



Via Electronic Filing

December 13, 2018

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Subject: Grand Rapids Hydroelectric Project (FERC No. 2362)
Prairie River Hydroelectric Project (FERC No. 2361)
Notice of Intent and Pre-Application Document

Dear Secretary Bose:

Minnesota Power (MP or Applicant), a subsidiary of ALLETE, Inc., is submitting to the Federal Energy Regulatory Commission (FERC or Commission) a Notice of Intent (NOI) to file an application for a new license for the Grand Rapids Hydroelectric Project (FERC No. 2362) and a NOI to file an application for a subsequent license for the Prairie River Hydroelectric Project (FERC No. 2361). Although these are separate processes, due to the proximity of the Projects to each other, MP plans to conduct them concurrently and use a combined Pre-Application Document (PAD). The combined PAD, also contained in this submittal, has two volumes with the second containing sections of the PAD being filed as Controlled Unclassified Information (CUI) and Critical Energy Infrastructure Information (CEII). The existing FERC licenses for both Projects expire on December 31, 2023.

Stakeholders on the attached distribution list may obtain a copy of the NOIs and PAD electronically through FERC's eLibrary at <https://elibrary.ferc.gov/idmws/search/fercgensearch.asp> under docket numbers P-2362 and P-2361 or on MP's website www.mnpower.com/Environment/Hydro. Distribution of this letter is being done via email if an email address is available, otherwise via U.S. mail. If any stakeholder would like a CD copy of the NOIs and PAD, please contact me. Two paper copies are being sent to Commission Staff in the Office of Energy Projects and Office of General Counsel – Energy Projects as well as a paper copy to the State Historic Preservation Office.

In accordance with 18 Code of Federal Regulations (CFR) §5.5(e) of the Commission's regulations, the Applicant requests that the Commission designate MP as the Commission's non-federal representative for purposes of consultation under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. §470f and the NHPA implementing regulations at 36 CFR Part 800.

In addition, the Applicant requests that FERC designate MP as the non-federal representative for the Project for the purpose of consultation with the U.S. Fish and Wildlife Service and National Marine Fisheries Service, pursuant to Section 7 of the Endangered Species Act (ESA) and the joint agency ESA implementing regulations at 50 CFR Part 402.



AN ALLETE COMPANY

Our relicensing team looks forward to working with the Commission's staff, resource agencies, Indian Tribes, local governments, non-governmental organizations, and members of the public, in developing license applications for these renewable energy facilities. If you have any questions, please contact me at nrosemore@mnpower.com or (218) 725-2101.

Sincerely,

A handwritten signature in black ink that reads "Nora Rosemore". The signature is written in a cursive, flowing style.

Nora Rosemore
Hydro Operations Superintendent
Minnesota Power

**Distribution List for Grand Rapids Hydroelectric Project (FERC No. 2362)
and Prairie River Project (FERC No. 2361)**

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**GRAND RAPIDS HYDROELECTRIC PROJECT
FERC PROJECT NO. 2362
NOTICE OF INTENT TO FILE APPLICATION FOR NEW LICENSE**

Minnesota Power (“MP or “Licensee”), a subsidiary to ALLETE, Inc., the Licensee of the existing Grand Rapids Hydroelectric Project (FERC Project No 2362), hereby notifies the Federal Energy Regulatory Commission (“FERC” or “Commission”) of its intention to file an Application for a New License for the Grand Rapids Hydroelectric Project.

Pursuant to 18 C.F.R. §5.5 of the Commission’s regulation, MP provides the following information:

(1) Licensee’s Name, Address, and Phone Number:

ALLETE, Inc.
30 West Superior Street
Duluth, MN 55802-2093
Phone: (218) 279-5000

(2) FERC Project Number:

FERC Project No. 2362.

(3) License Expiration Date:

December 31, 2023.

(4) Statement of Intent to File Application for New License:

MP hereby unequivocally declares its intent to file an Application for New License for the Grand Rapids Hydroelectric Project on or before December 31, 2021. MP will utilize the Commission’s Integrated Licensing Process (ILP) in support of this relicensing.

(5) Principal Works of the Grand Rapids Hydroelectric Project:

The Project consists of: (a) a 21-foot-high concrete dam; (b) a 465-acre impoundment; (c) a powerhouse containing two generating units with a total installed capacity of 2.1 megawatts (MW); (d) a short transmission line extending from the powerhouse to the Blandin Paper Mill; and (e) appurtenant facilities.

(6) Project Location:

River:	Mississippi River
County and State:	Itasca County, Minnesota
Township or nearby town:	City of Grand Rapids, Minnesota

(7) Plant Installed Capacity:

The plant installed capacity is 2.1 MW.

(8) The names and mailing addresses of:

(i) The County in which the Project is located, and in which any Federal facility that is used or to be used by the Project is located:

Itasca County
123 NE 4th Street
Grand Rapids, MN 55744

There are no federal lands or facilities associated with the Project.

(ii) Each city or town or similar political subdivision:

(a) In which any part of the Project is located, and in which any Federal facility that is used or to be used by the Project is located:

City of Grand Rapids
420 N. Pokegama Avenue
Grand Rapids, MN 55744

(b) That has a population of 5,000 or more people and is located within 15 miles of the existing Project dam:

Dale Adams, Mayor
City of Grand Rapids
420 North Pokegama Avenue
Grand Rapids, MN 55744

(iii) Each irrigation district, drainage district, or similar special purpose political subdivision:

(a) In which any part of the Project is located, and in which any Federal facility that is used or to be used by the Project is located.

Itasca County Soil and Water Conservation District
1889 East Highway 2
Grand Rapids, MN 55744

The Applicant is not aware of any additional drainage districts or other special purpose political subdivisions in the immediate vicinity of the Project. No federal facility is used or is proposed to be used by the Project.

(b) That owns, operates, maintains, or uses any Project facility or any Federal facility that is or is proposed to be used by the Project.

No Project features will be owned, operated, maintained, or used by any irrigation district, drainage district, or other special purpose political subdivisions. No federal facility is used or is proposed to be used by the Project.

(iv) Every other political subdivision in the general area of the Project that there is reason to believe would likely be interested in, or affected by, this notification.

The Applicant is not aware of any other political subdivisions in the immediate vicinity of the Project that would be interested in, or affected by, this notification.

(v) Affected Indian Tribes.

There are no tribal lands located within or adjacent to the FERC Project boundary. The listing below includes Native American Tribes that may have an interest in the Project:

Bois Forte Band of Minnesota Chippewa 5344 Lakeshore Drive Nett Lake, MN 55772	Cheyenne and Arapahoe Tribes of Oklahoma P.O. Box 167 Concho, OK 73002
Minnesota Chippewa Tribe P.O. Box 217 Cass Lake, MN 56633	Upper Sioux Community of Minnesota P.O. Box 147 Granite Falls, MN 56241
Leech Lake Band of Minnesota, Chippewa Tribe 6530 U.S. Hwy 2 Northwest Cass Lake, MN 56633	Mille Lacs Band of Ojibwe 43408 Oodena Drive Onamia, MN 56359
White Earth Band (Minnesota Chippewa Tribe) P.O. Box 418 White Earth, MN 56591	Fort Belknap Indian Community of the Fort Belknap Reservation of Montana 656 Agency Main Street Harlem, MT 59526-9455
Lac du Flambeau Band of Lake, Superior Chippewa Indians P.O. Box 67 Lac du Flambeau, WI 54538	Fond du Lac Band of Lake Superior Chippewa Administration 1720 Big Lake Road Cloquet, MN 55720
Menominee Indian Tribe of Wisconsin P.O. Box 910 Keshena, WI 54135	Grand Portage Band of Chippewa Indians P.O. Box 428 Grand Portage, MN 55605
Apache Tribe of Oklahoma P.O. Box 1330 Anadarko, OK 73005	Red Lake Band of Chippewa Indians 15484 Migizi Drive Red Lake, MN 56671

MP is filing this NOI concurrently with a Pre-Application Document (PAD). In accordance with 18 C.F.R. §5.5(c), the Licensee is sending notification of these filings to the distribution list attached to the transmittal letter of this PAD; the list includes applicable resource agencies, local governments, Indian Tribes, and non-government organizations.

In accordance with 18 C.F.R. §5.5(e), MP is requesting designation as the non-federal representative for consultation under Section 7 of the Endangered Species Act and Section 106 of the National Historic Preservation Act.

If there are any questions concerning this NOI or the PAD, please contact the undersigned at the address or telephone number listed.

Respectfully submitted,

A handwritten signature in black ink that reads "Nora Rosemore". The signature is written in a cursive style with a large initial "N".

Nora Rosemore
Hydro Operations Superintendent
Minnesota Power
30 West Superior Street
Duluth, MN 55802-2093
(218) 725-2101

**PRAIRIE RIVER HYDROELECTRIC PROJECT
FERC PROJECT NO. 2361
NOTICE OF INTENT TO FILE APPLICATION FOR SUBSEQUENT
LICENSE**

Minnesota Power (“MP or “Licensee”), a subsidiary to ALLETE, Inc., the Licensee of the existing Prairie River Hydroelectric Project (FERC Project No 2361), hereby notifies the Federal Energy Regulatory Commission (“FERC” or “Commission”) of its intention to file an Application for a Subsequent License for the Prairie River Hydroelectric Project.

Pursuant to 18 C.F.R. §5.5 of the Commission’s regulation, MP provides the following information:

(1) Licensee’s Name, Address, and Phone Number:

ALLETE, Inc.
30 West Superior Street
Duluth, MN 55802-2093
Phone: (218) 279-5000

(2) FERC Project Number:

FERC Project No. 2361.

(3) License Expiration Date:

December 31, 2023.

(4) Statement of Intent to File Application for a Subsequent License:

MP hereby unequivocally declares its intent to file an Application for a Subsequent License for the Prairie River Hydroelectric Project on or before December 31, 2021. MP will utilize the Commission’s Integrated Licensing Process (ILP) in support of this relicensing.

(5) Principal Works of the Prairie River Hydroelectric Project:

The Project consists of: (a) a 17-foot-high concrete dam; (b) a 1,305-acre impoundment; (c) a forebay; (d) a powerhouse containing two generating units with a total installed capacity of 1.1 megawatts (MW); (e) a 2.3/23-kilovolt transmission bank; and (f) appurtenant facilities. There is a 2,500-foot-long bypass reach between the dam and the powerhouse.

(6) Project Location:

River:	Prairie River
County and State:	Itasca County, Minnesota
Township or nearby town:	Arbo Township

(7) Plant Installed Capacity:

The plant installed capacity is 1.1 MW.

(8) The names and mailing addresses of:

(i) The County in which the Project is located, and in which any Federal facility that is used or to be used by the Project is located:

Itasca County
123 NE 4th Street
Grand Rapids, MN 55744

There are no federal lands or facilities associated with the Project.

(ii) Each city or town or similar political subdivision:

(a) In which any part of the Project is located, and in which any Federal facility that is used or to be used by the Project is located:

Kurt Stanley, Supervisor
Arbo Township
33292 Arbo Hall Road
Grand Rapids MN 55744

There are no federal lands or facilities associated with the Project.

(b) That has a population of 5,000 or more people and is located within 15 miles of the existing Project dam:

Dale Adams, Mayor
City of Grand Rapids
420 North Pokegama Avenue
Grand Rapids, MN 55744

(iii) Each irrigation district, drainage district, or similar special purpose political subdivision:

(a) In which any part of the Project is located, and in which any Federal facility that is used or to be used by the Project is located.

Itasca County Soil and Water Conservation District
1889 East Highway 2
Grand Rapids, MN 55744

The Applicant is not aware of any additional drainage districts or other special purpose political subdivisions in the immediate vicinity of the Project. No federal facility is used or is proposed to be used by the Project.

(b) That owns, operates, maintains, or uses any Project facility or any Federal facility that is or is proposed to be used by the Project.

No Project features will be owned, operated, maintained, or used by any irrigation district, drainage district, or other special purpose political subdivisions. No federal facility is used or is proposed to be used by the Project.

(iv) Every other political subdivision in the general area of the Project that there is reason to believe would likely be interested in, or affected by, this notification.

The Applicant is not aware of any other political subdivisions in the immediate vicinity of the Project that would be interested in, or affected by this notification.

(v) Affected Indian Tribes.

There are no tribal lands located within or adjacent to the FERC Project boundary. The listing below includes Native American Tribes that may have an interest in the Project:

Bois Forte Band of Minnesota Chippewa
5344 Lakeshore Drive
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Minnesota Chippewa Tribe
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Cass Lake, MN 56633

Leech Lake Band of Minnesota,
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6530 U.S. Hwy 2 Northwest
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White Earth Band (Minnesota Chippewa
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P.O. Box 418
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MP is filing this NOI concurrently with a Pre-Application Document (PAD). In accordance with 18 C.F.R. §5.5(c), the Licensee is sending notification of these filings to the distribution list attached to the transmittal letter of this PAD; the list includes applicable resource agencies, local governments, Indian Tribes, and non-government organizations.

In accordance with 18 C.F.R. §5.5(e), MP is requesting designation as the non-federal representative for consultation under Section 7 of the Endangered Species Act and Section 106 of the National Historic Preservation Act.

If there are any questions concerning this NOI or the PAD, please contact the undersigned at the address or telephone number listed.

Respectfully submitted,



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PRE-APPLICATION DOCUMENT

Volume I of II

GRAND RAPIDS HYDROELECTRIC PROJECT
(FERC PROJECT NO. 2362)

PRAIRIE RIVER HYDROELECTRIC PROJECT
(FERC PROJECT NO. 2361)

Prepared for:
Minnesota Power

December 13, 2018



Prepared by:
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Contents

1	Introduction and Background	1-1
2	Purpose of the Pre-Application Document	2-1
2.1	Search for Existing, Relevant, and Reasonably Available Information	2-1
2.2	Description of Consultation Process Undertaken by MP Prior to the Submittal of the PAD	2-1
3	Process Plan, Schedule, and Protocols	3-1
3.1	Process Plan and Schedule	3-1
3.2	Scoping Meeting and Site Visit	3-2
3.3	ILP Participation	3-2
3.4	Relicensing Communication	3-3
3.4.1	Distribution of Relicensing Materials	3-3
3.4.2	FERC Communication	3-4
4	Project Location, Facilities, and Operations	4-1
4.1	Authorized Agent	4-1
4.2	Project Location	4-1
4.3	Grand Rapids Project Facilities	4-3
4.3.1	Dam	4-3
4.3.2	Intake	4-4
4.3.3	Powerhouse	4-4
4.3.4	Reservoir	4-6
4.3.5	Bypass Reach	4-6
4.3.6	Turbines and Generators	4-6
4.3.7	Transmission	4-7
4.4	Prairie River Project Facilities	4-8
4.4.1	Dam	4-8
4.4.2	Powerhouse	4-10
4.4.3	Forebay and Intake	4-10
4.4.4	Reservoir	4-11
4.4.5	Bypass Reach	4-11
4.4.6	Turbines and Generators	4-11
4.4.7	Transmission	4-12
4.5	Description of Project Operations	4-13
4.5.1	Grand Rapids Operations	4-13
4.5.2	Prairie River Operations	4-13
4.6	Generation and Outflow Records	4-14
4.7	Current License Requirements and Compliance History	4-18
4.7.1	Grand Rapids Project	4-18
4.7.2	Prairie River Project	4-19
4.8	Current Net Investment	4-20
4.9	Potential for New Project Facilities	4-20
4.10	Public Utility Regulatory Policies Act (PURPA) Benefits	4-21
5	Description of Existing Environment and Resource Impacts	5-1
5.1	Description of the River Basin	5-1
5.1.1	Major Land and Water Uses	5-5



5.1.2	Dams and Diversions within the Basin.....	5-7
5.1.3	Tributary Rivers and Streams	5-7
5.2	Geology.....	5-7
5.2.1	Physiography and Topography	5-7
5.2.2	Bedrock Geology.....	5-10
5.2.3	Surficial Geology	5-10
5.2.4	Mineral Resources	5-10
5.2.5	Topography	5-10
5.2.6	Project Area Soils.....	5-11
5.2.7	Reservoir Shoreline and Stream Banks	5-11
5.2.8	Seismicity	5-15
5.2.9	Local Bathymetry Studies	5-15
5.2.10	Resource Summary.....	5-15
5.3	Water Resources.....	5-15
5.3.1	Drainage Area	5-15
5.3.2	River Flows.....	5-15
5.3.3	Flow Duration Curves.....	5-17
5.3.4	Existing and Proposed Uses of Project Waters	5-18
5.3.5	Existing Instream Flow Uses.....	5-20
5.3.6	Approved Water Quality Standards.....	5-20
5.3.7	Existing Water Quality Data	5-21
5.3.7.1	Grand Rapids Project.....	5-21
5.3.7.2	Prairie River Project.....	5-28
5.3.7.3	Impaired Waters.....	5-37
5.3.8	Downstream Reach Gradients	5-38
5.3.9	Resource Summary.....	5-38
5.4	Fish and Aquatic Resources	5-39
5.4.1	Aquatic Habitats	5-39
5.4.2	Existing Fish and Aquatic Resources.....	5-40
5.4.2.1	Previous Fisheries Surveys and Habitat Assessments	5-41
5.4.2.2	Surveys, Assessments, and Management Activities by MDNR	5-41
5.4.3	Essential Fish Habitat.....	5-49
5.4.4	Temporal and Spatial Distribution of Fish and Aquatic Communities Fisheries	5-49
5.4.4.1	Spawning, Rearing, Feeding, and Wintering Habitats	5-49
5.4.5	Benthic Macroinvertebrates Habitat and Life History Information.....	5-52
5.4.5.1	Crustaceans.....	5-52
5.4.5.2	Aquatic Insects.....	5-52
5.4.6	Freshwater Mussels	5-54
5.4.7	Aquatic Invasive Species	5-56
5.4.8	Resource Summary.....	5-57
5.5	Wildlife and Botanical Resources.....	5-59
5.5.1	Wildlife and Botanical Resources.....	5-59
5.5.2	Upland Habitat - Botanical and Wildlife Resources	5-59
5.5.2.1	Trees and Herbaceous Plants	5-59
5.5.2.2	Mammals.....	5-62
5.5.2.3	Avians	5-63
5.5.2.4	Amphibians and Reptiles	5-65
5.5.3	Temporal and Spatial Distribution of Species	5-66
5.5.3.1	Botanical Resources	5-66
5.5.3.2	Wildlife Resources	5-67
5.5.3.3	Amphibians and Reptiles	5-68
5.5.4	Resource Summary.....	5-68
5.6	Wetlands, Riparian, and Littoral Habitats.....	5-69
5.6.1	Wetland, Riparian, and Littoral Vegetation	5-69
5.6.1.1	Invasive Plants.....	5-70



5.6.2	Wetland, Riparian, and Littoral Wildlife	5-70
5.6.2.1	Wetland, Riparian, and Littoral Habitat Map	5-71
5.6.2.2	Estimates of Wetland, Riparian, and Littoral Habitat Acreage.....	5-75
5.6.3	Resource Summary.....	5-78
5.7	Rare, Threatened, and Endangered Species	5-78
5.7.1	Federally Listed Threatened, Endangered, and Candidate Species	5-78
5.7.1.1	Canada Lynx.....	5-79
5.7.1.2	Gray Wolf	5-79
5.7.1.3	Northern Long-eared Bat	5-80
5.7.1.4	Biological Opinions, Status Reports, and Recovery Plans of Threatened and Endangered Species.....	5-80
5.7.1.5	Status Reports	5-80
5.7.1.6	Recovery Plans	5-81
5.7.2	Critical Habitat	5-81
5.7.3	Temporal and Spatial Distribution of Federally Listed Threatened and Endangered Species.....	5-81
5.7.3.1	Canada Lynx.....	5-81
5.7.3.2	Gray Wolf	5-81
5.7.3.3	Northern Long-eared Bat	5-81
5.7.4	State-listed, Threatened, Endangered, and Candidate Species.....	5-82
5.7.4.1	Black Sandshell	5-83
5.7.4.2	Bald Eagle.....	5-83
5.7.4.3	Creek Heelsplitter	5-83
5.7.4.4	Moonwort	5-84
5.7.5	Resource Summary.....	5-84
5.8	Recreation and Land Management (18 CFR § 5.6(d)(3)(viii))	5-84
5.8.1	Existing Recreation Facilities and Opportunities.....	5-84
5.8.2	FERC-Approved Recreational Opportunities at the Projects.....	5-91
5.8.2.1	Grand Rapids Project.....	5-91
5.8.2.2	Prairie River Project	5-91
5.8.3	Specially Designated Recreation Areas in Close Proximity to the Project	5-92
5.8.3.1	Wild, Scenic, and Recreational Rivers.....	5-92
5.8.3.2	Nationwide Rivers Inventory	5-92
5.8.3.3	Scenic Byways.....	5-92
5.8.3.4	National Trails System and Wilderness Areas.....	5-92
5.8.3.5	Regionally or Nationally Significant Recreation Areas	5-93
5.8.4	Current Project Recreation Use Levels.....	5-93
5.8.5	Existing Shoreline Buffer Zones.....	5-93
5.8.6	Shoreline Development Policy	5-94
5.8.7	Recreation Needs Identified in Management Plans.....	5-94
5.8.8	Non-Recreational Land Use and Management.....	5-95
5.8.9	Resource Summary.....	5-95
5.9	Aesthetic Resources	5-95
5.9.1	Overview	5-95
5.9.2	Visual Character of Project Lands and Water	5-98
5.9.3	Resource Summary.....	5-99
5.10	Cultural Resources.....	5-99
5.10.1	Cultural Context -Cultural Sequence of the Project Area.....	5-100
5.10.1.1	Prehistoric Period.....	5-101
5.10.1.2	Historic Period.....	5-102
5.10.2	Area of Potential Effects.....	5-103
5.10.3	Archaeological Resources and Historic Architectural Resources.....	5-103
5.10.3.1	Grand Rapids Project.....	5-103
5.10.3.2	Prairie River Project	5-104
5.10.4	Existing Discovery Measures	5-104



5.10.5	Identification of Indian Tribes	5-104
5.10.5.1	Grand Rapids Project.....	5-104
5.10.5.2	Prairie River Project.....	5-105
5.10.6	Resource Summary.....	5-105
5.11	Socioeconomic Resources.....	5-106
5.11.1	Existing Socioeconomic Conditions	5-106
5.11.2	Resource Summary.....	5-107
6	Preliminary Issues, Project Effects, and Potential Studies List.....	6-1
6.1	Consultation to Date.....	6-1
6.2	Potential Resource Issues, Proposed Studies, and Environmental Measures.....	6-1
6.2.1	Geology	6-2
6.2.1.1	Potential Issues.....	6-2
6.2.1.2	Proposed Studies.....	6-2
6.2.1.3	Potential Protection, Mitigation, or Enhancement (PM&E) Measures	6-3
6.2.2	Water Resources.....	6-3
6.2.2.1	Potential Issues.....	6-3
6.2.2.2	Proposed Studies.....	6-4
6.2.2.3	Potential PM&E Measures	6-4
6.2.3	Fish and Aquatic Resources	6-4
6.2.3.1	Potential Issues.....	6-4
6.2.3.2	Proposed Studies.....	6-6
6.2.3.3	Potential PM&E Measures	6-6
6.2.4	Wildlife and Botanical Resources.....	6-7
6.2.4.1	Potential Issues.....	6-7
6.2.4.2	Proposed Studies.....	6-7
6.2.4.3	Potential PM&E Measures	6-8
6.2.5	Wetlands, Riparian, and Littoral Habitat.....	6-8
6.2.5.1	Potential Issues.....	6-8
6.2.5.2	Proposed Studies.....	6-9
6.2.5.3	Potential PM&E Measures	6-9
6.2.6	Rare, Threatened, and Endangered Species	6-9
6.2.6.1	Potential Issues.....	6-9
6.2.6.2	Proposed Studies.....	6-10
6.2.6.3	Potential PM&E Measures	6-10
6.2.7	Recreation and Land Management.....	6-11
6.2.7.1	Potential Issues.....	6-11
6.2.7.2	Proposed Studies.....	6-11
6.2.7.3	Potential PM&E Measures	6-12
6.2.8	Aesthetic Resources	6-12
6.2.8.1	Potential Issues.....	6-12
6.2.8.2	Proposed Studies.....	6-12
6.2.8.3	Potential PM&E Measures	6-12
6.2.9	Cultural Resources.....	6-13
6.2.9.1	Potential Issues.....	6-13
6.2.9.2	Proposed Studies.....	6-13
6.2.9.3	Potential PM&E Measures	6-14
6.2.10	Socioeconomic Resources.....	6-14
6.2.10.1	Potential Issues.....	6-14
6.2.10.2	Proposed Studies.....	6-14
6.2.10.3	Potential PM&E Measures	6-15
7	Comprehensive Plans for the Development of the Waterway Relevant to the Project (18 CFR §5.6(d)(4)(iii and iv))	7-1
7.1	Qualifying Comprehensive Plans Deemed Applicable.....	7-1

8 Literature Cited.....8-1

Appendices

- Appendix A – PAD Information Request Letter and Distribution List
- Appendix B – Consultation Log
- Appendix C – Grand Rapids Project Single-Line Diagram (*Filed as CUI-CEII*)
- Appendix D – Prairie River Project Single-Line Diagram (*Filed as CUI-CEII*)
- Appendix E – National Inventory of Dams in the Upper Mississippi River Basin
- Appendix F – Grand Rapids Project Flow Duration Curves
- Appendix G – Prairie River Project Flow Duration Curves

Tables

Table 3.1-1	Project ILP process plan and schedule for the Grand Rapids Project and Prairie River Project.....	3-1
Table 4.3-1	Blandin Reservoir data.....	4-6
Table 4.3-2	Grand Rapids Project turbine and generator data	4-7
Table 4.4-1	Prairie River Reservoir data.....	4-11
Table 4.4-2	Prairie River Project turbine and generator data	4-12
Table 4.6-1	Generation (MWh) for the Grand Rapids Project from January 1, 2013 to December 31, 2017.....	4-15
Table 4.6-2	Generation (MWh) for the Prairie River Project from January 1, 2013 to December 31, 2017.....	4-16
Table 4.6-3	Monthly and annual average Project flows (cfs) for the Grand Rapids Project from January 1, 2013 to December 31, 2017	4-17
Table 4.6-4	Monthly and annual average Project flows (cfs) for the Prairie River Project from January 1, 2013 to December 31, 2017	4-18
Table 5.1-1	Watersheds within the Upper Mississippi River Basin.....	5-1
Table 5.3-1	Average flow data – Grand Rapids Project (POR 1993 - 2017)	5-16
Table 5.3-2	Average flow data – Prairie River Project (POR 2001 – 2017).....	5-17
Table 5.3-3	Active industrial permits for Itasca County, Minnesota	5-18
Table 5.3-4	Designated uses for waters within the Grand Rapids Project and Prairie River Project	5-20
Table 5.3-5	Water quality standards for waters within the Grand Rapids Project and Prairie River Project.....	5-21
Table 5.3-6	Impaired waters within the vicinity of the Grand Rapids and Prairie River Hydroelectric Projects (MPCA 2018e)	5-38
Table 5.4-1	CPUE for the top 95% of species collected using gill nets, trap nets, and electrofishing at Blandin Reservoir, 1973-2012 ¹ (Source: MDNR 2018d)	5-42
Table 5.4-2	CPUE for the top 95% of species collected using gill nets and trap nets at Prairie River Reservoir, 1955-2012 (Source: MDNR 2018e)	5-44
Table 5.4-3	Summary of fish sampling results upstream (US) and downstream (DS) of the Grand Rapids and Prairie River Project areas (Source: MPCA 2018f)	5-46
Table 5.4-4.	Known occurrences of fish species upstream (US) and downstream (DS) of the Grand Rapids and Prairie River Project areas.....	5-46



Table 5.4-5	MDNR Blandin Reservoir and Prairie River Reservoir stocking report.....	5-48
Table 5.4-6	Occurrences of aquatic invertebrates in the Grand Rapids and Prairie River downstream Project areas ¹	5-53
Table 5.4-7	Summary of freshwater mussels of the Upper Mississippi River ¹	5-54
Table 5.4-8	List of AIS found within Minnesota and the Mississippi River.....	5-57
Table 5.5-1	List of dominant plant species potentially occurring in the vicinity of the Grand Rapids Project and Prairie River Project.....	5-60
Table 5.5-2	List of mammals potentially occurring in the vicinity of the Grand Rapids Project and Prairie River Project	5-62
Table 5.5-3	List of avian species potentially occurring in the vicinity of the Grand Rapids Project and Prairie River Project.....	5-64
Table 5.5-4	List of reptile and amphibian species potentially occurring in the vicinity of the Grand Rapids Project and Prairie River Project	5-66
Table 5.6-1	NWI classification and estimated acreage in the Grand Rapids Project Boundary	5-75
Table 5.6-2	NWI classification and estimated acreage in the Prairie River Project Boundary	5-76
Table 5.6-3	Riparian area land cover/land use estimated acreage in the Grand Rapids Project Boundary.....	5-77
Table 5.6-4	Riparian area land cover/land use estimated acreage in the Prairie River Project Boundary	5-78
Table 5.7-1	Federally listed species potentially occurring within the Project Boundary of the Grand Rapid Hydroelectric Project and Prairie River Hydroelectric Project.....	5-79
Table 5.7-2	State-listed, threatened, endangered, and candidate species within ½ mile of the Grand Rapids Project ¹	5-82
Table 5.7-3	State-listed, threatened, endangered, and candidate species within ½ mile of the Prairie River Project ¹	5-83
Table 5.8-1	List of recreation in the vicinity of the Grand Rapids Project	5-86
Table 5.8-2	List of recreation areas in the vicinity of the Prairie River Project	5-87

Figures

Figure 4.2-1	Project location map.....	4-2
Figure 4.3-1	Grand Rapids project facilities	4-5
Figure 4.4-1	Prairie River project facilities.....	4-9
Figure 5.1-1	Upper Mississippi River Basin boundary	5-3
Figure 5.1-2	Land use and land cover in the vicinity of the Grand Rapids Project and Prairie River Project.....	5-6
Figure 5.2-1	Geology of the Grand Rapids Project and Prairie River Project.....	5-9
Figure 5.2-2	Soils in the vicinity of the Grand Rapids Project	5-13
Figure 5.2-3	Soils in the vicinity of the Prairie River Project	5-14
Figure 5.3-1	Dissolved oxygen concentrations at an upstream site (US) and two downstream sites (DS) of the Grand Rapids Project, 2003-2017 (MPCA 2018d)	5-23
Figure 5.3-2	pH at an upstream site (US) and two downstream sites (DS) of the Grand Rapids Project, 2003-2017 (MPCA 2018d).....	5-24
Figure 5.3-3	Specific conductance at an upstream site (US) and two downstream sites (DS) of the Grand Rapids Project, 2003-2017 (MPCA 2018d).	5-25
Figure 5.3-4	Dissolved oxygen in Blandin Reservoir at Site S002-634, 1991-1996 (MPCA 2018d).	5-26
Figure 5.3-5	pH in Blandin Reservoir at Site S002-634, 1991-1996 (MPCA 2018d).....	5-27



Figure 5.3-6	Specific conductance in Blandin Reservoir at Site S002-634, 1991-1996 (MPCA 2018d).....	5-28
Figure 5.3-7	Dissolved oxygen concentrations at a two downstream sites (DS) of the Prairie River Project, 2001-2016 (MPCA 2018d).....	5-29
Figure 5.3-8	pH at two downstream sites (DS) of the Prairie River Project, 2001-2016 (MPCA 2018d).....	5-30
Figure 5.3-9	Specific conductance at two downstream sites of the Prairie River Project, 2001-2016 (MPCA 2018d).....	5-31
Figure 5.3-10	Dissolved oxygen profile at Site 31-0384-02-201 in the main bay of Prairie River Reservoir, 2015-2016 (MPCA 2018d).....	5-32
Figure 5.3-11	Dissolved oxygen profile at Site 31-0384-02-101 in the upper Prairie Lake portion of Prairie River Reservoir, 2006 (MPCA 2018d).....	5-33
Figure 5.3-12	Dissolved oxygen profile at Site 31-0384-02-102 in the main bay of Prairie River Reservoir, 2006 (MPCA 2018d).....	5-34
Figure 5.3-13	Water temperature profile at Site 31-0384-02-201 in main bay of Prairie River Reservoir, 2015-2016 (MPCA 2018d).....	5-35
Figure 5.3-14	Water temperature profile at Site 31-0384-02-101 in the upper bay of Prairie River Reservoir, 2006 (MPCA 2018d).....	5-36
Figure 5.3-15	Water temperature profile at Site 31-0384-02-102 in the main bay of Prairie River Reservoir, 2006 (MPCA 2018d).....	5-37
Figure 5.4-1	Relative abundance of fish collection by family and gear type at Blandin Reservoir, 2012.....	5-43
Figure 5.4-2	Relative abundance of fish collection by family and gear type at Prairie River Reservoir, 2012.....	5-45
Figure 5.6-1	Grand Rapids Project wetlands	5-73
Figure 5.6-2	Prairie River Project wetlands.....	5-74
Figure 5.8-1	Recreational opportunities in the vicinity of the Grand Rapids Project.....	5-89
Figure 5.8-2	Recreational opportunities in the vicinity of the Prairie River Project	5-90

Photographs

Photo 5.9-1	Aerial view of the Grand Rapids Project	5-96
Photo 5.9-2	Grand Rapids Project powerhouse.....	5-96
Photo 5.9-3	Aerial view of the Prairie River Project.....	5-97
Photo 5.9-4	Prairie River Project powerhouse	5-98



Acronym List

°C	degrees Celsius
°F	degrees Fahrenheit
µmhos/cm	microsiemens per centimeter
AIS	aquatic invasive species
APE	area of potential effects
CEII	Critical Energy Infrastructure Information
CFR	Code of Federal Regulations
cfs	cubic feet per second
CPUE	catch per unit effort
CRMP	Cultural Resources Management Plan
CUI	Controlled Unclassified Information
ECOS	Environmental Conservation Online System
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission or Commission
FPA	Federal Power Act
hp	horsepower
IBI	Index of Biotic Integrity
IFIM	instream flow incremental methodology
ILP	Integrated Licensing Process
IPaC	Information for Planning and Consultation (USFWS)
kV	kilovolt
kVA	kilovolt-ampere
kW	kilowatt
LMF	Laurentian Mixed Forest
MAPP	Mid-Continent Area Power Pool
MDNR	Minnesota Department of Natural Resources
mg/L	milligram per liter
mm	millimeters
MP	Minnesota Power
MPCA	Minnesota Pollution Control Agency
MW	megawatt
MWh	megawatt hours
NEPA	National Environmental Policy Act
NGO	non-governmental organization
NHPA	National Historic Preservation Act of 1966, as amended
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
NRI	Nationwide Rivers Inventory
NWI	National Wetland Inventory
PAD	Pre-Application Document
PM&E	protection, mitigation and enhancement
POR	period of record
PSP	Proposed Study Plan



PURPA	Public Utility Regulatory Policies Act
RM	river mile
ROR	run-of-river
rpm	revolutions per minute
RSP	Revised Study Plan
RTE	rare, threatened, or endangered
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SD1	Scoping Document 1
SHPO	State Historic Preservation Office
SU	standard units (pH)
TCP	traditional cultural properties
TMDL	Total Maximum Daily Load
USACE	U.S. Army Corps of Engineers
USC	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WMA	wildlife management area

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1 Introduction and Background

Minnesota Power (MP or Licensee), a subsidiary of ALLETE, Inc. (ALLETE), is the Licensee, owner, and operator of the Grand Rapids Hydroelectric Project (FERC No. 2362) and the Prairie River Hydroelectric Project (FERC No. 2361). The Grand Rapids Project is a 2.1 megawatt (MW), run-of-river (ROR) facility located on the Mississippi River in the City of Grand Rapids in Itasca County, Minnesota. The Prairie River Project is a 1.1 MW, ROR facility located on the Prairie River, also near the City of Grand Rapids in Arbo Township, Itasca County, Minnesota.

The Grand Rapids Project consists of a 21-foot-high concrete dam; a 465-acre reservoir; a powerhouse containing two generating units; a short transmission line extending from the powerhouse to the Blandin Paper Mill; and other appurtenances. The original construction on the Project dam started in May in 1901 by the Grand Rapids Power and Boom Company and came on line in 1902. Blandin Paper Company sold the Project to MP in 2000. The Grand Rapids Project primarily serves to supplement the power supply for the Blandin Paper Mill, an important economic asset and employment base in Grand Rapids. The Project generates approximately 6,000 megawatt hours (MWh) annually of renewable energy.

The Prairie River Project consists of a 17-foot-high concrete dam; a 1,305-acre reservoir; a forebay; a 450-foot-long by 10-foot-diameter, reinforced-concrete penstock extending from the forebay to a surge tank and on to the powerhouse; a powerhouse with two generating units; and appurtenant facilities. The Project dam was constructed in 1920 by the Prairie River Power Company, and MP purchased the Project from Blandin Paper Company in 1982. The Project generates approximately 3,000 MWh annually of renewable energy.

The Projects are licensed by the Federal Energy Regulatory Commission (FERC or Commission) under the authority granted to FERC by Congress through the Federal Power Act (FPA), 16 United States Code (USC) §791(a), et seq., to license and oversee the operation of non-federal hydroelectric projects on jurisdictional waters and/or federal land. There are no federal lands associated with the Projects. The Projects last underwent licensing in the early 1990s, and the current operating licenses for the Projects expire on December 31, 2023. In accordance with FERC's regulations at 18 Code of Federal Regulations (CFR) §16.9(b), MP must file its application for a new license with FERC no later than December 31, 2021, for both Projects.

The Grand Rapids and Prairie River Projects share important common characteristics. Both Projects were last relicensed in the 1990s following the passage of the Electric Consumers Protection Act, which brought heightened environmental review to hydropower licensing processes. As a result, FERC developed comprehensive National Environmental Policy Act (NEPA) documents in support



of their orders for issuing the existing Grand Rapids and Prairie River licenses. During this process, extensive protection, mitigation, and enhancement (PM&E) measures were researched and mandated at the Grand Rapids and Prairie River Projects, including ROR operations, cultural resource management requirements, highly limited restrictions on reservoir fluctuations at both Projects, and seasonal flow releases at Prairie River to benefit local fisheries.

The environmental protections specified in the licenses for the Projects remain in place to the current day, and MP proposes no substantive changes to Project operations or the license conditions. MP believes these conditions and measures provide an appropriate balance between resource protection, challenging Project economics, and the important benefits provided by the Projects to the City of Grand Rapids, Arbo Township, and surrounding communities.

MP plans to relicense these Projects using the Commission's Integrated Licensing Process (ILP). The ILP is designed to bring efficiencies to the licensing process by integrating the applicant's pre-filing consultation activities with FERC's NEPA scoping responsibilities. In this spirit, MP plans to engage in concurrent relicensing efforts for the two Projects, with combined documents, meetings, and overall relicensing schedules. MP believes that concurrent ILPs will provide the most effective and efficient process for all relicensing participants.

The ILP is formally initiated by MP's filing of this Pre-Application Document (PAD) and Notice of Intent (NOI) with FERC to relicense the Projects. The PAD and NOI are distributed to federal and state resource agencies, local governments, Indian Tribes, and interested members of the public simultaneously with its filing with FERC. By regulation, MP's PAD and NOI must be filed with FERC no earlier than June 30, 2018, and no later than December 31, 2018 (18 CFR §§5.5(d), 5.6(a)).

Under 18 CFR §5.8 of the Commission's regulations, FERC will review this PAD and associated NOI and, within 60 days of receipt, notice the commencement of the licensing proceeding, request comments on the PAD, and issue Scoping Document 1 (SD1). A public scoping meeting and site visit will then be conducted within 30 days of issuing SD1, or within 90 days of the submittal of the PAD.

2 Purpose of the Pre-Application Document

The filing of this PAD and the associated NOI by MP marks the formal start of the relicensing process for the Grand Rapids Hydroelectric Project and the Prairie River Hydroelectric Project. The purpose of the PAD is to provide descriptions of Project facilities and operations and to provide existing, relevant, and reasonably available information related to the Project Areas. Further, the PAD is intended to assist the Commission, resource agencies, Indian Tribes, non-governmental organizations (NGOs), and other interested parties in identifying potential resource areas of interest and informational needs, to develop study requests, and to establish the information necessary to analyze the license application (18 CFR §5.6(b)).

2.1 Search for Existing, Relevant, and Reasonably Available Information

In support of preparing this PAD, HDR, Inc. (HDR), on behalf of and in collaboration with MP, has undertaken an extensive search to identify and review information that is reasonably available and relevant to the Projects. These efforts consisted of the following five primary activities:

1. A comprehensive search of MP's files and documentation;
2. The distribution of a PAD information request letter to 63 parties requesting any information related to the Projects, Project Areas, and the region;
3. A search and review of publicly available sources and databases;
4. Consultation with select resource agencies and other relicensing parties with potential information applicable to the Project Areas; and
5. A review of the Minnesota State and Federal Comprehensive Plans relevant to the Projects.

