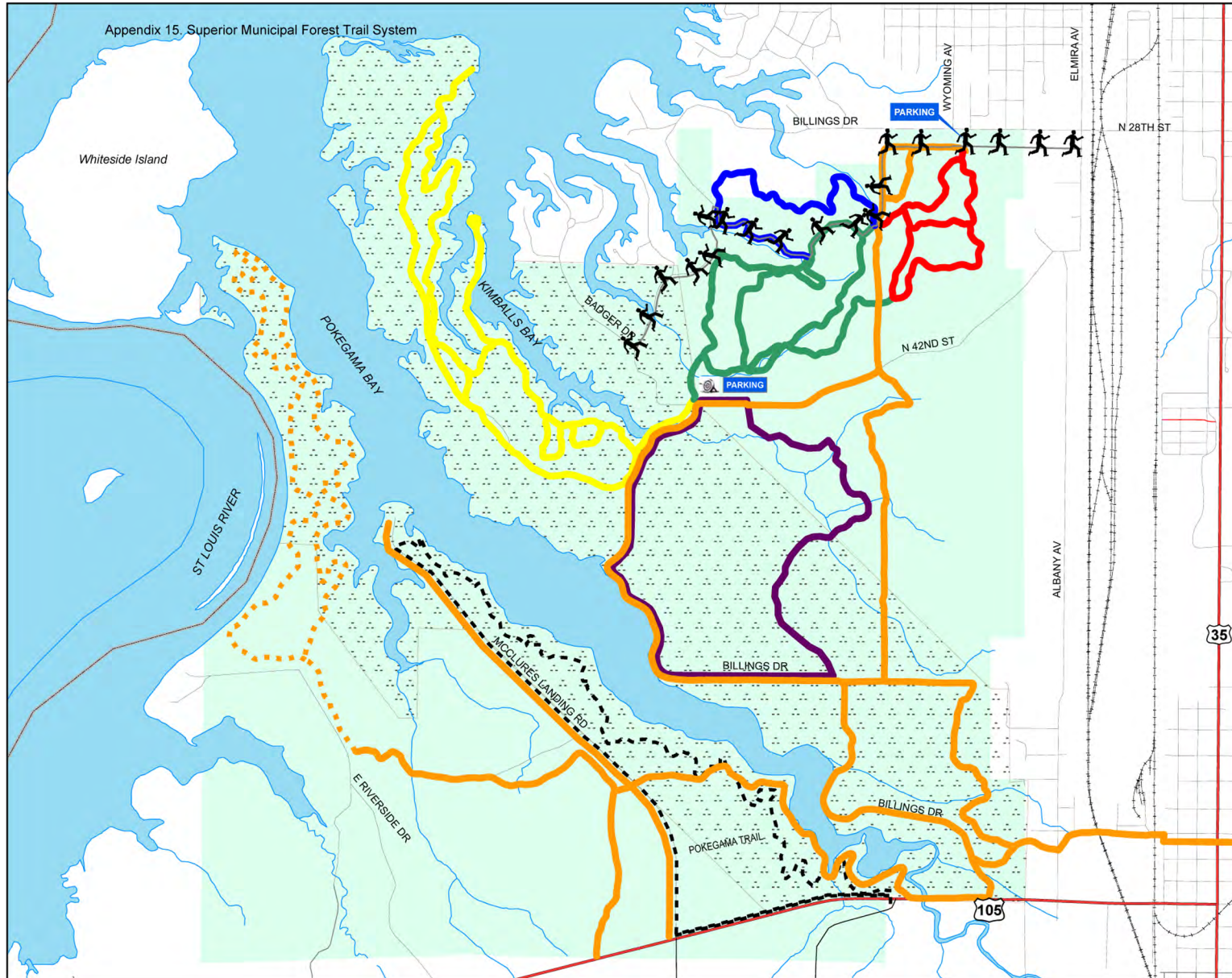
HOME TEL. \_\_\_\_\_

EMAIL \_\_\_\_\_

Please enclose a copy of this form and your tax-  
deductible check payable to the ST. LOUIS RIVER CAC

MAIL TO: 394 Lake Avenue S., Suite 303B,  
Duluth MN 55802.

## Superior Municipal Forest Multiuse Trail System



### Beginner Trails

**Red Trails, 3K 2K-Outer, 1K-Inner**

Perfect for the beginner and a great warm-up trail

### Intermediate Trails

**Green Trails, 5K 4K-Outer, 1K-Inner**

More advanced with flat, open fields and gently rolling terrain.

### Advanced Trails

**Purple Trails, 6K**

Parallels the snowmobile trail and takes you along the edges of Kimballs and Pokégama Bays.

**Blue Trails, 2K**

Hilly and rolling terrain. Challenging and fun!

**Yellow Trails, 10K**

Spectacular view! Longer, hilly trail with bypass side loops and more difficult terrain.

This trail falls within a designated State Natural Area (SNA) valued for its unique biological resources and boreal forest.

**Orange Trails, 10K**

Snowmobiles and ATVs are allowed on these specified routes in winter months only (except McClures landing Rd is year round).

**Orange Trails Dashed line**

Skijoring (Shared with snowmobiles/ATVs)

**Black Trails Dashed line**

Pokégama Trail- Multiuse



Millennium trail  
1.6 Miles


Archery Course




### Ski Etiquette and Rules

1. A yearly or daily ski permit is required to ski in the Municipal Forest.
2. Get out of the track when herringboning (ski skating) up hills.
3. Do not snowplow in the classical ski tracks going down hills.
4. Ski skaters-please avoid classical ski parallel tracks.
5. Ski under control at all times.
6. Ski with a friend.
7. Please keep dogs off trails.
8. Carry out litter.
9. Please do not walk on tracked trails.

Motorized vehicles allowed for maintenance and administrative use only.

 Municipal Forest

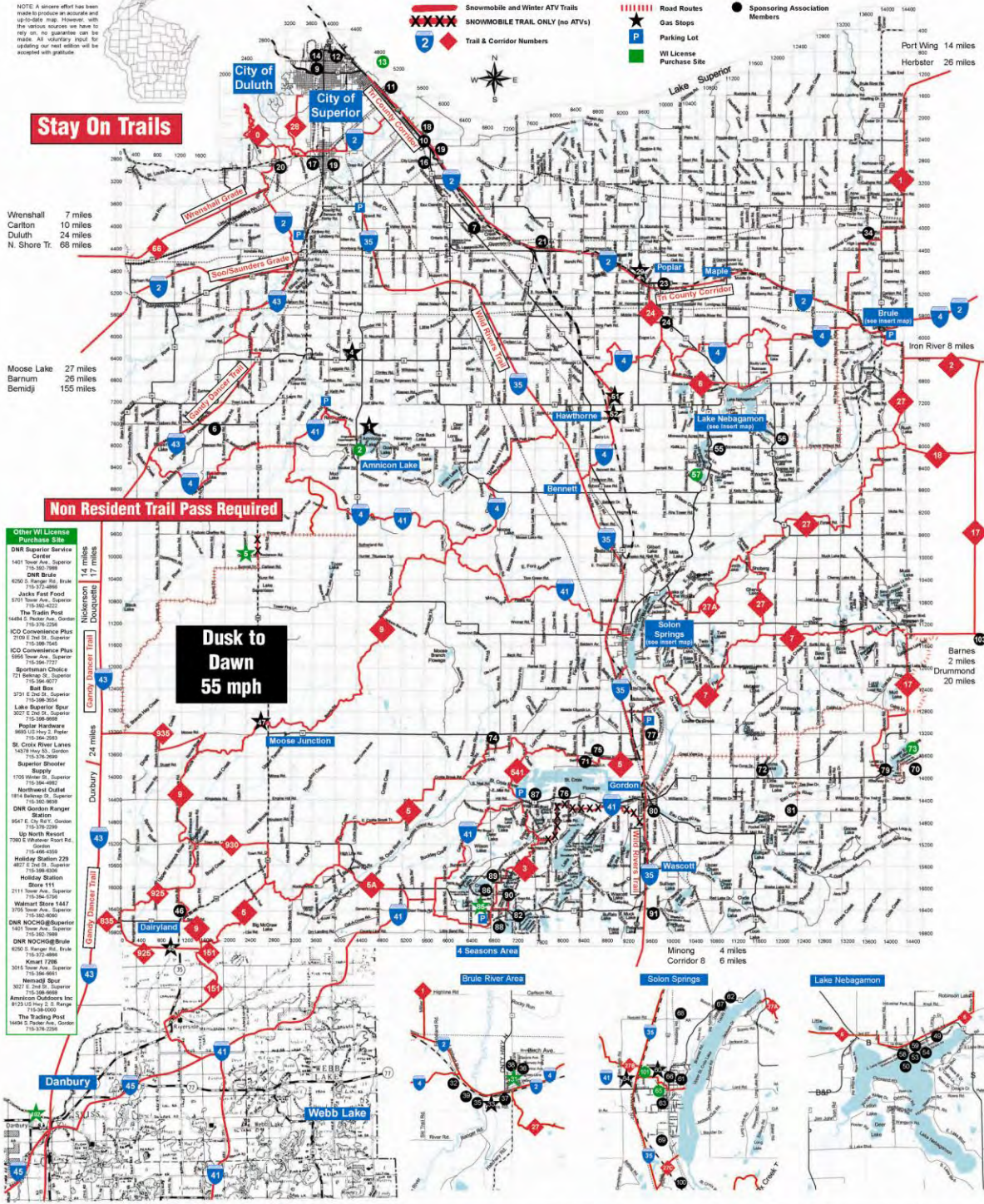
 State Natural Area (SNA)



# DOUGLAS COUNTY SNOWMOBILE AND WINTER ATV TRAILS

The Northwest Trails Association of Douglas County assumes no liability as to trails, machines, or individuals. Please respect private and no trespassing signs. Do not operate snowmobiles on highways. Use extreme caution on lakes and streams. Speeding on the trails is extremely dangerous to you and to others. Travel the trails in a safe and sane manner. Happy snowmobiling!

NOTE: A sincere effort has been made to provide an accurate and up-to-date map. However, with the vast areas we have to rely on, no guarantee can be made. An advisory board is updating our next edition will be issued with gratitude.



**Stay On Trails**

- Wronshall 7 miles
- Carlton 10 miles
- Duluth 24 miles
- N. Shore Tr. 68 miles

- Moose Lake 27 miles
- Barnum 26 miles
- Bemidji 155 miles

**Non Resident Trail Pass Required**

**Dusk to Dawn 55 mph**

- Other WI License Purchase Site**
- DNR Superior Service Center 1401 Tower Ave., Superior 735-360-7898
  - DNR Brule 6290 S. Ranger Rd., Brule 735-375-4993
  - Jack's Feed Food 5701 Tower Ave., Superior 735-360-4223
  - The Trading Post 1448 E. Huber Ave., Gordon 735-376-2224
  - ICO Convenience Plus 3119 E. 2nd St., Superior 735-368-1643
  - ICO Convenience Plus 5865 Tower Ave., Superior 735-364-7723
  - Sportman's Choice 271 Kellogg St., Superior 735-364-8077
  - Bar Bar 3731 E. 2nd St., Superior 735-368-3034
  - Lake Superior Sport 3027 E. 2nd St., Superior 735-368-2093
  - Crane River Lanes 1437 Hwy 43, Gordon 735-376-2066
  - Superior Shooter Supply 1708 Wilson St., Superior 735-368-4992
  - Northwest Outlet 1814 Kellogg St., Superior 735-362-9933
  - DNR Gordon Ranger Station 9547 E. City Rd., Gordon 735-376-2299
  - Up North Resort 7390 E. Wharmer Road Rd., Gordon 735-376-2299
  - Holiday Station 229 4017 E. 2nd St., Superior 735-368-6000
  - Holiday Station Store 111 2111 Wilson St., Superior 735-364-5750
  - Walnut Store 1447 3765 Tower Ave., Superior 735-362-9226
  - DNR MOCHD@Superior 1401 Tower Ave., Superior 735-360-7898
  - DNR MOCHD@Brule 6290 S. Ranger Rd., Brule 735-375-4993
  - Kmart 7296 3018 Tower Ave., Superior 735-364-9893
  - Memorial Shop 3027 E. 2nd St., Superior 735-368-0000
  - Amnicon Outlets Inc. 8123 US Hwy 2 S., Fargo 735-376-2224
  - The Trading Post 1448 E. Huber Ave., Gordon 735-376-2224