A copy of the PAD information request letter and associated distribution list is provided in Appendix A. Copies of responses from Project stakeholders and general consultation are included in Appendix B. MP and HDR reviewed the responses and information applicable to the Projects. Relevant information has been summarized in the applicable resource sections of this PAD.

2.2 Description of Consultation Process Undertaken by MP Prior to the Submittal of the PAD

MP performed preliminary consultation with potential stakeholders in support of preparing this PAD to obtain available information, to determine the potential relationship between stakeholders'



interests and Project operations, and to identify potential information gaps and study needs in advance of the formal relicensing process.

MP's preliminary consultation began with the identification of parties that may have an interest in the Grand Rapids Hydroelectric Project and the Prairie River Hydroelectric Project relicensings. Based on the information obtained during this process, a stakeholder list of 63 parties was compiled and used as the distribution list for a PAD information request letter dated July 27, 2018. Existing, relevant, and reasonably available information regarding the Projects and the surrounding environment were requested. Additionally, MP queried the Minnesota Department of Natural Resources (MDNR) and the U.S. Fish and Wildlife Service (USFWS) datasets regarding rare, threatened, or endangered (RTE) species potentially present in the vicinity of the Projects and has consulted with the MDNR's Minnesota Lake Superior Coastal Program to confirm that the Projects are located outside the state's coastal zone. Section 6 provides additional details regarding the consultation performed to date and responses to the PAD information request letter.

3 Process Plan, Schedule, and Protocols

3.1 Process Plan and Schedule

MP proposes to use the Commission’s ILP in support of obtaining new licenses for the Projects. As presented in Table 3.1-1, MP has prepared a Process Plan and Schedule that incorporates the overall ILP schedule for these concurrent relicensing processes.

Table 3.1-1 Project ILP process plan and schedule for the Grand Rapids Project and Prairie River Project

Activity	Responsible Parties	Time Frame	Expected Date ¹
File NOI and PAD (18 CFR § 5.5(d))	MP	As early as five and one half but no later than five years prior to license expiration.	12/13/2018
Initial Tribal Consultation Contact or Meeting (18 CFR § 5.7)	FERC	No later than 30 days of filing NOI and PAD.	1/12/2019
Issue notice of NOI/PAD and SD1 (18 CFR § 5.8(a))	FERC	Within 60 days of filing NOI/PAD.	2/11/2019
Conduct Scoping meetings and site visit (18 CFR § 5.8(b) (viii))	FERC, MP, Stakeholders	Within 30 days of NOI/PAD notice and SD1 issuance.	3/13/2019
Comments on PAD, SD1, and Study Requests (18 CFR § 5.9(a))	Stakeholders	Within 60 days of NOI/PAD notice and issuance of SD1	4/12/2019
File Proposed Study Plan (PSP) (18 CFR § 5.11)	MP	Within 45 days of deadline for filing comments on PAD	5/27/2019
Study Plan Meetings (18 CFR § 5.11(e))	MP	First meeting to be held within 30 days of filing PSP	6/26/2019
Comments on PSP (18 CFR § 5.12)	Stakeholders	Within 90 days after PSP is filed	8/25/2019
File Revised Study Plan (RSP) (18 CFR § 5.13(a))	MP	Within 30 days of deadline for comments on PSP	9/24/2019
Comments on RSP (18 CFR § 5.13 (b))	Stakeholders	Within 15 days following RSP	10/9/2019
Issuance of Study Plan Determination (18 CFR § 5.13(c))	FERC	Within 30 days of RSP	10/24/2019
Conduct First Season of Studies (18 CFR § 5.15)	MP		May to October 2020



Activity	Responsible Parties	Time Frame	Expected Date ¹
Initial Study Report (18 CFR § 5.15(c))	MP	Pursuant to the Commission approved study plan and schedule provided in § 5.13 or no later than 1 year after Commission approval of the study plan	10/23/2020
Initial Study Report Meeting (18 CFR § 5.15(c)(2))	MP	Within 15 days of filing the initial study report	11/7/2020
File Initial Study Report Meeting Summary (18 CFR § 5.15(c)(3))	MP	Within 15 days of study results meeting	11/22/2020
Conduct Second Season of Studies ² (if necessary)	MP		May to October 2021
File Preliminary Licensing Proposal(s) or Draft License Application(s) (18 CFR § 5.16)	MP	No later than 150 days prior to the deadline for filing a new or subsequent license application	8/3/2021
Comments on Preliminary Licensing Proposal(s) or Draft License Application(s) Due (18 CFR § 5.16(e))	Stakeholders	Within 90 days of filing Preliminary License Proposal or draft license application	11/1/2021
Final License Application(s) Filed (18 CFR § 5.17)	MP	No later than 24 months before the existing license expires	12/31/2021

¹ If the due date falls on a weekend or holiday, the due date is the following business day.

² Results of second year studies will be incorporated into MP's Draft License Application. No Updated Study Report is expected.

3.2 Scoping Meeting and Site Visit

Pursuant to 18 CFR §5.8(b), FERC will hold a Scoping Meeting and Site Visit to the Project within 30 days of issuing notice of the NOI and PAD (estimated to be on or before March 13, 2019) in accordance with its responsibilities under NEPA. The Scoping Meeting will be held at a location to be selected by FERC in the general vicinity of the Project. FERC will issue a public notice regarding the Scoping Meeting and Site Visit that will include the meeting date, meeting location, and additional instructions for attending the meeting and site visit. Additional information may also be obtained by contacting Colleen Corballis at FERC at (202) 502-8598 or colleen.corballis@ferc.gov.

3.3 ILP Participation

MP has provided this PAD to representatives of relevant agencies, local governments, Indian Tribes, NGOs, and members of the public included on the distribution list attached to the cover letter transmitting this PAD. Any party that desires to be added to or removed from the distribution list should send a request to the individual listed below:

Ms. Nora Rosemore
Hydro Operations Superintendent
Minnesota Power
30 W Superior Street
Duluth, MN 55802
(218) 725-2101
nrosemore@mnpower.com

3.4 Relicensing Communication

During the course of the Projects' relicensing process, communication will take place through public meetings, conference calls, and written correspondence. In order to establish the formal consultation record, all phases of formal correspondence require adequate documentation. The intent of MP during relicensing is to provide a flexible framework for the dissemination of information and for documenting consultation among the participants throughout the relicensing proceeding.

3.4.1 Distribution of Relicensing Materials

MP will distribute relicensing materials via email (informal communications) and/or by emailing notifications (to the established mailing list) of the availability of formal relicensing filings and documents online. If MP has not been provided with a stakeholder's email address, MP will mail notification of the availability of documents online via regular mail. Documents filed with the Commission will be available on MP's public relicensing website (www.mnpower.com/Environment/Hydro) and from FERC's eLibrary at www.ferc.gov/docs-filing/elibrary.asp by searching under Docket P-2362 for the Grand Rapids Project and P-2361 for the Prairie River Project.

Requests for hard copies of relicensing documents should be sent to Ms. Nora Rosemore using the contact information provided in Section 3.3 and should clearly indicate the document name, publication date (if known), and FERC Project No. P-2362 for the Grand Rapids Project and P-2361 for the Prairie River Project. A reproduction charge and postage costs may be assessed for hard copies requested by the public. Federal, state, and tribal entities will not be subject to document processing or postage fees.

Certain documents are restricted from general distribution. These documents include: (1) those covered under the FERC's regulations protecting Critical Energy Infrastructure Information (CEII) and CUI (Controlled Unclassified Information) (18 CFR §388.113); (2) archaeological survey reports or other information identifying the locations of historic properties; and (3) reports that contain information regarding the locations of RTE species.



3.4.2 FERC Communication

FERC has assigned Colleen Corballis of its staff to serve as the relicensing coordinator in support of this relicensing process. The role of the FERC relicensing coordinator will be in accordance with the rules and regulations for the ILP under 18 CFR Part 5. For questions related to FERC communications, please contact Colleen Corballis at colleen.corballis@ferc.gov or at (202) 502-8598.

All communications to FERC regarding Project relicensing must reference the **Grand Rapids Hydroelectric Project FERC No. P-2362 - Application for New License** or the **Prairie River Hydroelectric Project FERC No. P-2361 – Application for Subsequent License**.

FERC strongly encourages paperless electronic filing of comments and interventions through its eFiling or eComment systems. Information and links to these systems can be found at the FERC webpage <http://www.ferc.gov/docs-filing/ferconline.asp>. In order to eFile comments and/or interventions, interested parties must have an eRegistration account. After preparing the comment or motion to intervene go to www.ferc.gov and select the eFiling link. Select the new user option and follow the prompts. Users are required to validate their account by accessing the site through a hyperlink sent to the registered email account.

An additional method to eFile comments is through the “Quick Comment” system available via a hyperlink on the FERC homepage. “Quick Comments” do not require the users to have a subscription; the comments are limited to 6,000 characters, and all information must be public. Commenters are required to enter their names and email addresses. They will then receive an email with detailed instructions on how to submit “Quick Comments.”

Stakeholders without internet access may submit comments to FERC at the address below via hard copy, but should be aware that documents sent to FERC by regular mail can be subject to docket-posting delays:

Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

4 Project Location, Facilities, and Operations

4.1 Authorized Agent

The exact name, business address, telephone number, and email address of each person authorized to act as an agent for MP is listed below.

Mr. David R. Moeller
Senior Attorney
ALLETE, Inc., d.b.a.
Minnesota Power
30 West Superior Street
Duluth, MN 55802
218-723-3963
dmoeller@allete.com

4.2 Project Location

The Grand Rapids Project is a 2.1 MW, ROR facility located on the Mississippi River at approximately river mile (RM) 1,182.0, in the City of Grand Rapids in Itasca County, Minnesota (Figure 4.2-1). The Prairie River Project is a 1.1 MW, ROR facility located on the Prairie River, at approximately RM 6.3, approximately 4.0 miles outside of the City of Grand Rapids (Figure 4.2-1).

The FERC Project Boundary for the Grand Rapids Project and Prairie River Project is depicted in Figure 4.2-1. There are no lands of the United States included within the Project boundaries.

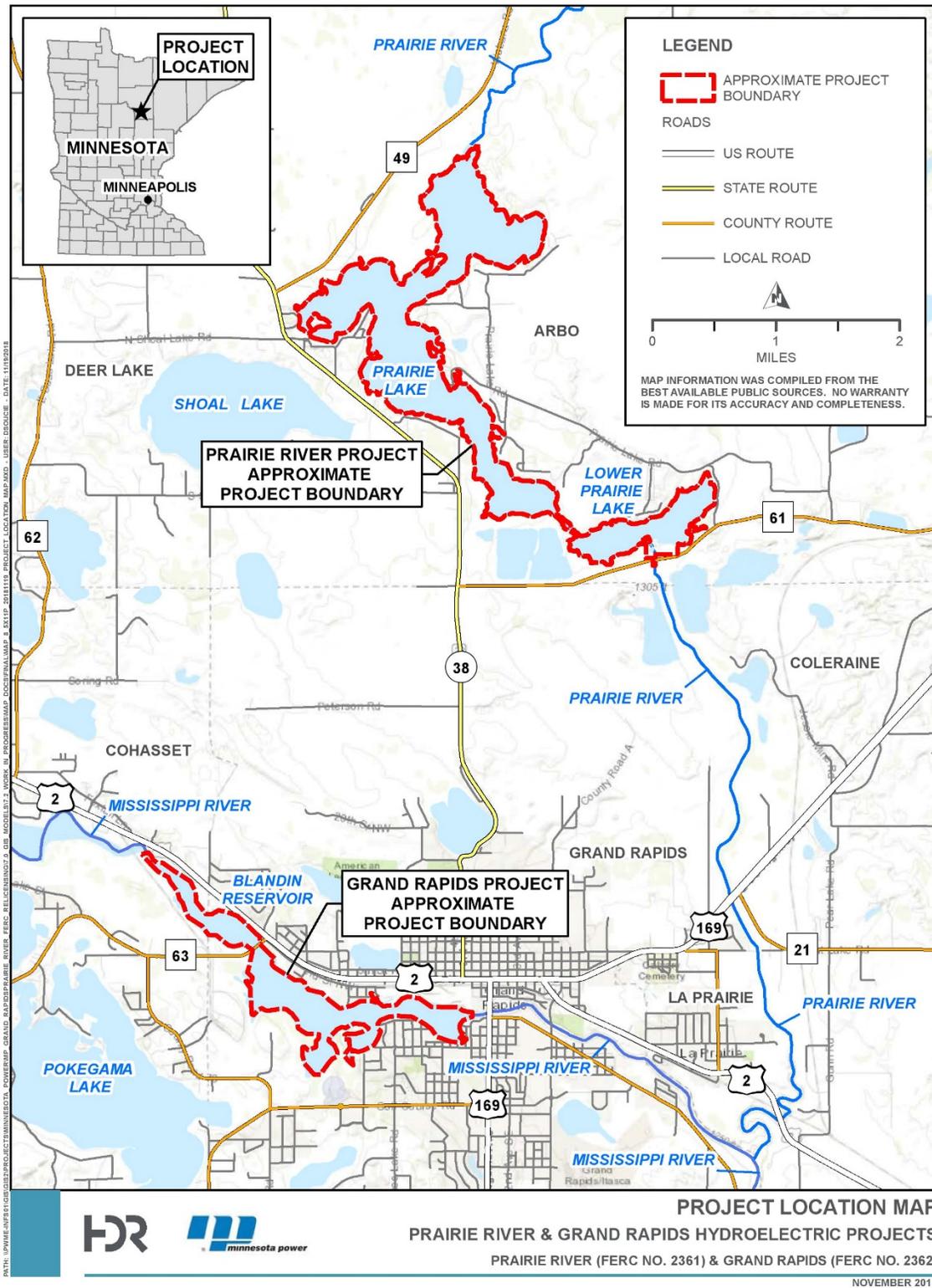


Figure 4.2-1 Project location map

4.3 Grand Rapids Project Facilities

Blandin Dam, which impounds water for the Grand Rapids Project, was originally constructed across the Mississippi River in 1901 by the Grand Rapids Power and Boom Company. The facility was acquired by the Itasca Paper Company in 1916. The name of Itasca Paper Company was changed to Blandin Paper Company in 1929. Blandin Paper Company sold the Project to MP in 2000, and on April 23, 2015, MP requested that FERC rename the Project from the Blandin Paper Hydroelectric Project to the Grand Rapids Hydroelectric Project.

The licensed Project works consist of (a) a 21-foot-high concrete dam; (b) a 465-acre reservoir (Blandin Reservoir or Paper Mill Reservoir); (c) a powerhouse containing two generating units with a total installed capacity of 2.1 MW (referred to as Units 4 and 5); (d) a short transmission line extending from the powerhouse to the non-Project Blandin Paper Mill; and (e) appurtenant facilities. Figure 4.3-1 depicts the Grand Rapids Project facilities.

4.3.1 Dam

Blandin Dam consists of a concrete and rock-filled timber crib, timber piles, and steel sheetpile structures founded on natural soils consisting primarily of sand and gravel deposits. Beginning on the right side of the structure (looking downstream) the dam consists of an abutment and retaining wall, gated spillway, and a powerhouse. The gated spillway consists of 6 stop log gates, 3 slide gates, and 1 Tainter gate. Stop log gates 1, 2, and 9 are approximately 7 feet wide by 8.5 feet high; stop log gates 7 and 8 are approximately 6.5 feet wide by 8 feet high; and stop log gate 10 is approximately 7.5 feet wide by 8.5 feet high. The south slide gate is approximately 9.5 feet wide by 8 feet high; the center slide gate is approximately 12 feet wide by 8 feet high; and the north slide gate is approximately 9 feet wide by 8 feet high, all over a sill at elevation 1,260.6 feet. The Tainter gate is approximately 12 feet wide by 14 feet high over a sill of 1,254.1 feet.

The stop log gates are moved by operators using metal hooks that are used for lifting/lowering the individual timber logs. The slide gates are electrically driven and locally operated by an operator at each gate. The slide gates have an overhead lifting frame and can be manually lifted with a chain hoist in the event of power failure. The Tainter gate is operated locally with an electrically driven chain hoist. It can also be operated with a manual hand crank or an electrically driven portable driver that can be powered by a back-up battery bank and inverter. A steam de-icing system is manually operated and can be used on the Tainter gate to assist with de-icing of the gate pivot points and gate/wall interface.



4.3.2 Intake

The intake and outlet works are integral with the powerhouse. Unit No. 4 has a 29-foot-wide by approximately 16.5-foot-high intake and Unit No. 5 has a 19-foot-wide by approximately 16.5-foot-high intake. Steel trashracks protect the intakes to both turbines. The 3/8-inch vertical trashrack bars have 4 inches and 3 inches of clear spacing on Units 4 and 5, respectively. The adjacent mill water intake structure (a non-Project facility) is equipped with a separate trashrack and a traveling wire mesh screen (Blandin Paper Company 1991).

4.3.3 Powerhouse

The powerhouse is a concrete, steel, and masonry structure and contains two vertical Francis units. The powerhouse has a concrete substructure containing the main generator floor, turbine intakes, turbine pits, and draft tubes. The superstructure consists of a steel frame building and masonry walls. The structure shelters the generators, controls, and switchgear. The powerhouse also has an overhead crane and steel bulkheads which are used for dewatering the turbine bays. The current powerhouse was constructed following a cofferdam breach in 1948; reconstruction efforts included a new powerhouse and turbine repairs and replacement.



Figure 4.3-1 Grand Rapids project facilities



4.3.4 Reservoir

Blandin Reservoir has a surface area of approximately 465 acres and a normal elevation of 1,268.2 feet. The normal tailwater elevation is approximately 1,247.6 feet. Additional details are included in Table 4.3-1.

Table 4.3-1 Blandin Reservoir data

Drainage area	3,370 square miles
Shoreline length	35 miles
Typical surface area	465 acres
Maximum Depth	38 feet
Permanent crest of dam elevation	20.2 feet
Typical normal surface water elevation	1,268.2 feet
Operations	ROR

4.3.5 Bypass Reach

There is no bypass reach at the Project.

4.3.6 Turbines and Generators

The Grand Rapids Project includes two vertical-shaft Francis units (Units 4 and 5) and has a total installed capacity of 2.1 MW. Turbine and generator data are presented in Table 4.3-2.



Table 4.3-2 Grand Rapids Project turbine and generator data

<i>Turbines</i>	
Number of Units	2
Year Installed	Unit No. 4: 1917 Unit No. 5: 1949
Type	Unit No. 4: Leffel vertical axis Francis-type unit Unit No. 5: Allis-Chalmers vertical axis Francis-type unit
Design Head	Unit No. 4: 19 feet Unit No. 5: 19 feet
Rated Capacity	Unit No. 4: 560 kilowatts (kW) Unit No. 5: 1,417 kW
Rated Horsepower (hp)	Unit No. 4: 750 hp Unit No. 5: 1900 hp
Rated Speed	Unit No. 4: 120 revolutions per minute (rpm) Unit No. 5: 150 rpm
Minimum Hydraulic Capacity	Unit No. 4: 270 cubic feet per second (cfs) Unit No. 5: 450 cfs
Maximum Hydraulic Capacity	Unit No. 4: 600 cfs Unit No. 5: 1,000 cfs
<i>Generators</i>	
Type	Unit No. 4: Vertical generator Unit No. 5: Vertical generator
Rated Capacity	Unit No. 4: 600 kW - 750 kilovolt-ampere (kVA), 0.80 pf Unit No. 5: 1,500 kW – 1875 kVA, 0.80 pf
Phase	3-phase
Voltage	2,400 volts
Frequency	60 Hertz

4.3.7 Transmission

There is a 425-foot-long, 2.4-kilovolt (kV) transmission line extending from the powerhouse to the Blandin Paper Mill. The Grand Rapids Project single-line diagram is included in Appendix C (filed as CUI-CEII).

4.4 Prairie River Project Facilities

Prairie River Dam was originally constructed in 1920 by the Prairie River Power Company, which became Itasca Paper Company and subsequently Blandin Paper Company. MP purchased the Project from the Blandin Paper Company in 1982.

The licensed Project works consist of: (a) a 17-foot-high concrete dam; (b) a 1,305-acre reservoir; (c) a forebay; (d) a 450-foot-long by 10-foot-diameter, reinforced-concrete penstock extending from the forebay to a surge tank and on to the powerhouse; (e) a powerhouse with two generating units with an installed capacity of 1.1 MW; and (f) appurtenant facilities. Figure 4.4-1 depicts the Prairie River Project facilities.

4.4.1 Dam

Prairie River Dam, consisting of non-overflow sections, an emergency spillway, and a gated spillway, is approximately 1,120 feet long. The east and west reaches of the main dam are mass concrete gravity core walls covered by substantial earth embankments. The concrete structures are founded directly on and dowelled to bedrock with a top elevation of 1,290.9 feet. The earth embankments, with minimum crest elevations of 1,293.6 feet, are constructed with 1.5:1 (vertical to horizontal) downstream slopes and 3:1 upstream slopes. The downstream slopes are vegetated with grass and the upstream slopes are covered with riprap.

Adjacent to the east end of the gated spillway is the 269-foot-long, mass concrete gravity ogee-shaped emergency spillway with a crest elevation of 1,289.9 feet. Also founded directly on rock and embedded in a similarly shaped earth fill, this structure, when breached during a large flood, will act as an uncontrolled overflow weir. A concrete training wall is located on the ogee section 100 feet from the gated spillway, dividing the emergency spillway into the section (100 feet long) needed to pass the Inflow Design Flood and the additional section (169 feet long) available to pass more extreme flood events. The bedrock foundation slopes upward to the east and the 100-foot section is the tallest portion of the emergency spillway; post-tensioned anchors were installed in this section to provide stability when the spillway is activated. The fill overlying the emergency spillway has a crest elevation of 1,292.5 feet, with a 20-foot-wide pilot channel having a crest elevation of 1,292.0 feet adjacent to the gated spillway. The pilot channel provides a low spot to overtop in a flood, instigating erosion of the fill and activation of the emergency spillway.

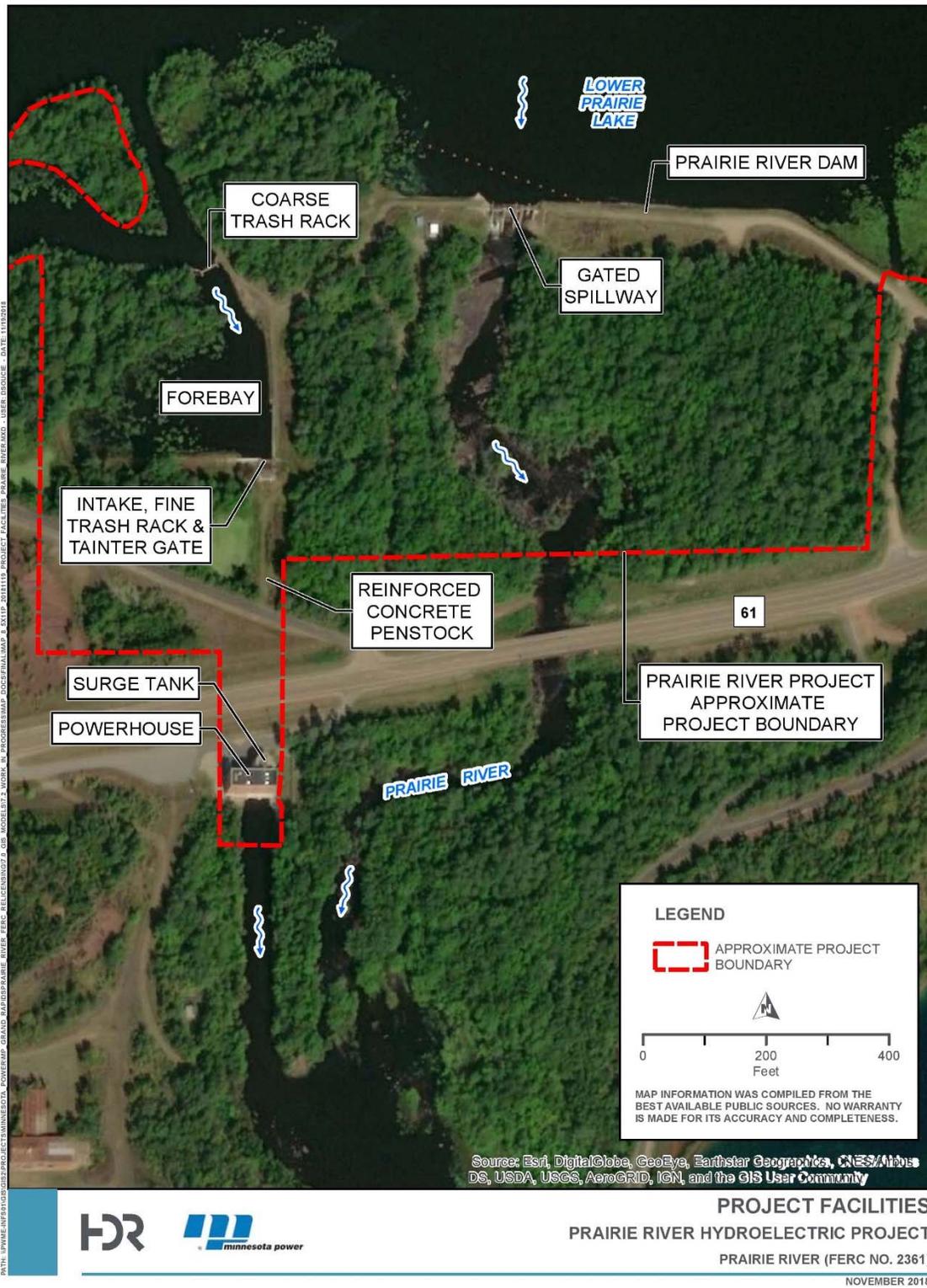


Figure 4.4-1 Prairie River project facilities



The gated spillway consists of two large (Gates 1 and 2) and one small (Gate 3) Tainter gate bays, and two slide gate bays (Gates 4 and 5). Tainter Gates 1 and 2 measure approximately 16.0 feet wide by 10.0 feet high over sills at elevation 1,280.2 feet. Tainter Gate 3 is approximately 6.0 feet wide by 8.0 feet high over a sill at elevation 1,284.0 feet. The two slide gates are each approximately 7.0 feet wide by 6.5 feet high over a sill at elevation 1,283.7 feet. The five gates are supported by seven piers with typical top elevations of 1,293.9 feet. The Tainter gates have manual and electric operated lifting mechanisms and an operator's bridge over the bays. The slide gates have an overhead lifting frame and an operator's bridge over the bays to aid in removal and installation of the gates (timber stop logs banded together). Electric de-icers (agitators) reduce ice on the gates during the winter.

4.4.2 Powerhouse

The powerhouse consists of a reinforced-concrete substructure containing two sets of turbine intakes, scroll cases, draft tubes, and discharge pits. The steel superstructure with precast-concrete panel walls shelters the two generators and switch gear. A steel-lined, reinforced-concrete surge tank is located immediately upstream and built integral with the powerhouse. The current powerhouse was constructed following a station-destroying fire in 2008; subsequent reconstruction efforts included a new powerhouse and generator replacement.

4.4.3 Forebay and Intake

The forebay consists of an inlet channel from the main reservoir, an earth dam, a concrete retaining dam, an intake structure, and a penstock. A coarse trashrack is located at the downstream end of the inlet channel between the main reservoir and the forebay pond. The pond is formed by concrete gravity walls and earth embankments along the south and east sides. The earth and concrete retaining dams consist of mass concrete core walls with earth embankment shells. The core walls are stabilized with counterforts along with the earth cover. At the intersection of the 630-foot-long concrete gravity walls, at the southeast corner of the forebay pond, is the penstock intake structure. The intake structure consists of reinforced-concrete headwall and retaining walls with a 20-foot-wide by 13-foot-high steel Tainter gate to control discharge into the penstock. A fine trashrack, spaced 1.5 inch on center, is located immediately upstream of the Tainter gate. A hand-operated lifting mechanism and an operator's bridge are in place on the penstock intake structure. The 450-foot-long penstock, extending from the forebay to the powerhouse, consists of a reinforced-concrete conduit approximately 10 feet in diameter covered with an earth embankment.

4.4.4 Reservoir

Prairie River Reservoir is comprised of Prairie Lake and Lower Prairie Lake, connected via a narrow gorge for a combined reservoir surface area of approximately 1,305 acres and a normal elevation of 1,289.4 feet. The normal tailwater elevation is approximately 1,255.5 feet. Additional details are included in Table 4.4-1.

Table 4.4-1 Prairie River Reservoir data

Drainage area	446 square miles
Shoreline length	21 miles
Typical surface area	1,305 acres
Maximum Depth	31 feet
Permanent crest of dam elevation	1290.9 feet
Typical normal surface water elevation	1289.4 feet
Operations	ROR

4.4.5 Bypass Reach

The Prairie River bypass reach is approximately 2,500 feet long, generally consisting of high-gradient stream channel (approximately 34 feet per mile) including multiple sections of stepped pools.

4.4.6 Turbines and Generators

The Prairie River Project includes two vertical-shaft Francis units and has a total installed capacity of 1.1 MW. Turbine and generator data are presented in Table 4.4-2.



Table 4.4-2 Prairie River Project turbine and generator data

<i>Turbines</i>	
Number of Units	2
Year Installed	Unit No. 1: 1920 Unit No. 2: 2008 ¹
Type	Unit No. 1: James Leffel Type F vertical Francis-type unit Unit No. 2: James Leffel Type F vertical Francis-type unit
Design Head	Unit No. 1: 35 feet Unit No. 2: 35 feet
Rated Capacity	Unit No. 1: 750 kW Unit No. 2: 412.5 kW
Rated Horsepower	Unit No. 1: 1,000 hp Unit No. 2: 550 hp
Rated Speed	Unit No. 1: 225 rpm Unit No. 2: 277 rpm
Minimum Hydraulic Capacity	Unit No. 1: 156 cfs Unit No. 2: 85 cfs
Maximum Hydraulic Capacity	Unit No. 1: 302 cfs Unit No. 2: 168 cfs
<i>Generators</i>	
Type	Unit No. 1: Hyundai Ideal Electric Unit No. 2: Hyundai Ideal Electric
Rated Capacity	Unit No. 1: 700 kW – kVA 875 pf 0.80 Unit No. 2: 384 kW kVA 480 – pf 0.80
Phase	3-phase
Voltage	2400 volts
Frequency	60 Hertz

¹ The generating station was destroyed by a fire in 2008. The generating station was rebuilt and went back online in 2013.

4.4.7 Transmission

The Project includes a 2.3/23 kV transmission bank. The Prairie River Project single-line diagram is included in Appendix D (Filed as CUI-CEII).



4.5 Description of Project Operations

4.5.1 Grand Rapids Operations

The Grand Rapids Project is operated as ROR with the upstream pool maintained at a target elevation of 1,268.2 feet. License Article 402 specifies ROR operations and that under normal operating conditions, reservoir fluctuations are limited to ± 0.1 feet, as measured at Blandin Dam. Article 402 and the Project Monitoring and Operation Plan do not define normal conditions or currently provide for high-flow procedures. During periods of low flow (flow < 400 cfs), the Project Monitoring and Operation Plan requires that MP ramp its flow changes over a period of six hours. Additionally, MP participates in the System-Wide Low Flow Management Plan that defines operating procedures for Mississippi River dams upstream of St. Paul, Minnesota, under low-flow conditions.

The Project's discharge capabilities consist of two turbines with maximum flows of approximately 600 cfs and 1,000 cfs, and spillway gates with a discharge capacity of approximately 5,000 cfs at normal pool. The MP operator, located in the main powerhouse control room, continuously monitors the reservoir water level and makes decisions about flow changes to maintain ROR operations. The operator has the ability to remotely increase and decrease flow through the generating units using the Distributed Control System (DCS). All changes to flow at the spillway gates are performed locally at the gates by plant personnel, who are also responsible for non-Project cogeneration operations supplying Blandin Paper Mill. As the river inflow changes, the operators adjust turbine capacity and/or spillway gates accordingly to maintain reservation elevation within the required operating band. Spillway gate operation during freezing temperatures require extra time to complete as the gates must first be thawed.

Inflow to the Project is controlled by the United States Army Corps of Engineers (USACE) by releases from the USACE's Pokegama Dam, located three miles upstream of the Grand Rapids Project. When the Pokegama Dam operator is notified by the USACE St. Paul District that dam release rates are to be changed, the operator provides notice of flow changes to MP operators by telephone. Typically, flow changes at Pokegama Dam are observed as elevation changes at Blandin Dam one-half hour to an hour later.

4.5.2 Prairie River Operations

The Prairie River Project is operated as ROR with the upstream pool maintained at a target elevation of 1,289.4 feet. License Article 401 specifies ROR operations and that under normal operating conditions, reservoir fluctuations are limited to ± 0.1 feet, as measured at the dam. Article 401 and the Project Monitoring and Operation Plan also specify that during periods of high inflow (> 500 cfs), reservoir elevation must be maintained at 1,289.4 ± 0.5 feet. As specified in License Article 404, MP



provides a minimum of 75 cfs flow into the Prairie River bypass reach during the months of April and May and a minimum of 50 cfs during June.

Additionally, License Article 405 requires ramping of changes to the bypass flows to protect downstream fish resources. The ramping rate regime for flows at or below 400 cfs when implementing, reducing, and ceasing minimum flows is as follows:

- 200-400 cfs - 50 cfs per hour
- 75-200 cfs - 25 cfs per hour
- Below 75 cfs - 15 cfs per hour

The Project's discharge capabilities consist of two turbines with maximum flows of 168 cfs and 302 cfs, and spillway gates with a discharge capacity of 3,688 cfs at normal pool. An MP operator located at the Thomson Hydroelectric Development near Carlton, Minnesota, continuously monitors the reservoir water level and makes decisions about flow changes to maintain ROR operation. The operator has the ability to remotely increase and decrease flow through the generating units and, when the temperatures are above freezing, two spillway gates. Bringing the generating units online, spillway gate adjustments beyond the two remote gates, and all spillway gate adjustments during freezing conditions are performed locally by field personnel. Spillway gate operations during freezing temperatures require extra time to complete as the gates must first be thawed. Field personnel are dispatched from the Thomson Hydroelectric Development at the direction of the Hydro Operator. As the river inflow increases, the Hydro Operator will successively bring available turbines on line until both turbines are generating. A further increase in flow will require operation of the spillway gates to pass flow in excess of the turbine capacity. In response to falling water levels, the reverse will occur. During periods of drought, all units may be taken off line if inflow is too low for unit operation. ROR operations and reservoir elevation requirements will then be maintained through use of the spillway gates.

4.6 Generation and Outflow Records

The Projects operate in a ROR mode and inflows to the Projects are controlled by upstream flows. Table 4.6-1 and Table 4.6-2 provide a summary of monthly and annual Project generation for the most recent five-year period in MWh for each Project. Average annual generation at the Projects from 2013 through 2017 is 6,424 MWh at Grand Rapids and 3,987 MWh at Prairie River, which includes a number of wet years. The 17 year average generation at Grand Rapids is 6,000 MWh; the 22 year average at Prairie River (excluding out-of-service years) is 2,849 MWh. Monthly and annual average Project outflows for 2013 through 2017 are shown in Table 4.6-3 and Table 4.6-4.



Table 4.6-1 Generation (MWh) for the Grand Rapids Project from January 1, 2013 to December 31, 2017

Period	2013	2014	2015	2016	2017	Average
January	579	860	65	297	871	534
February	476	707	0	261	814	452
March	581	731	0	271	769	470
April	1219	885	0	152	899	631
May	1250	1085	246	0	977	712
June	1298	1160	315	1	546	664
July	464	483	268	744	311	454
August	324	306	325	882	306	429
September	298	302	278	886	397	432
October	383	296	300	938	724	528
November	682	297	288	945	633	569
December	824	249	283	740	650	549
Gross Annual Generated	8,377	7,361	2,368	6,117	7,897	6,424



Table 4.6-2 Generation (MWh) for the Prairie River Project from January 1, 2013 to December 31, 2017

Period	2013	2014	2015	2016	2017	Average
January	0	112	142	243	271	154
February	0	96	87	213	304	140
March	0	150	163	506	563	276
April	0	332	29	649	610	324
May	94	578	424	328	515	388
June	442	371	480	386	353	406
July	214	266	261	348	280	274
August	40	26	43	289	192	118
September	17	104	231	396	187	187
October	133	164	157	315	395	233
November	180	155	392	257	302	257
December	173	169	562	524	222	330
Gross Annual Generated	1,293	2,523	2,971	4,454	4,194	3,087



Table 4.6-3 Monthly and annual average Project flows (cfs) for the Grand Rapids Project from January 1, 2013 to December 31, 2017

Period	2013	2014	2015	2016	2017	Average
January	1,047	1,308	963	1,494	1651	1,293
February	1,074	1,218	885	1,263	2,137	1,315
March	1,175	1,142	649	1,148	2,398	1,302
April	2,257	1,411	331	1,296	1,755	1,410
May	2,058	1,676	1,015	1,294	1,356	1,480
June	2,300	2,515	1,599	1,146	804	1,673
July	2,177	3,099	1,397	911	480	1,613
August	625	2,112	706	1,062	443	990
September	391	1,400	670	1,492	603	911
October	742	1,668	1,065	1,445	1,037	1,191
November	1,007	1,423	1,517	1,369	900	1,243
December	1,091	1,097	1,676	1,561	865	1,258
Annual	1,329	1,676	1,041	1,290	1,197	1,306

Source: USGS 2018

Table 4.6-4 Monthly and annual average Project flows (cfs) for the Prairie River Project from January 1, 2013 to December 31, 2017

Period	2013	2014	2015	2016	2017	Average
January	92	N/A	67	170	194	131
February	82	N/A	58	120	241	125
March	92	112	117	846	446	342
April	171	837	119	715	906	552
May	N/A	1,127	522	367	557	643
June	N/A	974	465	369	296	526
July	N/A	329	205	256	218	252
August	N/A	100	62	186	131	120
September	N/A	98	171	326	206	200
October	N/A	97	246	207	261	203
November	N/A	94	401	189	208	208
December	N/A	80	431	501	159	293
Annual	N/A	396	227	356	323	323

Source: USGS 2018. No gage data available for May 2013 through February 2014. Note: Monthly and annual average Project flows have been developed using flow data from USGS Gage No. 05212700 *Prairie River near Taconite, MN*, which is located approximately 18.5 RM upstream from the Project (USGS 2017b). Flows from the Prairie River at the Taconite, MN stream gage were prorated to the Prairie River Project location based on the ratio of drainage area between the gaged site and the Project site.

4.7 Current License Requirements and Compliance History

4.7.1 Grand Rapids Project

The Project's current license was issued by FERC on February 26, 1993. As presently licensed, the primary compliance requirements are provided in License Articles 401 through 407, summarized below.

- Article 401 - Authority is reserved by the Commission to require the licensee to construct, operate, and maintain fishways as may be prescribed by the Secretary of the Interior.
- Article 402 - The licensee will operate in ROR mode for the protection of fish and wildlife resources in the Upper Mississippi River.

- Article 403 - Licensee shall prepare a plan to monitor ROR operations in consultation with USFWS, USACE, U.S. Geological Survey (USGS), and MDNR.
- Article 404 - Licensee shall prepare an operation plan in consultation with USACE and MDNR.
- Article 405 - Licensee shall consult with the Minnesota State Historic Preservation Office (SHPO), complete a cultural resources survey, and prepare a cultural resource management plan (CRMP) for the Project to avoid or protect Project impacts to any archeological or historic sites found eligible for inclusion in the National Register of Historic Places (NRHP)..
- Article 406 - Before conducting any land-disturbing activities, the Licensee shall consult with the Minnesota SHPO and conduct a cultural resources survey of the affected areas and file a report documenting the results of the survey.
- Article 407 - Licensee shall file a recreation management plan within two years of license issuance in consultation with Grand Rapids Recreation and Park Department, Itasca County Park and Recreation Department, and MDNR.

4.7.2 Prairie River Project

The Project's current license was issued by FERC on September 30, 1993. As presently licensed, the primary compliance requirements associated with the operation of the Project are provided in License Articles 401 through 411, summarized below.

- Article 401 - The Licensee will operate the Project in ROR mode for the protection of fish and wildlife resources in the Prairie River
- Article 402 - Complete the upgrading of equipment used to monitor ROR operations and provide flow records and water level data (headwater and tailwater elevations) on a monthly basis for agency review.
- Article 403 - Licensee shall prepare an operation plan in consultation with USFWS and MDNR.
- Article 404 - Minimum flow of 75 cfs shall be released into the bypass channel of the Prairie River during the months of April and May and 50 cfs during the month of June for the protection and enhancement of fish and wildlife resources in the bypass reach.



- Article 405 - Establish river flow ramping rates for the protection of fish resources in the Prairie River. The plan shall be prepared in consultation with the USFWS, MDNR, and the USGS.
- Article 406 - Develop a plan to monitor streamflow releases, including flow releases to the bypass channel (Article 404) and ramping rates to avoid stranding or flushing of fish below the Project (Article 405).
- Article 407 - File a request for Mid-Continent Area Power Pool (MAPP) approval for accrediting units individually, and reporting requirements if ROR is modified for a MAPP emergency.
- Article 408 - Within 6 months after a MAPP emergency that occurs less than one year from the last such occurrence, the Licensee shall file with the Commission, for approval, a plan and schedule for preparing a fishery impact study for the Project.
- Article 409 - Authority is reserved by the Commission to require the licensee to construct, operate, and maintain fishways as may be prescribed by the Secretary of the Interior.
- Article 410 - Licensee shall implement the Programmatic Agreement executed on February 11, 1993, to avoid and mitigate impacts to the historic Project facilities and archaeological sites at the Prairie River Project eligible for inclusion in the NRHP.
- Article 411 - Licensee shall file a revised access plan to ensure that the canoe portage and bank fishing areas are adequately identified and readily accessible and provide a proposal for providing additional accommodations if needed.

4.8 Current Net Investment

The current net investment in the Grand Rapids Hydroelectric Project (through the end of 2017) is approximately \$2,773,869. The current net investment in the Prairie River Hydroelectric Project (through the end of 2017) is approximately \$3,712,560. These values should not be interpreted as the fair market value of the Projects.

4.9 Potential for New Project Facilities

While MP does not presently propose any new Project facilities or upgrades, MP continually evaluates the potential for such improvements. If MP intends to propose any new Project facilities or upgrades in the final license application that would affect the scope of relicensing studies, MP will inform FERC and licensing participants of this proposal at a time early enough in the pre-filing

consultation process to ensure that the effects of any new facilities or upgrades are appropriately evaluated as part of the relicensing process.

4.10 Public Utility Regulatory Policies Act (PURPA) Benefits

MP will not be seeking benefits under Section 210 of the PURPA of 1978 for qualifying hydroelectric small power production facilities in §292.203 of this chapter.

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5 Description of Existing Environment and Resource Impacts

5.1 Description of the River Basin

The Grand Rapids and Prairie River Projects are located in the Prairie-Willow watershed, within the larger Upper Mississippi River Basin. The Upper Mississippi River Basin includes 15 separate watersheds and covers approximately 20,100 square miles (12,864,000 acres) of the State of Minnesota (Table 5.1-1). The Mississippi River headwaters are in Itasca State Park in Itasca County, and from there the river runs a general northeasterly course to Bemidji, then turns eastward to Grand Rapids before turning south and running through Brainerd, Little Falls, St. Cloud, and the Twin Cities metropolitan area (Minneapolis and St. Paul) before it combines with the St. Croix River at Lock and Dam 2 near Hastings, Minnesota. The Upper Mississippi River Basin drains 15 of the 80 major watersheds in Minnesota and all or parts of 21 counties (MPCA 2000).

Table 5.1-1 Watersheds within the Upper Mississippi River Basin

USGS Watershed Name	MDNR / MPCA Watershed Name	Hydrologic Unit Code
Mississippi River Headwaters	Mississippi River (Headwaters)	07010101
Leech Lake River	Leech Lake River	07010102
Prairie-Willow	Mississippi River (Grand Rapids)	07010103
Elk-Nokasippi	Mississippi River (Brainerd)	07010104
Pine River	Pine River	07010105
Crow Wing River	Crow Wing River	07010106
Redeye River	Redeye River (Leaf River)	07010107
Long Prairie River	Long Prairie River	07010108
Platte-Spunk River	Mississippi River (Sartell)	07010201
Sauk River	Sauk River	07010202
Clearwater-Elk River	Mississippi River (St. Cloud)	07010203
Crow River	North Fork Crow River	07010204
South Fork Crow River	South Fork crow River	07010205
Twin Cities River	Mississippi River (Twin Cities)	07010206
Rum River	Rum River	07010207

Source: NRCS 2008.



The Prairie-Willow watershed is located in the Northern Lakes and Forest ecoregion of Minnesota. This largely forested watershed is 1,316,102 acres in size. Approximately 45 percent of the Prairie-Willow watershed falls within Itasca County, equating to approximately 592,826 acres. The average elevation in the Prairie-Willow watershed is 1,313 feet above sea level, with the highest values occurring in the Northwestern portions of the watershed and lower values in the Southwestern and central regions. Precipitation in the watershed ranges from 25 to 29 inches annually (NRCS undated). The Mississippi River floodplain is generally wide in the Prairie-Willow watershed, as the river meanders through numerous shallow lakes, wetlands, and areas of low topographic relief (NRCS 2008).

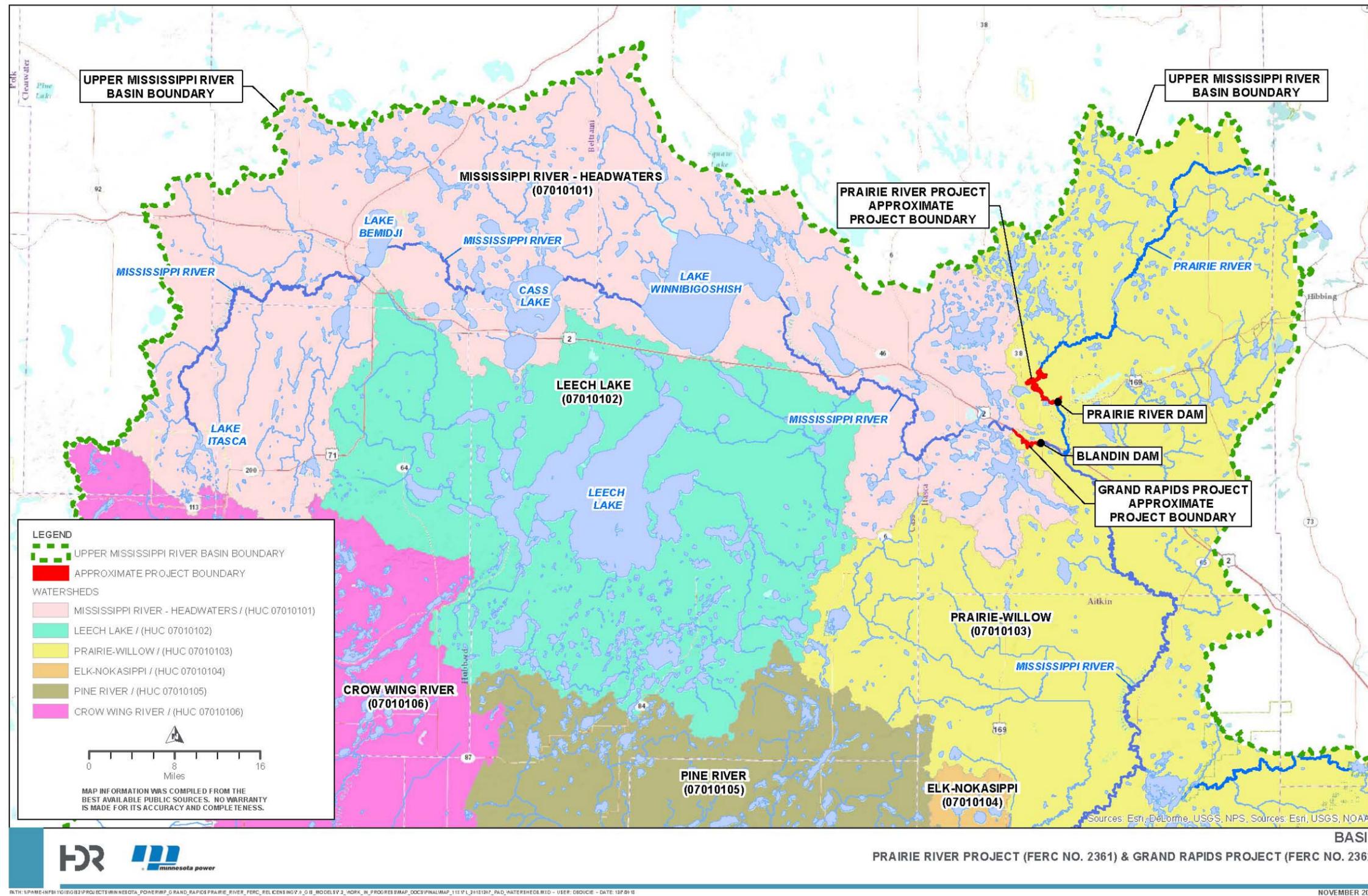


Figure 5.1-1 Upper Mississippi River Basin boundary



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5.1.1 Major Land and Water Uses

The Upper Mississippi River Basin supports a mixture of forests, prairie, agriculture, residential, and industrial lands. Major land uses include agriculture and forestry; in the vicinity of the City of Grand Rapids and the Projects, commercial, industrial, and residential development is common. Lands within the vicinity of the Prairie River Project Boundary include forests, well-vegetated shorelines, and residential properties. Lands within vicinity of the Grand Rapids Project Boundary include well-vegetated shorelines, residential properties, and substantial industrial and commercial development near Blandin Dam and the non-Project Blandin Paper Mill (Figure 5.1-2).

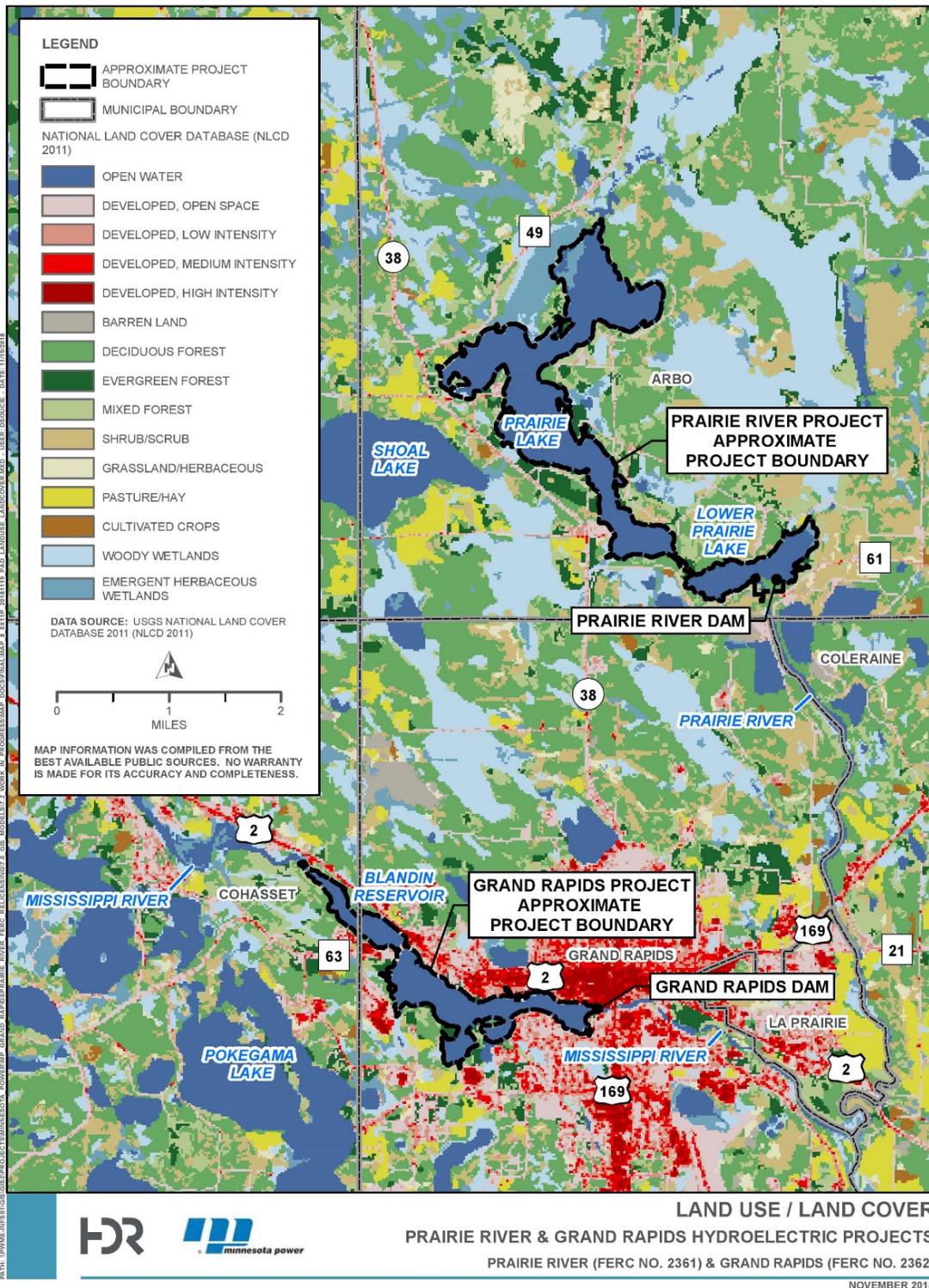


Figure 5.1-2 Land use and land cover in the vicinity of the Grand Rapids Project and Prairie River Project

Lakes and rivers in the Prairie-Willow watershed provide substantial recreational use opportunities, including fishing, swimming, and boating. Lakes in the watershed are listed generally in good condition with 20 percent of those lakes supporting “exceptional fish communities” (MPCA 2018a).

5.1.2 Dams and Diversions within the Basin

The Mississippi River and its tributaries form a highly regulated system beginning with the USACE’s Mississippi Headwaters Project, consisting of six headwaters dams in north-central Minnesota, the primary purposes of which are flood risk management, recreation, and environmental stewardship (USACE 2018). Pokegama Dam and Reservoir are the furthest downstream of the six Mississippi Headwaters Project facilities, located approximately three miles upstream of Blandin Dam and the Grand Rapids Project and upstream of the boundary of the Prairie-Willow watershed. Inflows to the Grand Rapids Project are a function of releases from Pokegama Dam and Reservoir.

According to a search conducted in the USACE’s National Inventory of Dams (NID), there are approximately 230 dams located in the Upper Mississippi River Basin, 44 of which are in the Prairie-Willow watershed (Table 5.1-1). These dams are listed by their NID name in Appendix E.

5.1.3 Tributary Rivers and Streams

The Upper Mississippi River Basin is comprised of 15 watersheds. The Prairie-Willow watershed that the Project Areas are located in, is further comprised of 18 subwatersheds. The northern extent of the watershed originates from Stingy Lake and drains to the Mississippi River to Big Sandy Lake. Tributaries to the Mississippi River within the Prairie-Willow watershed include the Prairie River, Swan River, Sandy River, Tamarack River, Hill River, Moose River, Split Hand Creek, and Willow River, as well as numerous smaller named and unnamed tributaries (MPCA 2018a). With the exception of the Prairie River, none of these are affected by the Projects, because the Projects operate in ROR mode.

5.2 Geology

5.2.1 Physiography and Topography

Minnesota’s geographic landscape is largely defined by the thousands of years of retreating glaciers. Minnesota’s quaternary geology is characterized by four different glacial advances, the largest being from the Late Wisconsinan glacial stage, of which the Project Areas are in. Changes in climate and precipitation caused different lobes of ice sheets to shift periodically. Glacial deposits in the Project Areas’ quaternary lobe consists of glaciofluvial outwash deposits of sand and gravel (Minnesota Geological Survey 2018). It is estimated that this outwash deposit is approximately 250 feet thick but highly variable. Underlying the glacial deposit, the Projects are bisected by a seam of the Mesabi



iron range bedrock formation, a banded iron formation unique to the region and valued for its iron (USGS 2018a). To both sides of the Mesabi iron range seam, the bedrock formations are primarily slate and graywacke subgroups to the south and quartzite to the north in the Project Areas. The general geologic features of the Project Areas are depicted in Figure 5.2-1.

The majority of land within Itasca County and surrounding the Project reservoirs can be characterized as flat to moderately rolling upland covered with maple, birch, aspen, balsam fir, and northern hardwoods. The remainder is lowlands swamp or muskeg containing black spruce, tamarack, and other miscellaneous swamp hardwoods. Occasional farms are dispersed throughout the area (Blandin Paper Company 1991). Rock outcrops and formations are a periodic feature throughout the landscape, notably including the narrow gorge (locally known as “The Gorge”) that connects Prairie Lake and Lower Prairie Lake, which collectively form the Prairie River Reservoir.

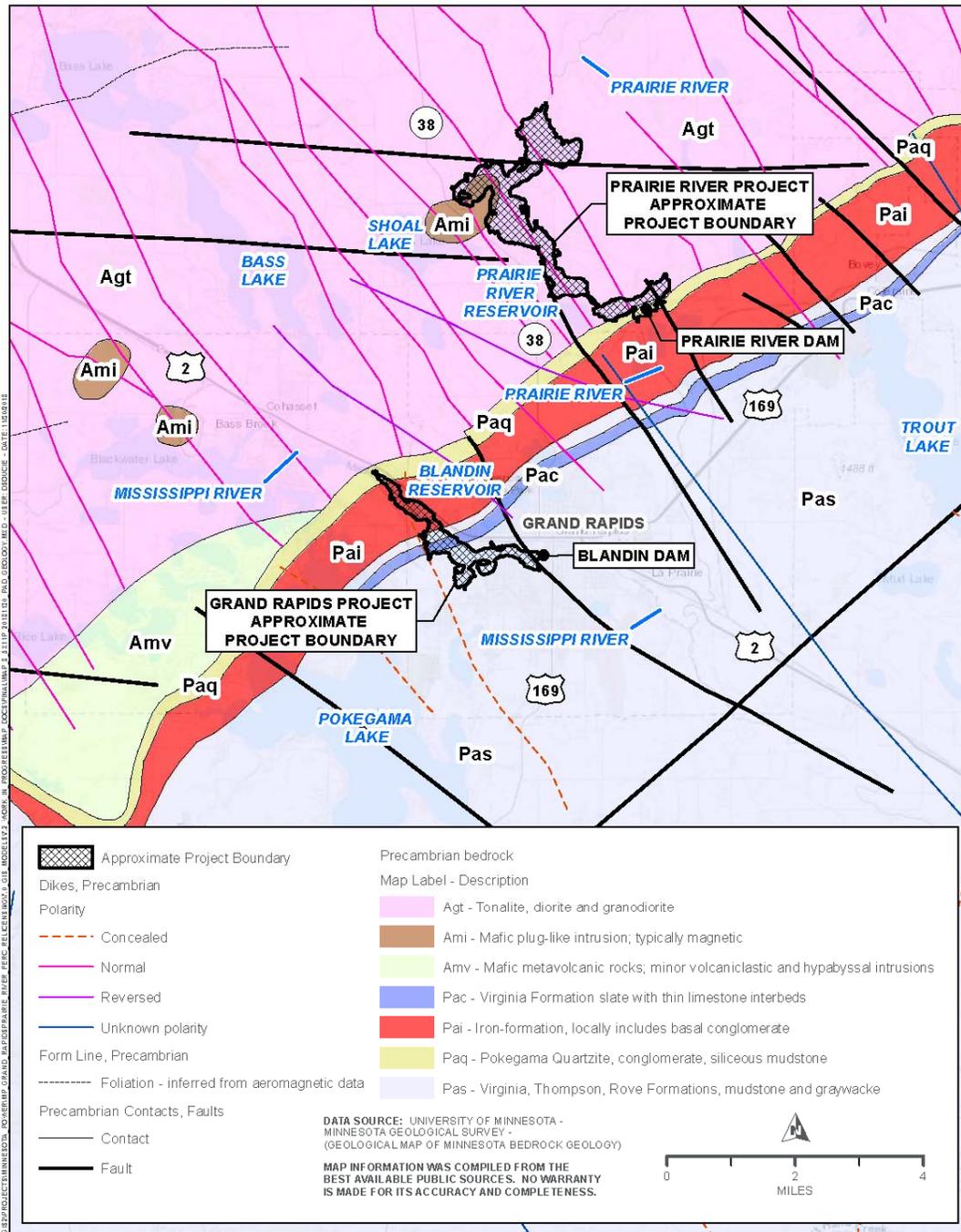


Figure 5.2-1 Geology of the Grand Rapids Project and Prairie River Project



5.2.2 Bedrock Geology

Bedrock in the area of the Grand Rapids Project is dominated by mafic metavolcanic rocks with minor volcanoclastic and hypabyssal intrusions in the area of Blandin Dam. Blandin Reservoir spans areas of Virginia Formation slate and greywacke, banded iron-formation and Pokegama quartzite in the upper end of the reservoir.

Bedrock in the area of the Prairie River Project is primarily Pokegama quartzite in the area of Prairie River Dam. Prairie River Reservoir is predominantly tonalite, diorite, and grandodiorite in Prairie Lake of Prairie River Reservoir.

5.2.3 Surficial Geology

The Grand Rapids Project is set in a Quarternary-aged glacial outwash deposit consisting of uniform fine to medium sand. It is estimated that the outwash deposit is approximately 250 feet thick. Underlying the glacial deposits are Pre-Cambrian-aged basement rocks. Since the exact distribution of basement rock types is concealed by glacial outwash, it has been inferred from geophysical evidence and regional lithologic trends that Blandin Reservoir overlies metamorphic equivalents of claystone, siltstone, and sandstone (Blandin Paper Company 1991). The Prairie River Project Area is similar in surficial geology, but the soil cover is much thinner with prominent bedrock outcrops at the dam.

5.2.4 Mineral Resources

Itasca County has one primary mineral resource, iron. The Iron Ranges of the Lake Superior Region in Minnesota stretches from the southwest of the Project Areas, north and east to the shores of Lake Superior and up to Thunder Bay, Canada. The geologic iron formation in Minnesota is divided into the Cuyuna, Mesabi, Vermilion, and Gunflint ranges. These ranges are the chief iron ore mining district in the United States. Grand Rapids, Minnesota, lies at the southern-most tip of the Mesabi Range and iron taconite mines and plants are dispersed throughout Itasca County (MDNR 2016). The Project Areas in the Mesabi Range have large amounts of oxidized taconite that has not been mined largely due to economics, the need for advances in non-magnetic iron ore processing technology, and development in the area including the reservoirs created by the Project dams, highways, and urban development (Natural Resources Research Institute and Ojakangas 2003).

5.2.5 Topography

The topography surrounding the Grand Rapids Project is industrial and commercial on the north shore of Blandin Reservoir with the remaining areas consisting of mostly forested areas and includes the City of Grand Rapids developments such as private homes, parks, and trails. The topography

surrounding the Prairie River Project is mostly forested with flat to moderately rolling slopes. The forest type is predominantly mixed northern forest composed of species such as maple, birch, aspen, pine, and balsam fir. Occasional farms are dispersed throughout the area.

5.2.6 Project Area Soils

The most dominant soil type in the Grand Rapids Project Boundary is Zimmerman loamy fine sand dunes with 1 to 8 percent slopes. The Zimmerman series soils have rapid permeability and are often very deep, excessively drained soils that formed in sandy glacial outwashes. Other dominant soils in the Project Boundary are Itasca-Goodland well drained silt loams with 2 to 12 percent slopes, and Seelyeville-ponded complex with 0 to 1 percent slopes. The Seelyeville Series soils are often deep, poorly drained soils that formed in organic materials (NRCS 2018). These soils are depicted on Figure 5.2-2.

The most dominant soil type in the Prairie River Project is very steep Udorthents. Udorthents consist primarily of moderately coarse textured soil material. Other dominant soil types are the well-drained Eagleview and Menahga soils with 1 to 8 percent slopes followed by Cutaway loamy sand with 0 to 8 percent slopes (NRCS 2018). Cutaway series soils are very deep, moderately well drained soils formed in glacial outwash (NRCS 2018). These soils are depicted on Figure 5.2-3.

5.2.7 Reservoir Shoreline and Stream Banks

The upstream shoreline of both Projects is surrounded by heavily vegetated banks and forested land with urban commercial and industrial developments nearby on the northern shores of the Grand Rapids Project and residential and seasonal housing nearby at the Prairie River Project. Both Projects have minimal to moderate slopes in the upstream direction. The shoreline downstream of Blandin Dam and Prairie River Dam is also surrounded by heavily vegetated and forested land, dispersed developments including residential housing, and has a similar composition as lands upstream of the Project dams. Immediately downstream of Blandin Dam is steep until the vicinity of Highway 169 Bridge. The shoreline downstream of Prairie River Dam is classified as having minimal to moderate sloping.

As a requirement of the Grand Rapids Project's existing Cultural Resources Management Plan (CRMP), the licensee is required to submit a report every five years that describes the results of a shoreline monitoring survey. A monitoring report was filed in 2002, 2006, 2011, and most recently in 2016. Results of the erosion monitoring concluded that no shoreline erosion has occurred or is currently anticipated to occur. There is no current evidence of erosion, slumping, or slope instability around Blandin Reservoir shoreline.



Pursuant to the Prairie River Project CRMP, MP is required to submit a report annually for the Prairie River Project that summarizes cultural resource management activities conducted the prior year. In 2017, nine sites on the annual monitoring list were visited and assessed regarding status of shoreline stability and ground cover. Based on the results of the 2017 monitoring investigations, it did not appear that any of the nine sites were experiencing degrading impacts resulting from the operations and maintenance of the Prairie River Project. As there were no observed impacts reported, MP proposed to modify monitoring protocols to discontinue annual monitoring. In a letter dated September 27, 2018, The Minnesota SHPO agreed with discontinuing annual monitoring of the sites.

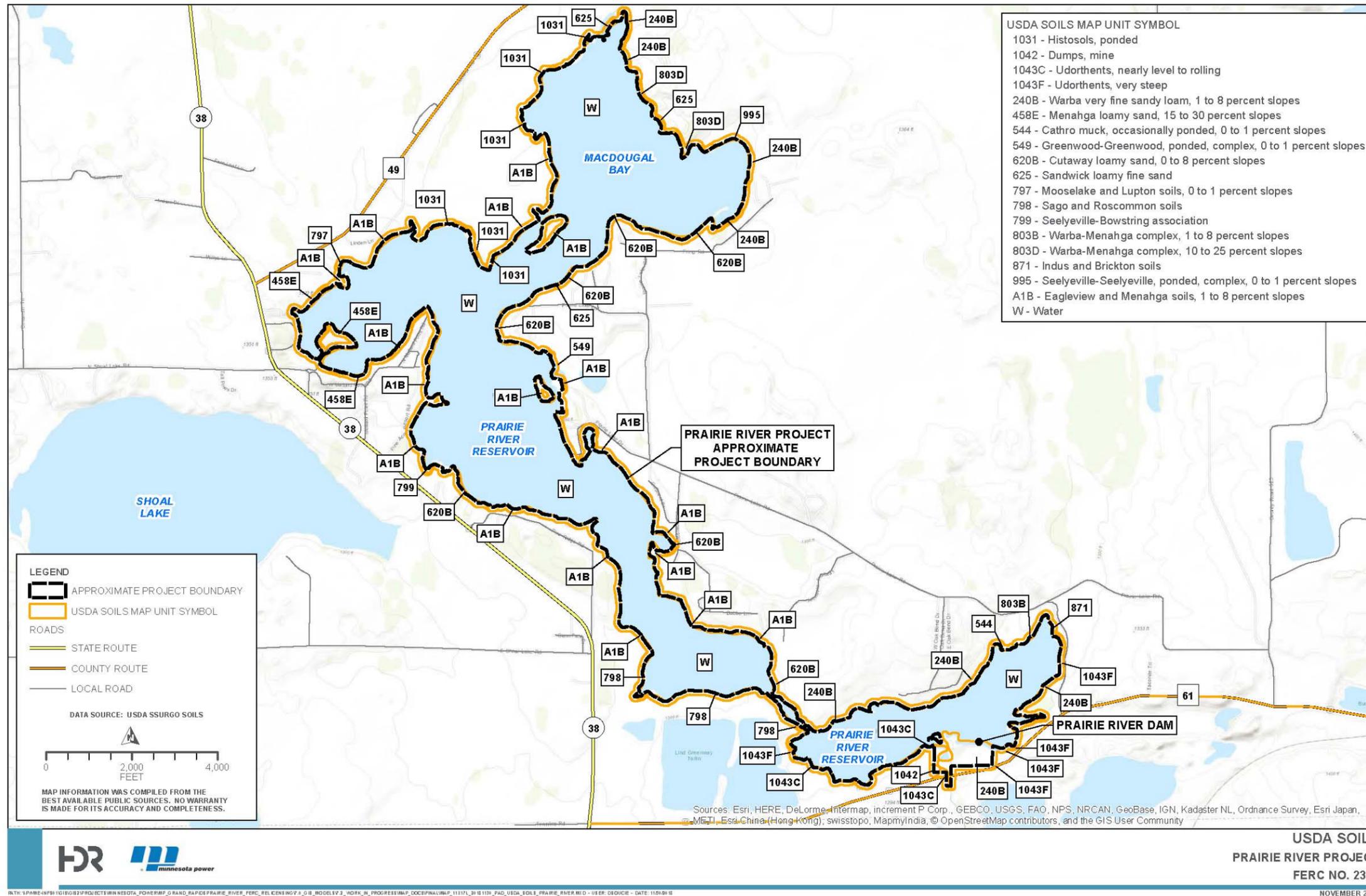


Figure 5.2-3 Soils in the vicinity of the Prairie River Project

5.2.8 Seismicity

Minnesota has one of the lowest number of recorded earthquakes in the United States, with only 20 documented since 1860 (University of Minnesota 2014). There are, however, faults in Minnesota and within the vicinity of the Project Areas, as depicted above on Figure 5.2-1. The Project Areas border a transition from an area of numerous Precambrian dikes of various polarity Precambrian form lines and Precambrian faults, to the west and large part of northern Minnesota known as the Virginia Thomson Formation, characterized by intercalated slate, siltstone, and greywacke that have consistent directional structure (Morey and Ojakangas 1970).

5.2.9 Local Bathymetry Studies

A bathymetric survey was conducted at the Grand Rapids Project in 2018. The survey focused upstream and downstream of Blandin Dam and transects were located at 10-foot increments. The maximum depth upstream of Blandin Dam was measured at approximately 38 feet with a downstream maximum depth of 17 feet (AMI 2018).

5.2.10 Resource Summary

The Grand Rapids and Prairie River Projects are similar in soil composition. The existing ROR mode of operations and vegetated nature of the shorelines within the Project Boundary of both Projects provide against bank erosion. The most recent shoreline monitoring surveys of both Projects stated there was no evidence of erosion, slumping, or slope instability around the reservoir shorelines.

5.3 Water Resources

5.3.1 Drainage Area

The Grand Rapids and Prairie River Projects are located in Itasca County in the Prairie Willow watershed. Within Itasca County, there are over 1,000 lakes, about 950 of which are over ten acres in size, covering almost 170,000 acres (Itasca County Soil and Water Conservation District and Itasca County Water Plan Implementation Committee 2012). The drainage area at the Grand Rapids Project is 3,370 square miles (Blandin Paper Company 1991; USGS 2017a). The drainage area at the Prairie River Project is approximately 488 square miles (USGS 2018b).

5.3.2 River Flows

Flows for the Grand Rapids Project for the period of record (POR) range from 191 cfs to 4,760 cfs (Table 5.3-1) based on data from *USGS Gage No. 05211000 Mississippi River at Grand Rapids, MN*, which is located approximately 650 feet downstream from the Blandin Dam (USGS 2017a).



Flows for the Prairie River Project for the POR range from 17 cfs to 4,170 cfs (Table 5.3-2) based on data from USGS Gage No. 05212700 *Prairie River near Taconite, MN* located approximately 18.5 RM upstream from the Prairie River Project (USGS 2017a).

Table 5.3-1 Average flow data – Grand Rapids Project (POR 1993 - 2017)

Period	Minimum (cfs)	90% Exceedance (cfs)	Average (cfs)	10% Exceedance (cfs)	Maximum (cfs)
January	270	782	1544	2200	2450
February	256	608	1437	2250	2450
March	226	484	1301	2356	2740
April	200	362	1270	2530	3100
May	216	413	1488	2760	3730
June	191	448	1619	2530	3810
July	220	431	1669	2780	4760
August	208	302	1188	2470	3720
September	204	269	993	2200	3030
October	209	397	1379	2350	3240
November	204	656	1616	2660	3070
December	316	796	1591	2480	3060
Annual	191	403	1425	2460	4760

Source: USGS 2018c



Table 5.3-2 Average flow data – Prairie River Project (POR 2001 – 2017)

Period	Minimum (cfs)	90% Exceedance (cfs)	Average (cfs)	10% Exceedance (cfs)	Maximum (cfs)
January	59	71	113	165	299
February	39	59	102	138	564
March	45	79	194	375	2052
April	74	120	707	1439	3407
May	109	196	587	1166	2197
June	54	128	495	979	4170
July	28	54	239	441	2355
August	18	41	130	267	577
September	17	39	121	267	483
October	26	50	159	317	1019
November	70	90	191	321	797
December	71	82	176	361	785
Annual	17	63	271	688	4170

Note: Daily stream flow data unavailable from October 1983 to February 2001 and from April 2013 to March 2014. Average flow data has been developed using flow data from USGS Gage No. 05212700 *Prairie River near Taconite, MN*, which is located approximately 18.5 RM upstream from the Project (USGS 2017b). Flows from the Prairie River at the Taconite, MN stream gage were prorated to the Prairie River Project location based on the ratio of drainage area between the gaged site and the Project site. Source: USGS 2018c

5.3.3 Flow Duration Curves

The Grand Rapids Project is operated as a ROR facility. River flows at the Project are a function of releases from Pokegama Reservoir, which is located three miles upstream of the Project and is operated by the USACE.

Annual and monthly flow duration curves have been developed for the Grand Rapids Project using flow data from *USGS Gage No. 05211000 Mississippi River at Grand Rapids, MN*, which is located approximately 650 feet downstream from Blandin Dam (USGS 2017a). Flow duration curves for the Grand Rapids Project can be found in Appendix F

Annual and monthly flow duration curves for the Prairie River Project have been developed using flow data from *USGS Gage No. 05212700 Prairie River near Taconite, MN*, which is located



approximately 18.5 RM upstream from the Project (USGS 2017b). Flows from the Prairie River at the Taconite, MN stream gage were prorated to the Prairie River Project location based on the ratio of drainage area between the gaged site and the Project site. Flow duration curves for the Prairie River Project can be found in Appendix G.

5.3.4 Existing and Proposed Uses of Project Waters

A National Pollutant Discharge Elimination System (NPDES) permit establishes the terms and conditions that must be met to protect water quality when a facility discharges a pollutant into surface or groundwater of the state. The Minnesota Pollution Control Agency (MPCA) is responsible for administering NPDES permits through delegated authority from the U.S. Environmental Protection Agency (USEPA) (MPCA 2018b). Thirty-three active NPDES permits were identified for Itasca County (Table 5.3-3).

Table 5.3-3 Active industrial permits for Itasca County, Minnesota

Permit ID	Facility Name	Authorization Date	City
MNRNE386X	Bergquist Co - Big Fork	4/5/2015	Bigfork
MNRNE3CQW	Printed Circuits	4/5/2015	Bloomington
MNR053857	Minnesota Power - Boswell Energy Center	12/5/2017	Cohasset
MNR053B35	Waste Management Transfer - Cohasset	4/5/2015	Cohasset
MNR053BKR	Lonza Inc.	4/5/2015	Cohasset
MNR053CDF	Bass Brook Recycling	4/5/2015	Cohasset
MNR053DF2	Nelson Wood Shims	5/18/2017	Cohasset
MNRNE3CGP	National Minerals Corp	4/5/2015	Cohasset
MNRNE3DMK	MDI	6/28/2018	Cohasset
MNR0539TZ	Grand Rapids Sludge Landfill	4/5/2015	Grand Rapids
MNR0539XF	UPM Blandin Paper Mill - CR 63	4/5/2015	Grand Rapids
MNR0539XV	Blandin Paper Co/MN Power - Rapids Energy Center	1/11/2017	Grand Rapids
MNR053B2Z	Itasca County Transfer Station	4/5/2015	Grand Rapids
MNR053B3M	Minnesota Power - Rapids Energy Center	4/5/2015	Grand Rapids
MNR053B7D	ERP Iron Ore - Midway Rail	4/5/2015	Grand Rapids
MNR053C7T	ASV Holdings Inc.	4/5/2015	Grand Rapids
MNR053C7W	ASV Holdings Inc.	4/5/2015	Grand Rapids



Permit ID	Facility Name	Authorization Date	City
MNR053C93	Casper Const Inc.	4/5/2015	Grand Rapids
MNR053DH4	Trout Demolition Debris Land Disposal	9/13/2017	Grand Rapids
MNRNE38DG	MnStar Technologies Inc.	4/5/2015	Grand Rapids
MNRNE38NK	Olympak Printing & Packaging	4/5/2015	Grand Rapids
MNRNE39KY	Up North Technologies, Inc.	4/5/2015	Grand Rapids
MNRNE39YB	Minnesota Diversified Industries	4/5/2015	Grand Rapids
MNRNE39YK	Northland Machine Inc.	4/5/2015	Grand Rapids
MNRNE3B7K	Grand Rapids WWTP	4/5/2015	Grand Rapids
MNRNE3BBG	UPS - Grand Rapids	4/5/2015	Grand Rapids
MNRNE3BJF	Treasure Bay Company, Inc.	4/5/2015	Grand Rapids
MNRNE3BVY	Grand Rapids Area Landfill	4/5/2015	Grand Rapids
MNR053B8G	Olson's Body Shop & Salvage Inc.	4/5/2015	Keewatin
MNR053BFB	General Waste Disposal and Recovery Services Inc.	4/5/2015	Keewatin
MNR053D5K	ProBlast Technology Inc.	6/13/2016	Keewatin
MNR053D69	Revolution Auto Parts	7/25/2016	Nashwauk
MNRNE3BX3	Iron Range Sanitary Landfill	4/5/2015	Taconite

Source: MPCA 2018b.

The most recent NPDES/SDS Permit (MN0066559) for MP's Rapids Energy Center was issued on September 17, 2013. The water intake and discharge for the NPDES/SDS Permit is located adjacent to Blandin Dam and powerhouse. MP applied for permit renewal of the NPDES/SDS Permit on February 28, 2018 and this application is currently under review by the MPCA. The Permit renewal application provided updated information and studies related to Section 316(b) of the Clean Water Act (CWA) which included source water physical data, cooling water intake structure data, source water baseline biological characterization data, cooling water system data, method of compliance with impingement mortality standard, entrainment performance studies, and operational status. Pertinent information from the 316(b) submittal is incorporated into Section 5.4 Fish and Aquatic Resources of this PAD,



5.3.5 Existing Instream Flow Uses

Existing instream flow uses of waters of the Upper Mississippi River within the Grand Rapids Project and Prairie River Project include various recreational activities (e.g., fishing & boating), non-contact cooling water for steam generation, and hydroelectric generation. NPDES permit-related instream flow uses in Itasca County are listed above in Section 5.4.4

5.3.6 Approved Water Quality Standards

Minnesota’s water quality standards are provided in Minnesota Rules Chapter 7050 (Waters of the State) and are administered by the MPCA (MPCA 2018c). All surface waters in Minnesota are classified and protected for multiple beneficial uses. The designated uses for the waters within the Projects are included in Table 5.3-4. Waters within the Projects are protected for aquatic life and recreation, industrial consumption, agriculture and wildlife, aesthetic enjoyment and navigation, and other uses. Water quality standards applicable to waters within the Grand Rapids Project and Prairie River Project are provided in Table 5.3-5.

Table 5.3-4 Designated uses for waters within the Grand Rapids Project and Prairie River Project

Classified Waters	Project Area included within Classified Waters	Use Classes	Class Category
Mississippi River from the Cohasset Dam ¹ to Swan River	Blandin Reservoir and reach of Mississippi River downstream of the Grand Rapids Project	2Bg, 3C, 4A, 4B, 5, and 6	cool and warm water aquatic life and habitat and wetlands
Unlisted Waters	Prairie Lake and Lower Prairie Lake	2B, 3C, 4A, 4B, 5, and 6	cool and warm water aquatic life and habitat and wetlands
Unlisted Waters (lotic)	Prairie River	2Bg, 3C, 4A, 4B, 5, and 6	cool and warm water aquatic life and habitat and wetlands

¹ Text in table is directly from regulations (Minn. R. 7050.0220, 7050.0430, 7050.0470). Cohasset Dam is considered Pokegama Dam.

Notes: Use Classes: Class 2 - aquatic life and recreation, Class 3 - industrial consumption, Class 4 - agriculture and wildlife, Class 5 - aesthetic enjoyment and navigation, and Class 6 - other uses and protection of border waters.