- AMNICON LAKE TOWN OF SHIMMERT PARKLANDS/SOUTH RANGE**
1. Amnicon Bar
  2. Carlson's Harbor Inn
  4. Four Corners
  5. Dry Dock Tavern
  6. Trails End
  7. Checkerboard

- CITY OF SUPERIOR**
9. National Bank of Commerce
  11. Old Town Bar & Restaurant
  12. Hammond Steak House
  13. Barber's Island Inn
  14. Leamon Mercantile
  16. Golden Supper Club
  17. Les Bird's Bar
  19. Gordon's Grill & Bar

- AMNICON FALLS/MAPLE/POPULAR**
20. KSAE Bar & Grill
  21. Rapids Riverside
  23. Mother's Kitchen
  24. Grove Pitt Tavern
  25. Neston Co
  31. Brule Outpost
  32. Brule Sports Shop

- BRULE**
33. Brule Standard Spur
  34. Jack's Hungry Trout Inn
  35. Krolier & Grill
  38. Roundtop North Saloon & Restaurant
  39. Brule River Motel/Riverhouse Restaurant
  45. Hillside Inn
  46. Cozy Corner Inn
  47. Moose Junction

- HAWTHORNE LAKE NEBAGAWON**
48. Village Inn
  50. The Cottage
  51. Covered Bridge
  52. Roadhouse Bar & BQ Mart
  53. Bridge's Industrial Tavern
  54. Stratton's Lakeshore Cafe
  55. Stratton's Bar & Grill
  56. Gopher Hole Lounge

- SOLON SPRINGS**
57. Weisk's Campground
  58. Waterfront
  59. Ole's Country Market
  60. Flamming Oil Company
  61. St. Croix Inn
  62. Soft Pines Resort
  63. Jeff's Hever Inn
  64. JTK's One Stop
  65. Pevosta's
  66. KDV Family Restaurant

- GORDON**
67. Lakeview Lodge
  68. White Birch Supper Club
  69. Swanson's Motel & Cabins
  100. The Bar & Motel
  70. Solon Springs Mercantile
  71. Clearwater Resort
  72. Wedges Highway Resort
  73. Jack's Highway House
  74. Forest Point Resort
  75. Moose River Bar

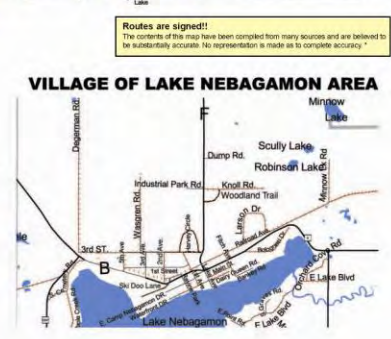
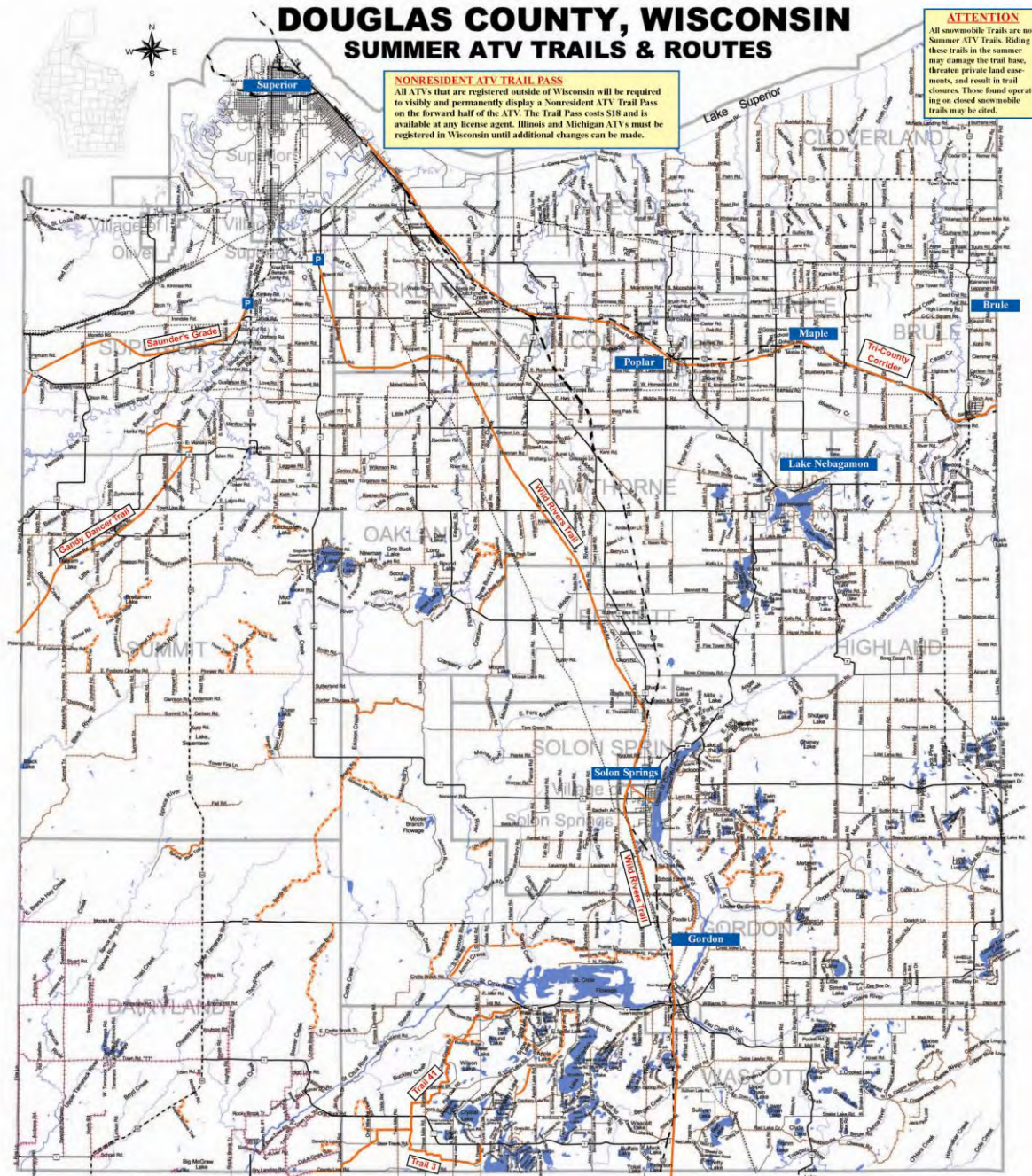
- BARNES**
76. Elmer's Resort
  77. Foodie Inn
  79. Y-Go-By
  80. Buckhorn
  100. Downtown & The Underground Bar
  81. Log House Restaurant & Bar
  82. Froggy

- WASCOTT DANBURY/WEBB LAKE**
85. Stop-A-See
  86. Circle Pines Bar & Grill
  87. The Lookout Tavern
  89. Viewpoint Lodge
  90. Crystal Lake Campground & Bar
  90. Golden Chipmunk
  91. Bootleggers
  100. Log Cabin Store

**FOR TRAIL CONDITIONS CALL 1-800-942-5313**

NW Superior • Amnicon Lake  
NE Brule • Hawthorne

SE Solon Springs • Wascott  
SW Dairylead • Cozy Corner





# DOUGLAS COUNTY, WISCONSIN SUMMER ATV TRAILS AND ROUTES



Some of our trails cross private land for which the landowners have been generous enough to grant us easements. Please help us protect and appreciate their generosity by staying on the marked trails.

## DOUGLAS COUNTY FORESTRY DEPARTMENT TRAIL CLOSURE POLICY

All trails under the management of the Forestry Department are closed in the springtime to prevent trail base erosion and the potential for forest fires. Please contact the Douglas County Forestry Department (715) 378-2219 for the current status of these trails.

All trails under the management of the Forestry Department will be closed during Wisconsin Department of Natural Resources "RED FLAG" periods, due to extremely high fire danger.

In the event of severe damage to a trail segment, that segment may be temporarily closed until repairs are completed.

## SAFETY ISSUES

1. Check your equipment. Make sure your machine is right for the terrain and conditions. Is your exhaust system adequate (including a functional spark arrester)? Take along tools and spare parts for minor repairs.
2. Carry a First-Aid kit.
3. Always travel with another ATV in a safe and responsible manner.
4. Check your clothing. Choose clothing for safety and comfort. Trail users should have a helmet, goggles, gloves and boots. Other clothing should be appropriate for the weather and provide protection against brush and possible spills.
5. Obey all State Laws, and County and Local Ordinances.
6. Respect private property.
7. You may encounter logging activity on the trails. Please use caution in these areas and respect the logger's equipment as they earn their livelihood.
8. Don't harass wildlife.
9. Courtesy and consideration will help to reduce user conflicts among various groups using the same area.
10. Do not travel at high speeds as they are extremely dangerous to you and to others.



## ATV POLICY FOR DOUGLAS COUNTY FOREST LANDS

Only those trails shown on the map are open for Summer ATV use. On Douglas County Forest lands ATV operation is ONLY allowed on designated trails, County Forest Roads, and service roads accessible by a licensed street vehicle (unless gated, bermed, or signed prohibiting ATV use).

All Snowmobile Trails are not Summer ATV Trails. Riding these trails in the summer may damage the trail base, threaten private land easements, and result in trail closures. Those found operating on closed snowmobile trails may be cited.

Cross country travel is prohibited (stay on designated trails/routes).

Constructing new trails without the permission of the Director of Forestry and Natural Resources or their designee is prohibited.

Operation on a "Closed" trail or "Closed" trail segment is prohibited.

ATV operation in the County Forest is regulated under Douglas County Ordinance #7.2 (Land Recreation). For a complete listing of the rules and regulations, please contact the Douglas County Forestry Department.

## ATV OPERATOR'S CODE OF ETHICS

I will be a good and responsible ATV operator.

I recognize that people will judge all ATV owners by my actions. I will use my influence with other ATV operators to promote sportsmanlike conduct.

I will not litter trails or camping areas. I will not pollute streams or lakes.

I will not damage living trees, shrubs or other natural features. I will respect other people's property and rights.

I will lend a helping hand when I see someone in distress.

I will not interfere with nor harass hikers, fishermen, hunters, skiers, snowshoers, horse riders, or others enjoying outdoor recreation.

I will know and obey all federal, state, and local rules and laws regulating the operation of all-terrain vehicles.

I will not harass wildlife. I will avoid areas posted for protection and feeding of wildlife.

I will travel cross country only in authorized areas and with a concern for protecting the environment from damage.

## WHAT TO DO IN AN EMERGENCY

In the event of an emergency, contact the Douglas County Sheriff's Department at 911 or for non-emergency calls at 715-395-1371. Remain calm and give complete and clear information as to the nature of the emergency. If someone is overdue, provide the Sheriff's Department with the itinerary planned by the missing riders, and do not go to search for them by yourself.

*NOTE: A sincere effort has been made to produce an accurate and up-to-date map. However, with the various sources we have to rely on, no guarantee can be made. All voluntary input for updating our next edition will be accepted with gratitude.*

## HAUL IT IN - HAUL IT OUT

Littering the landscape where you ride invites land and trail closures. If you can haul it in, you can haul it out. Go one step further and haul out what less-thoughtful persons have left.

## SPECIAL REGULATIONS BY MUNICIPALITY

### TOWN OF DAIRYLAND

The town roads under the jurisdiction of the Town of Dairyland have the following special regulations:

1. All town roads shall be closed to ATV operation from April 1<sup>st</sup> to May 15<sup>th</sup> of each calendar year.