Sources: Minn. R. 7050.0220, 7050.0430, 7050.0470

Table 5.3-5 Water quality standards for waters within the Grand Rapids Project and Prairie River Project

Parameter	Numeric Criteria
Dissolved Oxygen (milligram per liter [mg/L])	The quality of class 2B surface waters shall be such as to permit the propagation and maintenance of a healthy community of cool or warm water aquatic biota and their habitats. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable. 5.0 mg/L as the daily minimum.
pH	6.5 to 8.5 standard units (SU); maintain background per 7050.0222, subpart 6.
Specific conductance at 25 degrees Celsius (°C)	1,000 microsiemens per centimeter (µmhos/cm).
Temperature degrees Fahrenheit (°F)	Temperature must not exceed five degrees Fahrenheit above natural temperature in streams and three degrees Fahrenheit above natural temperature in lakes, based on monthly average of maximum daily temperature, except in no case shall it exceed the daily average temperature of 86°F.

Source: Minn. R. 7050.0220, 7050.0222.

5.3.7 Existing Water Quality Data

Recent water quality data collected within the general vicinity of the Grand Rapids and Prairie River Projects were compiled from the MPCA’s Surface Water Search Map-Based Tool (MPCA 2018d) and are discussed below.

5.3.7.1 Grand Rapids Project

MP applied to the MPCA for Section 401 water quality certification for the Grand Rapids Project on December 16, 1991. The MPCA granted certification on December 11, 1992.

Riverine

Recent water quality data within the vicinity of the Grand Rapids Project were available from three sites:

1. S007-334 – located in the Pokegama Reservoir approximately 0.3 RM upstream of the Pokegama Dam. Data were collected from May through September in 2013 and 2014. The sample depth was not provided for the data.



2. S003-656 – located on the Mississippi River approximately 0.7 RM downstream from Blandin Dam. Data were collected in the summer and throughout the year from 2003 to 2017.
3. S007-333 – located on the Mississippi River approximately 2.7 RM downstream of Blandin Dam and approximately 0.2 RM upstream of the Prairie River confluence. Data were collected May through September in 2013 and 2014. Of note, data at this site were collected for effluent limit permit monitoring.

This data remains pertinent as it is recent data having been collected over a range of years thus providing a historic and current condition context. Dissolved oxygen, pH, specific conductance, and water temperature data were compiled for these three sites in Figure 5.3-1 through Figure 5.3-3 below. Dissolved oxygen concentrations upstream of the Grand Rapids Project in Pokegama Reservoir (S007-334) ranged from 3.0 to 9.2 mg/L and were often below the minimum state criterion of 5.0 mg/L, which occurred during the summer (Figure 5.3-1). Water measurements were 36.7 to 98.4 percent saturated with dissolved oxygen. Just downstream of Blandin Dam, dissolved oxygen concentrations ranged from 5.5 to 15.5 mg/L and have been above the minimum state criterion over the 15-year monitoring period. Similarly, dissolved oxygen concentrations further downstream from the Grand Rapids Project (S007-333) also met state criterion and ranged from 6.5 to 9.3 mg/L. Waters were 79.2 to 100.0 percent saturated with dissolved oxygen (MPCA 2018d).

MP conducted a DO monitoring program in 1990-1991 after consultation with applicable resource agencies. Data collected found that DO concentrations below Blandin Dam were reliably higher than those measured above it. The study results demonstrated that continued operation of the Grand Rapids Hydroelectric Project would not result in physical, chemical, or biological changes to site water quality parameters (Blandin Paper Company 1991). In FERC's 1993, EA, FERC stated that continued operation of the Project would not affect water resources (FERC 1993).

With the exception of one reading, which was 8.8 SU in December 2015 at S003-656, all pH values were within the state criteria range of 6.5 to 8.5 SU (Figure 5.3-2). Specific conductance ranged from 131 to 423 $\mu\text{mhos/cm}$ and were well below the state maximum criterion of 1,000 $\mu\text{mhos/cm}$ (Figure 5.3-3). Water temperatures were seasonal and ranged up to 30.3°C (86.5°F) in the summer (MPCA 2018d).

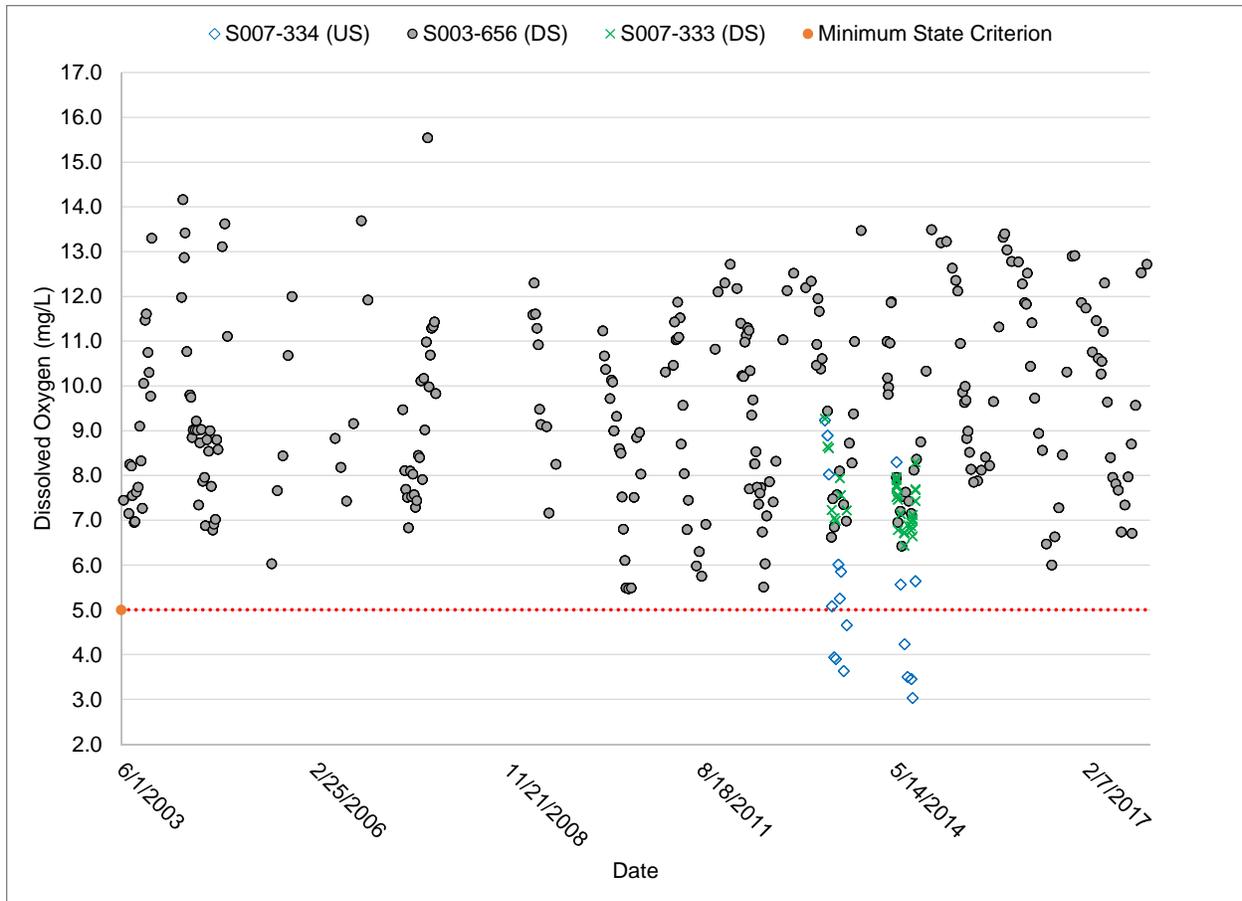


Figure 5.3-1 Dissolved oxygen concentrations at an upstream site (US) and two downstream sites (DS) of the Grand Rapids Project, 2003-2017 (MPCA 2018d)

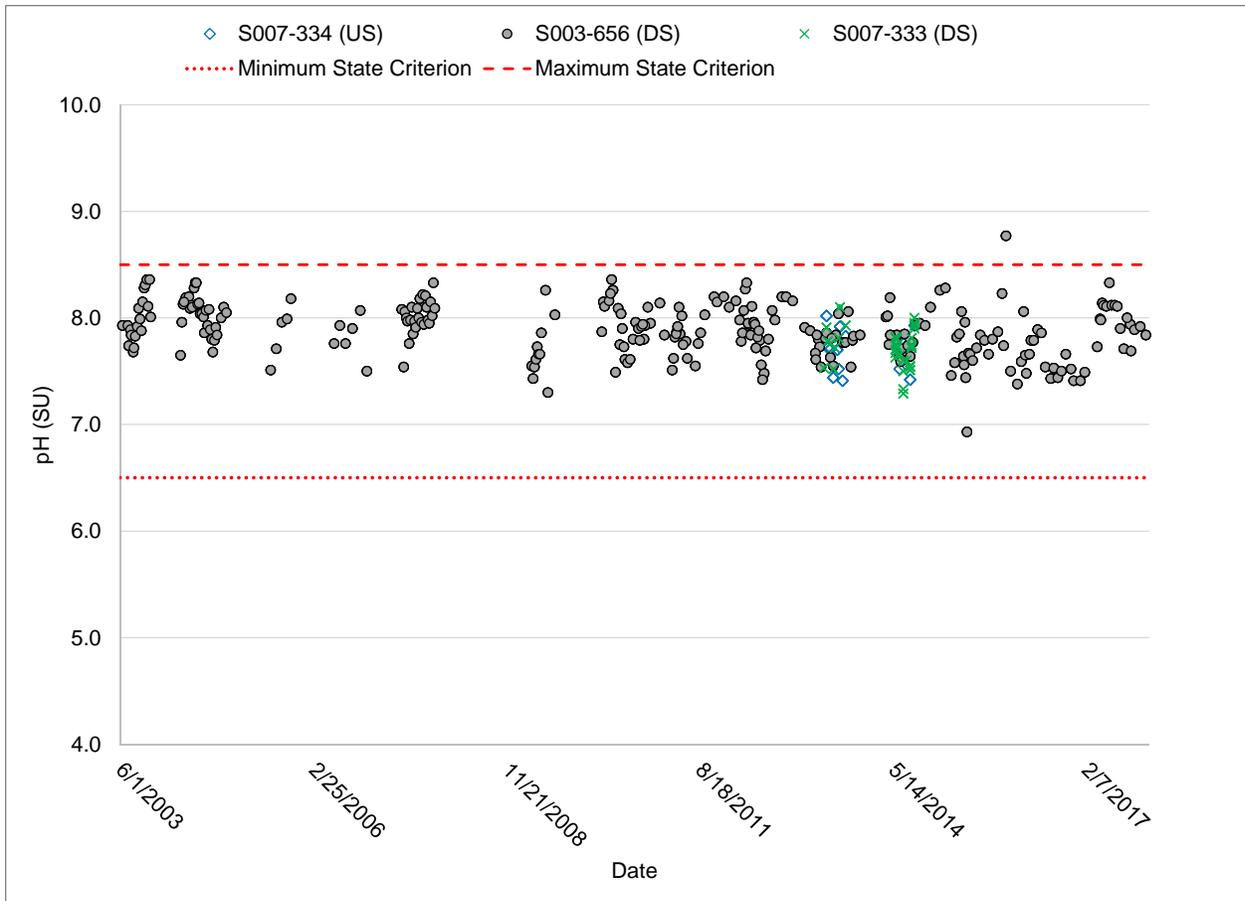


Figure 5.3-2 pH at an upstream site (US) and two downstream sites (DS) of the Grand Rapids Project, 2003-2017 (MPCA 2018d).

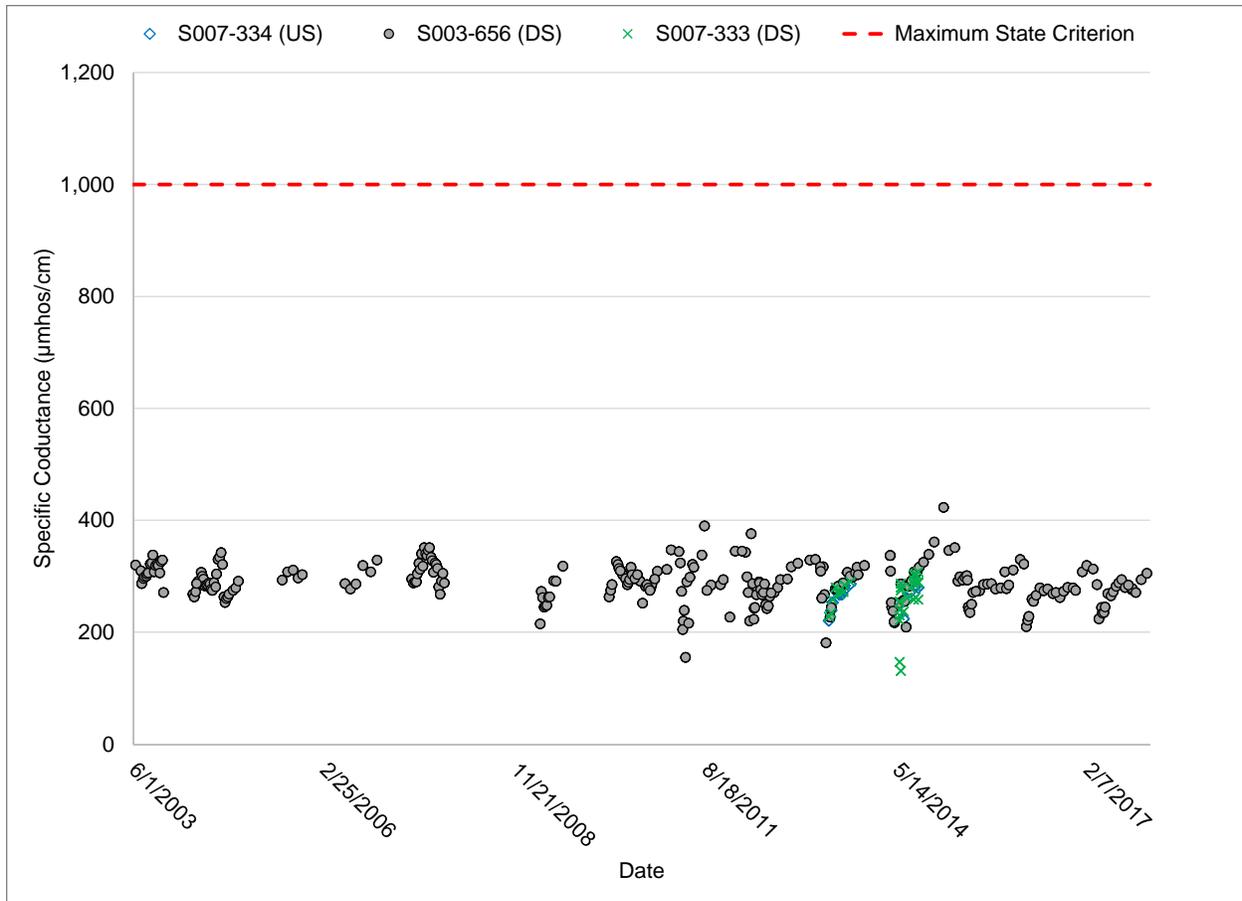


Figure 5.3-3 Specific conductance at an upstream site (US) and two downstream sites (DS) of the Grand Rapids Project, 2003-2017 (MPCA 2018d)

Reservoir

Recent water quality data within the vicinity of Blandin Reservoir were compiled from the MPCA's Surface Water Search Map-Based Tool (MPCA 2018d) from one site:

1. S002-634 – located approximately mid-channel at the County Road 63 Bridge. Data were collected in the summer and during other months of the year (February through October) from 1991 through 1996. No sample depths were provided.

Dissolved oxygen, pH, and specific conductance were compiled for this site in Figure 5.3-4 through Figure 5.3-6 below. Dissolved oxygen concentrations were generally above 5.0 mg/L except on a few occasions with the lowest value of 3.7 mg/L recorded in 1991. The pH ranged from 6.5 to 8.6 SU and were typically within the acceptable state criteria range with the exception of one event in June 1995. Specific conductance ranged from 170 to 342 µmhos/cm and were well below the maximum state criterion of 1,000 µmhos/cm.



Historical water quality data collected in Blandin Reservoir by the MDNR in 1973, 1983, and 1990 showed the reservoir stratified during the summer months at a depth of approximately 3 to 5 meters. Historical data found dissolved oxygen concentrations were less than 1.0 mg/L below a depth of 15 feet in two out of three of the sampling years during summer months (FERC 1993). No recent profile data were located for Blandin Reservoir.

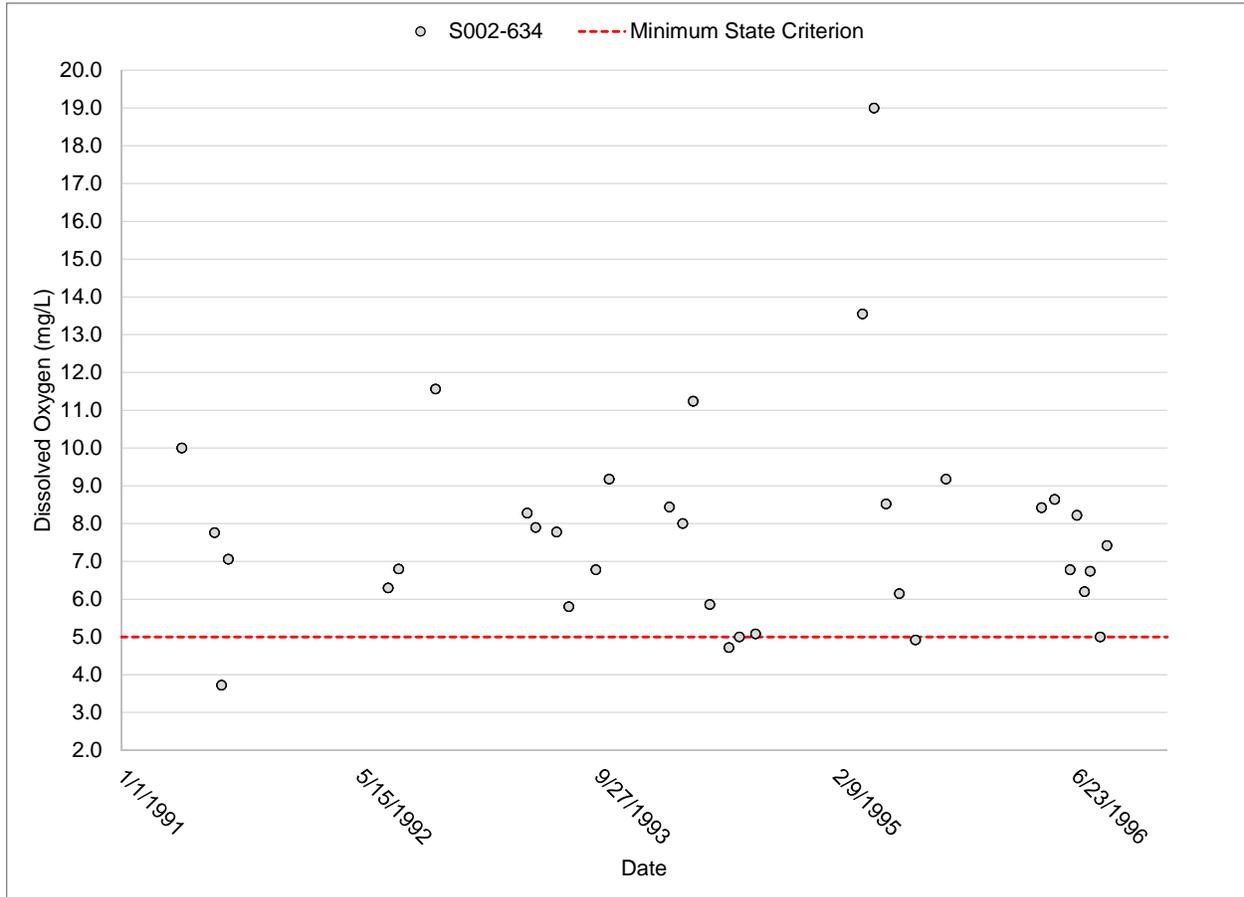


Figure 5.3-4 Dissolved oxygen in Blandin Reservoir at Site S002-634, 1991-1996 (MPCA 2018d)

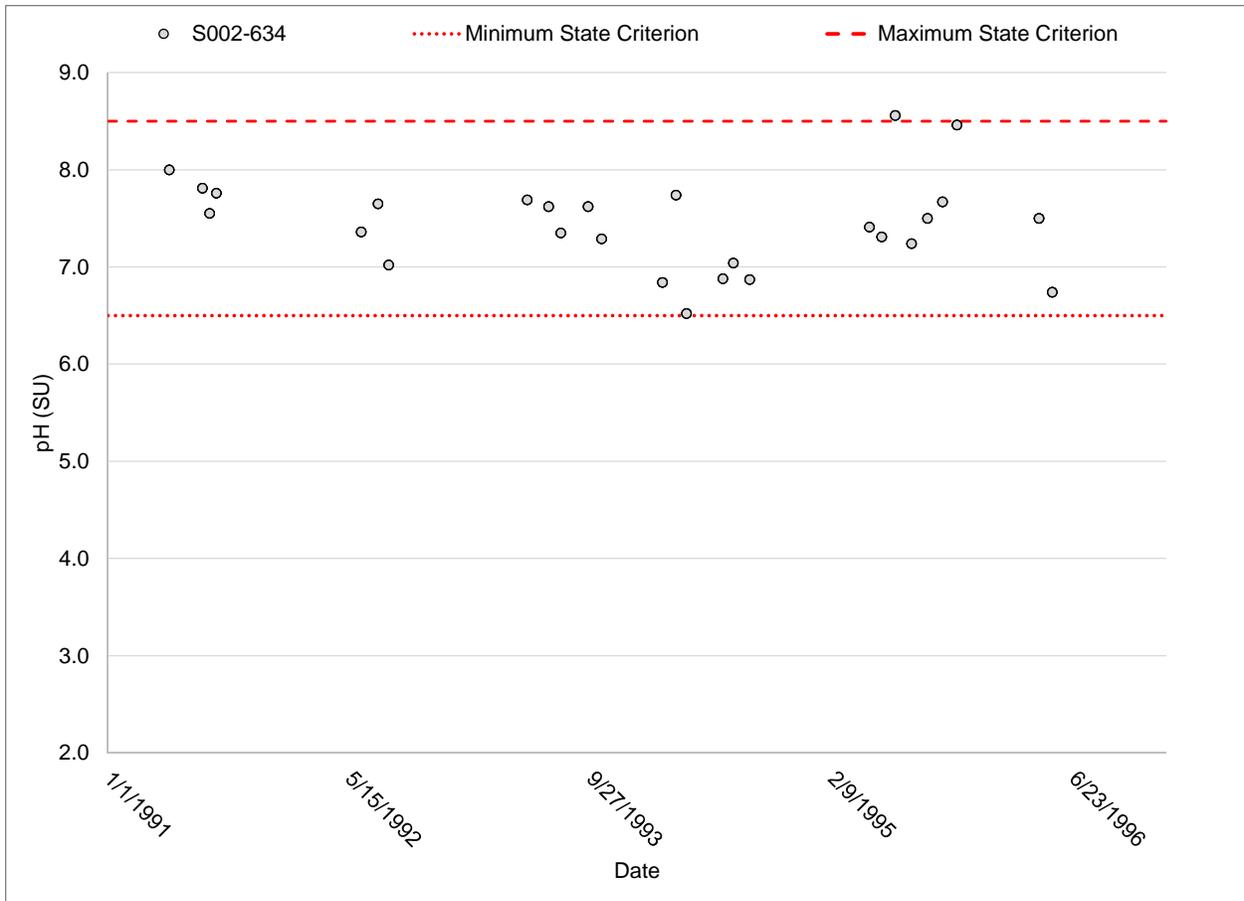


Figure 5.3-5 pH in Blandin Reservoir at Site S002-634, 1991-1996 (MPCA 2018d)

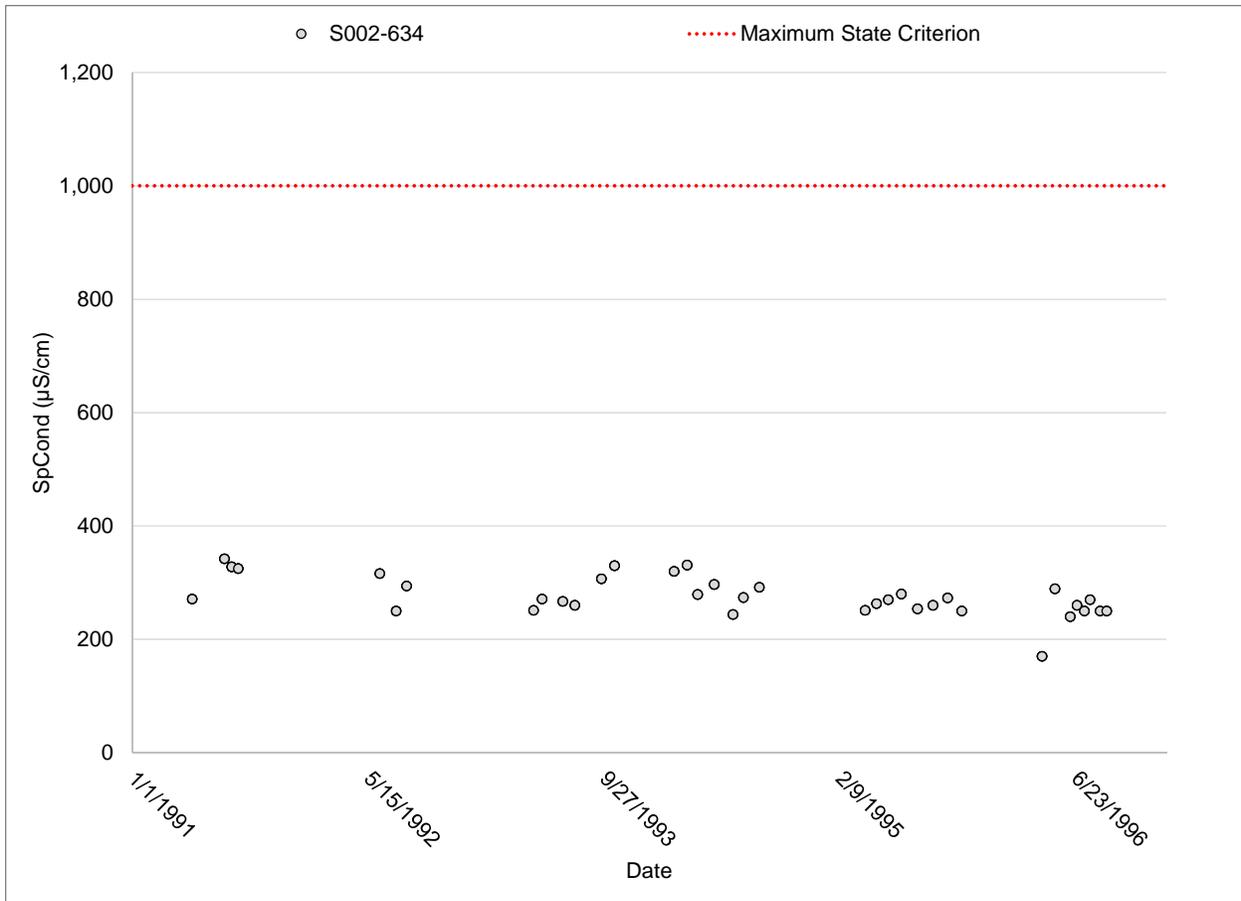


Figure 5.3-6 Specific conductance in Blandin Reservoir at Site S002-634, 1991-1996 (MPCA 2018d)

5.3.7.2 Prairie River Project

MP applied to the MPCA for a water quality certification on December 10, 1990. The MPCA did not act on the request within one year of application receipt, therefore the certificate was deemed waived.

Riverine

Recent water quality data within the vicinity of the Prairie River Project were available from two sites:

1. S003-667 – located on the Prairie River approximately 3.1 RM downstream from the Prairie River powerhouse. Data were collected during various months (April through October) in 2001 and from 2015 to 2016.
2. S005-499 – located on the Prairie River approximately 1.0 RM upstream from the confluence with the Mississippi River. Data were collected during various months (March through November) from 2007 to 2009.

Dissolved oxygen, pH, and specific conductance data from these sites are presented in Figure 5.3-7 through Figure 5.3-9. Dissolved oxygen concentrations ranged from 5.5 to 14.4 mg/L and were above the minimum state criterion at both sites (Figure 5.3-7). With the exception of one reading, which was 9.1 SU in September 2009, all pH values were within the state criteria range of 6.5 to 8.5 SU (Figure 5.3-8). Specific conductance ranged from 58 to 247 $\mu\text{mhos/cm}$ and were well below the state maximum criterion of 1,000 $\mu\text{mhos/cm}$ (Figure 5.3-9). Water temperatures were seasonal and were recorded as high as 25.8°C in the summer (MPCA 2018d).

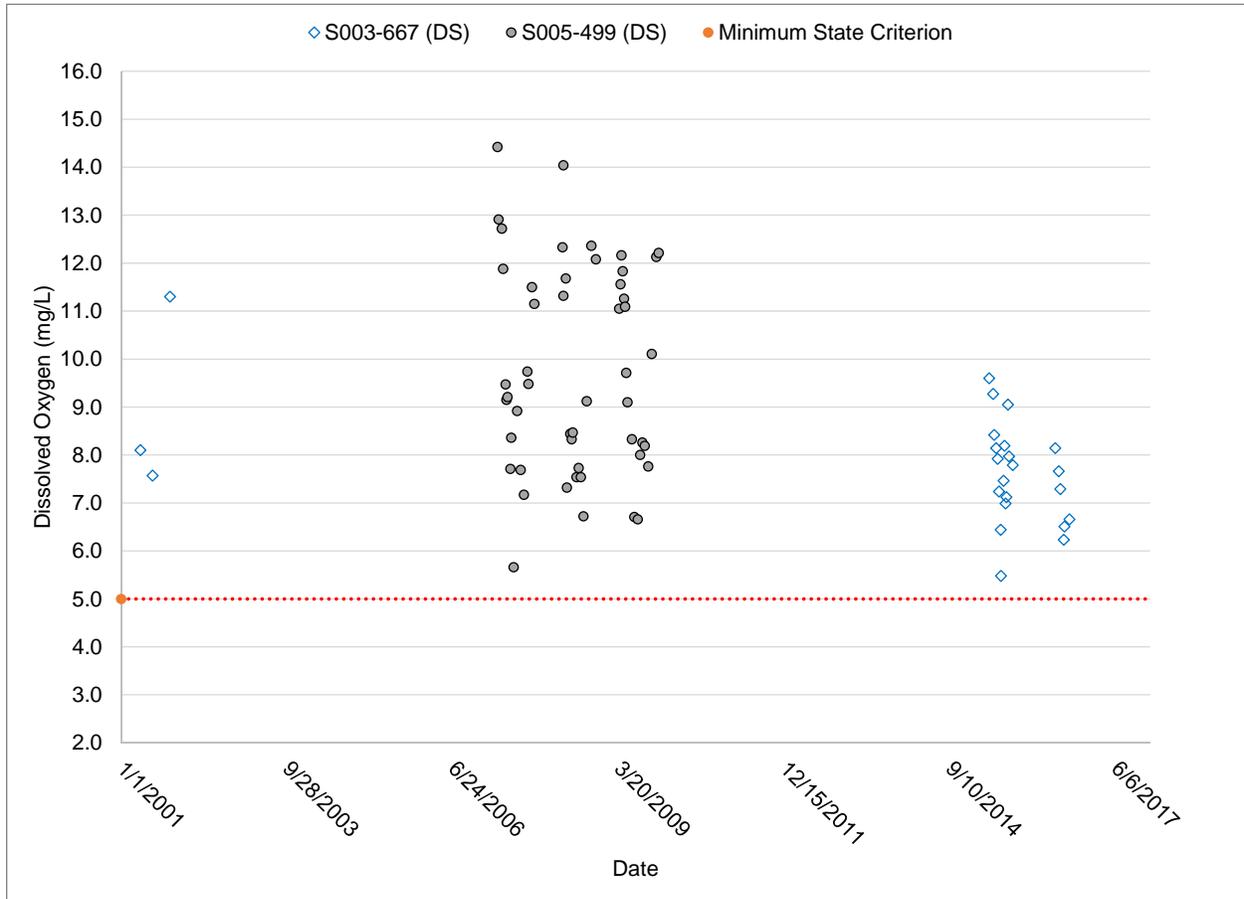


Figure 5.3-7 Dissolved oxygen concentrations at a two downstream sites of the Prairie River Project, 2001-2016 (MPCA 2018d)

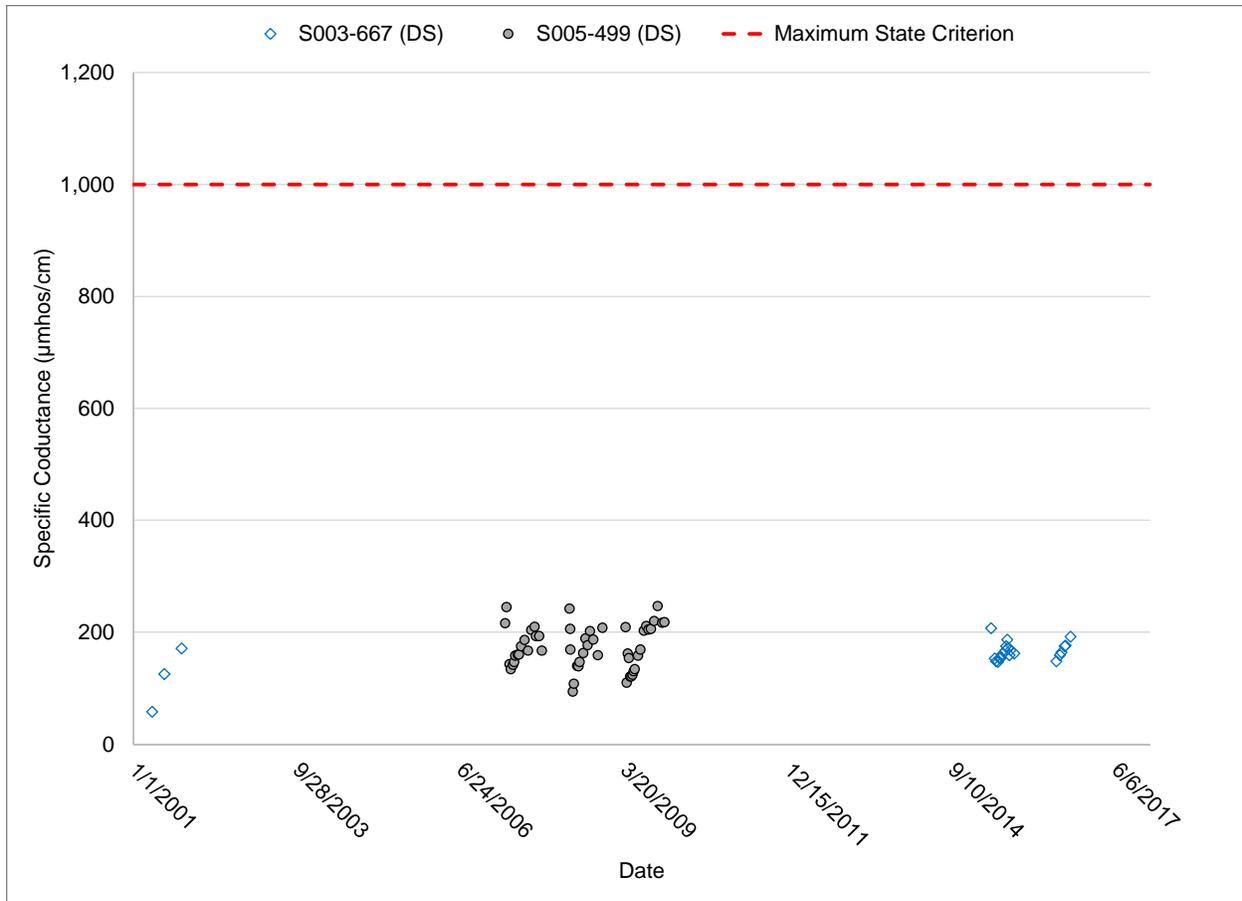


Figure 5.3-9 Specific conductance at two downstream sites of the Prairie River Project, 2001-2016 (MPCA 2018d)

Reservoir

Recent water quality data within the vicinity of Prairie River Reservoir (Lower Prairie Lake and Prairie Lake) were compiled from the MPCA’s Surface Water Search Map-Based Tool (MPCA 2018d) from three sites:

1. 31-0384-02-102 – located mid-channel in the main bay of Prairie River Reservoir. Profile data were available May through September in 2006.
2. 31-0384-02-201 – located mid-channel in the main bay of Prairie River Reservoir. Profile data were available May through September from 2015-2016.
3. 31-0384-03-101 – located in the upper Prairie Lake portion of the Prairie River Reservoir. Profile data were available from May through September in 2006.

Recent dissolved oxygen and water temperature profile data were compiled in Figure 5.3-10 through Figure 5.3-14 below. Based on these data, the reservoir appears to stratify at around 3 to 5 meters.



Dissolved oxygen concentrations often were lower towards the bottom of the water column, but typically were above 6.0 mg/L. The pH and conductivity at these sites during this period ranged from 7.3 to 8.9 SU and 129 to 239 $\mu\text{mhos/cm}$, respectively.

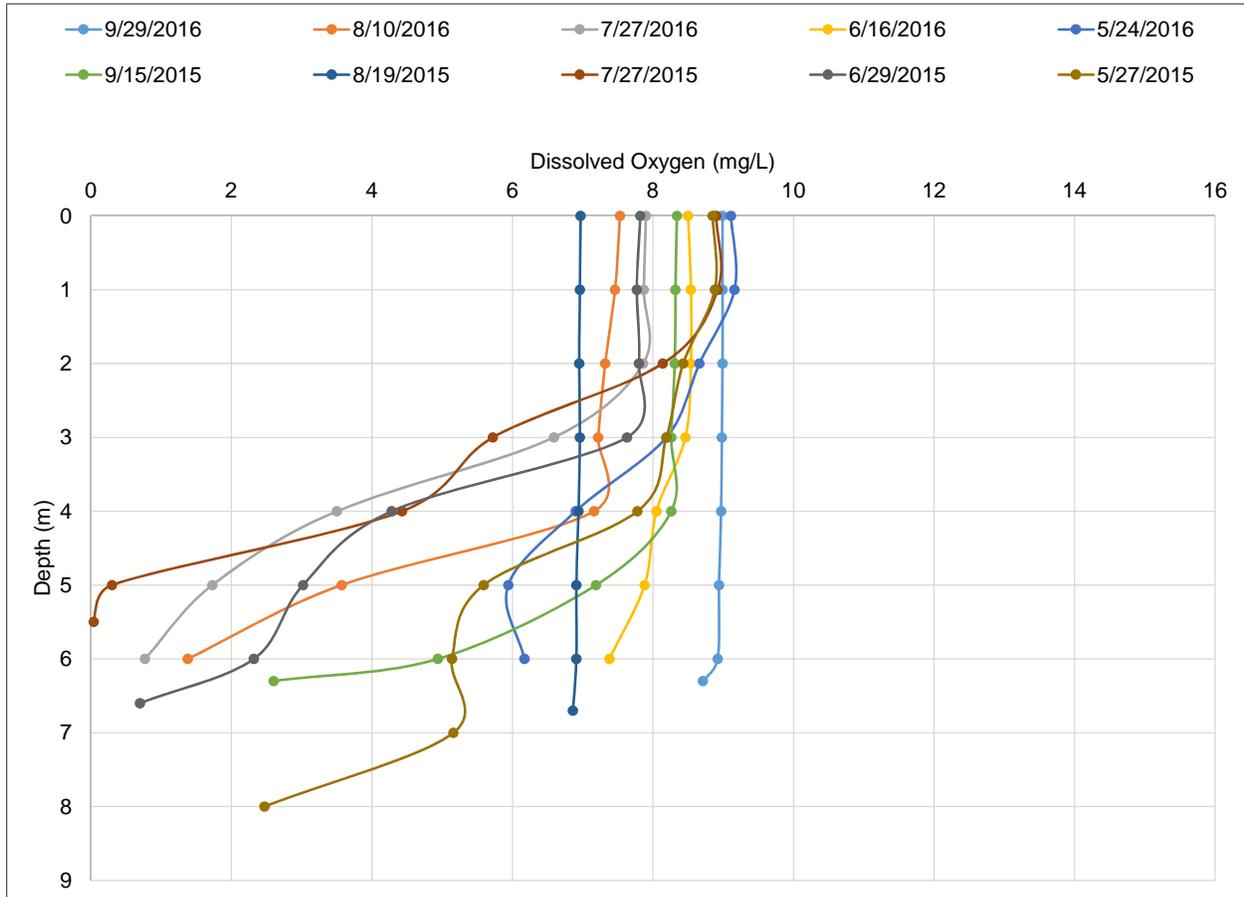


Figure 5.3-10 Dissolved oxygen profile at Site 31-0384-02-201 in the main bay of Prairie River Reservoir, 2015-2016 (MPCA 2018d)

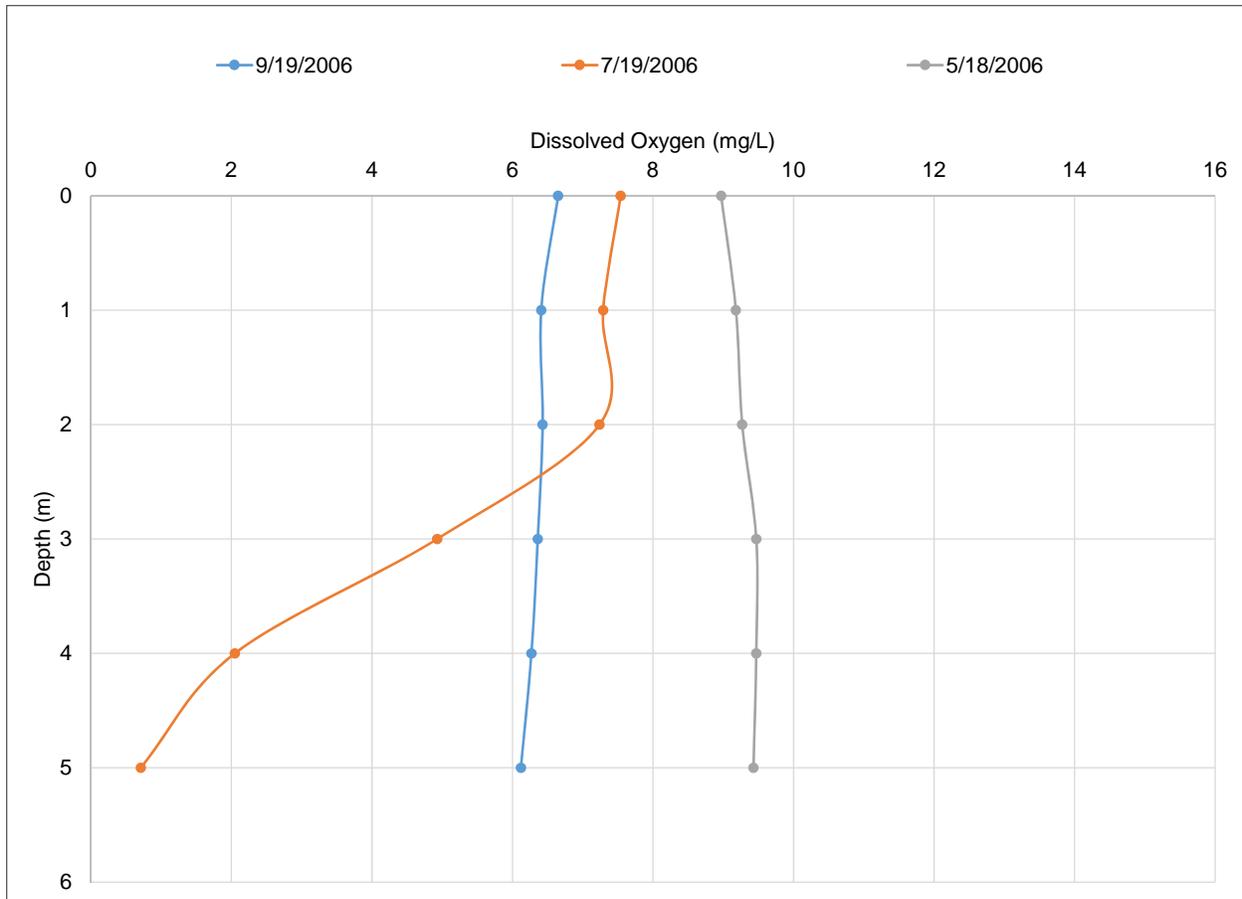


Figure 5.3-11 Dissolved oxygen profile at Site 31-0384-02-101 in the upper Prairie Lake portion of Prairie River Reservoir, 2006 (MPCA 2018d)

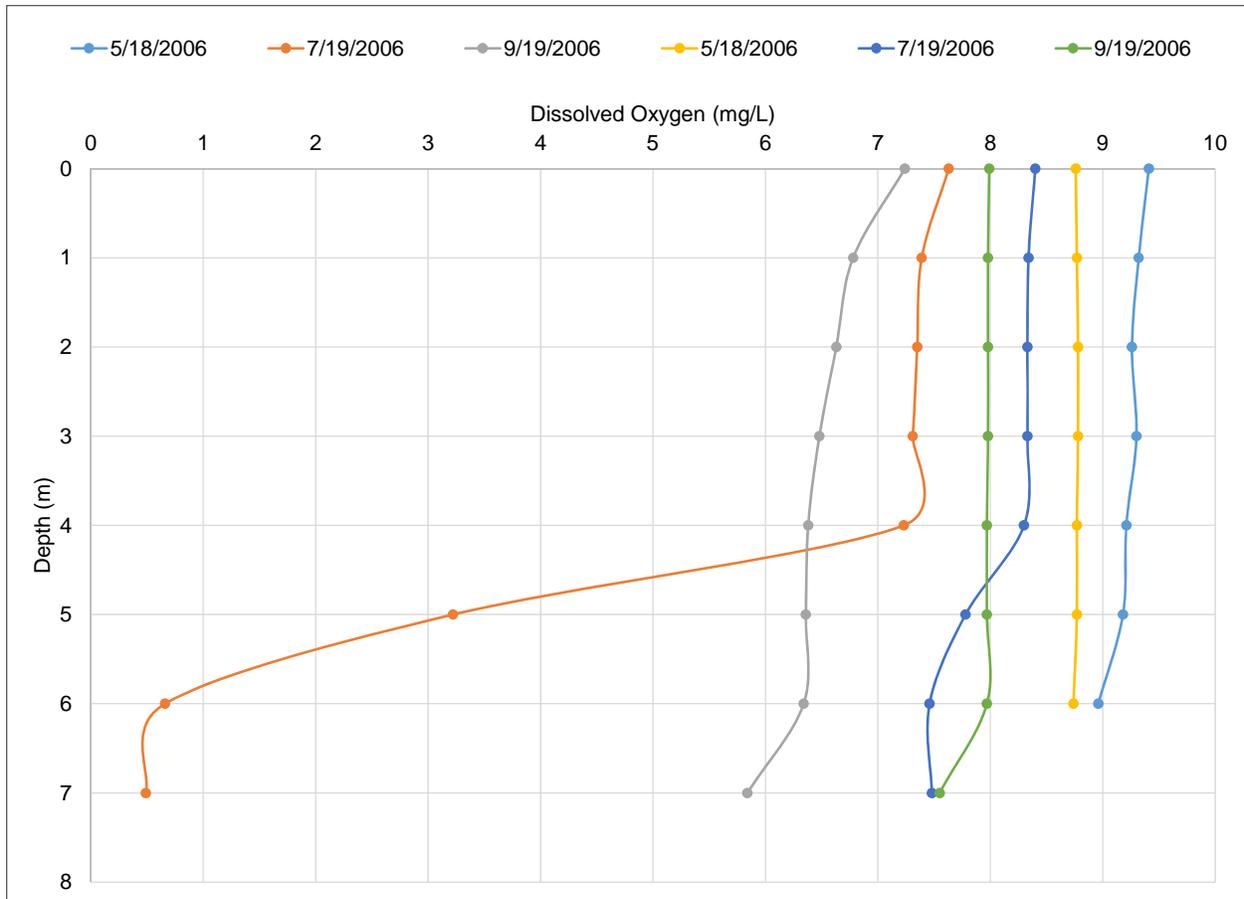


Figure 5.3-12 Dissolved oxygen profile at Site 31-0384-02-102 in the main bay of Prairie River Reservoir, 2006 (MPCA 2018d)

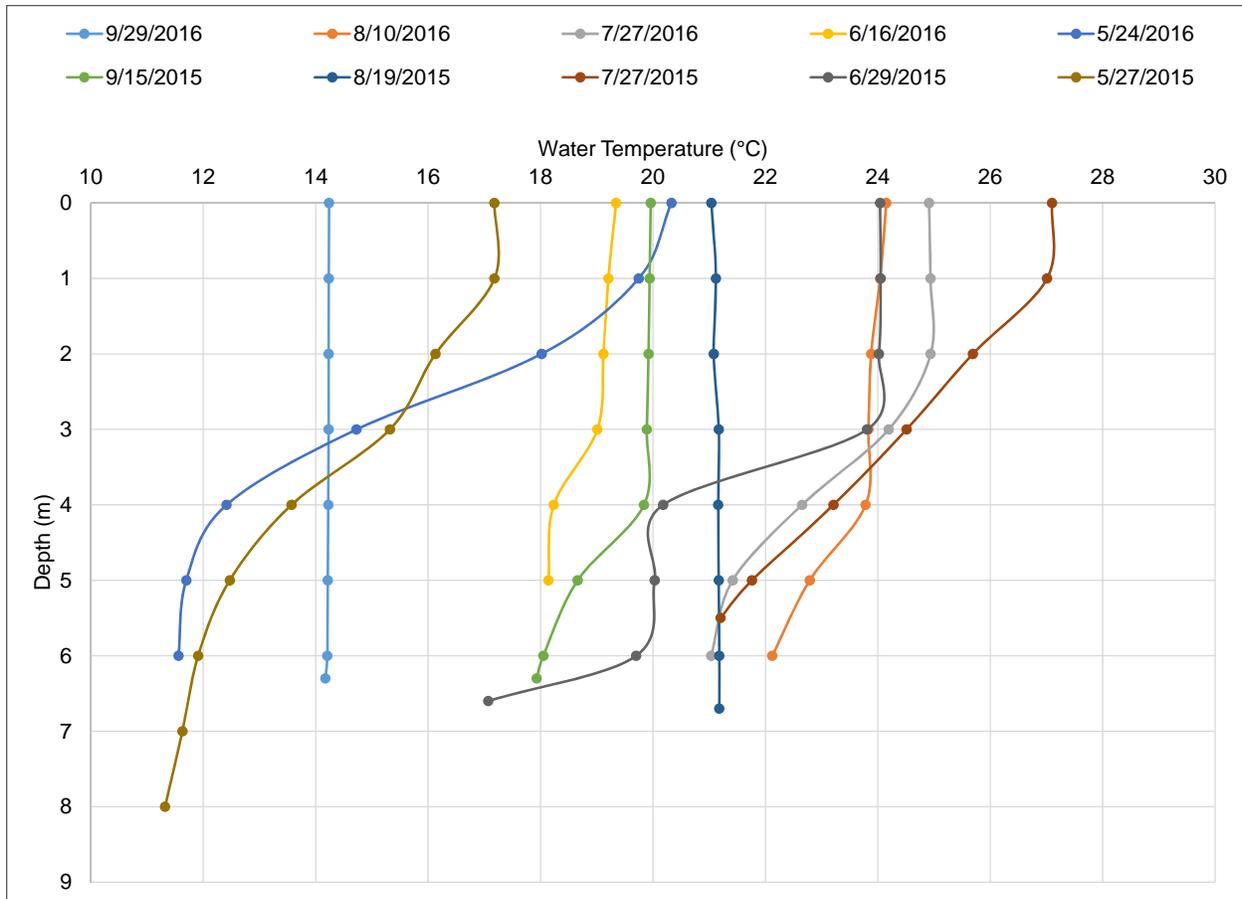


Figure 5.3-13 Water temperature profile at Site 31-0384-02-201 in main bay of Prairie River Reservoir, 2015-2016 (MPCA 2018d)

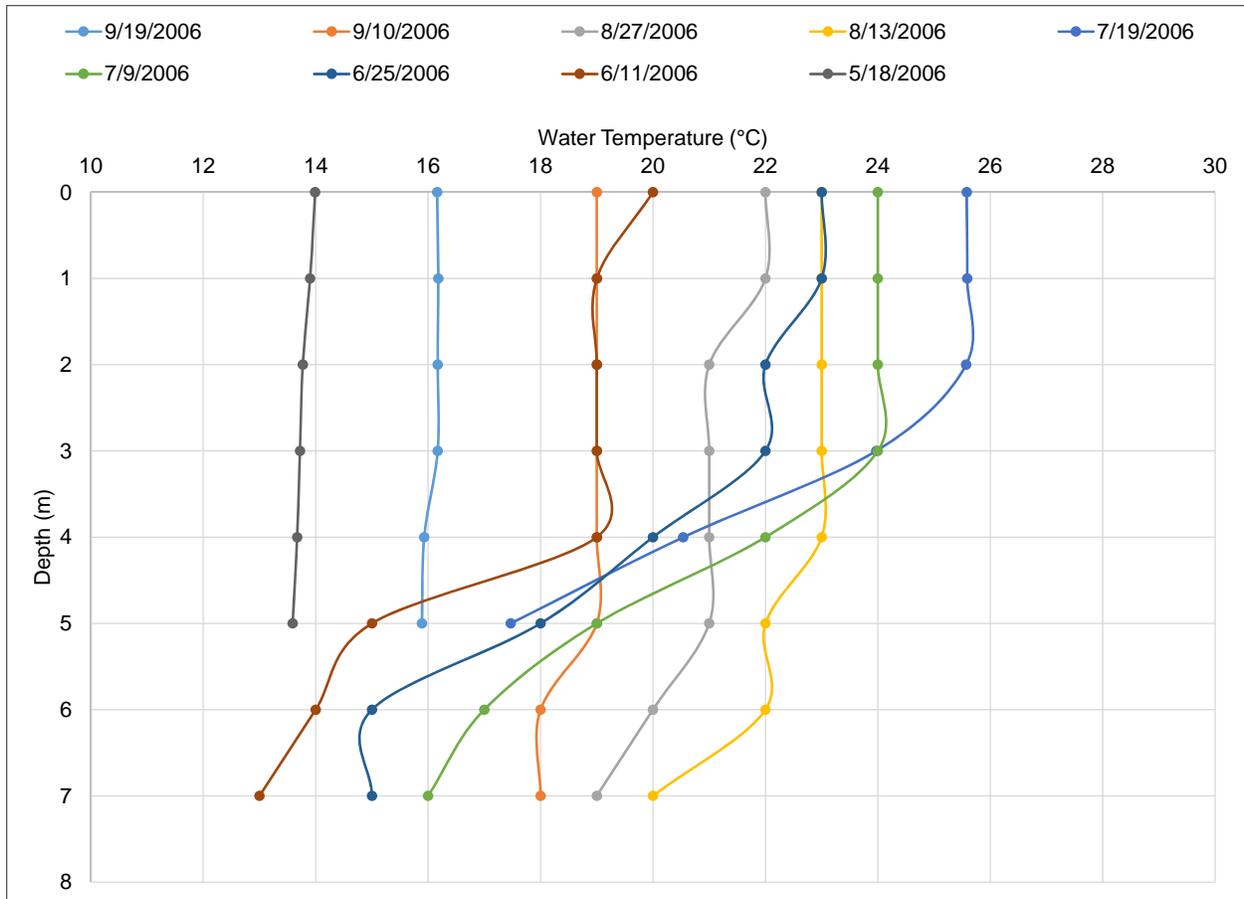


Figure 5.3-14 Water temperature profile at Site 31-0384-02-101 in the upper bay of Prairie River Reservoir, 2006 (MPCA 2018d)

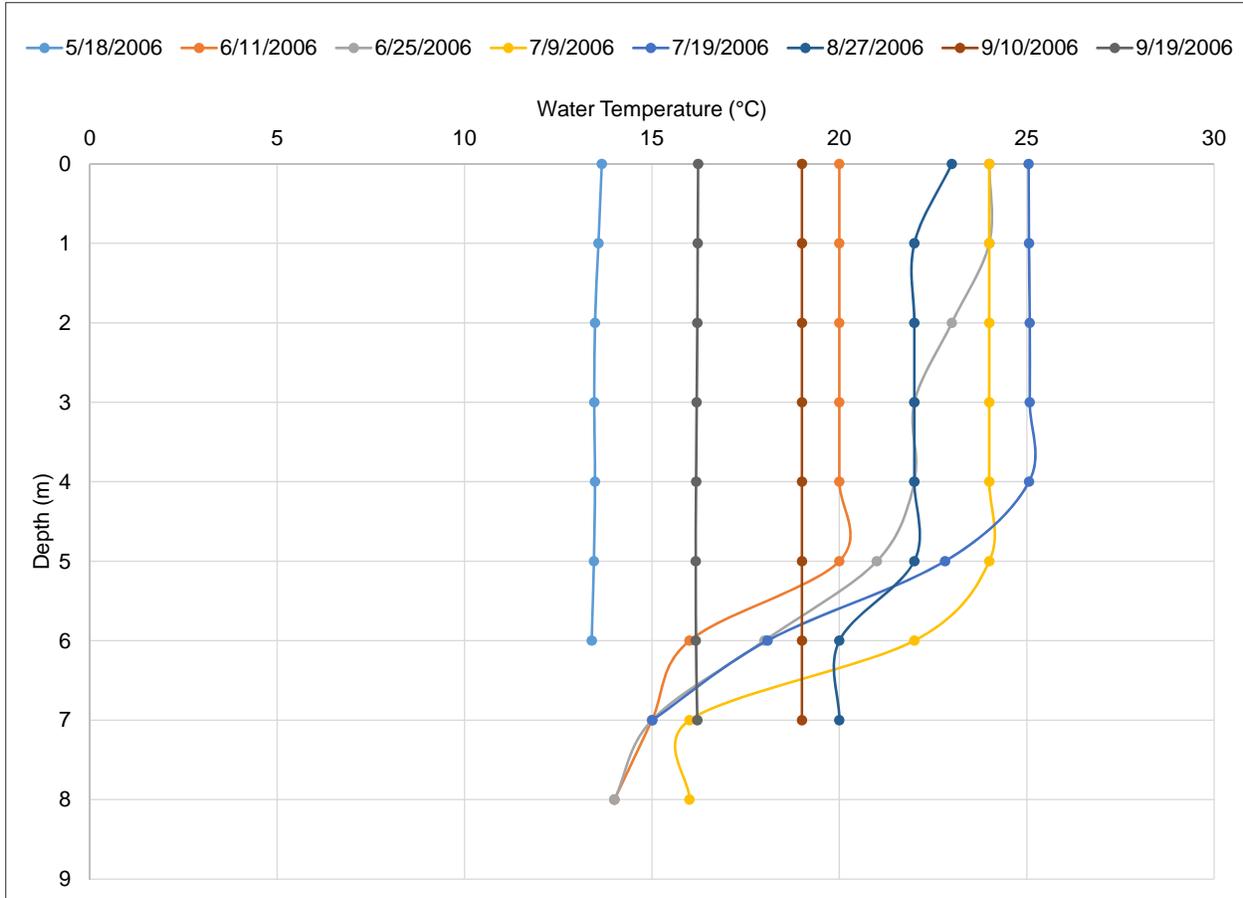


Figure 5.3-15 Water temperature profile at Site 31-0384-02-102 in the main bay of Prairie River Reservoir, 2006 (MPCA 2018d)

5.3.7.3 Impaired Waters

Every two years, the MPCA develops a list of impaired waters that do not meet water quality standards. The 2018 Impaired Waters List was submitted to the USEPA for approval in April 2018. Those waterbodies identified on the 2018 Impaired Waters List within the general vicinity of the Grand Rapids and Prairie River Projects are included in Table 5.3-6. The reach of the Mississippi River downstream of Blandin Dam to the Prairie River was delisted in 2006 as an impaired waterbody for its aquatic life use due to adequate dissolved oxygen concentrations in this stretch of river (MPCA 2018e) Prairie River, including Prairie River Reservoir, has a fish consumption advisory for mercury.

Table 5.3-6 Impaired waters within the vicinity of the Grand Rapids and Prairie River Hydroelectric Projects (MPCA 2018e)

Impaired Segment identified by the MPCA	Location of Impaired Segment in relation to the Projects	Impaired Use	Total Maximum Daily Load (TMDL(s))
Lake Winnibigoshish to Cohasset Dam ¹	Reach of Mississippi River upstream of Blandin Reservoir	Aquatic consumption	TMDL for mercury in fish has been approved. No other TMDLs have been identified as necessary or required.
Blandin	Blandin Reservoir	Aquatic consumption	TMDL for mercury in fish has been approved. No other TMDLs have been identified as necessary or required.
Balsam Cr to Prairie Lake	Reach of Prairie River upstream of Prairie River Reservoir	Aquatic consumption, aquatic recreation	TMDL for mercury in fish has been approved. TMDL for <i>E. coli</i> is needed. No other TMDLs identified as required.
Upper Prairie, Prairie (main bay), Lower Prairie ²	Prairie River Reservoir	Aquatic consumption	TMDL for mercury in fish has been approved. No other TMDLs have been identified as necessary or required.
Prairie Lake to Mississippi River	Reach of Prairie River downstream of Prairie River Project	Aquatic consumption	TMDL for mercury in fish has been approved. No other TMDLs have been identified as necessary or required.

¹ Text in table is directly from regulations (Minn. R. 7050.0220, 7050.0430, 7050.0470). Cohasset Dam is considered Pokegama Dam.

² Text in table is directly from regulations (Minn. R. 7050.0220, 7050.0430, 7050.0470). Upper Prairie, Prairie (main bay), and Lower Prairie comprise the Project reservoir, Prairie River Reservoir.

5.3.8 Downstream Reach Gradients

Below the Grand Rapids Project, the gradient is approximately 1.4 feet per mile. The downstream gradient of the Prairie River Project is slightly steeper, resulting in an average gradient of 2.1 feet per mile.

5.3.9 Resource Summary

Recent and historic water quality data are available in the vicinity of the Grand Rapids Project (upstream and downstream of the Project). Data from 2003 through 2017 show that DO concentrations downstream of Blandin Dam are typically above the minimum state criterion. Data

collected in 1990 and 1991 during the prior relicensing effort found that DO concentrations below Blandin Dam were reliably higher than those measured above it. Similarly, pH values have been within the state criteria range of acceptable with the exception of one reading in 2015. The MPCA issued a §401 Water Quality Certification for the Grand Rapids Project on December 11, 1992.

Recent water quality data are available in the vicinity of the Prairie River Project (from Prairie River Reservoir and downstream of the Project). Data from 2001 through 2016 find that DO concentrations both upstream and downstream of Prairie River Dam were above the minimum state criterion with the exception of one reading in 2009. Similarly, all pH values were within the state criteria range of acceptable. The MPCA waived a §401 Water Quality Certification for the Prairie River Project on June 19, 1991.

5.4 Fish and Aquatic Resources

5.4.1 Aquatic Habitats

The Grand Rapid Project's reservoir, Blandin Reservoir, is a 465-acre impoundment of the Mississippi River with 366 acres of littoral area, 35 miles of shoreline, and a maximum depth of 38 feet (ALLETE/Minnesota Power 2018). The lake is classified as an Ecological Class 35, generally describing lakes with a high percentage of littoral area, moderate alkalinity, and moderate transparency and productivity with a trophic state index of 47.7 (meso- to meso-eutrophic productivity) (Carlson 1977 and MDNR 2013a). The majority of the substrate types within Blandin Reservoir are sand, gravel, silt, and muck (FERC 1993). The littoral zone provides excellent fish habitat with a diversity of aquatic and wetland plant species (MDNR 2013a).

The Mississippi River upstream and downstream of Blandin Reservoir is characterized as a slow-moving, narrow, and deep single channel river (FERC 1993). The dominant substrate within this portion of the river consists of sand and silt. River width at this section of the river ranges from 100 to 300 feet, with a maximum depth of 12 feet, and an average stream gradient of 0.48 feet per mile (FERC 1993). This section of the Mississippi River also has few islands and rapids, though cut-off oxbows are common.

The Prairie River Project's reservoir, Prairie River Reservoir, is a 1,305-acre lake with 853 acres of littoral area, 21 miles of shoreline, and a maximum depth of 31 feet (MDNR 2013b). Prairie River Reservoir is part of the Prairie River system, which originates at Long Lake and flows through Lawrence Lake and Prairie River Reservoir chains, entering the Mississippi River approximately five miles south of Prairie River Dam approximately 2.8 miles downstream of Blandin Dam. Similar to Blandin Reservoir, Prairie River Reservoir is also classified as an Ecological Class 35, exhibiting a



high percentage of littoral area, moderate alkalinity, and moderate productivity (Carlson 1977 and MDNR 2013b).

The Prairie River Project includes a bypass reach east of Prairie River Dam. The bypass reach is a high-gradient stream (approximately 34 feet per mile) approximately 2500 feet long that includes multiple sections of stepped pools. The bypass reach is primarily of seasonal use to fish. Fish presence in the bypass reach drops substantially after the spring spawning season, as the fish move downstream into the Mississippi River. An instream flow incremental methodology (IFIM) study was conducted in the bypass reach in 1990 in support of the previous relicensing to determine the flows necessary to prevent fish stranding in the bypass reach, and secondarily, to address flow requirements for fish spawning. MDNR analyzed data to develop habitat versus discharge relationships for walleye spawners, juvenile small mouth and habitat guild representatives.

Based on the IFIM results, MDNR recommended a minimum flow of 75 cfs during April and May to enhance walleye spawning, and 50 cfs during June to allow the remaining fingerling fish to leave the bypass reach. MP agreed to these minimum flow rates. This bypass flow regime enhances the spawning habitat of approximately 2,500 linear feet of channel in the bypass reach. Additionally, in evaluating channel depths across three transects established within the bypass, the MDNR recommended ramping rates to avoid adult fish or spawn stranding. In consultation with MDNR, USFWS, and USGS, MP created a ramping rate regime for flows at or below 400 cfs when implementing, reducing, and ceasing minimum flows as follows:

- 200-400 cfs = 50 cfs per hour
- 75-200 cfs = 25 cfs per hour
- Below 75 cfs = 15 cfs per hour

FERC concluded in 1993 that the minimum flow regime and ramping rates agreed upon by MP and MDNR satisfied the management objectives for the bypass reach and provided appropriate resource protection. This IFIM study used industry-standard methods that are still in use to determine flow adequacy. As a result, MP believes the study results remain relevant, and the current seasonal minimum flow and ramping rate requirements in the bypass reach are appropriate and adequate to protect fisheries.

5.4.2 Existing Fish and Aquatic Resources

Blandin Reservoir and Prairie River Reservoir both contain a variety of forage species and popular sportfish species, such as largemouth bass (*Micropterus* spp.), black crappie (*Pomoxis nigromaculatus*), sunfish (*Lepomis* spp.), bullheads (*Ameirus* spp.), pikes (*Esox* spp.), perch (*Perca*) Walleye, redhorses (*Moxostoma* spp.), and others (MDNR 2018b, 2018c). The following sections

provide an overview of studies and surveys characterizing the fish community in Blandin Reservoir and Prairie River Reservoir.

5.4.2.1 Previous Fisheries Surveys and Habitat Assessments

2016-2017 Impingement Study

An impingement characterization study was performed in 2017 by MP on the traveling water screen of the cooling water intake structure located near Blandin Dam for compliance with Section 316 (b) of the CWA. The study provides insight as to what species are within the vicinity of the Rapids Energy Center cooling water intake structure and Blandin Dam (ALLETE/Minnesota Power 2018). Fish were collected on several dates from May 2016 to May 2017. Ninety-three fish representing four species of two families were collected in May, June, August, October, and November 2016, and May 2017. Approximately 94 percent of the total collection comprised fish species belonging to the family Centrarchidae, and 6 percent from Percidae. The collection was dominated by Bluegill (*Lepomis macrochirus*, 52 percent) and Black Crappie (41%), followed by Yellow Perch (*Perca flavescens*, 6%) and Largemouth Bass (*Micropterus salmoides*, 1%).

5.4.2.2 Surveys, Assessments, and Management Activities by MDNR

Lake Surveys

The MDNR has performed periodic fish surveys using gill and trap nets at the Grand Rapids Project in Blandin Reservoir since 1973, with the addition of electrofishing in 2012 to target Largemouth and Smallmouth Bass (MDNR 2018d). In general, fish populations and species distributions have been stable throughout this time (MDNR 2006). Catch per unit effort (CPUE) reported by species and gear type is presented below for the top 95 percent of species by relative abundance (Table 5.4-1). Several species dominated catches by both passive gear types, including Yellow Perch, Pumpkinseed (*Lepomis gibbosus*), Bluegill, Black Bullhead (*Ameiurus melas*), Yellow Bullhead (*A. natalis*), White Sucker (*Catostomus commersonii*), and Black Crappie, suggesting these species are in higher abundance in Blandin Reservoir. A greater number of fish were collected with gill nets than trap nets in all years except 1973 and 1978; however, trap nets were not used in 1987, one of the largest total collections made by gill nets. Larger centrarchids such as Largemouth Bass and Smallmouth Bass are not well represented by the passive gear types. Yellow Perch (gill nets), Pumpkinseed (gill nets), and Bluegill (trap nets) generally exhibit the highest CPUE across years, as well as in 2012.



Table 5.4-1 CPUE for the top 95% of species collected using gill nets, trap nets, and electrofishing at Blandin Reservoir, 1973-2012¹ (Source: MDNR 2018d)

Species	1973	1978	1983	1987	1990	1996	2004	2012
Gill Nets								
Yellow Perch	1.5	4.8	2.6	10.3	2.3	5.1	5.9	3.6
Pumpkinseed	--	5.9	2.4	7.9	6.6	0.7	3.3	3.6
Black Bullhead	--	5.1	0.7	2.6	5.0	--	--	--
Northern Pike	2.5	3.8	2.6	2.1	2.9	1.6	2.4	1.8
Rock Bass	2.0	1.3	2.4	2.0	0.7	4.8	1.7	1.2
Walleye	1.5	2.0	0.6	1.1	2.9	1.8	0.6	1.1
Yellow Bullhead	--	2.6	0.6	0.5	3.3	0.2	1.1	0.3
Bluegill	--	0.7	0.1	0.6	2.6	0.1	2.4	1.0
Shorthead Redhorse	--	0.6	0.3	1.0	1.6	0.6	1.5	0.8
Black Crappie	--	1.1	--	0.6	0.6	0.2	1.3	0.2
White Sucker	--	1.0	0.9	0.6	0.7	1.0	0.3	0.1
Total Fish Collected²	15	270	96	247	215	150	220	136
Standard Trap Nets								
Bluegill	3.6	8.3	1.9	--	4.0	1.2	1.8	1.9
Pumpkinseed	0.4	5.6	1.9	--	0.5	1.0	0.3	2.3
Black Bullhead	--	2.8	0.5	--	--	--	--	--
Yellow Bullhead	--	5.3	--	--	0.4	0.4	0.1	0.8
Black Crappie	0.8	3.3	--	--	--	0.4	0.2	--
Yellow Perch	2.2	2.3	1.5	--	0.1	0.6	0.6	0.4
Brown Bullhead	1.4	1.9	--	--	0.1	--	--	0.1
Northern Pike	1.4	2.2	0.4	--	0.1	1.0	0.3	0.1
White Sucker	0.4	2.0	0.5	--	0.3	--	--	0.1
Bowfin	--	1.4	0.3	--	0.4	0.2	0.1	0.3
Total Fish Collected³	55	437	61	0	49	48	32	50

Species	1973	1978	1983	1987	1990	1996	2004	2012
Electrofishing								
Largemouth Bass	--	--	--	--	--	--	--	21.33
Smallmouth Bass	--	--	--	--	--	--	--	1.33
Total Fish Collected	0	34						

- ¹ Species are ordered from greatest to least overall relative abundance.
- ² Other species collected include Largemouth Bass, Bowfin, Brown Bullhead, Smallmouth Bass, Silver Redhorse, Cisco, hybrid sunfish, and Muskellunge.
- ³ Other species collected include Rock Bass, Largemouth Bass, Walleye, and hybrid sunfish.

Sample collections in 2012 at Blandin Reservoir were dominated by the centrarchids (sunfish and largemouth bass) family for both gear types, followed by percids (perch and walleye) and esocids (pikes) by gill nets and ictalurids (bullhead) and percids by trap nets (Figure 5.4-1). The overall composition of fish collections at Blandin Reservoir is consistent with historical data and with the trophic status and ecological classification of this waterbody (Schupp 1992, MDNR 2006).

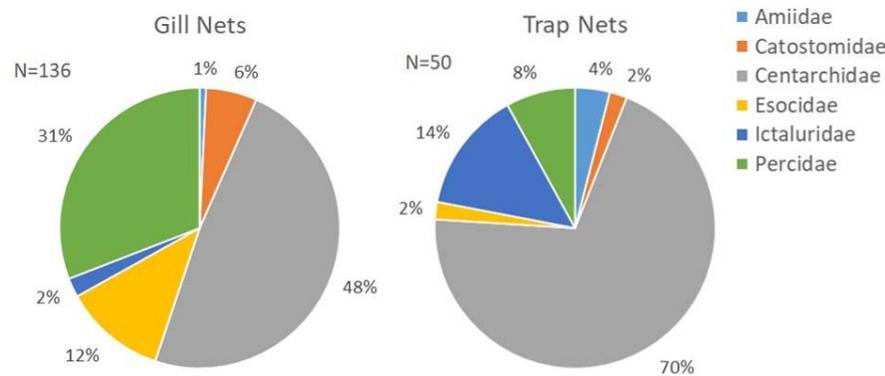


Figure 5.4-1 Relative abundance of fish collection by family and gear type at Blandin Reservoir, 2012

MDNR’s periodic summer fish surveys in Prairie River Reservoir date back to 1955 (MDNR 2018e). This range of survey data remains applicable as it is consistent with historical catch data. Similar to Blandin Reservoir, the surveys consisted of deploying standard gill and trap nets. In 2012, MDNR also performed nearshore sampling with beach seining and backpack and boat electrofishing. The most abundant species at Prairie River Reservoir are similar to those seen in Blandin Reservoir, suggesting similar fish communities in both waterbodies (Table 5.4-2).



Table 5.4-2 CPUE for the top 95% of species collected using gill nets and trap nets at Prairie River Reservoir, 1955-2012 (Source: MDNR 2018e)

Species	1955	1975	1980	1985	1990	1995	2000	2006	2012
Gill Nets									
Yellow Perch	21.0	18.6	3.6	9.1	5.1	12.0	5.9	5.7	2.4
Black Crappie	2.8	25.0	3.0	13.1	9.4	5.5	4.7	8.5	9.1
Northern Pike	4.8	2.2	1.5	4.3	4.8	3.6	4.5	5.1	4.5
Walleye	3.6	3.2	2.3	1.5	2.3	2.4	1.8	1.9	0.6
White Sucker	4.2	1.9	1.9	1.7	2.5	1.1	1.4	0.9	0.7
Shorthead Redhorse	0.9	--	--	--	3.5	0.7	0.9	1.2	1.7
Bluegill	--	--	--	0.5	1.4	0.5	1.1	1.9	3.1
Redhorse	--	0.9	1.0	2.6	--	--	--	--	--
Pumpkinseed	0.3		0.1	0.5	0.6	--	0.1	0.7	1.4
Total No. Collected²	457	469	164	417	373	399	327	448	392
Standard trap nets									
Bluegill	4.2	4.6	13.3	5.9	4.5	10.2	4.8	7.9	8.0
Black Crappie	4.8	3.6	1.3	1.9	3.8	1.9	1.9	1.1	2.7
Pumpkinseed	3.5	0.8	1.6	1.5	1.8	1.0	1.1	0.5	0.7
Brown Bullhead	0.4	1.7	1.9	0.6	0.4	0.1	0.9	0.7	0.7
White Sucker	0.6	1.1	3.1	0.5	0.3	0.7	0.3	0.3	0.2
Yellow Perch	1.1	0.1	0.5	0.8	1.1	1.9	0.2	0.3	0.3
Northern Pike	0.2	0.4	1.3	0.5	1.1	0.4	0.4	0.9	0.8
Yellow Bullhead	--	--	0.8	--	0.5	0.2	0.4	2.1	0.7
Rock Bass	1.9	0.7	0.5	0.1	0.3	0.3	0.1	--	0.1
Golden Redhorse	--	--	--	--	0.1	0.4	--	1.9	0.4
Total No. Collected³	214	242	199	95	110	247	176	256	230

¹ Species are ordered from greatest to least overall relative abundance.

² Other species collected include Rock Bass, Yellow Bullhead, Brown Bullhead, Smallmouth Bass, Bowfin, Black Bullhead, Golden Redhorse, Largemouth Bass, Silver Redhorse, and Tubillee (Cisco).

³ Other species collected include Bowfin, redhorse, Shorthead Redhorse, Walleye, Silver Redhorse, Largemouth Bass, Black Bullhead, and Golden Shiner.

Other species collected in 2012 using active sampling techniques (in addition to the most abundant species collected using gill and trap nets) included Blackchin Shiner (*Notropis heterodon*), Johnny Darter (*Etheostoma nigrum*), Burbot (*Lota lota*), Central Mudminnow (*Umbra limi*), Mottled Sculpin (*Cottus bairdii*), Tadpole Madtom (*Noturus gyrinus*), and Iowa Darter (*Etheostoma exile*).

Sample collections in 2012 at Prairie River Reservoir were dominated by catostomids (suckers) and centrarchids, followed by ictalurids, percids, and others (Figure 5.4-2). Gill nets and trap nets collected the same families except gill nets collected a salmonid (Cisco [*Coregonus artedii*]). Like that seen at Blandin Reservoir, the overall composition of fish collections at Prairie River Reservoir is consistent with historical data and with the trophic status and ecological classification of this waterbody (Schupp 1992).

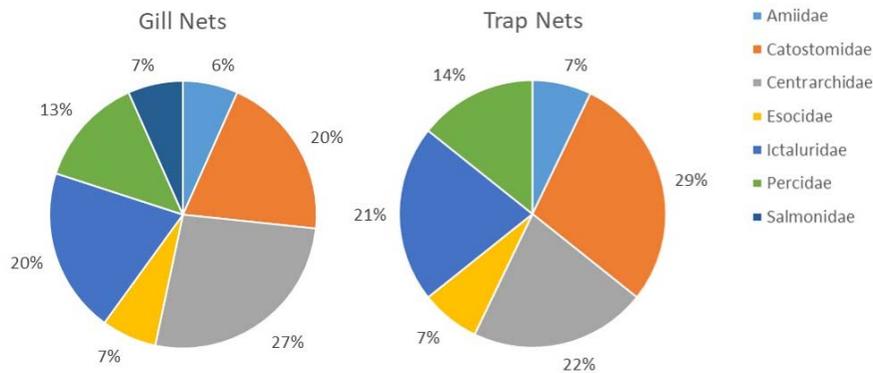


Figure 5.4-2 Relative abundance of fish collection by family and gear type at Prairie River Reservoir, 2012

River Surveys

Several surveys evaluating the index of biotic integrity (IBI) upstream and downstream of the Grand Rapids and Prairie River Project facilities are summarized in Table 5.4-3 (MPCA 2018f). For the Grand Rapids Project, the fish surveys summarized were performed from 1998 to 2013 at locations from just upstream of Pokegama Dam to the Prairie River downstream of Prairie River Dam, providing watershed-level assessment of fish populations and biotic integrity. A total of 31 fish species were collected in the vicinity of Blandin Reservoir, consisting of up to 8 species of piscivores, up to 6 species of pollution-intolerant species, and up to 9 sportfish species (Table 5.4-3 and Table 5.4-4). The IBI ranged from 53 downstream (in 2000) up to 70 upstream of Blandin Reservoir (in 2013), all considered as “good” ratings.



Table 5.4-3 Summary of fish sampling results upstream (US) and downstream (DS) of the Grand Rapids and Prairie River Project areas (Source: MPCA 2018f)

Station ID	Year Sampled	Waterbody	Location ¹	Fish IBI	Fish Rating	Distance from Reservoir (mi)	Species Richness	Piscivores	Pollution Intolerant Species	Sportfish Species
98UM004	1998	Blandin	DS	61	Good	0.1	15	4	3	5
00UM090	2000	Blandin	DS	53	Good	0.4	21	7	6	8
07UM233	2007	Blandin	DS	69	Good	0.6	15	7	3	7
13UM022	2013	Blandin	DS	69	Good	2.6	23	8	6	9
13UM023	2013	Blandin	US	70	Good	0.3	12	6	2	7
00UM003	2000	Prairie	US	61	Good	4.3	21	7	4	8
00UM003	2015	Prairie	US	62	Good	4.3	13	3	2	6
15UM049	2015	Prairie	DS	56	Good	2.8	19	7	2	9

¹ DS: downstream; US: upstream. Downstream locations for Blandin Reservoir are below Blandin dam; upstream locations are above Pokegama dam. Downstream locations for Prairie River Reservoir are below Prairie River dam; upstream locations are several miles upstream of the reservoir.