2. The town retains the authority and discretion to either reduce or increase the time period for ATV use on town roads because of weather, road, or other conditions or factors.

**NO CROSSING of the St. Croix River is available by Schoen Park in the Town of Dairyland**

## NOTICE

ATV Routes shown on the map must be legally signed to be traveled on. If they are shown on the map and not signed, stay off of them. Be sure to actually see the route sign before riding on the route.

**CHECK WITH LOCAL TOWNSHIPS AND VILLAGES FOR CURRENT ORDINANCE INFORMATION**

**ALL ATVs MUST HAVE A FUNCTIONING MUFFLER AND SPARK ARRESTOR. IT'S THE LAW!**

## Wisconsin ATV Regulations

### Registration

No person may operate and no owner may give permission for the operation of an all-terrain vehicle within the State of Wisconsin unless the all-terrain vehicle is registered with the Wisconsin Department of Natural Resources or covered by a valid registration in another state, province or country. Registration decals shall be permanently affixed to the all-terrain vehicle by the decal's own adhesive on both sides of the vehicle.

### ATV Registration Fees

Public registration fees reflect a two-year registration cycle that expires on June 30. Registration fees are not prorated.

### Trespassing

No person may operate on private land, a cemetery, burial ground, campground, park, school property, church property or an airport without consent of the owner. No person may operate on land under the management and control of the Department of Natural Resources or Douglas County Forestry Department unless specifically authorized by posted notice or it is a legal route or trail. Paper company land is private property. No one may operate an all-terrain vehicle on any logging trail, forestry road or trail on paper company land without permission unless there is a legal route or trail which is open for all-terrain travel.

### Rules of Operation

No person may operate an all-terrain vehicle while under the influence of an intoxicant to a degree which renders him or her incapable of safe operation or while the person has a blood alcohol concentration of 0.08% or more by weight of alcohol in his or her blood.

No person may operate an all-terrain vehicle on any portion of any federal, state, county or town road right-of-way unless the roadway is adopted by a town ordinance and is legally posted for all-terrain vehicle operation. Road right-of-ways vary between federal, state, county or town roads but generally extend to the fence lines, tree lines or delineator posts. Persons operating on legal road routes must operate on the extreme right side of the road. Those operating all-terrain vehicles along legally posted routes or trail along federal, state, and county roads must be at least 10 feet or more from the roadway.

### Mandatory ATV Certification (Safety Training)

All ATV operators, including nonresidents who are at least 12 years of age and who are born on or after January 1, 1998 must obtain a DNR safety certificate. WI honors other state certificates issued by a government agency. Contact your local DNR or check the DNR Website for class availability. <http://www.dnr.state.wi.us>

No one under 18 years of age may operate or be a passenger on an all-terrain vehicle without wearing protective headgear with the chin strap properly fastened. The operator of an all-terrain vehicle shall slow his or her vehicle to a speed not to exceed 10 mph and yield the right-of-way when traveling within 100 feet of a person who is not on an all-terrain vehicle, a snowmobile, or a motorcycle. An operator of an all-terrain vehicle shall not operate at a speed to exceed 10 mph when within 150 feet of a dwelling.

No person shall operate in any careless way so as to endanger the person or property of another.

These are just several of the Wisconsin all-terrain vehicle laws. We encourage all-terrain vehicle operators to read a current Wisconsin all-terrain vehicle manual and to obey all laws and regulations.

### Noise Level Restrictions

All ATVs are prohibited from emitting noise that is more than 96 decibels on the "A" scale. The DNR will begin creating rules to determine how ATV noise is measured.

Superior-Douglas County Convention and Visitors Bureau  
205 Barknap Street  
Superior, WI 54880

2007  
2008  
Douglas County Wisconsin  
Summer ATV Trails  
& Roads



Welcome to Superior-Douglas County...

Rich history, unique attractions, rugged natural beauty! Basking in beautiful landscapes throughout our many popular vacation destinations along our recreational trail systems. For lodging and more information on our four seasons of recreation, contact our Convention and Visitors Bureau.

Enjoy your visit!

## CONTACT INFORMATION

**Superior-Douglas County Convention and Visitors Bureau**  
305 Harborview Parkway - Inside the Bong Heritage Center • Superior, WI 54880  
(800) 942-6313  
vacation@superiorchamber.org  
www.superiorchamber.org

**Douglas County Forestry Department**  
PO Box 211, Solon Springs, WI 54873  
(715) 378-2219  
forestry@dcouglascountywi.org  
www.douglascountywi.org

**Douglas County Sheriff's Department**  
Emergency Telephone 911  
Non-Emergency Telephone (715) 395-1371



When leaving Douglas County, please contact the neighboring county or state as to its regulations or status for ATV operation before entering their property.

**Bayfield County Tourism & Recreation Department**  
(800) 472-6338  
www.travelbayfieldcounty.com  
Email: info@travelbayfieldcounty.com

**Sawyer County Forestry Department**  
(715) 634-4839  
forestry@sawycounty.gov

**Burnett County Tourism Office**  
(800) 788-3164  
www.burnettcounty.com

**Washburn County Forestry Department**  
(715) 635-4490  
forestry@co.washburn.wi.us

**Northwest Trails Association**  
John Deterling Sr., President  
jdeterling@nwtrails.com  
(715) 364-2590

**Tri-County Recreational Corridor Committee**  
Tom Thornton, Executive Director  
(715) 763-3418 • (715) 763-3499 (FAX)  
tr-county@trquest.net

**State of Wisconsin**  
Department of Natural Resources  
1401 Tower Avenue, Superior, WI 54880  
(715) 392-7988  
www.dnr.state.wi.us

**State of Minnesota**  
Department of Natural Resources  
Route 2, 701 S. Kenwood,  
Moose Lake, MN 55787  
(218) 485-5410  
www.dnr.state.mn.us

**Don Mrotek - NOHVIS Northwest Wisconsin Regional ATV Coordinator**  
(715) 634-8458  
dmrotek@nwtrails.net

The ATV trails that you will ride in Douglas County have been created and maintained through the efforts of the Wisconsin Department of Natural Resources, Douglas County Forestry Department, and the members of the Northwest Trails Association.

ATV safety education is a positive move towards a safe and enjoyable ATVing future. Enroll in an ATV Safety Course now.

Contact your DNR office for the name of an ATV instructor in your area.



Rich history, unique attractions, rugged natural beauty!

## MEMORANDUM OF UNDERSTANDING



By and Between  
THE CITY OF SUPERIOR  
and



THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES  
BUREAU OF ENDANGERED RESOURCES

This Memorandum of Understanding between the City of Superior, hereinafter called the CITY, and the Wisconsin Department of Natural Resources, Bureau of Endangered Resources, hereinafter called the DEPARTMENT;

WITNESSETH:

WHEREAS, the CITY is authorized to cooperate with state agencies in the protection of natural resources; and

WHEREAS, the CITY owns and manages lands within the Superior Municipal Forest containing natural communities, rare species, and geological features that have been identified as being of statewide significance, specifically **Dwight's Point and Pokegama Wetlands** (Township 48 North, Range 14 West, parts of Sections 4, 5, & 6; and Township 49 North, Range 14 West, parts of Sections 19, 29, 30, 31, 32, & 33; containing 2,620 acres, more or less); and

WHEREAS, the DEPARTMENT has a statutory program (Wisconsin Statutes 23.27 and 23.28) to establish a system of State Natural Areas to protect examples of all types of biotic communities and other significant natural features native to the state for research and education and, most importantly, to secure long-term protection of the state's genetic diversity for the benefit of future generations; and

WHEREAS, the CITY has expressed interest in the DEPARTMENT'S State Natural Areas Program; and

WHEREAS, the purposes of both parties will be advanced by the protection of unique natural areas for scientific and educational use through designation as State Natural Areas;

NOW, THEREFORE, the parties hereto mutually agree as follows:

1. The DEPARTMENT will designate the aforementioned site as the Dwight's Point and Pokegama Wetlands State Natural Area and accept it into the State Natural Areas system.
2. The CITY will manage, in a manner consistent with a policy of long-term maintenance and protection, the boreal and upland forests, wetlands, rare plant and animal populations, and associated natural values of the Dwight's Point and Pokegama Wetlands State Natural Area.

3. A Management Plan and project boundary map for the Dwight's Point and Pokegama Wetlands State Natural Area will be prepared jointly by the CITY and DEPARTMENT and will become a part of this Memorandum of Understanding.
4. The CITY and the DEPARTMENT will monitor research, educational, and recreational uses to assure the long-term protection of the Dwight's Point and Pokegama Wetlands State Natural Area.
5. All requests for research on city land must have CITY and DEPARTMENT approval and researchers shall possess a valid research permit issued by the DEPARTMENT.
6. The DEPARTMENT will assemble information on the natural resources of the area, prepare informational brochures, list the area in its official publication of State Natural Areas, and credit the CITY for its contribution in any reports and publications.

This Memorandum of Understanding shall be effective and remain in effect from the date of signature until terminated by either party following 60 days notice in writing to the other party and an opportunity for negotiation of a new agreement between the parties.

IN WITNESS WHEREOF, the authorized representative of the parties hereto have affixed their signature.

CITY OF SUPERIOR

Margaret Ciccone  
MAYOR

5-16-96  
DATE

Jeff S. Utto  
DIRECTOR OF PUBLIC WORKS

5-21-96  
DATE

DEPARTMENT OF NATURAL RESOURCES  
BUREAU OF ENDANGERED RESOURCES

Charles M. Pils  
CHARLES M. PILS  
DIRECTOR

4-10-96  
DATE

**Dwight's Point/Pokegama Wetlands No. 300  
State Natural Area  
Management Plan**

This management plan contains the Department's general procedures for State Natural Areas. It also contains recommendations specific to the management needs of each site and includes exceptions to the general procedures.

The specific management actions have been developed and approved by the Department of Natural Resources' (Department) Bureau of Endangered Resources and City of Superior (City) and reviewed by the Natural Areas Preservation Council (NAPC). The plan will be reviewed periodically and, if necessary, amended to ensure that all necessary management considerations are incorporated. Changes to the management plan may be made with the advice of the NAPC and written agreement of the Bureau of Endangered Resources and the City.

The primary objective of these procedures is to protect the site in a natural condition with little human disturbance. The Department of Natural Resources Master Plan Handbook, Standard Land Use Classification System, will be used to identify authorized land use practices. Sections 23.27, 23.28, and 23.29, Stats., and Section NR 45.13, Wisconsin Administrative Code, also may apply in regulating use. The land use classifications used include research natural area and critical species natural area. Resource development classifications may also be used but only in that portion identified as buffer zone.

**I. General Management for All State Natural Areas**

**A. Management of Terrestrial and Aquatic Communities, Geological and Archaeological Features**

1. Removal of plants, plant parts, animals, rocks and minerals, and artifacts is generally not permitted. However, hunting, fishing, trapping, berry picking, and nut gathering is permitted if not expressly restricted or otherwise prohibited by law or Articles of Dedication. Collecting for scientific purposes may be allowed by City and Department permit.
2. Cutting or removal of living or dead trees, standing or down, or other vegetation in forest communities, is generally limited to that essential to meet public safety requirements. Cut material will be left within the natural area. Death of trees due to blowdown, fire, flooding, insects, and disease is regarded as a normal, natural occurrence. The Department and the City may consider deviation from this procedure in the event of large-scale mortality, on a case-by-case basis, with advice of NAPC.

3. Control of plant succession with the use of fire, cutting, mowing, or water-level manipulation, may be employed to maintain a particular natural area type, or control of abnormal animal populations may be employed if provided for in this plan.
4. Introductions of exotic plant and animal species is prohibited. Reintroduction of an extirpated species, or introduction of a species of concern that is known to inhabit a particular community and edaphic condition, may be permitted with the advice of NAPC and consent of the Department.
5. Pesticides, including herbicides, insecticides, fungicides, and biological controls, should not be used for plant or animal control. Department approval, with NAPC review, must be obtained for each case should an exception be necessary. Biological control agents are preferred over chemical agents.

#### B. Public Use

1. Intensive public use is not encouraged. Any public use that damages vegetation or otherwise impairs natural conditions is discouraged and, if necessary, will be controlled. Recreational uses such as hiking, nature appreciation, and educational use that do not degrade the natural features are permitted.
2. Attention drawing signs should be limited to those areas that have a low site fragility or have established trails. Signs indicating the area's purpose and use limitations are desirable at access points. Boundaries may be marked for the convenience of researchers, visitors, and adjacent landowners.
3. Vehicle traffic of all types is discouraged. Existing walking trails and service roads may be maintained, and they will be identified on the management plan map. New walking trails may be constructed where use is heavy or where needed to protect sensitive vegetation; these may be identified in the management plan.
4. No buildings, or other improvements such as dams, fireplaces, picnic grounds, athletic facilities, beach improvements, or other waterway modification devices will be constructed. Any public use or maintenance facility essential to the natural area should be located in a buffer zone or outside the natural area.

## II. Specific Management for Dwight's Point/Pokegama Wetlands

This section contains recommendations specific to Dwight's Point/Pokegama Bay. If there is a difference between general and specific sections, the actions in the Specific Section will prevail.

### A. Communities, Species, or Features of Concern and Statement of Management Objectives

This 2,620-acre state natural area features boreal forest (400 acres), emergent aquatic wetlands (340 acres), submerged aquatic wetlands (550 acres), perched clay plain wetlands (310 acres), and aspen/birch forest (1,020 acres) (see Appendix A for description of natural communities).

Plant species of concern are clustered bur reed *Sparganium glomeratum* (proposed state endangered), the state-endangered small yellow water crowfoot *Ranunculus gmellini*, the state-threatened sweet coltsfoot *Petasites sagittatus*, and the special-concern Vasey's rush *Juncus vaseyi*, and a historic record from 1956 of the state-endangered northern fly honeysuckle *Lonicera involucrata*.

Animal species of concern are two state-threatened species--wood turtle *Claims insculpata* and common tern *Sterna hirundo*, and four special-concern species--blackburnian warbler *Dendroica fusca*, Cape May warbler *Dendroica tigrina*, bald eagle *Haliaeetus leucocephalus*, and northern harrier *Circus cyaneus*.

Management objectives are to preserve and protect the natural ecological values by preventing establishment, or reducing populations of, invasive exotic species; preventing waterway manipulation; maintain water quality; limiting uses to those compatible with maintaining ecological functions; and sustaining the habitats required by rare species.

### B. Problem Identification

Purple loosestrife, carp, and river ruffe are known problem species.

No other specific problem species have been identified; however, the site has not been thoroughly inspected for the presence of invasive exotic species.

Facility-related concerns are identifying the natural area boundary for researchers and land managers, cross-country ski trail and its maintenance, snowmobile trail and its maintenance, Billings Drive and its maintenance, the winter ice fishing access road and its maintenance, access points, campfires, deer hunting tree stands, illegal dumping, trail development and use, wetland mitigation (SAMP) sites (see Appendix B for description of SAMP) and their management, fisherman's access parking area and its maintenance, development of the educational/interpretive center and its impact on the natural area,



hunting seasons, ATV use, primitive camping areas and their maintenance, and research plot maintenance.

Educational and research concerns are: the development of informational materials, auto tour booklets, information signs, cooperative management for water quality, and the effects of exotic and introduced aquatic species.

### C. Management Requirements for Communities or Species and Type of Action

#### Community Management

##### Boreal forest

Aspen/birch forest - These natural communities do not require any manipulative management. The natural processes will determine species composition and interactions.

Perched clay plain wetlands - This recently described natural community is unique to the Superior area. It is characterized by alternating areas of high ground about 1-2 feet above the swales with dominants of aspen and willow; conifers in the understory; and low areas of grass, sedge, and alders. These areas harbor many rare species.

Maintain natural water flow systems. Check roads and trails for impediments to natural water flows and either remove the impediments or install culverts.

##### Emergent aquatic wetlands

Submerged aquatic wetlands - Remove purple loosestrife, if feasible.

#### Species Management

Species of Concern: Clustered bur reed  
Small yellow water crowfoot  
Sweet coltsfoot  
Vasey's rush  
Blackburnian warbler  
Cape May warbler  
Bald eagle  
Common tern  
Northern harrier

These species do not require any enhancement or enrichment activities. Natural processes will determine the populations.

## Problem Species

Purple loosestrife - Biological control insects are in the St. Louis River Bay area; purple loosestrife should be monitored to confirm insect establishment in the natural area.

Carp and river ruffe - Both species have no known effective controls. Continue to review exotic species literature for possible effective controls for these species.

Search for the presence of other invasive exotics. Remove populations when found using the recommended guidelines from the Invasive Species Control Manual. A reference copy is available in the Parks and Recreation Department files.

Beaver have interfered with natural flows, and porcupines have girdled the tops of several trees. These and other animal damage complaints should be assessed by the local Wildlife Manager on a case-by-case basis and any recommendations may be implemented.

## D. Monitoring, Research, Educational, and Public Use

### Monitoring

Breeding birds - Conduct breeding bird surveys once every one to two years to assess the long-term population trends. Volunteers to conduct the surveys will be recruited by BER.

Plant community plots - Three DNR macroplots were established in 1995 and one UW Madison Plant Ecology Lab plot in the 1950s and are located within the State Natural Area. The locations of these plots are on file in the BER Natural Area and City of Superior Public Works Department files. The macroplots should be maintained and re inventoried once every ten years. Area universities should be apprised regarding the monitoring needs to see if students would be interested in the monitoring project.

### Public Use

Most public use is limited to foot travel or cross-county skiing. Vehicle access is limited to the designated snowmobile trail in winter; Billings Drive in summer; ice fishing access road in winter; and 42nd Street 28th Street, and the fisherman's access parking area year-round.

Horseriders with cutters have occasionally requested to use the property, and other activities including dog mushing and dog skijoring can be expected in the future. Any of these activities or others not listed may be considered on a case-by-case basis for use on the existing vehicle access routes only.

Hunting - Firearms are prohibited from use in the Superior Municipal Forest, except waterfowl hunting is permitted within 50 feet of the wetlands and over the water. Although, state code requires hunting from the water or wetlands only. Bow hunting for white-tailed deer is only method of harvest. A metro deer bow hunting unit with liberalized permits to harvest up to six deer may be proposed.

Changes in hunting methods and hunted species may occur during the annual spring hearings. Any changes that conform to state codes and City ordinance can be implemented.

### Research

Research uses are encouraged. Permission to conduct research will be granted by the City and the Department after review of purpose for research.

### Education

The plan for the forest recommends an environmental education and interpretive center be built. The center is proposed to be built on the edge of the natural area with interpretive and handicap accessible trails to be constructed. Any trail design and construction east of Billings Drive and north of the ravine requires consultation with BER.

Materials - Education materials that have been proposed for development are interpretive trail signs, auto tour pamphlets, natural area information sheets, and teacher information packets.

BER should be consulted when developing these materials.

Regional Water Quality Commissions - The City of Superior and the Department are participants on several commissions concerning water quality for the area.

Commission participants should be made aware of the biological values of the aquatic resources within the designated natural area and area encouraged to protect and enhance water quality.

### Inspections

Inspections should be done once a year and the results reported on Natural Areas Inspection Sheet. The Department will conduct training sessions and joint field inspections from 1998 through 2000. Thereafter, the City will assume primary responsibility for conducting inspections.

## E. Facility Development and Maintenance

### Signs

Any sign language or location needs to be reviewed by the City with a determination of need established.

Boundary markers - If a need is determined, erect and maintain posts delineating the natural area boundary for researchers, recreational users, educators, and land managers. The state could supply the posts.

Identification sign - A sign identifying the cooperative designation of the State Natural Area may be erected. City parks, regional DNR, and SNA staff would collaborate on design, wording, location, and construction. Maintenance would be the responsibility of the City.

Information signs - Signs describing the site's ecological values and reasons for designation may be erected. Wording and construction would be addressed cooperatively by the City and the Department.

Access - Access to the natural area can be made from several locations.

Trails - Several trails are located within the natural area, and others are proposed for the municipal forest (see Forest Plan for trail locations).

Any proposal for development of a new trail, modification of existing trail routes, development of overlooks, or changes in designated use to incorporate more types of recreation shall consult BER, and will conform to Chapter 30 Department Trail Standards.

Trails within the designated State Natural Area will be managed for their present uses using Department Trail standards as guides for maintenance and safety.

Ski trail - A loop ski trail extends from Billings Drive to the top of Dwight's Point.

Maintain as a cross-country ski trail using Department trail standards as a guide for maintenance. Trail maintenance should be the minimum required to accommodate skate skiing.

Mowing of the ski trail should be limited to one time in late summer/early fall to control vegetation height for the skiers in order to maintain cover and habitat for animal use during the summer breeding season.

Hiking and educational activities are permissible on the ski trails, snowmobile trails, and winter-use roads. Management for hiking users should be limited to mowing a 4-5 foot width with a rubber-tired vehicle or push mowers as needed. Boardwalks should be considered for wet areas. Steep inclines may be mowed to 10 feet in width for safety and to avoid erosion problems by concentrating use in a narrow corridor. Current ski trail bridges will conform to Department snowmobile trail standards.

Mountain bikes cause deep rutting in wet areas, and horses can cause compaction and rutting in wet areas. These disturbance areas are utilized as infection routes by invasive exotic species. Therefore, mountain bike and horse use should be limited to areas that can accommodate the use without jeopardizing the natural ecological values. Use areas are Billings Drive and McClure's Landing road.

**Snowmobile trail** - A snowmobile trail traverses the west side of the natural area from Chase's Point to a crossing on the Pokegama River.

Maintain as required to permit the safe passing of two snowmobiles (Chapter 30 Department Two-Way Trail Standards). Any proposed management of the trail by the City or the clubs, including leveling, widening, and tree removal needs to have a consultation meeting arranged with BER.

No motorized use except for ATV use which is limited to winter use only on the designated snowmobile trail.

Billings Drive - This road bisects the natural area and is open for summer travel only.

42nd Street, 28th Street, and Fisherman's Access Roads - All four roads occur within the State Natural Area boundary.

Manage all roads as required for safe vehicle operation at posted speeds. Road and ditch maintenance activities should be reviewed by BER. Any maintenance activities should attempt to divert excess water from the road away from directly entering the wetlands.

Tree Stands - Permanent tree stands for archery deer hunting are not allowed. Stands must be removed daily. No screw-in steps or other devices and components of tree stands may penetrate the trees bark.

Campfires - Many campfire locations are found within the State Natural Area. Campfires are limited to the one designated primitive camping site located near the end of Dwight's Point and two day-use areas. Fires must be contained in fire rings or pits.

Post access points with restrictions on fires.

Primitive Camping - Develop a designated primitive campsite (#1) at the end of Dwight's Point designed for access by watercraft and hikers (see Appendix C map). This site would require the development of a pit toilet and a fire ring. The City would be responsible for the development and maintenance of this site.

Sites numbered 2 and 3 on the map will be designated day-use sites only. They could contain a fire ring, picnic table, and bench with no toilet facilities. The City would be responsible for the development and maintenance of these day-use areas.

The remaining sites identified should be eliminated and the sites restored to natural vegetation. The Department could assist in restoration activities and signing.

Designated sites may require location changes to alleviate erosion or other overuse problems. The restored sites could be alternate future sites.

SAMP Sites - One site on Chase's Point and small portions of two other SAMP sites are located within the State Natural Area. These sites were designated prior to natural area designation.

Any wetland mitigation in these areas will require consultation with BER Natural Areas prior to any work.

Water Access Points - There are two summer/fall-only water access points on Billings Drive. These points are primitive, where canoes or small boats can be launched. They are not ramped for large boat launching.

Maintain for current use levels to minimize erosion and allow small boat access.

#### F. Land Acquisition

Acquisition within the natural area boundary of 2,650 acres is complete. The City of Superior owns the land.