Table 5.4-4. Known occurrences of fish species upstream (US) and downstream (DS) of the Grand Rapids and Prairie River Project areas

Species	Blandin Reservoir ¹				Prairie River Reservoir ²	
	1998	2000	2007	2013	2000	2015
Bigmouth Buffalo					DS	
Blackchin Shiner	DS	DS		DS		
Blacknose Shiner	DS	DS		DS		US
Blacknose Dace					US	
Black Crappie		DS		DS	US & DS	US
Bluntnose Minnow	DS					
Bowfin				DS		
Brassy Minnow	DS	DS			US	
Bluegill		DS	DS	US	DS	US
Bowfin			DS	US	DS	
Burbot		DS	DS	US	US	
Common Shiner		DS	DS	DS	US & DS	US
Creek Chub					US & DS	
Golden Shiner					DS	US
Johnny Darter					US & DS	US
Emerald Shiner	DS					
Fathead Minnow		DS				
Hornyhead Chub					US	US

Species	Blandin Reservoir ¹				Prairie River Reservoir ²	
	1998	2000	2007	2013	2000	2015
Hybrid Sunfish				DS		
Largemouth Bass	DS	DS	DS	US & DS	US & DS	US
Logperch		DS	DS	DS	US & DS	
Mimic Shiner		DS		US & DS	US	
Muskellunge				DS		
Northern Pike	DS	DS	DS	US & DS	US & DS	US
Pumpkinseed				US & DS	US & DS	
Redhorse					US	
Rock Bass	DS	DS	DS	US & DS	US & DS	US
Sand Shiner	DS					
Shorthead Redhorse	DS	DS	DS	US & DS	DS	
Silver Redhorse		DS	DS	DS		
Smallmouth Bass	DS	DS	DS	DS	US & DS	
Spotfin Shiner		DS		DS	US & DS	US
Spottail Shiner	DS			US & DS		
Tadpole Madtom	DS			DS	US	US
Walleye		DS	DS	US & DS	US & DS	
White Sucker	DS	DS	DS	DS	US & DS	
Yellow Bullhead			DS	DS		
Yellow Perch	DS	DS	DS	US & DS	US & DS	US

¹ DS: downstream; US: upstream. Downstream locations for Blandin Reservoir are below Blandin Dam; upstream locations are above Pokegama Dam. Downstream locations for Prairie River Reservoir are below Prairie River Dam; upstream locations are several miles upstream of Prairie River Reservoir.

For the Prairie River Project, MPCA reported fish surveys data from 2000 and 2015 upstream and downstream of Prairie River Reservoir. Twenty-seven species of fish were collected during the three surveys, consisting of up to seven piscivore species, four pollution-intolerant species, and up to nine sportfish species. All IBI ratings were within the “good” range (Table 5.4-3 and Table 5.4-4).

Overall, there is a relative similarity and continuity in the fish community in both reservoirs, upstream, and downstream of the Project Areas, comprising many sportfish species, predators, and forage fish.

Management Activities

Blandin Reservoir has primarily been stocked with Walleye and Muskellunge since 1971 (MDNR 2013a), while Prairie River Reservoir has been stocked exclusively with Walleye since 1982 (MDNR



2013b). Table 5.4-5 provides information on the size, number, and pounds of fish species stocked in Blandin Reservoir and Prairie River Reservoir from the past ten years. Approximately 281 adult Muskellunge (*Esox masquinongy*) and 32,000 Walleye fingerlings have been stocked in Blandin Reservoir since 2008. Walleye in Blandin Reservoir have been stocked by both MDNR and private citizens/sporting groups and will continue on a biennial basis (MDNR 2013a). If long-term goals set for the Walleye population are not met after the next population assessment, stocking may be discontinued.

In Prairie River Reservoir, approximately 14,000 Walleye fingerlings were stocked by the MDNR from 2008 to 2012. However, due to failure to achieve management goals set for Prairie River Reservoir, the Walleye stocking program was recommended for discontinuation in 2013 (MDNR 2013b).

Table 5.4-5 MDNR Blandin Reservoir and Prairie River Reservoir stocking report

Year	Species	Size	Number	Pounds
Blandin Reservoir				
2017	Muskellunge	Adults	91	303.3
2016	Muskellunge	Adults	90	219.5
	Walleye ¹	Fingerlings	6,472	365.9
2014	Walleye ¹	Fingerlings	10,975	365.8
2012	Walleye ¹	Fingerlings	8,778	365.8
2010	Walleye ²	Fingerlings	5,492	366.0
2008	Muskellunge	Adults	100	400.0
	Walleye	Fingerlings	231	33.0
Prairie River Reservoir				
2012	Walleye	Fingerlings	5,145	574.4
2011	Walleye	Fingerlings	6,599	435.0
2008	Walleye	Fingerlings	2,256	188.0

¹ Fish purchased and stocked by private citizens and sporting groups; ²Fish purchased and stocked by the MDNR.

5.4.3 Essential Fish Habitat

Based on a review of the National Marine Fisheries Service (NMFS) online database, no essential fish habitat under the Magnuson-Stevens Fishery Conservation and Management Act or established by the NMFS has been identified in the vicinity of either of the Projects.

5.4.4 Temporal and Spatial Distribution of Fish and Aquatic Communities Fisheries

There are multiple dams on the Upper Mississippi River downstream of the Grand Rapids and Prairie River Projects which restrict movement of migratory species such as Shovelnose Sturgeon (*Scaphirhynchus platyrhynchus*), Paddlefish (*Polyodon spathula*), or American Eels (*Anguilla rostrata*), (Wilcox 1999). Fish species present in the vicinity of the Grand Rapids and Prairie River Project are non-migratory warm-water species.

5.4.4.1 Spawning, Rearing, Feeding, and Wintering Habitats

Important sportfish species identified in both Blandin Reservoir and Prairie River Reservoir include Pumpkinseed, Bluegill, Largemouth Bass, Perch, Black Crappie, Walleye, and Northern Pike. These species exhibit a range of seasonal behaviors related to spawning season, location of spawning, rearing, feeding, and wintering habitats. The life-history characteristics of selected species are described below.

Sunfish

Bluegill and Pumpkinseed were both common sunfish identified in historic and recent fish surveys in Blandin Reservoir and Prairie River Reservoir. Bluegill are native to the central and southeast United States and introduced widely elsewhere as a popular sportfish (USGS 2018d). Pumpkinseed are native to the north-central and northeastern United States, as well as the Carolinas (USGS 2018e). Both sunfish prefer littoral habitats in ponds, lakes, or reservoirs or along the margins of slow-moving streams, creeks, and rivers (Stuber et al. 1982a, FishBase 2018). They prefer habitats with abundant cover in the form of vegetation, woody debris, or brush. Spawning begins in the spring and can continue in to the summer (Stuber et al. 1982a). Sunfish construct nests in quiet, shallow areas for spawning, often in colonies, where they defend eggs and fry. Pumpkinseed may be found spawning in Bluegill colonies (MDNR 2000). Bluegill are opportunistic feeders and can alter their diet according to resource availability. Sunfish feed on zooplankton and aquatic invertebrates (Stuber et al. 1982a, MDNR 2000).

Bluegill were collected at similar rates as historical averages in the 2012 fish surveys at Blandin Reservoir (MDNR 2013a). Growth was similar to the lake class average. Pumpkinseed were collected in slightly greater abundance in 2012, however size structure was poor. Bluegill catch rates

are generally greater than Pumpkinseed at Prairie River Reservoir, however size structure was reportedly poor during the 2012 assessment (MDNR 2013b). Scale analysis indicated relatively consistent recruitment, though year class strength was variable. Growth was similar to the lake class average.

Largemouth Bass

Largemouth Bass are native to the eastern United States, but have been introduced widely as an important sportfish species (Stuber et al. 1982b). The preferred habitat for Largemouth Bass includes lacustrine environments with ample littoral zone, but also deeper areas for overwintering. They are also found in riverine habitats of slow-moving rivers or in pools of streams with soft bottoms, some aquatic vegetation, and clear water. Largemouth Bass are associated with vegetation and structure, however, they will also use open water areas (Matthias et al. 2014). Spawning typically begins in the spring when water temperature reaches 12-15.5°C (Stuber et al. 1982b). Gravel substrate is needed for spawning habitat, though other substrates such as vegetation, roots, sand, mud, or cobble may also be used (Stuber et al. 1982b). Nests are constructed and eggs and fry are guarded. Fry feed mainly on microcrustaceans and small aquatic insects before shifting to mostly insects and small fish as juveniles, then primarily fish and crayfish as adults. Largemouth Bass mature and spawn as early as one year of age, however, maturity can be delayed in northern populations (Stuber et al. 1982b).

Largemouth Bass are difficult to collect with passive gear types (i.e., gill and trap nets) (MDNR 2013b). Therefore, daytime electrofishing was performed at Blandin Reservoir in 2012 in an attempt to evaluate Largemouth Bass populations (MDNR 2013a). Largemouth Bass were collected in moderately-high amounts with ages 2-9 represented in the sample and growth rates similar to the statewide average. Electrofishing was not performed at Prairie River Reservoir and, therefore, limited information regarding the Largemouth Bass population is available.

Black Crappie

Black Crappie are native to the central and eastern United States (Edwards et al. 1982). They prefer clear, slow, or lentic waters with shallow areas and abundant vegetation and structure. Male crappies move to river backwaters or littoral areas in lakes and reservoirs to establish spawning territories, where they construct a bowl-shaped depression near beds of vegetation in soft mud, sand, or gravel. Spawning occurs in the spring. Fry and juveniles feed mainly on microcrustaceans and planktonic insects, however, diet shifts to include more fish as size increases. Black Crappie mature at age two or three years of age (Edwards et al. 1982).

Although catch rates of Black Crappie in Blandin Reservoir have historically been low, fishing for this species is known to be popular, especially in the spring and winter in Lake Sylvan, a bay within

Blandin Reservoir (MDNR 2013a). Conversely, Black Crappie are collected in moderate abundance at Prairie River Reservoir, however, they generally exhibit growth lower than the statewide average (MDNR 2013b).

Walleye

Walleye are native to Canada and the United States, primarily in drainages east of the Rocky Mountains and west of the Appalachians (McMahon et al. 1984). Walleye have been introduced and/or stocked widely as a sought-after sportfish species. They are intolerant of a range of environmental conditions, but are generally most abundant in moderate-to-large lakes or river systems with cool temperatures, shallow to moderate depth, extensive littoral area, moderate turbidity, and clean rocky substrate in mesotrophic systems (McMahon et al. 1984). Spawning habitat quality and quantity and water temperature are the major factors influencing the reproductive success of Walleye populations. Walleye spawn in spring during periods of rapid warming, soon after ice break-up, in areas of shallow shoreline, shoals, and riffles. Lake population often migrate upstream in rivers to spawn. Eggs are broadcast freely to fall into cracks and crevices, with no parental care provided. Walleye Fry feed on zooplankton and aquatic insects before shifting to fish and crayfish. Males mature between two to four years of age, and females between three and five years.

Evidence of Walleye natural reproduction has been noted in fish surveys by the MDNR in Blandin Reservoir and Prairie River Reservoir, with individual growth rates similar to the statewide average (MDNR 2013a, 2013b)., As noted above, MP provides seasonal flows in the Prairie River Project bypass reach to benefit Walleye.

Northern Pike

Northern Pike are circumpolar in cool freshwaters of the northern hemisphere (USFWS undateda). They are not adapted for swift-moving currents and can be inhibited from spawning areas by strong currents blocking migration (Inskip 1982). Suitable spawning habitat includes flood marshes, inundated terrestrial vegetation, or weedy bays. Strong year classes are often observed in newly-created reservoirs. Northern Pike do not do well in reservoirs with wide fluctuations in water elevation due to limited macrophyte growth; this species is more common in mesotrophic or mesoeutrophic waterbodies (Inskip 1982). Spawning begins in the spring, shortly after ice break-up when the water has warmed to 8-12°C. Spawning habitat is selected in areas of calm, shallow water with vegetation. Northern Pike often migrate upstream to tributaries and marshes, wetlands, or shallow pools in search of spawning habitat. This species spawns in groups of one female to several males, broadcasting fertilized eggs over vegetation beds. Northern Pike larvae are initially zooplanktivores, but quickly broaden their diet to include insect larvae and then fish as they reach 50-60 millimeters



(mm) in length, usually within 4 to 5 weeks after hatching. Cannibalism is also reported for this species, although not a substantial portion of their diet. Northern Pike reproductive maturity depends on growth rate, which can be related to latitude (Inskip 1982).

Northern Pike in Blandin Reservoir are generally small; few fish over 28 inches were collected in fish surveys in 2012, however, growth rates are comparable to statewide averages (MDNR 2013a). Lengths are also generally small in Prairie River Reservoir, ranging from 12.4 to 31.3 inches with a mean of 21.8 inches in the 2012 fish surveys, however, growth rates are also similar to statewide averages for all ages (MDNR 2013b).

5.4.5 Benthic Macroinvertebrates Habitat and Life History Information

5.4.5.1 Crustaceans

Crayfish can be an important food resource for sportfish species. Limited information is available regarding crayfish species in the Upper Mississippi River system. Helgen (1990) reports up to six crayfish identified throughout Minnesota, comprising the devil crayfish (*Cambarus diogenes*), calico crayfish (*Orconectes immunis*), Northern Clearwater crayfish (*O. propinquus*), virile crayfish (*O. virilis*), invasive rusty crayfish (*Orconectes rusticus*), and the white river crayfish (*Procambarus acutus acutus*). The invasive red swamp crayfish (*Procambarus clarkii*) has also been introduced in Minnesota. Four of these species were reported as collected within Itasca County, including the devil crayfish, calico crayfish, invasive rusty crayfish, and virile crayfish (Helgen 1990).

5.4.5.2 Aquatic Insects

In addition to the collection of fish species, the MDNR also evaluated macroinvertebrate assemblages downstream of Blandin Dam and Prairie River Dam (MPCA 2018f). A total of 16 families were collected below Blandin Dam (station ID 00UM090) during the 2000 survey. (Table 5.4-6), with an invertebrate IBI rating of 57 (“fair”). A total of 18 families were collected below Prairie River Dam (station ID 15UM049) during the 2015 survey, with an invertebrate IBI rating of 54 (“fair”).



Table 5.4-6 Occurrences of aquatic invertebrates in the Grand Rapids and Prairie River downstream Project areas¹

Common Name	Family	Grand Rapids	Prairie River
Amphipods	Amphipoda	X	X
Black flies	Simuliidae	X	X
Caddisflies	Trichoptera	X	X
Freshwater snail	Cipangopaludina		X
Common Stoneflies	Plecoptera		X
Crane flies	Tipulidae	X	
Darners Dragonfly	Aeshnidae	X	
Giant water bug	Belostomatidae	X	
Finger-net Caddisflies	Phlopotamidae	X	X
Fingernail clam	Sphaeriidae	X	X
HirudineaLeech	Hirudinea		X
Isxaeon	Baetidae		X
Mayflies	Baetidae	X	X
Micro-caddisflies	Hydroptilidae	X	X
Minute moss beetles	Hydraenidae		X
Narrow-winged damselflies	Coenagrionidae	X	
Net-spinning caddisflies	Hydropsychidae	X	X
Northern caddisflies	Limnephilidae		X
Round worms	Oligochaeta	X	
Crayfish	Orconectes	X	X
Primitive caddisflies	Rhyacophilidae		X
Riffle beetles	Elmidae		X
Trumpet-net caddisflies	Polycentropodidae		X
Water scavenger beetles	Hydrophilidae	X	
Water scorpions	Nepidae	X	

¹ Station ID 00UM090 on the Mississippi River downstream of Blandin Dam, and Station ID 15UM049 on the Prairie River downstream of Prairie River Dam.



5.4.6 Freshwater Mussels

Historically, approximately 50 species of freshwater mussels were identified in the Upper Mississippi River Basin, however, about 30 species have been found recently (Tucker and Theiling 1998; Tiemann et al. 2015). Several species are federal- or state-listed for protection as of 2015 (Tiemann et al. 2015). Federal- or state-listed species identified by MDNR and USFWS are described in further detail in Section 5.7.

Mussels are sessile, long-lived species sensitive to water quality and habitat (i.e., substrates and sediments). They are filter-feeders and have a complex life cycle that is dependent on fish (many times, particular fish species) as a host organism. Mussels identified in the Upper Mississippi River Basin are summarized in the table below, along with their federal and state listing status (as of 2015) and host organism, if known.

Table 5.4-7 Summary of freshwater mussels of the Upper Mississippi River¹

Common Name	Species Name	Federal	State	Host Organism
Spectaclecase	<i>Margaritifera monodonta</i>	E	E	Unknown
Elktoe	<i>Alasmidonta marginata</i>	--	T	Suckers
Slippershell	<i>Alasmidonta viridis</i>	--	--	Darters and sculpins
Cylindrical Papershell	<i>Anodontoides ferussacianus</i>	--	--	Generalist
Rock Pocketbook	<i>Arcidens confragosus</i>	--	E	Generalist
Flutedshell	<i>Lasmigona costata</i>	--	T	Generalist
White Hellsplitter	<i>Lasmigona complanata</i>	--	--	Generalist
Creek Heelsplitter	<i>Lasmigona compressa</i>	--	SC	Generalist
Giant Floater	<i>Pyganodon grandis</i>	--	--	Generalist
Salamander Mussel	<i>Simpsonaias ambigua</i>	--	E	Mudpuppy salamander
Creeper	<i>Strophitus undulatus</i>	--	--	Generalist/none needed
Paper Pondshell	<i>Utterbackia imbecillis</i>	--	--	Generalist/none needed
Flat Floater	<i>Utterbackia suborbiculata</i>	--	SC	Generalist
Threeridge	<i>Amblema plicata</i>	--	--	Generalist, possibly catfishes
Plain Pocketbook	<i>Lampsilis cardium</i>	--	--	Generalist, possibly basses, Walleye, or Sauger
Higgins' Eye	<i>Lampsilis higginsii</i>	E	E	Basses, possibly Walleye and Sauger
Fatmucket	<i>Lampsilis siliquoidea</i>	--	--	Generalist, possibly basses and sunfishes
Yellow Sandshell	<i>Lampsilis teres</i>	--	E	Gars

Common Name	Species Name	Federal	State	Host Organism
Mucket	<i>Actinonaias ligamentina</i>	--	T	Generalist, possibly basses and sunfishes
Butterfly	<i>Ellipsaria lineolata</i>	--	T	Freshwater Drum
Snuffbox	<i>Epioblasma triquetra</i>	E	E	Logperch, Blackside Darter, sculpins
Fragile Papershell	<i>Leptodea fragilis</i>	--	--	Freshwater Drum
Scaleshell	<i>Leptodea leptodon</i>	E	X	Freshwater Drum
Black Sandshell	<i>Ligumia recta</i>	--	SC	Walleye and Sauger, possibly sunfishes and basses
Pondmussel	<i>Ligumia subrostrata</i>	--	T	Sunfishes and basses
Threehorn Wartyback	<i>Obliquaria reflexa</i>	--	--	Unknown
Hickorynut	<i>Obovaria olivaria</i>	--	--	Sturgeons
Pink Heelsplitter	<i>Potamilus alatus</i>	--	--	Freshwater Drum
Fat Pocketbook	<i>Potamilus capax</i>	E	X	Freshwater Drum
Pink Papershell	<i>Potamilus ohioensis</i>	--	--	Freshwater Drum
Bleufer	<i>Potamilus purpuratus</i>	--	--	Freshwater Drum
Lilliput	<i>Toxolasma parvum</i>	--	--	Sunfishes
Deertoe	<i>Truncilla truncata</i>	--	--	Freshwater Drum
Fawnsfoot	<i>Truncilla donaciformis</i>	--	T	Freshwater Drum
Ellipse	<i>Venustaconcha ellipsiformis</i>	--	T	Darters, possibly sculpins
Round Pigtoe	<i>Pleurobema sintoxia</i>	--	SC	Minnows
Purple Wartyback	<i>Cyclonaias tuberculata</i>	--	E	Catfishes
Elephantear	<i>Elliptio crassidens</i>	--	E	Possibly Skipjack Herring
Spike	<i>Elliptio dilatata</i>	--	T	Darters and perches, possibly basses and sunfishes
Wabash Pigtoe	<i>Fusconaia flava</i>	--	--	Minnows
Ebonysell	<i>Fusconaia ebena</i>	--	E	Skipjack Herring
Sheepnose	<i>Plethobasus cyphus</i>	E	E	Minnows
Mapleleaf	<i>Quadrula quadrula</i>	--	--	Catfishes
Winged Mapleleaf	<i>Quadrula fragosa</i>	E	E	Catfishes
Gulf Mapleleaf	<i>Quadrula nobilis</i>	--	--	Catfishes
Wartyback	<i>Amphinaias nodulata</i>	--	T	Catfishes
Pimpleback	<i>Amphinaias pustulosa</i>	--	--	Catfishes
Washboard	<i>Megalonaias nervosa</i>	--	E	Generalist, possibly catfishes
Monkeyface	<i>Theliderma metanevra</i>	--	T	Minnows except Notropis



Common Name	Species Name	Federal	State	Host Organism
Pistolgrip	<i>Tritogonia verrucosa</i>	--	E	Catfishes
Zebra Mussel	<i>Dreissena polymorpha</i>	NI		None needed
Quagga Mussel	<i>Dreissena bugensis</i>	NI		None needed
Asian Clam	<i>Corbicula fluminea</i>	NI		None needed
Fingernail Clams	Sphaeriidae	--	--	None needed

¹ Federal Status: E- Endangered; State Status: E- Endangered, T- Threatened, SC- Species of Concern, X- extirpated; NI: non-indigenous

5.4.7 Aquatic Invasive Species

Aquatic invasive species (AIS) are nonindigenous plants and animals that were introduced to an area outside of their native range and are now causing ecological or economic harm (USFWS 2017). AIS typically have few or no natural predators in their introduced environments, which results in rapid population growth that quickly outcompetes native species. Invasive species can be introduced intentionally for management objectives (e.g., Grass Carp [*Ctenopharyngodon idella*] for the control of aquatic invasive weeds), illegally (e.g., angler-introduced sportfish species), or accidentally (e.g., invasive plant parts or mussels on boats and boat trailers).

A general list of AIS that have been introduced in Minnesota and the Mississippi River is presented in Table 5.4-8, including fish, crustaceans, mollusks, zooplankton, algae, and aquatic plants (MDNR 2018f, WDNR 2015).

Table 5.4-8 List of AIS found within Minnesota and the Mississippi River

Type	Common Name	Species Name
Fish	Bighead Carp	<i>Hypophthalmichthys nobilis</i>
Fish	Grass Carp	<i>Ctenopharyngodon idella</i>
Fish	Silver Carp	<i>Hypophthalmichthys molitrix</i>
Fish	Round Goby	<i>Neogobius melanostomus</i>
Fish	Ruffe	<i>Gymnocephalus cernua</i>
Crustacean	Red Swamp Crayfish	<i>Procambarus clarkii</i>
Crustacean	Rusty Crayfish	<i>Orconectes rusticus</i>
Crustacean	Spiny Waterflea	<i>Bythotrephes longimanus</i>
Mollusk	Faucet Snail	<i>Bithynia tentaculata</i>
Mollusk	New Zealand Mudsnail	<i>Potamopyrgus antipodarum</i>
Mollusk	Quagga Mussel	<i>Dreissena bugensis</i>
Mollusk	Zebra Mussel	<i>Dreissena polymorpha</i>
Mollusk	Asiatic Clam	<i>Corbicula fluminea</i>
Plant	Curly-Leaf Pondweed	<i>Potamogeton crispus</i>
Plant	Eurasian Watermilfoil	<i>Myriophyllum spicatum</i>
Plant	Purple Loosestrife	<i>Lythrum salicaria</i>
Plant	Starry Stonewort	<i>Nitellopsis obtusa</i>
Plant	Water Hyacinth	<i>Eichornia crassipes</i>

Source: MDNR 2018f, WDNR 2015

The two most recent invasive species identifications made in the Upper Mississippi River system include the identification of zebra mussels in Blandin Reservoir (Herald Review 2018) and water hyacinth (*Eichornia crassipes*) well downstream of the Projects, at approximately RM 696 of the Mississippi River (Brazil 2018).

MP has an internal procedure for AIS management. The procedure was developed to ensure all MP watercraft meet regulatory requirements, limit the environmental impacts of activities, and protect the environment and demonstrate the conservation of water resources by preventing the spread of AIS. The procedure provides direction to MP staff to comply with Minnesota Statute’s chapter 84D and Minnesota Rule chapter 6216 to prevent the spread of AIS.

5.4.8 Resource Summary

Blandin and Prairie River Reservoirs support a variety of non-migratory forage species and popular sportfish species such as largemouth bass, black crappie, sunfish, perch, pikes, walleye, and others. The MDNR has performed periodic fish surveys in these reservoirs for over 30 years. The overall



composition of fish collections in Blandin and Prairie River Reservoirs is consistent with historical data and with the trophic status and ecological classification of the waterbody.

No Endangered Species Act (ESA)-or state-listed fish or aquatic species have been identified in the vicinity of either Project. The upper Midwest and Mississippi River is subject to a number of regional or national-scale invasions of AIS, including recent observations of zebra mussels in Blandin reservoir.

MP currently provides a minimum of 75 cfs flow into the bypass reach downstream of the dam during the months of April and May and a minimum of 50 cfs during June to enhance walleye spawning habitat and protect young-of-year from April to June. These flows were established based on an IFIM study conducted in the bypass reach in support of the previous relicensing. The Prairie River Project bypass reach is primarily of seasonal resource benefit; fish presence in the bypass reach drops substantially after the spring spawning season, as the fish move downstream into the Mississippi River.

There are no fish passage facilities at the Grand Rapids or Prairie River Projects. MP believes fish passage facilities would be of limited resource benefit because primarily non-migratory fish species occur in the vicinity of the Projects, and because such facilities would provide limited benefit given the relatively small watershed upstream of the Prairie River Project and multiple dams on the Mississippi River both upstream and downstream of the Grand Rapids Project.

5.5 Wildlife and Botanical Resources

5.5.1 Wildlife and Botanical Resources

The Grand Rapids Project and Prairie River Project are both located in the Chippewa Plains Subsection of the Laurentian Mixed Forest (LMF) Province as defined by MDNR. In Minnesota, the LMF Province is characterized by broad areas of conifer forest, mixed hardwood and conifer forest, and conifer bogs and swamps. The landscape ranges from rugged, lake-dotted terrain with thin glacial deposits over bedrock to hummocky or undulating plains with deep glacial drift, to large, flat, poorly drained peatlands (MDNR 2018g).

Lands within the Prairie River Project vicinity include forests, well-vegetated shorelines, and residential properties. Lands within the Grand Rapids Project vicinity include well-vegetated shorelines, residential properties, and substantial industrial and commercial development near Blandin Dam and the non-Project Blandin Paper Mill. The Project Areas supports a wide variety of wildlife. Potential occurrences of mammals, avians, amphibians, and reptiles are discussed in the sections below.

5.5.2 Upland Habitat - Botanical and Wildlife Resources

5.5.2.1 Trees and Herbaceous Plants

Within the LMF Province, the Project Areas are comprised of botanical species commonly found in the northern dry-mesic mixed woodland, northern mesic hardwood forest, inland lake sand/gravel/cobble shore, and sand/gravel/cobble river shore vegetation classes. The vegetation description for those classes were based on field observations and supplemental species lists from plant surveys, mostly in the central and northern Minnesota region. The canopy composition within the LMF Province is often mixed but ranges from solely coniferous to solely deciduous. Red pine (*Pinus resinosa*), paper birch (*Betula papyrifera*), white pine (*Pinus strobus*), quaking aspen (*Populus tremuloides*), and red maple (*Acer rubrum*) are examples of some important canopy species. The subcanopy typically varies from patch (25 to 50% cover) to continuous (greater than 75% cover). The ground layer is highly variable, ranging from sparse (5 to 25% cover) to continuous. Table 5.5-1 presents additional floral species that may be present in the vicinity of the Grand Rapids Project and Prairie River Project.



Table 5.5-1 List of dominant plant species potentially occurring in the vicinity of the Grand Rapids Project and Prairie River Project.

Common Name	Scientific Name
Herbaceous Layer	
Canada Mayflower	<i>Maianthemum canadensis</i>
Wild Sarsaparilla	<i>Aralia nudicaulis</i>
Bracken Fern	<i>Pteridium aquilinum</i>
Large-leaved aster	<i>Aster macrophylus</i>
Mountain Rice Grass	<i>Oryzopsis asperifolia</i>
Rose Twistedstalk	<i>Streptopus roseus</i>
Pennsylvania Sedge	<i>Carex pennsylvanica</i>
Wood Anemone	<i>Anemone quinquefolia</i>
Sweet-scented Bedstraw	<i>Galium triflorum</i>
Large-flowered Bellwort	<i>Uvularia grandiflora</i>
Bluebead Lily	<i>Clintonia borealis</i>
Swamp Milkweed	<i>Asclepias incarnata</i>
Bulb-bearing Water Hemlock	<i>Cicuta bulbifera</i>
American Willow-herb	<i>Epilobium ciliatum</i>
Touch-me-not	<i>Impatiens capensis</i>
Golden Dock	<i>Rumex maritimus</i>
Spotted Joe Pye Weed	<i>Eupatorium maculatum</i>
Common Boneset	<i>Eupatorium perfoliatum</i>
Rough Barnyard Grass	<i>Echinochloa muricata</i>
Tall Manna Grass	<i>Glyceria grandis</i>
Path Rush	<i>Juncus tenuis</i>
Rice Cut Grass	<i>Leersia oryzoides</i>
Brown-fruited Rush	<i>Juncus pelocarpus</i>
Bulrushes	<i>Scirpus</i> spp.
Blue Monkey Flower	<i>Mimulus ringens</i>

Common Name	Scientific Name
Woolgrass	<i>Scirpus cyperinus</i>
Fringe Sedge	<i>Carex crinita</i>
Swamp Milkweed	<i>Asclepias incarnata</i>
Water Parsnip	<i>Sium suave</i>
Retrose Sedge	<i>Carex retrorsa</i>
Cyperus Sedge	<i>Carex pseudocyperus</i>
Bluejoint	<i>Calmagrostis canadensis</i>
Shrub Layers	
Beaked Hazelnut	<i>Corylus cornuta</i>
Juneberries	<i>Amelanchier</i> spp.
Bush Honeysuckle	<i>Diervilla lonicera</i>
Red Maple	<i>Acer rubrum</i>
Balsam Fir	<i>Abies balsamea</i>
Lowbush Blueberry	<i>Vaccinium angustifolium</i>
Chokecherry	<i>Prunus virginiana</i>
Pagoda Dogwood	<i>Cornus alternifolia</i>
Fly Honeysuckle	<i>Lonicera canadensis</i>
Sugar Maple	<i>Acer saccharum</i>
Ironwood	<i>Carpinus caroliniana</i>
False Indigo	<i>Amorpha fruticosa</i>
Sandbar Willow	<i>Salix exigua</i>
Trees	
Jack Pine	<i>Pinus banksiana</i>
White Cedar	<i>Thuja occidentalis</i>
Red Pine	<i>Pinus resinosa</i>
Paper Birch	<i>Betula papyrifera</i>
White Pine	<i>Pinus strobus</i>
Quaking Aspen	<i>Populus tremuloides</i>



Common Name	Scientific Name
Red Maple	<i>Acer rubrum</i>
Big-toothed Aspen	<i>Populus grandidentata</i>
Sugar Maple	<i>Acer saccharum</i>
Northern Red Oak	<i>Quercus rubra</i>
Basswood	<i>Tilia americana</i>

Source: MDNR 2018a.

5.5.2.2 Mammals

Mammals inhabit a wide variety of habitat types. The use of specific habitat may shift during different life stages and/or parts of the season. Given the location of the two Projects, mammals in the immediate Project Areas would be species that are tolerant of some degree of urbanization. Examples of some mammal species expected to be found within the Project Areas include white-tailed deer (*Odocoileus virginianus*), chipmunk (*Tamias minimus*), beaver (*Castor canadensis*), raccoon (*Procyon lotor*), muskrat (*Ondatra zibethicus*), and various squirrels (*Sciurus* and *Tamiasciurus* spp.). As stated above, the Grand Rapids Project is in a more urban setting, especially on the northern portion of Blandin Reservoir, than the Prairie River Project, therefore mammals at the Projects may differ slightly by Project. Table 5.5-2 provides a list of mammal species potentially occurring in the vicinity of the Grand Rapids Project and Prairie River Project.

Table 5.5-2 List of mammals potentially occurring in the vicinity of the Grand Rapids Project and Prairie River Project

Common Name	Scientific Name
Badger	<i>Taxidea taxus</i>
Northern Long-eared Bat	<i>Myotis septentrionalis</i>
Beaver	<i>Castor canadensis</i>
Black Bear	<i>Ursus americanus</i>
Bobcat	<i>Lynx rufus</i>
Canada Lynx	<i>Lynx canadensis</i>
Chipmunk	<i>Tamias minimus</i>
Coyote	<i>Canis latrans</i>
Fisher	<i>Martes pennanti</i>
Red Fox	<i>Vulpes vulpes</i>

Common Name	Scientific Name
Gray Wolf	<i>Canis lupus lycaon</i>
Woodchuck	<i>Marmota monax</i>
Eastern Cottontail	<i>Sylvilagus floridanus</i>
Snowshoe Hare	<i>Lepus americanus</i>
Mink	<i>Neovison vison</i>
Muskrat	<i>Ondatra zibethicus</i>
Porcupine	<i>Erethizon dorsatum</i>
Raccoon	<i>Procyon lotor</i>
River Otter	<i>Lontra canadensis</i>
Northern Flying Squirrel	<i>Glaucomys sabrinus</i>
Fox Squirrel	<i>Sciurus niger</i>
Gray Squirrel	<i>Sciurus carolinensis</i>
Red Squirrel	<i>Tamiasciurus hudsonicus</i>
Thirteen-lined Ground Squirrel	<i>Spermophilus tridecemlineatus</i>
Striped Skunk	<i>Mephitis mephitis</i>
Short-tailed Weasel (Ermine)	<i>Mustela ermine</i>
Long-tailed Weasel	<i>Mustela frenata</i>
White-tailed Deer	<i>Odocoileus virginianus</i>

Source: MDNR 2018h.

5.5.2.3 Avians

A variety of avian fauna, particularly songbirds, may occur in the coniferous and deciduous forests surrounding the Project Areas. Avian species potentially occurring in the terrestrial uplands of the Project Areas include American crow (*Corvus brachyrhynchos*), eastern bluebird (*Sialia sialis*), northern cardinal (*Cardinalis cardinalis*), mourning dove (*Zenaida macroura*) warblers (*Cardellina canadensis* and *Setophaga tigrina*) and sparrows (*Zonotrichia querula* and *Passer domesticus*). A variety of ducks and water fowl could be found utilizing the Project reservoirs, rivers, and marsh habitats including species such as Canada goose (*Branta canadensis*), common loon (*Gavia immer*), mallard (*Anas platyrhynchos*), wood duck (*Aix sponsa*), and several other duck species common in Minnesota. The variety of waterfowl typically increases during the migrating period in the spring and fall. Raptor species are also a common occurrence within the Project Areas, with species



such as bald eagle (*Haliaeetus leucocephalus*), Osprey (*Pandion haliaetus*) red-tailed hawk (*Buteo jamaicensis*), and barred owl (*Strix varia*). Table 5.5-3 provides a list of avian species potentially occurring in the vicinity of the Grand Rapids Project and Prairie River Project.

Table 5.5-3 List of avian species potentially occurring in the vicinity of the Grand Rapids Project and Prairie River Project

Common Name	Scientific Name
American Bittern	<i>Botaurus lentiginosus</i>
American Crow	<i>Corvus brachyrhynchos</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Canada Goose	<i>Branta canadensis</i>
Common Loon	<i>Gavia immer</i>
Common Snipe	<i>Gallinago gallinago</i>
Black Tern	<i>Chlidonias niger</i>
Double-crested Cormorant	<i>Phalacrocorax auritus</i>
Blue-winged Teal	<i>Anas discors</i>
Mallard	<i>Anas platyrhynchos</i>
Ring-Necked Duck	<i>Aythya collaris</i>
Wood Duck	<i>Aix sponsa</i>
Eastern Bluebird	<i>Sialia sialis</i>
Bobolink	<i>Dolichonyx oryzivorus</i>
Gyrfalcon	<i>Falco rusticolus</i>
Merlin	<i>Falco columbarius</i>
Peregrine Falcon	<i>Falco peregrinus</i>
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>
Ruffed Grouse	<i>Bonasa umbellus</i>
Spruce Grouse	<i>Falcapennis canadensis</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Broad-winged Hawk	<i>Buteo platypterus</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>

Common Name	Scientific Name
Canada Warbler	<i>Cardellina canadensis</i>
Cape May Warbler	<i>Setophaga tigrina</i>
Connecticut Warbler	<i>Oporornis agilis</i>
Evening Grosbeak	<i>Coccythraustes vespertinus</i>
Golden-winged Warbler	<i>Vermivora chrysoptera</i>
Harris's Sparrow	<i>Zonotrichia querula</i>
Common Sparrow	<i>Passer domesticus</i>
Olive-sided Flycatcher	<i>Contopus cooperi</i>
Rusty Blackbird	<i>Euphagus carolinus</i>
Wood Thrush	<i>Hylocichla mustelina</i>
Mourning Dove	<i>Zenaida macroura</i>
Northern Cardinal	<i>Cardinalis cardinalis</i>
Barred Owl	<i>Strix varia</i>
Boreal Owl	<i>Aegolius funereus</i>
Great Gray Owl	<i>Strix nebulosa</i>
Great Horned Owl	<i>Bubo virginianus</i>
Long-eared Owl	<i>Asio otus</i>
Northern Hawk Owl	<i>Surnia ulula</i>
Northern Saw-whet Owl	<i>Aegolius acadicus</i>
Snowy Owl	<i>Nyctea scandiaca</i>
Sandhill Crane	<i>Grus canadensis</i>
Trumpeter Swan	<i>Cygnus buccinator</i>
Woodcock	<i>Scolopax minor</i>

Source: MDNR 2018; USFWS 2018a and 2018b.

5.5.2.4 Amphibians and Reptiles

Several species of reptiles and amphibians can be found in the Projects' watershed and can include the blue-spotted salamander (*Ambystoma laterale*), the tiger salamander (*Ambystoma tigrinum*), eastern redbacked salamander (*Plethodon cinereus*), eastern newt (*Notophthalmus viridescens*), four-toed salamander (*Hermidactylum scutatum*), common garter snake (*Thamnophis sirtalis*),



redbellied snake (*Storeria occipitomaculata*), common tree frog (*Polypedates leucomystax*), northern leopard frog (*Lithobates pipiens*), green frog (*Lithobates clamitans*), and American toad (*Anaxyrus americanus*). Table 5.5-4 provides a list of potential reptile and amphibian species that may occur in the vicinity of the Grand Rapids Project and Prairie River Project.

Table 5.5-4 List of reptile and amphibian species potentially occurring in the vicinity of the Grand Rapids Project and Prairie River Project

Common Name	Scientific Name
American Toad	<i>Anaxyrus americanus</i>
Gray Treefrog	<i>Hyla versicolor</i>
Spring Peeper	<i>Pseudacris crucifer</i>
Boreal Chorus Frog	<i>Pseudacris maculate</i>
Green Frog	<i>Lithobates clamitans</i>
Mink Frog	<i>Lithobates septentrionalis</i>
Northern Leopard Frog	<i>Lithobates pipiens</i>
Wood Frog	<i>Lithobates sylvaticus</i>
Blue-spotted Salamander	<i>Ambystoma laterale</i>
Eastern Red-backed Salamander	<i>Plethodon cinereus</i>
Four-toed Salamander	<i>Salamandra scutata</i>
Tiger Salamander	<i>Ambystoma tigrinum</i>
Painted Turtle	<i>Chrysemys picta</i>
Snapping Turtle	<i>Chelydra serpentine</i>
Common Garter Snake	<i>Thamnophis sirtalis</i>
Redbellied Snake	<i>Storeria occipitomaculata</i>

Source: MDNR 1980; MDNR 2018.

5.5.3 Temporal and Spatial Distribution of Species

5.5.3.1 Botanical Resources

Northern Dry-Mesic Mixed Woodland

The temporal and spatial distribution of botanical resources in the northern dry-mesic mixed woodland consists of aspen-birch-basswood forest and red oak-sugar maple-basswood forest. The aspen-birch-basswood forest composed of variable mixtures of paper birch (*Betula papyrifera*),

sugar maple (*Acer saccharum*), basswood, quaking aspen (*Populus tremuloides*) and red maple (*Acer rubrum*), with northern red oak (*Quercus rubra*), bur oak (*Quercus macrocarpa*), big-toothed aspen (*Populus grandidentata*), and white pine being other important species. Beaked hazelnut (*Corylus cornuta*), mountain maple (*Acer spicatum*), bush honeysuckle (*Diervilla lonicera*), and round-leaved dogwood (*Cornus rugosa*) tend to be abundant in the shrub layer. Wild sarsaparilla (*aralia nudicaulis*), large-leaved aster (*Eurybia macrophylla*), and Canada mayflower (*Maianthemum canadense*) are abundant in the ground-layer cover (MDNR 2018g).