#### G. Anticipated Effects of Management Actions

By searching for, eliminating, or reducing in abundance the problem species; maintaining present access points; maintaining uses at current levels; and planning for any future development with the natural area as an important component, the site's integrity should be maintained. Natural community integrity, functions, and rare species populations should be maintained.

This Management Plan is approved by the City of Superior and by the Department of Natural Resources' Bureau of Endangered Resources.

Approved by City of Superior

Margaret Ciccone 11.20.97  
Mayor Date

Jeff Stute 11/18/97  
Public Works Director Date

Approved by Bureau of Endangered Resources

Charles M. Pils 9/15/97  
Director Date

APPENDIX A  
SUPERIOR MUNICIPAL FOREST  
IDENTIFIED ENDANGERED RESOURCES ON THE MUNICIPAL FOREST

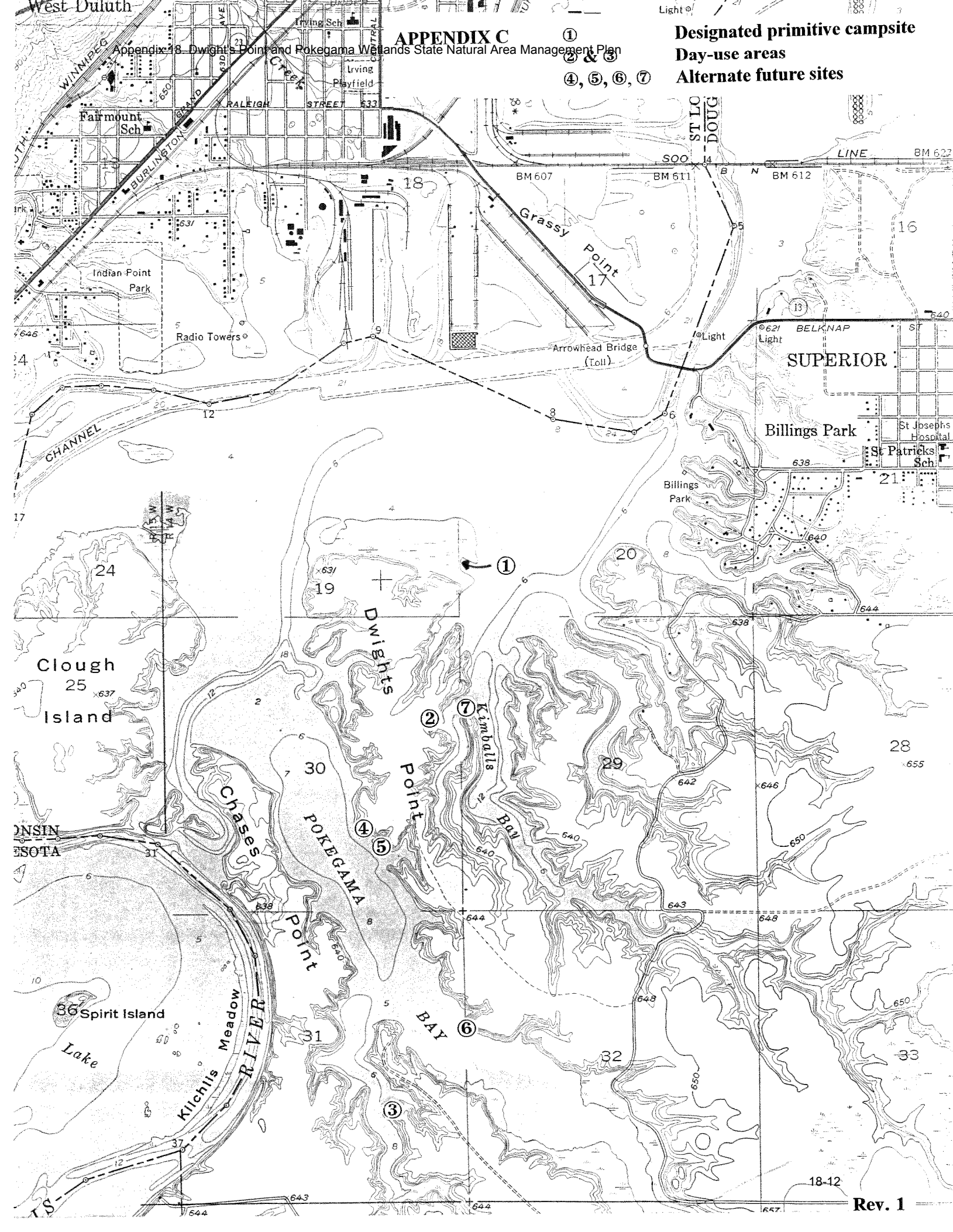
The following is a summary of information from the Wisconsin Natural Heritage Inventory (NHI). The information is a compilation of past data collected and the inventory conducted in the summer of 1994 by Eric Epstein and Randy Hoffman. NHI is a database of rare, threatened, and endangered species and natural communities throughout Wisconsin. It is summarized here as basic information to the City for planning purposes. The significant natural communities are color coded on the original map and also numbered for referencing on any copies that may be made. The color and number following the site names is provided for easy referencing.

**POKEGAMA RIVER WETLANDS (BLUE - 1):** The Pokegama River and its associated wetlands from the mouth to Highway 105 bridge contains a diverse wetlands community. Extensive marsh borders the main channel. It is composed of a species-rich combination of submerged, emergent, and floating-leaved aquatic macrophyte communities. Over 100 wetland species have been recorded from the site. Significant species include Bald Eagle (state threatened), Common Tern (state endangered), and Northern Harrier (special concern). Purple loosestrife has become established but does not appear to be dominating the wetlands.

**KIMBALL'S BAY BOREAL FOREST (GREEN - 2):** This feature incorporates several disjunct boreal forest stands with the largest being along Kimball's Bay. The forest is found on the clayey uplands and sandier slopes near Kimball's Bay and Pokegama Bay. Each stand has different compositions due to topography and aspect. The flat uplands have very poor drainage and are dominated by white pine with white cedar being abundant in pockets. The slopes have white spruce, balsam fir, and red pine dominating in various percentages. Some areas have an aspen and birch component that has a spruce/fir understory. Significant species are Blackburnian Warbler and Cape May Warbler (both species of special concern). This forest was the historical location of the fly honeysuckle (*Lonicera involucrata*); however, the species has not been seen for 40 years.

**DWIGHT'S POINT WILLOW/ALDER SWALES (RED - 3):** This community has a very unusual composition, presumably caused by poor drainage. Relatively flat land and B horizon red clays permit very slow drainage of water. Water tends to pond for most of the growing season, forming a swell and swale community structure. Elevation changes of as little as 1-2 feet is significant as to which species can grow there. Two very rare species were found during the inventory. The second location in the state of the clustered bur reed was documented. The state-endangered small yellow water crowfoot was found in a beaver impoundment. Another species of special concern, the water starwort, was found growing abundantly in the same beaver pond. Several other rare species (sweet coltsfoot, seaside crowfoot, and neat spike rush) have been found recently in similar habitat less than two miles away and could easily occur in this natural community.





**APPENDIX C**

Appendix 18 Dwight's Point and Pokegama Wetlands State Natural Area Management Plan

Designated primitive campsite

Day-use areas

Alternate future sites

- ①
- ② & ③
- ④, ⑤, ⑥, ⑦

## ST. LOUIS and RED RIVER STREAMBANK PROTECTION AREA FEASIBILITY STUDY

### NEED

The primary purpose of the Streambank Protection Program is to acquire land adjacent to streams for protection of water quality and instream fisheries habitat. By acquiring these adjacent lands we will be able to protect aquatic and upland habitat and improve water quality. The south shore of Lake Superior has many tributary streams that are an important component of the Lake Superior fishery. Lands adjacent to these streams are generally highly erodible and have the potential to seriously degrade water quality and fisheries habitat. This analysis determined additional land protection is needed to maintain and improve fisheries and water quality of the St. Louis and Red River area in Douglas County.

The Department currently has active management and land acquisition programs on seven other anadromous streams along the south shore of Lake Superior. Of these seven streams, the Brule River is contained within the Brule River State Forest and a portion of the Onion River has been proposed under the statewide Streambank Protection Program. The remaining streams will be protected and managed as part of the recently established South Shore of Lake Superior Fish and Wildlife Area. All these streams are generally in good condition and they support significant naturally reproducing populations of anadromous salmonids. A study entitled The South Shore of Lake Superior Fish and Wildlife Area Feasibility Study identified that south shore streams are susceptible to impacts from erosion due to highly erodible soils. The Red River sub-watershed has even steeper slopes and red clay soils throughout that results in an even greater potential than other south shore streams for nonpoint source pollution problems and habitat destruction. Protection and proper management of uplands is essential to protection of critical wetlands located in the St. Louis River and Red River watershed.

The Wisconsin portion of the St. Louis and Red River watershed differs from most South Shore watersheds in that it is very important in supporting Lake Superior fish populations other than salmonids, such as walleyes and lake sturgeon. Other Lake Superior warm water tributary rivers such as the Nemadji, Amnicon, Pokegama and Bad Rivers do support populations of walleyes and warm water species, however, none of these rivers support the large spawning populations of these species that are present in the St. Louis. The Nemadji River supports a good population of warm water fish species and is also impacted by red clay soil erosion, primarily from slumping clay banks. This river does not have the current or future potential fishery of the St. Louis River, nor is the terrain in the watershed as

erodible. The Pokegama River is a smaller tributary to the St. Louis and has a very limited fishery potential. The Amnicon River supports only a limited population of warm water fish species and has been identified as a walleye and muskellunge spawning site. Some of the frontage along the Amnicon River is in County Forest and State Park land. The Lower Bad River is an important stream for walleyes and warm water fish species and also is impacted by red clay erosion. A large portion of the Bad River is under the ownership and protection of the Bad River Indian Reservation. When compared to other streams in this region, the St. Louis and Red River watershed is the most significant resource in need of protection for water quality and fisheries.

The Red River sub-watershed (part of the St. Louis River watershed) in Douglas County includes approximately 7000 acres of steep sloped, highly erodible, undeveloped land (Figure 1). Within the boundary of the proposed Streambank acquisition project is five miles of St. Louis River shoreline and approximately thirteen miles of the Red River and its main tributaries. The St. Louis River is the largest U.S. tributary to Lake Superior and is very important as spawning and nursery habitat for important fish populations including walleye and lake sturgeon. The Red River is a coldwater stream that contains native populations of brook trout and it is also designated as an Exceptional Resource Water. The shoreline within the project represents a large undeveloped area that is unique in this region because of the importance of this area in maintaining water quality and aquatic habitat for St. Louis River and Western Lake Superior fisheries resources. This area is one of the largest remaining blocks in Wisconsin of relatively undisturbed habitat tributary to western Lake Superior. The potential for aquatic habitat loss is very high if this area were to be developed or managed using poor forestry practices. Increased erosion of soil in this watershed would degrade critical spawning and nursery areas in both the St. Louis and Red River by filling in or altering these areas, resulting in decreased populations of many species of fish, invertebrates, and other aquatic life. Since this project area is under threat of residential and commercial development, it is very likely this type of damage will occur if this area is not protected. The current majority landowner, WERCO Wisconsin, is interested in selling their property and they have received offers to purchase from developers.

If the land is not protected by state ownership, road construction, residential development and destructive land management practices will be expected. Development will not only change the character of this wild area, it will also result in serious water quality impacts and impacts to fish and wildlife populations that rely on this area. The land adjacent to this project in Minnesota is part of the Jay Cooke State Park and the Fond du Lac State Forest. The combination of the St. Louis and

Red River Streambank Protection Area and the state park and forest in Minnesota will result in a large and valuable block of undeveloped forest and river habitat adjacent to a large urban area.

Recreational use of the St. Louis River is very popular, especially for fishing. This heavy fishing pressure is primarily due to an excellent population of large Lake Superior walleyes that spawn in the St. Louis River. The St. Louis River estuary area is also very popular for bird watching because of the unique habitat provided by the wetland complexes located so close to Lake Superior. These recreational resources are immediately adjacent to a large urban area.