The red oak, sugar maple, and basswood are important canopy species. This forest type also contains smaller amounts of paper birch and red maple, with occasional yellow birch and quaking aspen mixed in. Balsam fir and junberries (*Amelanchier* spp.) are common in the understory. Common ground-layer cover include false Solomon's seal (*Smilacina racemosa*), American spikenard (*Aralia racemosa*), and groundpines (*Lycopodium dendroideum*) (MDNR 2018g).

Northern Mesic Hardwood Forest

In areas where red pine, white pine, and quaking aspen are the dominant canopy, vegetation composition is more likely to have mountain ash, white cedar, and black spruce as part of the canopy or understory. Other shrub layers consist of chokecherry (*Prunus virginiana*), white spruce, and mountain ash. Twinflower (*Linnaea borealis*), running clubmoss (*Lycopodium clavatum*), naked miterwort (*Mitella nuda*), wood anemone (*Anemone quinquefolia*), dwarf raspberry (*Rubus pubescens*), and sweet-scented bedstraw (*Galium triflorum*) can be found in the ground-layer cover (MDNR 2018g).

5.5.3.2 Wildlife Resources

As indicated in Section 5.5.2, several of the mammal species potentially occurring in the Project Areas inhabit and can utilize a wide variety of habitats, including white-tailed deer, chipmunk, gray squirrel (*Sciurus carolinensis*), red squirrel (*Tamiasciurus hudsonicus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), and striped skunk (*Mephitis mephitis*). These species are generalists and can be found wherever there is suitable habitat or food and acceptable den/hibernation sites. In general, these species could be found in wetlands, upland forests, residential areas, and cultivated fields at or adjacent to the Project Areas. There are several species that require specific habitat to survive. Species such as the northern long-eared bat, Canada lynx, and gray wolf. Canada lynx and gray wolf are both species which require an abundance of prey as well as a large tract of wild land with little to no human interaction (USFWS 2018c and 2018d). The northern long-eared bat will forage over a wide range of habitats looking for prey species (insects), but will hibernate in caves and mines with very specific temperature requirements (USFWS 2018e).

Avifauna are highly mobile in nature. Species such as American crow, eastern bluebird, Cape May warbler (*Setophaga tigrina*), common sparrow, mourning dove, and northern cardinal are generalists and will utilize a wide variety of habitats, including both upland and riparian areas for foraging, shelter, and reproduction. Several species prefer terrestrial upland and may be present in the Project Areas year-round, these include: ruffed grouse (*Bonasa umbellus*), spruce grouse (*Falci pennis canadensis*), and raptor species (eagles, hawks, and owls). Highly migratory birds may be present within the Project Areas as well, but would be seasonally dependent. These include American bittern (*Botaurus lentiginosus*), woodcock (*Scolopax minor*), Canada warbler (*Cardellina canadensis*), wood thrush (*Hylocichla mustelina*), sandhill crane (*Grus canadensis*) and waterfowl.

5.5.3.3 Amphibians and Reptiles

Due to the cold-blooded nature of reptiles and amphibians, these animals must hibernate to survive harsh winters in temperate areas of the Project Areas. During hibernation, reptiles and amphibians must bury themselves in mud or below the frost line in the uplands of the Project Areas. Salamander species, such as the blue-spotted salamander (*Ambystoma laterale*), stay underground most of their lives, only emerging in early spring for courtship and deposition of eggs in vernal pools of water within the Project Areas. The salamanders from the genus *Ambystoma* and *Plethodon* do not typically inhabit large water sources and, therefore, they would not likely be found in the riverine habitats of the Project Areas. Spring peeper (*Pseudacris crucifer*), green frog (*Lithobates clamitans*), and northern leopard frog (*Lithobates pipiens*) are examples of frog species that could occur in the Project Areas.

In general, most of the reptiles and amphibians potentially occurring in the Project areas would inhabit various wetland and upland habitats. For example, tree frogs will forage aloft in small trees and shrubs, while the American toad (*Anaxyrus americanus*) will use a variety of upland habitats as long as there is proper moisture to survive. The turtle species potentially occurring in the Project Areas prefer water and wet meadows, while the snakes potentially occurring in the Project Areas prefer moist woods, hillsides, upland meadows, forest edges, and riparian areas.

5.5.4 Resource Summary

Lands within the Prairie River Project Boundary include forests, well-vegetated shorelines, and residential properties. Lands within the Grand Rapids Project Boundary include well-vegetated shorelines, residential properties, and substantial industrial and commercial development near Blandin Dam and the non-Project Blandin Paper Mill. Both Projects and the vicinity support a diverse range of wildlife and botanical species typical of that found in residential and industrial areas.

5.6 Wetlands, Riparian, and Littoral Habitats

Wetlands are generally defined as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support vegetation typically adapted for life in saturated soil conditions. The state of Minnesota regulates certain activities within wetlands at the state level through the Minnesota Wetland Conservation Act. The USACE maintains jurisdiction over most wetlands and other aquatic features such as lakes and rivers through Section 404 of the federal CWA. Additionally, the USACE has regulatory jurisdiction over traditionally navigable waters within the state of Minnesota.

The USFWS (Cowardin 1979) defines wetlands as:

...lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominately hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some point during the growing season of the year.

The littoral zone is defined as the area just above the influence of wave action along the shore of a lake or river to a depth where warm surface water still reach the lake/river bed in summer (Goldman and Horne 1994). This area can roughly be defined as the shoreline up to a depth of approximately one meter in water depth.

The riparian zone serves as the primary interface between aquatic and upland habitats, influencing both the primary productivity and food resources within the adjacent aquatic habitat. For the purposes of this section, the term “riparian” shall be used to refer to anything connected to or immediately adjacent to the shoreline or banks of Blandin Reservoir (Grand Rapids Project) and Prairie River Reservoir (Prairie River Project).

5.6.1 Wetland, Riparian, and Littoral Vegetation

The Project Areas are located in the Northern Minnesota Drift and Lake Plains St. Louis Moraines Subsection as defined by the MDNR (MDNR 2003). The vegetation of the Project Areas are similar to what the MDNR defines as Inland Lake Sand/Gravel/Cobble Shore Vegetation Community. The dominant riparian vegetation in the Inland Lake Sand/Gravel/Cobble Shore Vegetation Community are shrubs, forbs and graminoids such as sand bar willow (*Salix exigua*), spotted Joe pye weed (*Eupatorium maculatum*) and tall manna grass (*Glyceria grandis*) with invasive species such as reed canary grass (*Phalaris arundinacea*) being increasingly abundant (MDNR 2003). The Project Areas



also includes eight palustrine wetland habitat types and three other aquatic habitat types (Lacustrine/Littoral, pond, and riverine) as classified by Cowardin (1979). Plant species of the wetland areas include emergent vegetation such as cattail (*Typha spp.*) and bull rushes (*Juncus spp.*) with various aquatic plants such as native species of watermilfoil (*Myriophyllum spp.*) and pondweed (*Potamogeton spp.*) within the littoral areas (MDNR 2003).

5.6.1.1 Invasive Plants

Minnesota defines invasive plants as a nonnative species that causes or may cause economic or environmental harm or harm to human health or threatens or may threaten natural resources or the use of natural resources in the state (Minn. Stat. 84D. 2018). Invasive plants are regulated under both Minnesota State Statute Chapter 84D and Minnesota Rule part 6216.

Two invasive plants are known to occur within the vicinity of the Project areas. Curly-leaf pondweed (*Potamogeton crispus*), which is a prohibited invasive species in Minnesota, is known to occur in both Blandin Reservoir and Prairie River Reservoir (Itasca County SWCD 2017). Additionally, purple loosestrife (*Lythrum salicaria*), which is a prohibited invasive species and a prohibited noxious weed in Minnesota, is known to occur in Blandin Reservoir (Itasca County SWCD 2017). Although there is no published information for the occurrences of terrestrial invasive plant species within the Project areas, several invasive plant species are known to occur within Itasca County (EDDMapS 2018). Invasive plant species that occur within Itasca County and have the potential to occur within the Project areas includes; reed canary grass (*Phalaris Arundinacea*), Canada thistle (*Cirsium arvens*), European buckthorn (*Rhamnus cathartica*), leafy spurge (*Euphorbia esula*), spotted knapweed (*Centaurea maculosa*) and birdsfoot trefoil (*Lotus corniculatus*).

MP is committed to preventing the spread of both AIS and invasive plants. MP has an AIS operating procedure in place to mitigate the potential of spreading AIS through operation and maintenance activities. Additionally, MP implements best management practices to prevent the spread of invasive plant species in accordance with MDNR's operational order 113 – Invasive Species Prevention and Management.

5.6.2 Wetland, Riparian, and Littoral Wildlife

Specific wildlife surveys of the wetland and riparian habitats in the vicinity of the Projects are not available. However, many of the wildlife species identified to occur in the vicinity of the Project typically use wetland or riparian habitats at some point in their lives. Many of the species mentioned in Section 5.5 may utilize wetland, riparian, and littoral habitat within the Projects' boundaries for permanent, temporary, or transient uses.

5.6.2.1 Wetland, Riparian, and Littoral Habitat Map

A map of wetland and littoral habitats existing for the Grand Rapids and Prairie River Projects is presented in Figure 5.6-1 and Figure 5.6-2, respectively.



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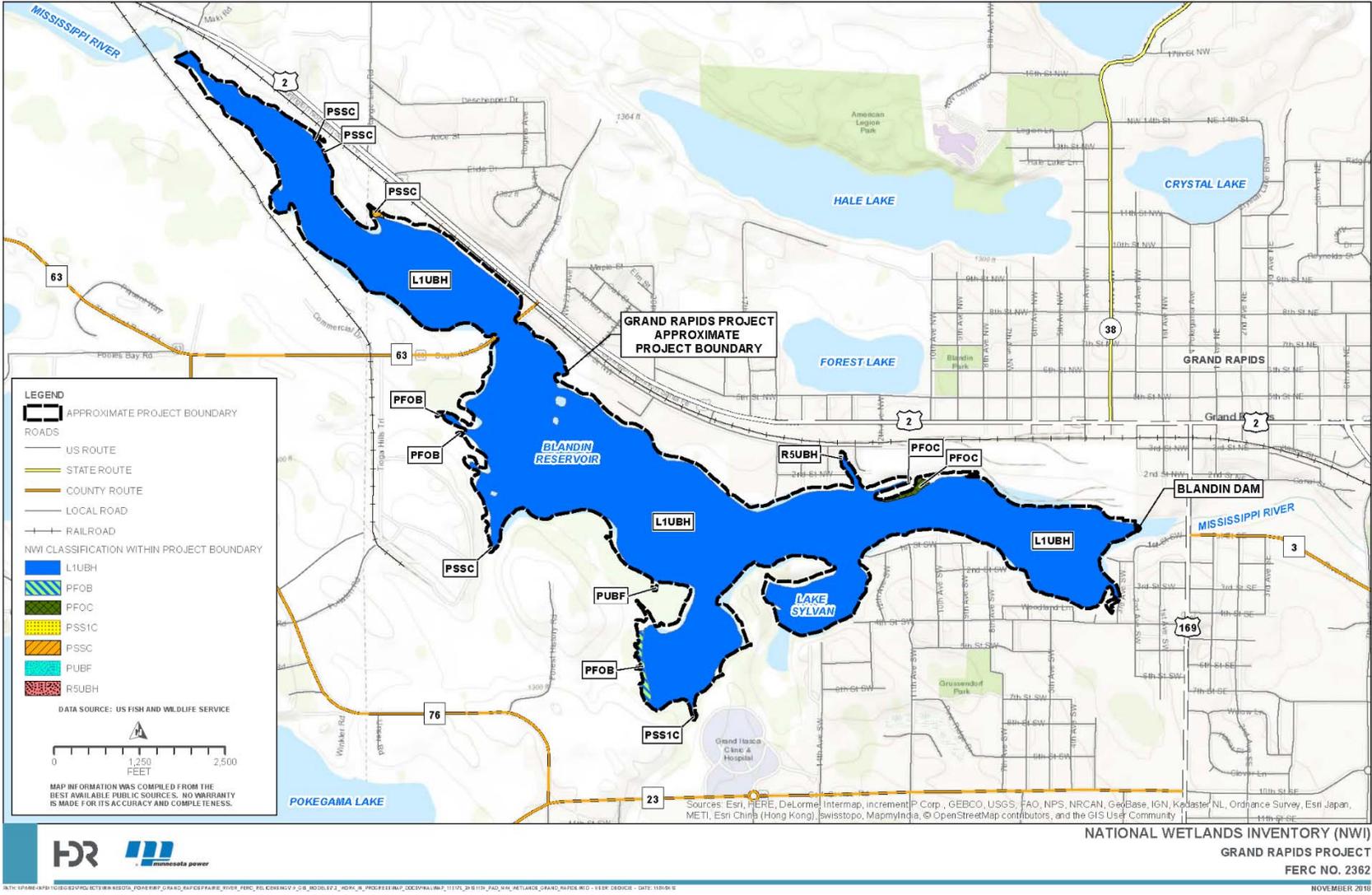


Figure 5.6-1 Grand Rapids Project wetlands

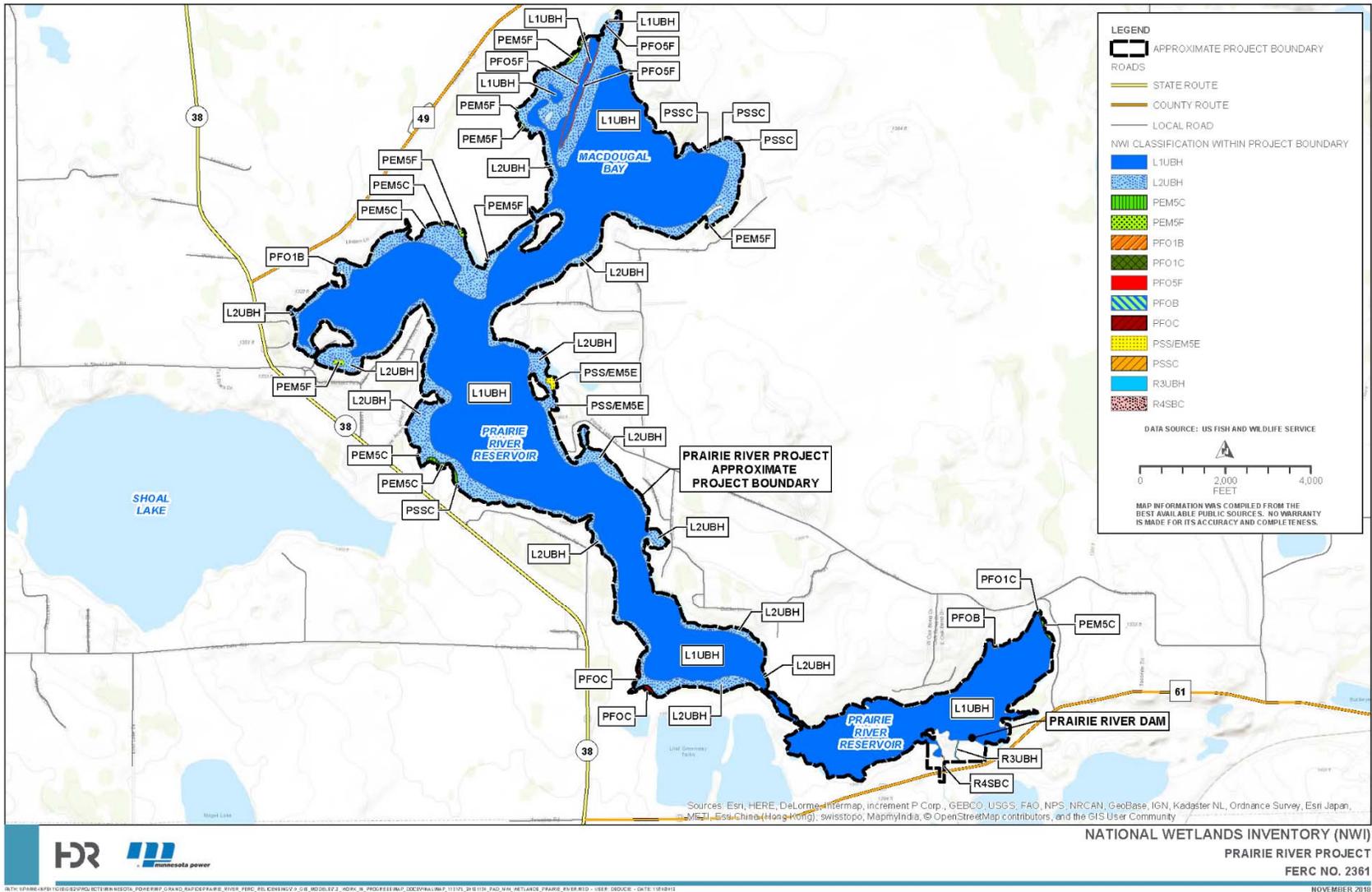


Figure 5.6-2 Prairie River Project wetlands

5.6.2.2 Estimates of Wetland, Riparian, and Littoral Habitat Acreage

Table 5.6-1 and Table 5.6-2 define and summarize the National Wetland Inventory (NWI) classification system resource types associated with the wetland and littoral maps (USFWS undated^b) and provides the available acreage of each classification of wetlands and littoral areas for each Project. Table 5.6-3 and Table 5.6-4 summarize major land uses within the riparian zone for each Project.

Table 5.6-1 NWI classification and estimated acreage in the Grand Rapids Project Boundary

NWI Code	Aquatic Resource Type	Estimated Acreage
L1UBH	Lake	450.1
PFOB	Forested Wetland	2.2
PFOC	Forested Wetland	1.4
PSS1C	Shrub Wetland	<0.1
PSSC	Shrub Wetland	0.6
PUBF	Pond	<0.1
R5UBH	Riverine	<0.1
Total		454.4

Source: USFWS undated^b



Table 5.6-2 NWI classification and estimated acreage in the Prairie River Project Boundary

NWI Code	Aquatic Resource Type	Estimated Acreage
L1UBH	Lake	981.1
L2UBH	Lake	280.4
PEM5C	Emergent Wetland	3.7
PEM5F	Emergent Wetland	3.8
PFO1B	Forested Wetland	<0.1
PFO1C	Forested Wetland	0.2
PFO5F	Forested Wetland	2.5
PFOB	Forested Wetland	0.4
PFOC	Forested Wetland	1.7
PSS/EM5E	Shrub/Emergent Wetland	1.3
PSSC	Shrub Wetland	0.6
R3UBH	Riverine	0.3
R4BC	Riverine	0.3
Total		1276.50

Source: USFWS undated**b**



Table 5.6-3 Riparian area land cover/land use estimated acreage in the Grand Rapids Project Boundary

Land Use/Land Cover Type	Estimated Acreage
Deciduous Forest	7.4
Developed, High Intensity	1.6
Developed, Low Intensity	3.2
Developed, Medium Intensity	1.5
Developed, Open Space	12.1
Emergent Herbaceous Wetlands	1.2
Evergreen Forest	4.1
Mixed Forest	6.5
Open Water	440.9
Shrub/Scrub	0.1
Woody Wetlands	11.9
Total	490.6

Source: USFWS undatedb



Table 5.6-4 Riparian area land cover/land use estimated acreage in the Prairie River Project Boundary

Land Use/Land Cover Type	Estimated Acreage
Barren Land	<0.1
Deciduous Forest	26.2
Developed, Low Intensity	0.7
Developed, Medium Intensity	0.2
Developed, Open Space	1.8
Emergent Herbaceous Wetlands	55.9
Evergreen Forest	5.1
Hay/Pasture	1.0
Mixed Forest	24.3
Open Water	1,184.5
Shrub/Scrub	3.7
Woody Wetlands	17.2
Total	1,320.5

Source: USFWS undatedb

5.6.3 Resource Summary

Existing data maintained by the USFWS and presented in this section indicates that the Grand Rapids Project and Prairie River Project support a variety of wetland and riparian cover types. MP implements best management practices to prevent the spread of terrestrial and plant AIS in accordance with MDNR’s operational order 113 – Invasive Species Prevention and Management.

5.7 Rare, Threatened, and Endangered Species

As part of the information-gathering process conducted to support the development of this PAD, MP requested information from the MDNR and USFWS regarding federal and state-listed RTE species, critical habitat, sensitive natural communities, and species of special concern within the Projects’ vicinity.

5.7.1 Federally Listed Threatened, Endangered, and Candidate Species

MP conducted a review of federally listed threatened, endangered, and candidate species for both the Grand Rapids Project and Prairie River Project using USFWS’ Information for Planning and

Consultation (IPaC) online system on July 16, 2018. A total of three threatened, endangered, or candidate species have the potential to occur within the Project boundaries (Table 5.7-1).

Table 5.7-1 Federally listed species potentially occurring within the Project Boundary of the Grand Rapid Hydroelectric Project and Prairie River Hydroelectric Project

Common Name	Scientific Name	Status	Project
Canada Lynx	<i>Lynx canadensis</i>	Threatened	Grand Rapids Project; Prairie River Project
Gray Wolf	<i>Canis lupus</i>	Threatened	Grand Rapids Project; Prairie River Project
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	Threatened	Grand Rapids Project; Prairie River Project

Source: USFWS IPaC consultation

5.7.1.1 Canada Lynx

Lynx have a large home range, generally between 12 to 83 square miles. The overall size of the lynx home range varies depending on abundance of prey, the species gender and age, season, and density of its population (USFWS 2018c). Breeding occurs through March and April in the north. During periods of hare abundance in the northern taiga, litter size can be large, up to four or five kittens. Litter sizes are typically smaller in lynx populations in the contiguous U.S. Snowshoe hares are the primary prey. Other prey species include red squirrel (*Tamiasciurus hudsonicus*), grouse (*Bonasa umbellus*, *Dendragopus* spp., and *Lagopus* spp.), flying squirrel (*Glaucomys sabrinus*), ground squirrel (*Spermophilus parryii* and *S. richardsonii*), porcupine (*Erethizon dorsatum*), beaver (*Castor canadensis*), mice (*Peromyscus* spp.), voles (*Microtus* spp.), shrews (*Sorex* spp.), and fish (USFWS 2018c).

In all regions within range of the lynx in the contiguous U.S., timber harvest, recreation, and their related activities are the predominant land uses affecting lynx habitat (USFWS 2018c).

5.7.1.2 Gray Wolf

Gray wolves are pack animals with social hierarchy that defend their territories from other wolves. Territory size is a function of prey density and can range from 25 to 1,500 square miles. Both male and female wolves disperse at equal rates and equal distances, sometime greater than 600 miles (USFWS 2018d).

Wolf normally first breed as yearlings and once a year in February. Gestation is typically 63 days, where one to ten pups are born; five pups being the normal brood size. Pups typically stay with the pack until they are at least one year old. Wild and domestic ungulates are the preferred prey for



wolves. This species is also a scavenger. Beaver are among the smallest important prey, but this species will also prey upon smaller mammals, birds, and fish (USFWS 2018d).

Five main factors are critical to the long-term survival of wolves: 1) large tracts of wild land with low human densities and minimal accessibility by humans, 2) ecologically sound management, 3) availability of adequate wild prey, 4) adequate understanding of wolf ecology and management, and 5) maintenance of populations that are either free of, or resistant to, parasites and diseases new to wolves or are large enough to successfully contend with their adverse effects (USFWS 1992).

5.7.1.3 Northern Long-eared Bat

The northern long-eared bat is found across much of the eastern and north central United States (37 states) and all Canadian provinces from the Atlantic coast west to the southern Northwest Territories and eastern British Columbia. Northern long-eared bats begin breeding in late summer or early fall near hibernacula. Females go into delayed fertilization where sperm are stored after copulation and fertilization occurs after winter hibernation and the following spring. Pregnant females give birth to a single pup in late May to late July, depending on the species range of its colony. This species use echolocation during flight to feed during dusk. Feeding occurs through the understory of forested hillsides and ridges on moths, flies, leafhoppers, caddisflies, and beetles (USFWS 2018e).

The white-nose syndrome, a fungal disease known to affect bats, is currently the predominant threat to this bat, especially throughout the Northeast where this species has declined at many hibernation sites by up to 99 percent from pre-white-nose syndrome levels (USFWS 2018e).

5.7.1.4 Biological Opinions, Status Reports, and Recovery Plans of Threatened and Endangered Species

Several biological opinions have been developed to promote conservation of the Canada lynx, gray wolf, and northern long-eared bat. However, none of the biological opinions are specific to the Grand Rapids and Prairie River Project Areas (USFWS 2018c, 2018d, and 2018e).

5.7.1.5 Status Reports

No status reports exist for the Canada lynx, gray wolf, and northern long-eared bat. The USFWS Environmental Conservation Online System (ECOS) website provides a list of the threatened and endangered plants and animals and its species report, with information on the species habitat range, range map, recovery plan, critical habitat, conservation plans, and biological opinions.

5.7.1.6 Recovery Plans

Recovery plans have been developed for the Canada lynx and gray wolf and are available for view at the USFWS ECOS website. No recovery plan has been developed for the northern long-eared bat.

5.7.2 Critical Habitat

When a species is proposed for listing as endangered or threatened under the ESA, the USFWS must consider whether there are areas of habitat believed to be essential to the species' conservation. Those areas may be proposed for designation as critical habitat. Critical habitat is a specific geographic area(s) contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Through consultation with the USFWS, no critical habitat has been designated under the ESA for species in the vicinity of the Projects.

5.7.3 Temporal and Spatial Distribution of Federally Listed Threatened and Endangered Species

5.7.3.1 Canada Lynx

Canada lynx live in dense forests across northern Canada, in northern Minnesota and Maine, and in mountainous areas of northwestern United States. Historically, the Canada lynx range was in northern Minnesota in the coniferous forest biome (MDNR 2018i). The Canada lynx does not migrate extensive distances and, therefore, does not have a significant temporal distribution.

5.7.3.2 Gray Wolf

The gray wolf lives near lakes and sub-boreal forest in Minnesota. The gray wolf range in Minnesota has grown from the northeast corner of the state in the 1970s toward the center of the state (2000s). Wolf packs live within territories with their territories ranging in size from 50 square miles to more than 1,000 square miles, depending on available prey and their seasonal movements (USFWS 2018f). The gray wolf does not migrate extensive distances and, therefore, does not have a significant temporal distribution.

5.7.3.3 Northern Long-eared Bat

The spatial distribution for the northern long-eared bat extends from Montana and Wyoming in the West, south to eastern Texas, across the northern portions of Mississippi, Alabama, Georgia, and North Carolina, north to Maine, and across the Great Lakes. As this species generally winters in local or regional hibernacula, it does not migrate extensive distances and, therefore, does not have a significant temporal distribution.



5.7.4 State-listed, Threatened, Endangered, and Candidate Species

By email dated July 27, 2018 (included in Appendix B), the MDNR directed MP to review state-listed threatened or endangered species using the National Heritage Information System database; species proposed for listing as threatened or endangered, or species of concern; designated or proposed critical habitat; and candidate species under a license agreement program between MP and MDNR. Table 5.7-2 and Table 5.7-3 list state-listed, threatened, endangered, and candidate species within ½ mile of the Grand Rapids Project and Prairie River Project, respectively. Additionally, Bald eagle (*Haliaeetus leucocephalus*) nests were identified within ½ mile of both Projects.

Table 5.7-2 State-listed, threatened, endangered, and candidate species within ½ mile of the Grand Rapids Project¹

Common Name	Scientific Name	State Listing
Mussels		
Black Sandshell	<i>Ligumia recta</i>	Special Concern
Creek Heelsplitter	<i>Lasmigona compressa</i>	Special Concern
Avian		
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Special Concern
Plants		
Least Moonwort	<i>Botrychium simplex</i>	Special Concern

¹ Copyright 2018, State of Minnesota, Department of Natural Resources. Rare features data reviewed were provided by the Division of Ecological and Water Resources, MDNR, under license agreement LA832. DNR has not provided comment on the interpretation of the results included in this report.

Table 5.7-3 State-listed, threatened, endangered, and candidate species within ½ mile of the Prairie River Project¹

Common Name	Scientific Name	State Listing
Mussels		
Black Sandshell	<i>Ligumia recta</i>	Special Concern
Avian		
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Special Concern
Plants		
Prairie Moonwort	<i>Botrychium campestre</i>	Special Concern
Pale Moonwort	<i>Botrychium pallidum</i>	Special Concern
Least Moonwort	<i>Botrychium simplex</i>	Special Concern

¹ Copyright 2018, State of Minnesota, Department of Natural Resources. Rare features data reviewed were provided by the Division of Ecological and Water Resources, MDNR, under license agreement LA832. DNR has not provided comment on the interpretation of the results included in this report.

5.7.4.1 Black Sandshell

The black sandshell was once common in all but the smallest rivers in Minnesota, but is now listed as a species of special concern in the state. The black sandshell is usually found in the riffle and run areas of medium to large rivers in areas dominated by sand or gravel. Degradation of mussel habitat in streams throughout the black sandshell’s known range is a continuing threat to this species. The black sandshell is also being impacted by the infestation of non-native zebra mussels in the Mississippi River and its tributaries (MDNR 2018j).

5.7.4.2 Bald Eagle

The bald eagle was removed from ESA listing on August 8, 2007, but remains protected by the Bald and Golden Eagle Protection Act, which prohibits take, possession, transport, or sale (among other actions) of live or dead eagles and their parts, nests, or eggs, unless authorized by a permit. In Minnesota, the bald eagle commonly breed on northern lakes and along the St. Croix and Mississippi Rivers. Bald eagles move south for the winter to open water areas that attract large numbers of waterfowl or fish. In Minnesota, this includes the Minnesota and Mississippi Rivers and sometimes lakes in the southern part of the state (University of Minnesota 2018).

5.7.4.3 Creek Heelsplitter

The creek heelsplitter was once widespread and abundant in the Mississippi drainage north of St. Anthony Falls in Minnesota and is now listed by the state as a species of special concern. The creek



heelsplitter typically occurs in creeks, small rivers, and the upstream portions of large rivers. Its preferred substrates are sand, fine gravel, and mud. It has been noted that the creek heelsplitter most often colonizes areas downstream of riffles in small pools and habitats with swift currents ranging in water depths from 1-3 feet deep. Degradation of mussel habitat in streams throughout the creek heelsplitter's known range is a continuing threat to the species (MDNR 2018k).

5.7.4.4 Moonwort

Least moonwort, pale moonwort, and prairie moonwort have adapted to a wide variety of habitats scattered through the northern half of Minnesota, with least moonwort the most common of the three species. Moonwort occurs primarily in open sites, including prairies, wetlands, and abandoned mine sites. Threats to moonwort include loss of open habitat to successional overgrowth or trampling by humans or animals (MDNR 2018l). Least moonwort, pale moonwort, and prairie moonwort are all listed as species of special concern in Minnesota.

5.7.5 Resource Summary

MP conferred with USFWS and MDNR regarding ESA and state-listed RTE species, critical habitat, sensitive natural communities, and species of special concern within the Grand Rapids Project vicinity. Canada lynx, gray wolf, and northern long-eared bat were reported as ESA-listed species potentially occurring within the Grand Rapids Project Boundary and Prairie River Project Boundary. For state listed species, MDNR listed the black sandshell, creek heelsplitter, bald eagle, and least moonwort as occurring within ½ mile of the Grand Rapids Project. MDNR listed the black sandshell, bald eagle, prairie moonwort, pale moonwort, and least moonwort as occurring with ½ mile of the Prairie River Project.

5.8 Recreation and Land Management (18 CFR § 5.6(d)(3)(viii))

5.8.1 Existing Recreation Facilities and Opportunities

Grand Rapids is the major population center located near the Project Areas. The population of Grand Rapids is approximately 11,242. Tourism in this area is substantial and draws recreationists from all parts of Minnesota. Tourists frequent the area during the summer months, visiting the over 1,000 lakes in the region. Summer use of the general region is comprised of fishing, hunting, picnicking, camping, trap shooting, golfing, off-highway vehicle riding, nature viewing, biking, boating, and attending local events. Winter use consists of hunting, ice fishing, skating, cross-country skiing, snow shoeing, fat tire biking, and snowmobiling. Privately operated recreational facilities are also provided in the vicinity of the Project Areas and consist of camping and picnic areas, kayak and canoe rentals, boat landings and fishing access.



Both Project Areas contain a variety of recreational opportunities given the proximity to the city, location on the Prairie and Mississippi Rivers, national trail, scenic highways, and numerous parks. Recreational opportunities near the Grand Rapids Project are highlighted in Table 5.8-1 and depicted in Figure 5.8-1. Recreational opportunities in the vicinity of the Prairie River Project are highlighted in Table 5.8-2 and depicted in Figure 5.8-2.



Table 5.8-1 List of recreation in the vicinity of the Grand Rapids Project

Recreation Area	Distance to Blandin Dam	Amenities	Owner/ Operator
Pokegama Dam and Recreation Area	3.0 miles upstream of the dam	A popular recreation attraction in the area; offers fishing boat ramp, dock, picnic area with grills, a playground, and 19 RV sites with a disposal station.	USACE
Blandin Mississippi River Park and Izaak Walton Landing	2.0 miles upstream of the dam	Site of Blandin Reservoir (Lake Sylvan area) boat launch and popular fishing site	Blandin Paper Company
Forest History Center Trail System	1.4 miles upstream of the dam	There are more than 5 miles of trails at the Forest History Center that connect to the National Scenic Trail (section 5.8.4.4) that include summer and winter activities as hosted by the History Center (Minnesota Historical Society 2008).	State of Minnesota Historic Society
Sylvan Park with Sylvan Landing	0.8 miles upstream from the dam	Contains a boat ramp, linkage to several trails along the south shores of the lake, restrooms, benches and a picnic area with grills.	City of Grand Rapids
Skogebo Park	0.6 miles upstream from the dam	Undeveloped green space along the lake shore.	City of Grand Rapids
River Park	0.1 miles downstream from the dam	Contains a walking trail and scenic overlook.	City of Grand Rapids
Riverfront Trail System	Along the downstream banks of the Mississippi River of the dam	Bituminous walking trail with a fishing pier that connects with River Park, a fishing pier, and the Angel of Hope memorial garden on the south shore of the Mississippi River. The city has plans to further develop the trail system.	City of Grand Rapids
Steamboat Park	0.3 miles downstream of the dam	Contains a public boat launch to the Mississippi River and is the put-in site for portagers at Blandin Dam.	City of Grand Rapids
Veterans Park	1.0 miles downstream of the dam	36-acre site with two picnic shelters, toilets, and picnic areas with grills, play area, and trails.	City of Grand Rapids
Oakland Park	1.2 miles downstream of the dam	10.7-acre site with athletic fields, equipment, parking, and connections to trails.	City of Grand Rapids

Source: Itasca County Park System 2018



Table 5.8-2 List of recreation areas in the vicinity of the Prairie River Project

Recreation Area	Distance to Prairie River Dam	Amenities	Owner/Operator
Mallard Point Road Boat Launch	Adjacent to Prairie River Reservoir	Contains 1 concrete ramp and 6 vehicle / trailer parking spaces	Arbo Township
Arbo Township Boat Launch	Adjacent to Prairie River Reservoir	Contains 3 vehicle / trailer parking spaces.	Arbo Township
Arbo Township Park	0.6 miles west of the Prairie River Reservoir	Contains two benches, pavilion, interpretive signage, and an old runner from the Prairie River Project.	Arbo Township and Prairie Lake Associations
Gunn Park	1.5 miles upstream of Prairie River Dam	Contains several baseball and softball fields, a fishing pier, pavilion, and picnic area.	Itasca County
Itasca Trail	1.5 miles upstream of Prairie River Dam	Multi-use bituminous trail from the County Fairgrounds in Grand Rapids to Gunn County Park.	Itasca County
Mesabi Trail	0.2 miles downstream	The Mesabi Trail is a, currently, 135-mile of 155-planned-miles of multi-use trail that passes south of the dam, including connecting to the portage site.	Itasca County

Source: Itasca County Park System 2018



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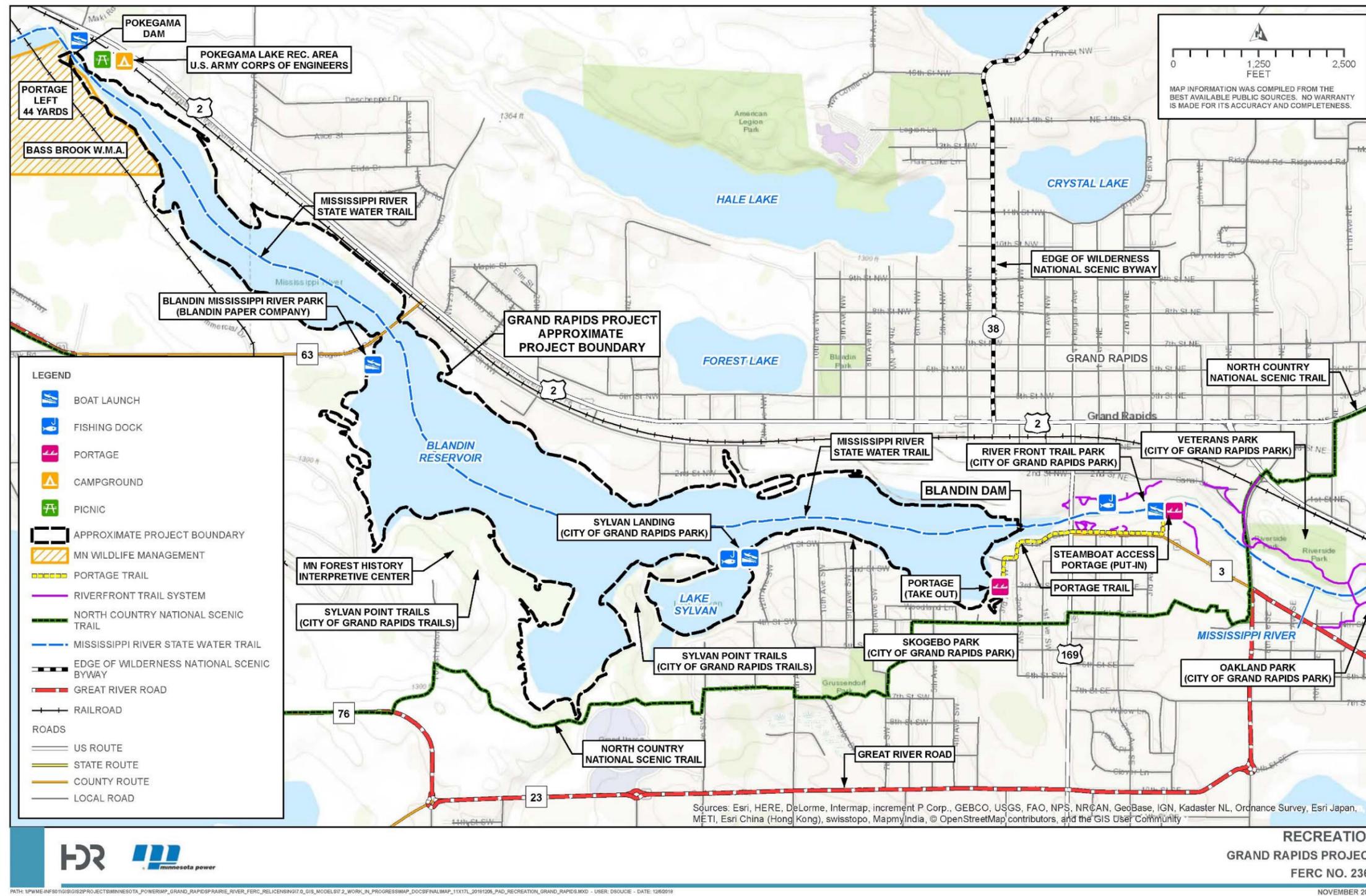


Figure 5.8-1 Recreational opportunities in the vicinity of the Grand Rapids Project

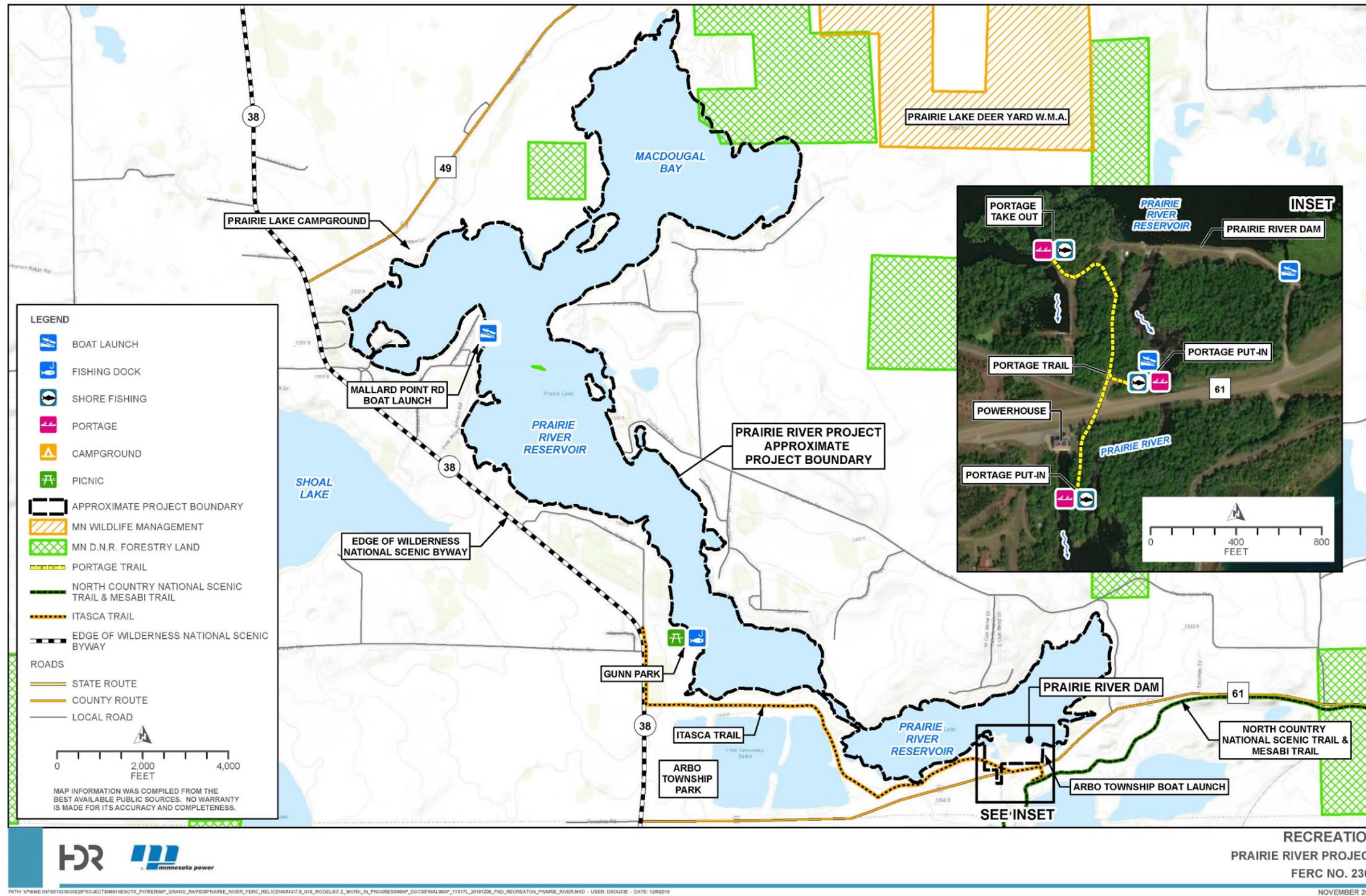


Figure 5.8-2 Recreational opportunities in the vicinity of the Prairie River Project

5.8.2 FERC-Approved Recreational Opportunities at the Projects

In addition to recreational resources and access points discussed above in Section 5.8.1, there are also FERC-approved recreational opportunities at the Projects. Recreational uses of the immediate Project Areas of the Grand Rapids and Prairie River Projects includes boating, fishing, picnicking, and walking. There are canoe portage trails located near both dams.