The aquatic habitat found in and adjacent to this project area is critical to further recovery and maintenance of the fishery. It contains a large portion of the remaining high quality spawning and rearing areas for the major species inhabiting the system. It includes nearly all of the present spawning areas for the populations of walleye and lake sturgeon that inhabit the western arm of Lake Superior. One small parcel of land is currently owned by the Department to protect a small portion of this critical habitat.

This analysis concludes that of the remaining aquatic habitat tributary to western Lake Superior, the St. Louis and Red River watershed is the most in need in of protection.

#### **PROPOSED DESIGNATION**

This property will be designated as a streambank protection area.

#### **DESCRIPTION**

The proposed property is bounded on the north by the St. Louis River, on the west by the Minnesota - Wisconsin state line, on the south by the Wrenshall Grade recreational trail, and on the east by section line 14 just west of the Village of Oliver. This area encompasses approximately 7000 acres.

Soils are primarily red clays and very susceptible to erosion due to very steep slopes throughout the project area. Because of the low infiltration rates of the tight red clay soils, runoff rates are high and stream flows in the project area fluctuate greatly, contributing to streambank erosion. The St. Louis River is bounded by steep topography as it enters the 13,000 acre fresh-water estuary adjacent to Lake Superior. Wetlands are found along the St. Louis River and in the St. Louis River estuary. Upland vegetation of this area is primarily second growth forest composed of mostly aspen. The area is heavily wooded and has been logged in past years. The topography is sharply rolling with some bank slippage and erosion. These red clay soils are

often unstable, easily erodible, and are poorly suited for development and intensive management. Development within this area will lead to greatly increased non-point pollution and a degradation of water quality.

The St. Louis River estuary, the near-shore waters of Lake Superior and the surrounding urban area was designated an "Area of Concern" (AOC) by the International Joint Commission (IJC) and by the United States Environmental Protection Agency (USEPA). A Remedial Action Plan (RAP) for this AOC is under development by Wisconsin DNR, Minnesota Pollution Control Agency and a large and active Citizens Advisory Committee (CAC). The CAC recommended establishment of this project and land acquisition by the Wisconsin DNR to preserve and protect the sensitive habitat associated with the project area.

There is a diverse population of fishery and wildlife resources of the 13,000 acre St. Louis River estuary, although much aquatic habitat loss has occurred in the portions of the estuary that were developed for commercial uses. The fishery and aquatic resources were severely degraded by extensive water pollution occurring from the 1910's to late 1970's. Since pollution has been largely controlled, the fishery has recovered substantially, and the waters of the St. Louis River now provide a home for more than 54 species including walleye, yellow perch, northern pike, muskellunge, largemouth bass, smallmouth bass, black crappies, lake sturgeon, and channel catfish.

The Duluth-Superior harbor / St. Louis River estuary is a unique wildlife resource. Prior to commercial development of the harbor area, the estuary was composed of a slow winding river channel surrounded by large expanses of wetland habitat. The estuary is still rich in plant and animal life but much of this slow winding river channel and wetland habitat in the harbor area has been filled for commercial uses or deepened for navigation. The upper estuary within the Streambank Protection Area can be considered relatively undisturbed habitat representing conditions prior to development of the harbor.

The St. Louis River estuary is one of the best bird-watching places in the upper midwest. Three hundred bird species have been documented in or near the St. Louis River estuary. Of these, 127 species regularly breed in the estuary area. Most of these species can be found in the proposed project area.

In addition to wildlife observation, hunting and trapping are popular recreational activities in the project area. The area's local waterfowl populations are supplemented by migrating ducks and geese each fall. Beaver, mink, otter, coyote, fisher and muskrat are present in the area and are trapped seasonally.

Four endangered or threatened animal species are known to use the project area. Two pair of bald eagles nest near the project area. Osprey are regularly seen feeding in the area. The wood turtle is present and probably breeds in the area. Timber wolves are also present in the area.

The area contains suitable habitat for two additional endangered or threatened species; the trumpeter swan and peregrine falcon. The wetlands in the area may be suitable for breeding trumpeter swans. The area contains suitable feeding habitat for peregrine falcons which have recently begun to breed nearby.

Access into this area is very limited. There are no roads or developed trails into the majority of the project area. A recreational/snowmobile trail forms the southern boundary of the proposed project. Several boat landings exist along the St. Louis River in this area. Public improvements include 3 boat landings adjacent to the proposed project, one located in Wisconsin and two in Minnesota. There are many other boat landings in the St. Louis River estuary outside of the actual project area that provide access to the area.

#### **PROPOSED GOAL**

The primary goal of this project is to protect water quality and fisheries and wildlife habitat in the western Lake Superior region and the St. Louis River. Acquisition of the adjacent lands will allow for protection of important upland and wetland habitat for a variety of species, while allowing for compatible recreational uses. This acquisition will protect existing natural resources from degradation, and preserve these lands.

#### **PROPOSED MANAGEMENT**

Management will limit existing and potential non-point sources of pollution and provide recreational opportunities in a semi-wild area near a large urban area. The following types of management are proposed:

- Demonstrate state of the art land management practices suitable for red clay soils and steep slopes.
- Conduct forestry management to support project goals.
- Manipulate cover type to include practices such as enhance conifer cover on steep slopes as a soil stabilization practice.
- Manage the uplands as a semi-wild area with limited developed access and limited use of motorized vehicles.

-Maintain existing public access and consider additional public access where compatible with project goals.

-Maintain existing recreational trails and consider additional trail development where compatible with project goals.

#### **COST**

There are 7,188 acres within the boundary but 365 acres are developed and will be a non-acquisition zone within the project. The land acquisition goal is 6823 acres with an estimated value of \$900,000. There are about 23 property owners in the proposed project area. The largest landowners are WERCO Wisconsin with 5,383 acres and Douglas County with 896 acres.

Costs for managing this property will be developed during the master planning for the project. Management of the property will be shared among department programs.

#### **ENVIRONMENTAL EFFECTS AND THEIR SIGNIFICANCE**

The proposed project area has very steep slopes throughout and the soils are highly erodible red clays. These two factors present a severe threat to water quality and fish and wildlife habitat in this region. Disturbance or improper management of the land in the proposed project area will result in severe damage to valuable habitat in the St. Louis River and the St. Louis River estuary.

Acquisition of the proposed property will provide long term protection of water quality and fish and wildlife habitat and will provide unique undeveloped land in the western Lake Superior basin. At present the current land uses in this proposed project area are not causing severe problems. There are some areas with eroding streambanks contributing to erosion and siltation, but this will be difficult to control. Development and poor forestry practices will degrade water quality and harm fish and wildlife habitat.

Short term effects of this acquisition may not be noticeable because the goal is preservation and protection, and land use will not change significantly under Department ownership. The long term effects will provide a very significant benefit by protecting the valuable resources of the St. Louis River and estuary and also by providing public recreation opportunities. If the land is converted to other uses such as intensive logging using poor forestry practices and residential development, the impacts to water quality and habitat will be severe. Secondary impacts of private development would be the losses of unique public recreational opportunities.

The proposed acquisition will protect habitat in and adjacent to the St. Louis River and estuary, which is home to a great variety of aquatic and upland species. This habitat is important and supports populations of four endangered or threatened animal species (bald eagle, osprey, timber wolf and wood turtle) and is suitable for two others, the trumpeter swan and peregrine falcon. The habitats in the area are needed to support these species and also to protect the water quality that supports the ecosystem.

Protecting this large block of relatively undeveloped land will allow preservation of unique water resources that are important to Lake Superior. This area will complement the large area in the St. Louis River watershed that has been established in Minnesota (Jay Cooke State Park and the Fond du Lac State Forest.) These areas, when combined, will present a large block of high value and scenic resources unique to this region.

#### **SIGNIFICANCE OF CUMULATIVE EFFECTS**

The cumulative effects of this project will be an increase in protection for valuable resources at a time that these resources are becoming more threatened in the Lake Superior region. This project is the largest of twenty-two streambank protection projects proposed statewide at this time. All of these projects combined will represent increased protection of the resources. This project differs from the other streambank protection projects in that active farmland will not be acquired. Other acquisition projects in the Lake Superior region are focusing on cold water trout streams as compared to the diverse fishery objectives of this St. Louis River estuary project.

#### **SIGNIFICANCE OF RISK**

Acquisition of these lands will have a beneficial effect on water quality and valuable habitat as long as they are properly managed within the intent of the streambank program. Success of this project is dependent on the major landowners being willing to sell to the Department.

There are potential risks to the property and the resources that should be anticipated and controlled. Allowing increased access by vehicles could cause erosion and damage to vegetation. Appropriate management of the proposed property will require a plan for minimizing impacts to the area while allowing reasonable access.

#### **SIGNIFICANCE OF PRECEDENT**

Lands will be acquired following the same procedures as all other Department land acquisition programs. Land will be purchased only from willing sellers. This acquisition project will not set any precedents for how land is to be acquired. The difference



between streambank protection projects and other acquisition programs is the intent to protect water quality and aquatic habitat under a statewide program. The St. Louis River project differs from most fisheries acquisition programs in the area because it is intended to benefit water quality as well as fish species.

This project will set aside lands for protection in an area that is receiving a great deal of public attention because of the importance of limited remaining valuable habitat in the St. Louis River AOC. This will complement other actions being taken by Wisconsin and Minnesota to protect and improve the quality of the St. Louis River estuary and Lake Superior.

#### **SIGNIFICANCE OF CONTROVERSY OVER ENVIRONMENTAL EFFECTS**

This project will provide long term protection for an area that could otherwise be easily degraded by improper land uses, causing loss of valuable fish and wildlife habitat. This project was proposed by the public and there is a great deal of local and regional support. There is little evidence of controversy associated with this project proposal. It is likely that this acquisition will be successful in meeting the goals set for the streambank protection program.

#### **ALTERNATIVES**

##### Do Nothing

Doing nothing would allow existing and future owners to develop the land and harvest timber, possibly using poor forestry practices. The result will be an increase in non-point source pollution and a corresponding degradation of water quality for both the St. Louis River estuary and Lake Superior. Critical wetland habitat will be lost and decreases in fisheries and wildlife resources in western Lake Superior will occur. In addition, an opportunity for providing enhanced recreation, including fishing, hunting and trapping, will be lost.

##### Expand

Expanding the boundaries of this project would increase the potential for protecting or improving water quality and protecting valuable fish and wildlife habitat. Acquiring more land will provide more opportunities for outdoor recreation.

##### Reduce

A reduction in project size could allow for some protection of adjacent streambank of the St. Louis River, if configured properly, but it would not protect much of the sensitive Red

River watershed. The proposed project boundary is based on what is needed to protect water quality and habitat in the area. Reducing the project size would reduce the ability to control impacts from erosion and would result in the valuable habitat being heavily impacted if upstream development or logging occurs.

#### Acquisition Under Other DNR Programs

Acquisition of these lands could be considered under other DNR programs such as fishery management, wildlife management, natural areas or state parks. Portions of this project may fit into some of these programs, but the majority of this project does not fit the criteria for the other programs. This project will be managed to benefit many species, but because the primary intent is to protect water quality and fish habitat, the most appropriate program is Streambank Protection.

This project is large enough to be considered for a state park, but a number of factors limit the possibilities for a park. The topography and soils are not conducive to developing park facilities. In addition, we have a number of attractive park facilities in this region and having another large park is probably not needed at this time. This area is best managed by leaving it in an undeveloped state so that the primary objectives of protecting water quality and fisheries habitat can be achieved.

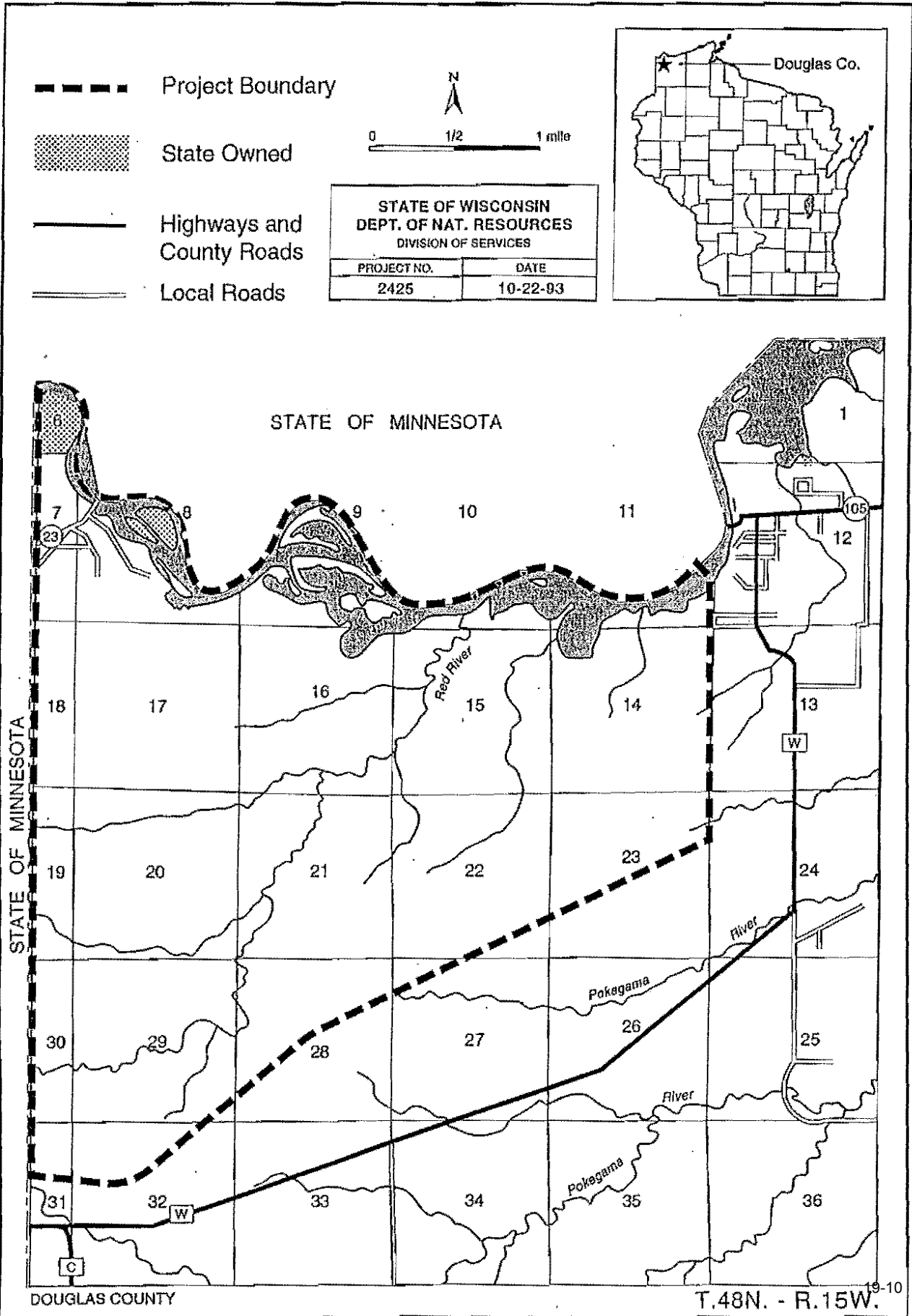
#### **CITIZEN PARTICIPATION SUMMARY**

Contacts were made with all landowners, local government officials, State legislators and other organizations to inform them that this project area is being considered under the Streambank Protection Program. Most contacts were made by letter although personal contacts were also made. A public informational meeting was held in Superior on November 2, 1993, to explain the goals of the project proposal. This was announced by a press release and invitations to key individuals and organizations. Approximately 30 people attended the meeting. Most of the comments received were very favorable; a summary of the comments is attached.

There is very strong local support for this proposal as evidenced by citizen comments and letters of support.

StLouis4.fea

### Stream Bank Protection - Fee Area St. Louis River



St. Louis River Project Proposal Meeting  
November 2, 1993 - Superior, WI

Issues, concerns, comments, etc., received from the public.

- 1.) The County sold this land when it was tax title land about 40 years ago. They should not have done this.
- 2.) Lake Superior level is now kept at a higher level than it use to be. This has raised the water level within the project area making more open water and wetlands out of areas which were once uplands.
- 3.) Has historical access - old roads, logging roads, etc.
- 4.) Old well in former settlement of St. Louis may need to be capped.
- 5.) What will affect be on homeowners? Any forced sales?
- 6.) What will affect be on hunting? What about future changes in hunting regulations? Anything specific to the property?
- 7.) Snowmobiling, ATV', RV's - will there use be allowed? Some damage has already occurred because of there use.
- 8.) Need to cooperate with landowners in Minnesota, especially on erosion issues.
- 10.) Erosion is due to land use practices. It will be good to have coordinated management plan. Could time runoff (extend runoff period) from snowmelt via forest management
- 11.) River ruffe - thrives in low light water conditions, i.e., sediment in water. This project could help reduce sediment in water.
- 12.) This is a unique resource - we are obligated to protect it.
- 13.) Project is needed for musky and northern fisheries (walleyes get most of the attention).
- 14.) Current uses?
- 15.) Plans to close it to hunting? (If it is a "wildlife" area).
- 16.) piecemeal sale (to private parties) could reduce hunting opportunities in the future.
- 17.) Where would money to purchase the land come from?
- 18.) Who are the major landowners?
- 19.) Acquisition time frame? How long to purchase? How many years? WERCO? Any commitment from WERCO?

-2-

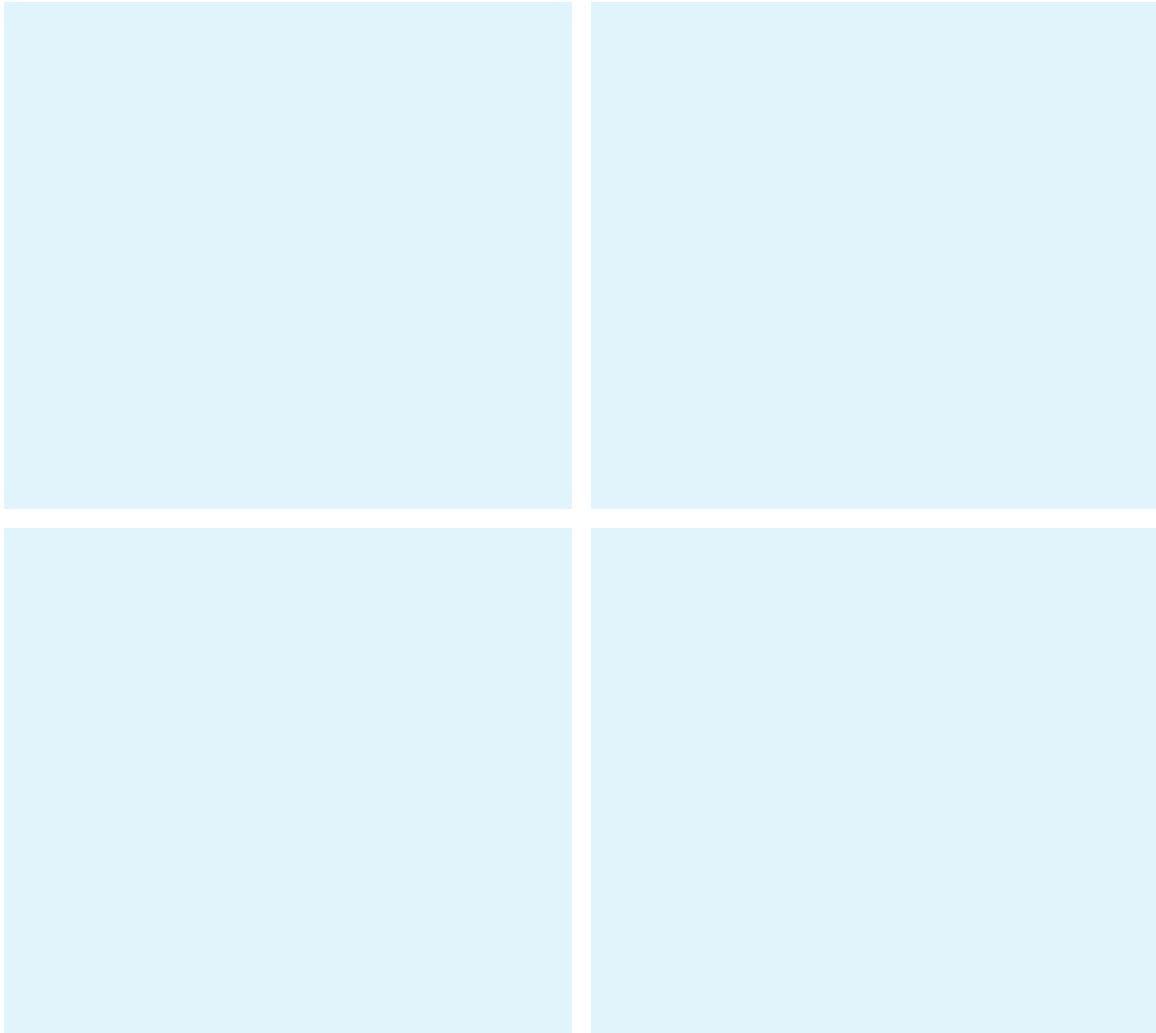
- 20.) When will Douglas County government be informed?
- 21.) Was proposed game farm in project area?
- 22.) How long will DNR be a willing buyer? (vs. condemnation).
- 23.) Real estate tax loss to Douglas County?
- 24.) Need to take advantage of this.
- 25.) How to increase interest from Madison (DNR and State government).
- 26.) Re: Future hunting/public use - trust DNR more than paper companies.
- 27.) What if can't agree with landowners on the price? Can development be prevented?
- 28.) Need local support to convince Madison and Milwaukee.
- 29.) Local opposition could kill it.
- 30.) State protection of resources is best bet.
- 31.) If no State money equals status quo equals no development now.
- 32.) If developed by private owners means no public access.
- 33.) DNR did a nice job on developing the Oliver boat launch.
- 34.) Years ago when the County sold land to Mosinee Paper Company they required the land to be open for hunting. As Mosinee sells this land the new owners are requesting that the land does not have to be open for hunting.
- 35.) If logging occurs, erosion will start and we would not be able to stop it.
- 36.) Can a seller retain timber rights?
- 37.) What if WERGO wants to log the property before they sell it?
- 38.) What is the source of "Stewardship Funds"?
- 39.) Glad Minnesota Power removed the cable.
- 40.) Logging erosion concern. Twenty foot flux in water levels now.

WM8B4094.FCS





NATIONAL  
ESTUARINE  
RESEARCH  
RESERVE  
SYSTEM



National Oceanic and Atmospheric Administration  
National Ocean Service  
Office of Ocean and Coastal Resource Management  
Estuarine Reserves Division

[www.nerrs.noaa.gov](http://www.nerrs.noaa.gov)

## Lake Superior National Estuarine Research Reserve Record of Decision

### PROPOSED ACTION:

To designate sections of the lower St. Louis River estuary along Lake Superior in northern Wisconsin as a National Estuarine Research Reserve. The National Oceanic and Atmospheric Administration (NOAA) works with coastal states to establish National Estuarine Research Reserves, thereby fulfilling its mission of establishing and managing a national system of reserves that represent the various biogeographic regions and subregions of estuarine types in the United States.

### DECISION:

NOAA has decided to designate the Lake Superior National Estuarine Research Reserve (the Reserve), the boundary of which is identified in the final environmental impact statement and the final management plan and is the preferred alternative.

### ALTERNATIVES CONSIDERED:

1. NO ACTION - Under this alternative, NOAA would not designate the Lake Superior National Estuarine Research Reserve. Not designating the Reserve would ignore a need repeatedly identified by the citizens of the State of Wisconsin during the designation process for the Reserve to better understand and manage the coastal ecosystems of Wisconsin and to bring these areas under a more collaborative, coordinated, and unified management program. In addition, NOAA would not be able to fulfill its mission to establish a national system of reserves that are representative of estuaries within each biogeographic region of the United States.

2. ALTERNATIVE BOUNDARIES - Several alternatives were identified in the environmental impact statements as follows: (a) remove the Pokegama-Carnegie Component; (b) include additional water areas; (c) include Hog Island and Newton Creek; and (d) remove the Wisconsin Point component.

The first of these alternative boundaries was rejected because the Pokegama-Carnegie component is rich with native vegetative habitats that would benefit from improved and coordinated stewardship. The second alternative was dismissed because including additional water areas would increase potential conflict with the future activities of the Port of Superior. The third alternative was rejected because Hog Island is geographically isolated from the key components of the reserve and the area has experienced extensive ecological changes as a result of human activities associated with the activities of the Port of Superior and the Murphy Oil Refinery at the headwaters of Newton Creek. Such changes to the area's ecological characteristics do not contribute to the representativeness of the estuarine system. Elements of this alternative remain viable in the future, where restoration activities are feasible and could expand the representative characteristics of the estuary. The final alternative, the removal of Wisconsin Point was also rejected




because inclusion of Wisconsin Point will expand opportunities for Great Lakes estuarine research with its unique geomorphology, as well as its wetland and xeric dune habitats and their status as protected state, county, or city lands. In addition, the presence of a historic Ojibwe burial ground also provides a great opportunity to highlight the rich cultural resources of the area.

COMMENTS RECEIVED ON THE FINAL ENVIRONMENTAL IMPACT STATEMENT

None.

PERMITS AND OTHER AUTHORIZATIONS REQUIRED

Designation of the Reserve does not require any federal permits. Designation of the Reserve has been deemed to be consistent with the federally approved Wisconsin Coastal Management Program. The U.S. Fish and Wildlife Service has determined that designation will likely have no effect on federally listed species. The Wisconsin state historic preservation and representative tribal historic preservation officers have determined that no historic properties will be adversely affected by designation.

SIGNED:   
Jane Lubchenco, Ph.D.  
Under Secretary of Commerce  
for Oceans and Atmosphere

**OCT 18 2010**  
DATE: \_\_\_\_\_

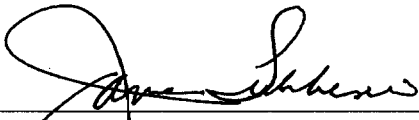
The attached MOA was signed by the Controller, Board of Regents of the University of Wisconsin-System, University of Wisconsin-Extension, and the Director of NOAA's Office of Ocean and Coastal Resource Management.

(4) All MOAs necessary for reserve management (i.e., with relevant federal, state, and local agencies and/or private organizations) must be signed (15 C.F.R. § 921.30(a) (6)).

All MOA's have been signed and are on file with NOAA and the State.

(5) The coastal state in which the area is located must have complied with the requirements of 15 C.F.R. Part 921, Subpart B, regarding Site Selection, Post Site Selection, and Management Plan Development (15 C.F.R. § 921.30(a) (7)).

The State has complied with all requirements of Subpart B, including providing documentation regarding the site's contribution to the biogeographical and typological balance of the Reserve System; assurance that the site's boundaries encompass an adequate portion of the key land and water areas of the natural system to approximate an ecological unit and to ensure effective conservation; and evidence that the site is suitable for long-term research and is compatible with existing and potential land and water uses in contiguous areas. The reserve duly received certification from the State of Wisconsin's Coastal Management Program that reserve designation is consistent to the maximum extent practicable with the Federally approved coastal management program. The State duly prepared a draft programmatic environmental impact statement/draft management plan (DEIS/DMP) and a final programmatic environmental impact statement/final management plan (FEIS/FMP), and provided opportunities for public participation in the designation process.



Jane Lubchenco, Ph.D.  
Under Secretary of Commerce  
for Oceans and Atmosphere

**OCT 18 2010**

Date \_\_\_\_\_

Lake Superior National Estuarine Research Reserve  
Findings of Designation

On June 1, 2008, the Governor of the State of Wisconsin nominated portions of the freshwater estuary at the confluence of the St. Louis River and Lake Superior as a National Estuarine Research Reserve (letter attached). The National Oceanic and Atmospheric Administration (NOAA) has reviewed the record concerning the establishment of the Lake Superior National Estuarine Research Reserve (the reserve), including the attached Final Environmental Impact Statement and Final Management Plan (FEIS/FMP) issued in September 2010. Based on that review, I am designating certain lands and waters at the confluence of the St. Louis River and Lake Superior as part of the National Estuarine Research Reserve System, pursuant to Section 315 of the Coastal Zone Management Act (CZMA) of 1972, as amended, 16 U.S.C. § 1461, and its implementing regulations at 15 C.F.R. Part 921.

Findings resulting from my review are:

A. Section 315(b) (2) (A) of the CZMA and 15 C.F.R. § 921.30(a) (1) require that the area is a representative estuarine ecosystem that is suitable for long-term research and contributes to the biogeographic and typological balance of the National Estuarine Research Reserve System.

The area is a representative estuarine ecosystem of the Lake Superior subregion of the Great Lakes biogeographic region. No other National Estuarine Research Reserve is designated in this biogeographic subregion; therefore, the addition of this site contributes to the biogeographic and typological balance of the system. The St. Louis River freshwater estuary is highly suitable for long-term research on the physical, chemical, and biological processes of estuaries in part because it contains many different estuarine characteristics, or typologies, representative of the Lake Superior subregion of the Great Lakes biogeographic region. The proposed Lake Superior NERR is comprised of 16,697 acres of protected uplands and submerged lands, including riparian and riverine habitat, riverine islands, emergent freshwater marshes, interdunal wetlands, scrub swamp, hardwood forests, and open sand beach and dunes. These unique and diverse freshwater estuarine habitats support a wide variety of flora and fauna, including the endangered piping plover and threatened dune thistle.

B. Section 315(b) (2) (B) of the CZMA requires that the law of the coastal state provide for long-term protection for Reserve resources to ensure a stable environment for research.

Existing State and local laws, as well as existing and new memoranda of understanding, provide long-term protection for reserve resources to ensure a stable environment for research (see p. 14 in the FEIS and p. 35 of the FMP). Coordination between Federal, State, and local agencies with regulatory responsibilities in the reserve will ensure a comprehensive approach to management of the reserve.

The proposed Lake Superior National Estuarine Research Reserve supports the goals and policies within the Wisconsin Coastal Management Program by improving coordination

between existing Federal, State, regional, and local programs, and by increasing public awareness of coastal resources. Specifically, the reserve will support protection of the freshwater estuarine areas within the Reserve by increasing the understanding of the biotic and physical nature of these areas for the purpose of increasing awareness and stewardship of coastal resources and minimizing future impacts of human activities to these areas.

The Memorandum of Understanding between University of Wisconsin Extension and its local partner organizations (Attachment A, Appendix 11 of the FEIS/FMP) sets forth the institutional framework, plans, and policies that preserve the major land and water components that make up the reserve and ensure that the area will be managed in conformance with the goals of Section 315 of the CZMA.

C. Section 315(b) (2) (C) of the CZMA and 15 C.F.R. § 921.30(a) (3) require that designation of the area as a reserve will serve to enhance public awareness and understanding of estuarine areas, and to provide suitable opportunities for public education and interpretation.

Education and outreach are tools that reserve staff will use to address the human dimension of resource issues. Combined with research and stewardship, education and outreach are key elements of resource protection.

- One of the proposed goals of the reserve is to educate youth, students, community members, and visitors about Lake Superior freshwater estuaries and coastal resources and improve their ability to address coastal issues.

Specific goals include:

- improve understanding of the socio-economic aspects of the St. Louis River freshwater estuary;
- increase public awareness of the ecological and cultural significance of the St. Louis River freshwater estuary;
- increase educator and student understanding of Great Lakes freshwater estuaries and coastal habitats;
- provide research-based educational outreach programming and skills training that address the Lake Superior coastal management issues and the needs of community leaders and other decision makers; and
- incorporate citizen-science programs and volunteer monitoring into reserve research and monitoring activities.

The FEIS/FMP further details the plan to improve understanding and stewardship of coastal resources through education (see p. 56 of the FMP).

D. Section 315(b) (2) (D) of the CZMA requires that the coastal state in which the area is located comply with the requirements of any regulations issued by the Secretary of Commerce to implement Section 315.

The State of Wisconsin has met the specific requirements of the implementing regulations (15 C.F.R. § 921.30) for designation of National Estuarine Research Reserves. In addition to the requirements noted in Sections A through C above, the State of Wisconsin has complied with the following requirements:

(1) Key land and water areas must be under adequate state control sufficient to provide long-term protection for reserve resources to ensure a stable environment for research (15 C.F.R. § 921.30(a)(2)).

The core areas (or key land and water areas) are composed of water (e.g., riparian and riverine habitat, emergent freshwater marshes, interdunal wetlands) and land (e.g., riverine islands, scrub swamp, hardwood forests, and open sand beach and dunes) areas within the estuary.

Key land and water areas of the reserve are under adequate state control sufficient to provide long-term protection for reserve resources to ensure a stable environment for research through State, county, city, and university ownership and/or existing regulatory authorities and management programs that guide resource protection and management of existing and/or future uses within the reserve boundary (see p. 14 in the FEIS and p. 35 of the FMP).

The State and local entities with jurisdiction in the reserve core area include the Wisconsin Department of Natural Resources, Douglas County, City of Superior, and the University of Wisconsin-Superior. The Wisconsin Coastal Management Program is empowered to review proposed activities in the St. Louis freshwater estuary for consistency with the Federally approved state coastal management program.

The Administrative Plan (p. 26 FMP) also provides for the establishment of a reserve advisory board (RAB) composed of one or more members of the key partners with educational and research responsibilities in the Reserve's region. These partners include: the City of Superior, Douglas County, Fond du Lac Band of the Lake Superior Chippewa, University of Wisconsin Sea Grant Institute, University of Wisconsin-Superior, Wisconsin Coastal Management Program, and Wisconsin Department of Natural Resources. The RAB will act in an advisory capacity to ensure that the long-term objectives of the Reserve are met. The RAB also may create committees from the broader community to support the Reserve's research, education, and stewardship objectives.

(2) A final management plan has been approved by NOAA (15 C.F.R. § 921.30(a) (4)).

The final management plan was approved by NOAA as part of the FEIS.

(3) A Memorandum of Agreement (MOA) has been signed between the state partner (University of Wisconsin Extension) and NOAA, ensuring a long-term commitment by the state to the effective operation and implementation of the area as a National Estuarine Research Reserve (15 C.F.R. § 921.30(a) (5)).

DESIGNATION OF THE  
LAKE SUPERIOR NATIONAL ESTUARINE RESEARCH RESERVE

Consistent with the provisions of Section 315 of the Coastal Zone Management Act of 1972, as amended, 16 U.S.C. 1461, the State of Wisconsin has met the following conditions to establish the Lake Superior National Estuarine Research Reserve:

- 1) The St. Louis River freshwater estuary is a representative estuarine ecosystem that is suitable for long-term research and contributes to the biogeographical and typological balance of the National Estuarine Research Reserve System.
- 2) Wisconsin state law provides long-term protection for National Estuarine Research Reserve resources to ensure a stable environment for research.
- 3) Designation of lands and waters within the St. Louis River freshwater estuary as a Reserve will serve to enhance public awareness and understanding of estuarine areas and provide suitable opportunities for public education and interpretation.
- 4) The State of Wisconsin has complied with the requirements of the regulations relating to designation of a National Estuarine Research Reserve.

Accordingly, I hereby designate the Lake Superior National Estuarine Research Reserve, the boundary of which is specified in the final management plan.



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Jane Lubchenco, Ph.D.  
Under Secretary of Commerce  
for Oceans and Atmosphere

**OCT 18 2010**