5.8.2.1 Grand Rapids Project

MP provides access to the Project reservoir. Pursuant to Article 407 of the current license, MP provides access to the Project reservoir through a portage trail and other access areas under a partnership with community partners, as discussed below. The Recreation Plan required under Article 407 was developed in consultation with the Grand Rapids Recreation and Park Department, Itasca County Park and Recreation Department, and the MDNR.

MP currently has a partnership with the City of Grand Rapids to maintain a portage trail at the Grand Rapids Project. The portage trail takeout is located approximately 1,000 feet upstream of the dam on the southwestern bank of Blandin Reservoir. The portage extends approximately 0.5 miles along the City of Grand Rapids streets and sidewalks to the put-in site at Steamboat Park. Alternatively, portage users can take out 3.5 miles upstream at the Pokegama Dam and receive free assisted portage by a volunteer group who operates with a trailer donated by MP and drops portage users off at the portage put-in site at Steamboat Park, 0.3 miles downstream of Blandin Dam. Signage is posted at the Pokegama Dam at Sylvan Park noting these options. Pursuant to the amended Recreation Plan approved by FERC on May 31, 2018, MP also installed improved portage signage and conducts annual vegetation clearing to enhance visibility and usability of the existing self-portage for recreationalists.

5.8.2.2 Prairie River Project

Although there are many recreation sites in the vicinity of the Prairie River Project (Table 5.8-2), MP also provides access to the Project reservoir and vicinity. Pursuant to Article 411 of the current license, three shoreline fishing areas provide access to the reservoir and downstream in Prairie River. One area is located adjacent to the portage take-out, west-northwest of the dam. The other two shoreline fishing areas are located on the east and west sides of the peninsula leading to the portage put-in on the Prairie River. All of the fishing areas are accessible from the portage trail and include signage to direct anglers to the fishing areas. The Public Access Plan defining these access areas was developed in consultation with the National Park Service (NPS), MDNR, and Arbo Township and was approved by FERC in August 1995. MP also provides a portage trail at the Project which was originally constructed by Blandin Paper Company and is approximately 1,500 feet



long, extending from the southern bank of Prairie River Reservoir to the Prairie River, 100 feet south of the Project dam.

5.8.3 Specially Designated Recreation Areas in Close Proximity to the Project

5.8.3.1 Wild, Scenic, and Recreational Rivers

No portion of the Projects have been designated under the National Wild and Scenic Rivers System or Minnesota's Wild & Scenic Rivers Act.

5.8.3.2 Nationwide Rivers Inventory

No portion of the Prairie River or the Mississippi River in the Project Areas are listed by the NPS under the Nationwide Rivers Inventory (NRI).

5.8.3.3 Scenic Byways

The Edge of the Wilderness National Scenic Byway is located in the vicinity of the Grand Rapids Project and Prairie River Project. This portion of County Road (CR) 38, as shown on Figures 5.8-1 and 5.8-1, is a 47-mile stretch from Grand Rapids, Minnesota, to Effie, Minnesota. The highway passes adjacent to the Project Area starting at the terminus of the designated byway at the intersection of CR 38 and US Highway 2, approximately 0.3 miles north of Blandin Dam. The Edge of the Wilderness National Scenic Byway then traverses north, passing along approximately a 2-mile stretch of the western perimeter of Prairie River Reservoir.

The Great River Road is a network of existing roads designed to create a continuous byway following the Mississippi River through the states of Minnesota, Wisconsin, Iowa, Illinois, Missouri, Kentucky, Tennessee, Arkansas, Mississippi, and Louisiana. The road winds through river towns, dense woods, bluffs, big cities, rich farmland, and the Mississippi delta (Explore Minnesota 2018). The Great River Road is located south-southeast of Blandin Reservoir.

5.8.3.4 National Trails System and Wilderness Areas

The North Country Trail, a NPS-designated National Trail is located in the vicinity of the Grand Rapids Project and Prairie River Project. The North Country Trail, shown on Figures 5.8-1 and 5.8-2, spans seven U.S. states from the States of North Dakota to New York. It crosses near the Project Areas south of Blandin Reservoir, crossing the Mississippi River 0.5 miles downstream of Blandin Dam, traverses north out of the City of Grand Rapids, and then crosses the Prairie River 0.3 miles downstream of Prairie River Dam, and continuing northeast towards the shoreline of Lake Superior.

No portion of the Projects have been designated as wilderness areas, recommended for such designation, or designated as wilderness study areas under the Federal Wilderness Act.

5.8.3.5 Regionally or Nationally Significant Recreation Areas

Grand Rapids is the major population center located near the Project Areas. The population of Grand Rapids is approximately 11,242. Tourism in this area is substantial and draws recreationists from all parts of Minnesota. Tourists frequent the area during the summer months, visiting the over 1,000 lakes in the region. Summer use of the general region is comprised of fishing, hunting, picnicking, camping, trap shooting, golfing, off-highway vehicle riding, nature viewing, biking, boating, and attending local events. Winter use consists of hunting, ice fishing, skating, cross-country skiing, snowshoeing, fat tire biking, and snowmobiling. Privately operated recreational facilities are also provided in the vicinity of the Project Areas and consist of camping and picnic areas, boat landings and fishing access.

Both Project Areas contain a variety of recreational opportunities including from the proximity to the city, location on the Prairie and Mississippi Rivers, national trail, scenic highway, and numerous parks and cultural enhancements. Recreational opportunities near the Grand Rapids Project are highlighted in Table 5.8-1 and depicted in Figure 5.8-1. Recreational opportunities in the vicinity of the Prairie River Project are highlighted in Table 5.8-2 and depicted in Figure 5.8-2.

Table 5.8-1 and Table 5.8-2 list recreation areas in the vicinity of the Projects that are typically used by recreationalists in the area. Bass Brook wildlife management area (WMA) is located along the south shore of the Mississippi River adjacent to the Pokegama Dam. This 300-acre WMA has extensive beds of wild rice and is heavily used by waterfowl and furbearers. The WMA provides opportunities to view forest song birds and wetland wildlife (Explore Minnesota undated).

5.8.4 Current Project Recreation Use Levels

Recreation use levels have been documented as required in the FERC Licensed Hydropower Development Recreation Report (FERC Form 80). As of 2015, the number of annual visits to the recreational areas at the Grand Rapids Project was estimated to be 7,228 daytime and 1,806 nighttime visits and at the Prairie River Project is estimated to be 9,164 daytime and 2,290 nighttime visits. None of the recreation facilities appear to be utilized to the maximum capacity, with all sites at Grand Rapids being 44 percent utilized or below and Prairie River being 55 percent utilized or below.

5.8.5 Existing Shoreline Buffer Zones

As ROR facilities, the Grand Rapids and Prairie River Projects are operated in a way that minimally affects the reservoir levels and, therefore, has limited impacts on the shoreline. Lands within the Prairie River Project vicinity include forests, well-vegetated shorelines, and residential properties. Lands within the Grand Rapids Project vicinity include well-vegetated shorelines, residential properties, and substantial industrial and commercial development near Blandin Dam and the non-



Project Blandin Paper Mill. Both Projects and the vicinity support a diverse range of wildlife and botanical species typical of that found in residential and industrial areas.

5.8.6 Shoreline Development Policy

MP partners with local entities to manage recreational use areas at the Projects and in the vicinity of the Projects. Due to limited ownership of lands adjacent to the Project reservoirs, there are no shoreline management plans for the Projects.

5.8.7 Recreation Needs Identified in Management Plans

Minnesota's Statewide Comprehensive Outdoor Recreation Plan (SCORP) is a five-year strategic plan that shapes investment by the state and local communities in priority outdoor recreation infrastructure and programming. The Plan is designed to evaluate ongoing and emerging outdoor recreation trends, needs, and issues and establish priority strategies for achieving outdoor recreation goals. The state and its local outdoor recreation decision-makers and managers utilize the SCORP as a focused set of priorities and suggested actions to guide them as they make decisions about outdoor recreation (MDNR 2014).

In developing the 2014–2018 SCORP update, the MDNR undertook a variety of efforts to engage the public, recreation providers, and other outdoor recreation stakeholders in identifying key recreational assets, priorities, and reinforce the vision and four strategic directions that comprise the Parks and Trails Legacy Plan. These stakeholders provided significant direction on how the state and local communities could better collaborate to approach management of Minnesota's entire system of parks and outdoor recreation spaces, and many of these stakeholders will be active partners in implementing the objectives and strategies identified in the SCORP.

The SCORP has identified the following strategic directions for the State:

1. Connect people to the outdoors with welcoming environments, access, marketing, quality sites, programming and special events, partnerships, and infrastructure and amenities;
2. Acquire land and create opportunities;
3. Protect and maintain public investments in infrastructure and natural resources; and,
4. Enhance coordination among partners.

5.8.8 Non-Recreational Land Use and Management

Land use within the Project Areas ranges from commercial, industrial, and residential development of the City of Grand Rapids and Arbo Township, with some woody wetlands and dense forest along the banks.

5.8.9 Resource Summary

Both Project Areas contain a variety of recreational opportunities given the proximity to the city, location on the Prairie and Mississippi Rivers, national trail, scenic highways, and numerous parks. Summer use of the general region is comprised of fishing, hunting, picnicking, camping, trap shooting, golfing, off-highway vehicle riding, nature viewing, biking, boating, and attending local events. Winter use consists of hunting, ice fishing, skating, cross-country skiing, snowshoeing, fat tire biking, and snowmobiling. Privately operated recreational facilities are also provided in the vicinity of the Project Areas and consist of camping and picnic areas, kayak and canoe rentals, boat landings and fishing access.

Recreational uses of the immediate Project Areas of the Grand Rapids and Prairie River Projects includes boating, fishing, picnicking, and walking. FERC-approved recreational facilities at the Grand Rapids Project include a portage trail and boat launches providing access to Blandin Reservoir. FERC-approved recreational facilities at the Prairie River Project include a portage trail and shoreline fishing areas providing access to Prairie River Reservoir.

5.9 Aesthetic Resources

5.9.1 Overview

The Grand Rapids Project is located on the Mississippi River in Grand Rapids, Minnesota. The Project's 465-acre reservoir is a focal point for the City of Grand Rapids. The Grand Rapids powerhouse sits on the north shore of the river bank adjacent the dam and is constructed of concrete, a rock-filled timber crib, timber piles, and steel sheetpile structures founded on natural soils (Photo 5.9-1). The dam consists of an abutment and retaining walls, overflow spillway, Tainter gate bay, and powerhouse and is made mostly of concrete and steel. The dam and powerhouse are an off-white/beige color (Photo 5.9-2). There is substantial industrial and commercial development near Blandin Dam and the non-Project Blandin Paper Mill. This industrial development includes the Rapids Energy Center. Rapids Energy Center provides Blandin Power Company with steam, compressed air, and electricity. Wood waste material (biomass) from the paper mill and local forest product companies is burned in conjunction with coal in two high pressure boilers to produce steams (MP 2018).



Photo 5.9-1 Aerial view of the Grand Rapids Project



Photo 5.9-2 Grand Rapids Project powerhouse

The Prairie River Project is located at approximately RM 6.3 on the Prairie River near Grand Rapids, Minnesota. The confluence is approximately 3 RM downstream from Blandin Dam (Photo 5.9-3). The Project has three components: the dam, forebay, and powerhouse. The dam is constructed of mostly of concrete walls and covered with earthen embankments. An inlet channel flows between the reservoir and the forebay, southwest of the dam. The forebay is constructed mostly of concrete and steel with earth embankments. An underground concrete penstock lies between the forebay and powerhouse. The powerhouse is made of reinforced concrete and brick facade (Photo 5.9-4).

The Project powerhouse was completely reconstructed in 2011-2013 after a fire occurred in December 2008, which destroyed the powerhouse and the machinery within it. MP designed the reconstructed powerhouse to maintain the general appearance of the previous structure in an effort to minimize the effect on historic properties, including archaeological sites. Prior to the rebuild, MP coordinated with the Minnesota SHPO and conducted an archaeological survey of the new powerhouse area and conducted an eligibility assessment of the proposed new powerhouse. In a letter dated June 28, 2011, Minnesota SHPO agreed that the archaeological survey work done for the undisturbed areas of the site found that no archaeological sites would be affected by the new powerhouse construction project. Additionally, Minnesota SHPO agreed that as a result of the fire, the powerhouse site no longer retained the integrity required to meet the eligibility criteria for the NRHP.

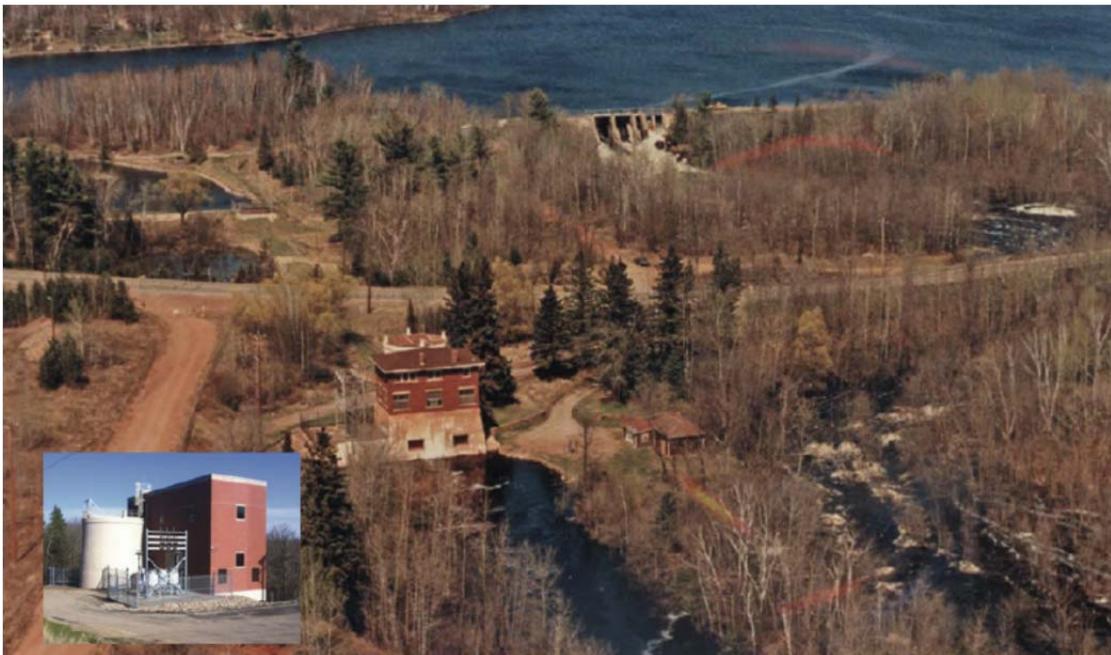


Photo 5.9-3 Aerial view of the Prairie River Project¹

¹ Aerial photo depicts the Prairie River Project prior to the rebuild of the Project powerhouse. Inset photo depicts the current Project powerhouse.



Photo 5.9-4 Prairie River Project powerhouse

5.9.2 Visual Character of Project Lands and Water

The Grand Rapids Project facilities have been in place since 1902 and the Prairie River Project facilities since 1920 with each having modification and rebuilds over the years. These facilities have essentially become part of the local environment. No changes to the visual aspects of the Projects are proposed.

Blandin Dam was originally constructed by the Grand Rapids Power and Boom Company over 100 years ago and has been a defining icon for the community itself (City of Grand Rapids 2018b)(MP 1991). The area near Blandin Dam is now the heart of downtown Grand Rapids. Scenic walking paths surround the riverfront area which are highlighted as attractions for tourists to visit. U.S. Highway 169 crosses the Mississippi River immediately downstream of the dam, making it readily visible to not just pedestrians but for vehicular traffic as well. The reservoir is as important aesthetically to the community as the dam. The topography surrounding the reservoir is mostly forested and includes City of Grand Rapids developments such as private homes, parks and trails. Substantial industrial and commercial development occurs on the north shore of Blandin Reservoir near Blandin Dam and the non-Project Blandin Paper Mill.

The topography surrounding Prairie River Reservoir, the Project reservoir, is mostly forested with flat to moderately rolling slopes. The forest type is predominantly mixed northern forest composed of species such as maple, birch, aspen, pine, and balsam fir. Occasional small farms are dispersed throughout the Project Area. Rock outcrops and formations are a periodic feature throughout the landscape, including the narrow gorge (locally known as “The Gorge” that connects Prairie Lake and Lower Prairie Lake, which collectively form Prairie River Reservoir. The Gorge is a frequent attraction for locations to hike and photograph. The entire lake is scenic, only moderately developed with scattered residences, cabins, and camping sites.

5.9.3 Resource Summary

The Grand Rapids Project has been in place since 1901 and has become part of the local environment. Blandin Reservoir includes private homes, parks, and trails in addition to the commercial and industrial development near Blandin Dam. The Prairie River Project has been in place since 1920 and has become part of the local environment. Prairie River Reservoir is located in a scenic, moderately developed area with a park, private homes, cabins and camping sites.

5.10 Cultural Resources

In considering a new license for the Grand Rapids Project and a subsequent license for the Prairie River Project, FERC has the lead responsibility for compliance with applicable federal laws, regulations, and policies pertaining to historic properties, including the National Historic Preservation Act of 1966 (NHPA), as amended.² Section 106 of the NHPA (Section 106)³ requires federal agencies to take into account the effects of their undertakings on historic properties and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment.

The Section 106 process (defined at 36 CFR Part 800) is intended to accommodate historic preservation concerns with the needs of federal undertakings through a process of consultation with agency officials, the SHPO, federally recognized Indian Tribes, and other parties with a potential interest in an undertaking’s effects on historic properties. The goals of the Section 106 process are to:

- Identify historic properties that may be affected (directly and/or indirectly) by an undertaking;
- Assess the effects of an undertaking on historic properties; and

² 54 USC §300101 et seq.

³ 54 USC §306108



- Seek ways to avoid, minimize, or mitigate adverse effects on historic properties through consultation.

Historic properties are defined in 36 CFR Part 800 as any pre-contact or historic period district, site, building, structure, or individual object listed in or eligible for inclusion in the NRHP. This term includes artifacts, records, and remains that are related to and located within historic properties, as well as properties of traditional religious and cultural importance (often referred to as “traditional cultural properties” or TCPs) that meet the NRHP criteria.

The Secretary of the Interior has established the criteria for evaluating properties for inclusion in the National Register (36 CFR Part 60). In accordance with the criteria, properties are eligible if they are significant in American history, architecture, archaeology, engineering, or culture. The quality of significance is present in historic properties that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- Are associated with events that have made a significant contribution to the broad patterns of our history; or
- Are associated with the lives of persons significant in our history; or
- Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant or distinguishable entity whose components may lack individual distinction; or
- Have yielded or may be likely to yield information important in prehistory or history.

In anticipation of the Projects’ relicensing, MP conducted a review of existing archaeological study reports and NRHP records to identify previously reported archaeological and historic resources within the Projects’ vicinity.

5.10.1 Cultural Context -Cultural Sequence of the Project Area

Human groups have occupied Minnesota for thousands of years. Through time, methods of subsistence and cultural traditions have shifted with broad climatic changes that occurred during the past 12,000 years or so, and as new groups moved into the area. Statewide Contexts that discuss broad divisions in time have been developed by the Minnesota Historical Society and can be used to understand the cultural development of the Grand Rapids Project and Prairie River Project Areas (Minnesota Historical Society 2008). The relevant contexts for the region include:

- Pre-contact Period (9500 BC - AD 1650)
 - Paleoindian Tradition (9500 BC - 6000 BC)

- Archaic Tradition (6000 - 500 BC)
- Woodland Tradition (1000 BC - AD 900/1650)
- Contact Period (AD 1650- 1837)
 - Native American
 - Euro-American
- Post-Contact Period
 - Indian Communities and Reservations 1837-1934

5.10.1.1 Prehistoric Period

Paleoindian Tradition (9500 BC - 6000 BC)

It is uncertain when the first American Indian groups moved into Minnesota, but it is generally accepted that these first peoples were characterized by the lanceolate spearpoint with distinctive flutes chipped from the center of the point, which aided in hafting the point to a spear shaft. It is thought that the Paleoindian people hunted large game animals. There are very few representations of this culture within Minnesota.

Archaic Tradition (6000- 500 BC)

The Archaic Tradition coincided with the peak of the climatic warming trend that started with the melting of the glacial ice that covered northern Minnesota about 15,000 years ago. The human population adapted to the changes in vegetation and fauna by developing new tools, such as groundstone hammers and axes, and distinctively, the appearance of copper tools, such as awls, knives, and harpoons. While there are more sites recorded in Minnesota with Archaic components than Paleoindian components, this tradition is still largely not well understood. There are a handful of sites within Itasca County that contain Archaic components.

Woodland Tradition (1000 BC -AD 900/1650)

By the middle of the first millennium B.C., climate and vegetation patterns in Minnesota were relatively similar to those of recent times. The Woodland Tradition is often divided into three sub-Traditions of Early, Middle, and Late Woodland. However, a recent publication (Arzigian, 2008) divides the Woodland archaeological record into a series of eleven complexes, based mostly on ceramic styles. While people from the Woodland Tradition continued to rely on hunting and fishing as in the previous Archaic period, they included clay pottery vessels in their tool package and also began burying their dead in earthen mounds.

The beginning of a mound building tradition suggests some important changes in social organization during this time, changes from a more egalitarian hunting and gathering society to one characterized by social stratification. Evidence suggests that only selected individuals were buried in mounds. As



time progressed, Woodland-era people's way of life became increasingly characterized by a greater dependence on plant resources, principally through horticulture or gardening. Villages became larger and more permanent, and evidence of extensive trade networks appear. Earthen mounds and numerous village and campsites have been identified along lakes, rivers, and streams throughout Itasca County. Sites have been identified near Aspen Lake, Deer Lake, McKinney Lake, Bear Lake, Crooked Lake, Coon Lake, Harrison Lake, Prairie River Reservoir, Sandwich Lake, Prairie River, Mississippi River, Bigfork River, and numerous unnamed marshes and tributary streams.

Contact Period (AD 1650- 1837)

In the 1600s, the woodland-adapted Dakotas that had dominated the Western Great Lakes region for about one thousand years, began to be pushed south and west by the Algonquin speaking Ojibwe, or Chippewa, groups. The lifestyles of both Native American groups were similar, with their subsistence based on stages of annual seasonal cycles. Winter was the time for hunting or trapping, and spring was the time of the maple sugar harvest. In the summer crops were tended, supplemented by fishing and hunting, and the fall was characterized by wild rice harvests. Disrupting this seasonal pattern was the introduction to the fur trade (circa 1680-1760). A notable consequence of trapping for wages or trade goods was the fairly rapid depletion of fur-bearing animals, particularly the beaver. Although the European and American fur traders concentrated their efforts on areas to the north, there is evidence of fur trade posts further south, especially around the headwaters of the Mississippi and the southwestern part of Lake Superior. Toward the end of the Contact Period, euromerican settlers and businesses set sights on the pine forests as economic resources. .

5.10.1.2 Historic Period

Itasca County was established October 17, 1849, 17 years after Henry Rowe Schoolcraft identified the source of the Mississippi River at Lake Itasca, which is located in present-day Clearwater County. The original boundary of Itasca County extended from the Canadian border to near the north end of Mille Lacs Lake and included lands east of the Mississippi River and the lands of present day Carlton, Cook, Koochiching, Lake, St. Louis, and portions of Aitkin and Cass counties.

European settlement in the county was minimal until the later part of the nineteenth century when an influx of timber harvesting operations and iron ore mining began in the 1860s and 1880s, fueling population growth. Farming in the area began in the later part of the nineteenth century. Farming continued to increase steadily into the early part of the twentieth century (Vroman 2000).

Today, mining, paper production, manufacturing, recreation enterprises, and agriculture significantly contribute to the economy of the county. Small grains, adapted vegetables, and feed crops largely are grown. Timber harvesting operations peaked in the early 1900s. Timber harvesting still contributes to the economy of the county. Eighty percent of the lands in the county are forested.

Aspen is the principle cover type making up 42 percent of forested acres (USDA 1987). The remaining 58 percent is made up of a mix of upland and lowland species of coniferous (29 percent) and deciduous trees (27 percent).

5.10.2 Area of Potential Effects

An area of potential effect (APE) is defined as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking. In the context of the relicensing process, FERC generally defines the APE as follows: “The APE includes all lands within the Project Boundary. The APE also includes any lands outside the Project Boundary where cultural resources may be affected by Project-related activities that are conducted in accordance with the FERC license.” In prior cultural resource surveys, the Grand Rapids Project APE was defined as the Project Boundary and 10 meters inland from the reservoir shoreline. Similarly, the Prairie River Project APE was defined as the existing reservoir shoreline.

5.10.3 Archaeological Resources and Historic Architectural Resources

5.10.3.1 Grand Rapids Project

In support of the previous relicensing for the Grand Rapids Project, cultural surveys were conducted and a Cultural CRMP was developed. Phase I surveys were conducted in 1994 and included inspection of the entire shoreline. 104 shovel tests were performed, two of which contained Native American artifacts. One of the sites was concluded to lack contextual integrity because of shoreline erosion and disturbance by modern construction, the other of which indicated extensive subsurface disturbances and not in its original place. Neither sites met the criteria of eligibility for nomination to the NRHP.

A standing structures evaluation was also conducted. The scope of work for this evaluation included a contextual analysis and survey to evaluate the architectural and engineering significance as well as overall integrity of the Project facilities. The evaluation found that the standing Project structures were ineligible for the NRHP as all the surveyed structures had been significantly compromised or were constructed outside the period of significance.

Article 405 of the current FERC License required the development of a CRMP in consultation with the Minnesota SHPO. Blandin Paper Company filed the Grand Rapids Hydroelectric Project CRMP on August 5, 1996. The CRMP proposed shoreline monitoring every five years. FERC approved the CRMP on November 20, 1996, and ordered a report filed every five years describing the results of the shoreline monitoring and implementation of the CRMP with the first filing due no later than



October 1, 2001. The five-year reports are to be submitted to FERC after consultation with the Minnesota SHPO. Per the most recent report filed in 2016, results of the erosion monitoring concluded that no shoreline erosion has occurred or is currently anticipated to occur. There is no current evidence of erosion, slumping, or slope instability around the reservoir shoreline. The next monitoring report is due on October 1, 2021.

5.10.3.2 Prairie River Project

In support of the previous relicensing for the Prairie River Project, cultural surveys were conducted and a CRMP was developed. The APE for Prairie River is defined by the existing reservoir shoreline, which is almost entirely privately owned. A Phase I survey was completed in 1990 and identified archaeological sites. A Phase II evaluation was completed for 17 of these sites in 1992 and a single site evaluated in 1993. Of the evaluated sites, 6 were determined to be significant and eligible, in addition to the hydropower facility itself, for the NRHP.

Article 410 of the current license required the development of a CRMP in consultation with the Minnesota SHPO. MP filed the Prairie River CRMP on March 29, 1995. The CRMP required MP to submit a report annually for the Prairie River Project that summarizes cultural resource management activities conducted the prior year. Per the most recent report filed in 2018, nine sites on the annual monitoring list were visited in 2017 and assessed regarding status of shoreline stability and ground cover. Based on monitoring investigations, none of the nine sites were experiencing degrading impacts resulting from the operations and maintenance of the Prairie River Project. Based on the recent monitoring observations showing the sites are not being impacted by the operation and maintenance of the Project, SHPO concurred in their September 2018 letter, with the recommendation to discontinue annual monitoring activities.

5.10.4 Existing Discovery Measures

Both the Grand Rapids Project and the Prairie River Project have CRMPs that address existing discovery measures.

5.10.5 Identification of Indian Tribes

5.10.5.1 Grand Rapids Project

In a letter dated October 12, 2017, FERC invited the following tribes to participate in the relicensing process: Bois Forte Band of Minnesota Chippewa, Minnesota Chippewa Tribe, Leech Lake Band of Minnesota, White Earth Band (Minnesota Chippewa Tribe), Lac du Flambeau Band of Lake Superior Chippewa Indians, Menominee Indian Tribe of Wisconsin, Apache Tribe of Oklahoma, Cheyenne and Arapahoe Tribes of Oklahoma, Upper Sioux Community of Minnesota, Mille Lacs Band of Ojibwe, and Fort Belknap Indian Community of the Fort Belknap Reservation of Montana.

In a letter dated October 17, 2017, the Cheyenne and Arapaho Tribes responded that there are no properties within the Project Boundary, but requested to be contacted if human remains, ceremonial or cultural objects, historic sites, burial mounds, village or battlefield artifacts are discovered.

In multiple letters dated January 10, 2018, FERC invited the Fond du Lac Band of Lake Superior Chippewa, Grand Portage Band of Chippewa Indians, and Red Lake Band of Chippewa Indians to participate in the relicensing process.

5.10.5.2 Prairie River Project

In a letter dated October 12, 2017, FERC invited the following tribes to participate in the relicensing process: Bois Forte Band of Minnesota Chippewa, Minnesota Chippewa Tribe, Leech Lake Band of Minnesota Chippewa Tribe, White Earth Band (Minnesota Chippewa Tribe), Lac du Flambeau Band of Lake Superior Chippewa Indians, Menominee Indian Tribe of Wisconsin, Apache Tribe of Oklahoma, Cheyenne and Arapaho Tribes of Oklahoma, Upper Sioux Community of Minnesota, Mille Lacs Band of Ojibwe, and Fort Belknap Indian Community of the Fort Belknap Reservation of Montana.

In a letter dated October 17, 2017, the Bois Forte Band of Minnesota Chippewa stated they are unaware of any cultural or religious places of interest at the Project. The Bois Forte Band of Chippewa asked to be contacted if any human remains or culturally affiliated artifacts are found.

In a letter dated October 18, 2017, the Cheyenne and Arapaho Tribes responded that there are no properties within the Project Boundary, but requested to be contacted if human remains, ceremonial or cultural objects, historic sites, burial mounds, village or battlefield artifacts are discovered.

In a letter dated November 1, 2017, the Leech Lake Band of Ojibwe does not have any known recorded sites or religious or cultural importance in these areas. The Leech Lake Band of Ojibwe asked to be contacted if any human remains or culturally affiliated artifacts are found.

In a letter dated January 10, 2018, FERC invited the Grand Portage Band of Chippewa Indians, the Fond du Lac Band of Lake Superior Chippewa, and Red Lake Band of Chippewa Indians to participate in the relicensing process.

5.10.6 Resource Summary

A Phase I survey of the Grand Rapids Project Boundary was conducted in 1994; the sites identified did not satisfy eligibility criteria for nomination to the NRHP. Additionally, a survey and evaluation of standing structures within the Project's APE was completed and determined nothing within the APE was eligible for nomination to the NRHP. Pursuant to the existing CRMP, MP is required to conduct



shoreline erosion monitoring every five years. The most recent monitoring report reported that none of the identified sites were experiencing shoreline erosion or other impacts.

A Phase I survey of the Prairie River Project Boundary was conducted in 1990 and identified multiple archaeological sites. A Phase II evaluation was completed for 17 of these sites in 1992 and one site in 1993. Of the evaluated sites, six were determined to be NRHP-eligible, in addition to the original Prairie River powerhouse, which was destroyed in a fire in 2008 and reconstructed in 2011-2013. The reconstructed powerhouse is no longer NRHP-eligible. Pursuant to the existing CRMP, MP is required to submit a report annually that summarizes cultural resource management or monitoring activities conducted the prior year. The most recent report reported that none of the identified sites were experiencing shoreline erosion or other impacts.

5.11 Socioeconomic Resources

5.11.1 Existing Socioeconomic Conditions

The Projects are both located in Itasca County, the third largest county in Minnesota, in the vicinity of the county seat, the City of Grand Rapids. The 2010 census reported that 45,058 people reside in Itasca County, which encompasses 2,928 square miles with a population density of approximately 15 persons per square mile. The State of Minnesota has a population density of approximately 68 persons per square mile, which makes Itasca County one of the more sparse counties in the state. The estimated 2017 population residing in Itasca County is 45,137, which is relatively stagnant over the eight-year period between 2010 and 2017 (USCB 2018). The 2010 census reported the population of the City of Grand Rapids to be 11,242, which accounts for approximately a quarter of the county's population (USCB 2010).

From 2012-2016, the median household income for Itasca County was \$49,507 which compares to the statewide median household income of \$63,217 for the same time period. The unemployment rate for Itasca County in July 2018 was 4.6 percent, compared to 3.0 percent unemployment in Minnesota (Bureau of Labor Statistics 2018a), and a national unemployment rate of 3.9 percent as of September 2017 (Bureau of Labor Statistics 2018b).

From the annual average in 2016 of 8.5 percent unemployment to the current July 2018 rate, employment in Itasca County grew 3.9 percent, from 20,220 employees to 21,175 employees (Bureau of Labor Statistics 2018b). The most common job groups are Retail Trade (17.3%), Health Care and Social Assistance (13.4%), and Construction (9.6%). The most common employment sectors for those who live in Itasca County are Health Care and Social Assistance (25.8%), Retail Trade (17.2%), and Accommodation and Food Service (9.6%) (Bureau of Labor Statistics 2018a).



5.11.2 Resource Summary

Itasca County supports an estimated population of 45,137 and the City of Grand Rapids is home to a population of 11,242. The Grand Rapids and Prairie River Projects provide support to these communities in the form of approximately 6,000 and 3,000 MWh of renewable energy annually, respectively. Additionally, the Grand Rapids Project supplements power for the Blandin Paper Mill, a local employment source in downtown Grand Rapids.

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6 Preliminary Issues, Project Effects, and Potential Studies List

6.1 Consultation to Date

To date, MP has performed the following consultation activities:

- PAD information request letter was distributed to 63 potential project stakeholders;
- MDNR was consulted regarding the applicability of the State's Coastal Zone Policy to the Project; and
- USFWS and MDNR were consulted regarding federal and/or state-listed threatened or endangered species, critical habitat, sensitive natural communities, and species of special concern with the vicinity of the Grand Rapids Project and Prairie River Project.

Documentation associated with the consultation conducted by MP in support of the PAD is provided in Appendix B.

6.2 Potential Resource Issues, Proposed Studies, and Environmental Measures

The Grand Rapids Project and Prairie River Project are both existing facilities that are operated in ROR mode with minimal allowable reservoir fluctuations, minimizing the potential for Project effects on most resource areas. Recent environmental information is presented in this PAD that describes aquatic, terrestrial, recreational, cultural and other resource conditions. Additionally, both Projects were subject to extensive studies and NEPA analyses during prior relicensing processes, including the development of minimum flow obligations at the Prairie River Project using industry-standard IFIM methods. The prior relicensings resulted in license conditions and resource management plans for the protection and management of fisheries, recreation, and cultural resources, as well as operation and monitoring procedures. MP is not proposing any substantive changes to either Project, Project operations, or existing management obligations. As a result, MP believes the overall potential for Project effects on most resource areas is limited and is, therefore, proposing a similarly limited set of relicensing studies.



6.2.1 Geology

6.2.1.1 Potential Issues

Grand Rapids Project

Shoreline erosion is a common concern at hydroelectric project reservoirs. MP believes that the existing ROR mode of the Grand Rapids Project operation, in combination with the vegetated nature of the shorelines in the Project Boundary, provide protection against bank erosion.

As a requirement of the existing Grand Rapids Project CRMP, MP is required to submit a report every five years that describes the results of a shoreline monitoring survey. The latest report from 2016 stated there was no evidence of erosion, slumping, or slope instability around the reservoir shoreline.

Prairie River Project

Shoreline erosion is a common concern at hydroelectric project reservoirs. MP believes that the existing ROR mode of the Prairie River Project operation, in combination with the vegetated nature of the shorelines in the Project Boundary, provide protection against bank erosion.

As a requirement of the existing Prairie River CRMP, MP is required to submit an annual report summarizing cultural resource management activities conducted the prior year, including any shoreline monitoring activities. Based on the results of the 2017 monitoring, none of the identified sites showed evidence of degradation such as erosion, slumping, or slope instability.

6.2.1.2 Proposed Studies

Grand Rapids Project

No studies are proposed. Based on shoreline monitoring activities conducted by MP in accordance with the CRMP, there is no evidence of erosion, slumping, or slope instability around the reservoir shoreline.

Prairie River Project

No studies are proposed. Based on shoreline monitoring activities conducted by MP in accordance with the CRMP, there is no evidence of erosion, slumping, or slope instability around the reservoir shoreline.

6.2.1.3 Potential Protection, Mitigation, or Enhancement (PM&E) Measures

Grand Rapids Project

No new PM&E measures are proposed related to geology and soils at the Grand Rapids Project as there is no evidence of erosion, slumping, or slope instability around the reservoir shoreline. MP will continue its obligations under the Project CRMP.

Prairie River Project

No new PM&E measures are proposed related to geology and soils at the Prairie River Project as there is no evidence of erosion, slumping, or slope instability around the reservoir shoreline. MP will continue its obligations under the Project CRMP.

6.2.2 Water Resources

6.2.2.1 Potential Issues

Grand Rapids Project

Recent and historic water quality data are available in the vicinity of the Grand Rapids Project (upstream and downstream of the Project). Data from 2003 through 2017 show that DO concentrations downstream of Blandin Dam are typically above the minimum state criterion. Data collected in 1990 and 1991 during the prior relicensing effort found that DO concentrations below Blandin Dam were higher than those measured above it. Similarly, pH values have been within the state criteria range of acceptable with the exception of one reading in 2015. The MPCA issued a §401 Water Quality Certification for the Grand Rapids Project on December 11, 1992.

Because the Grand Rapids Project operates in ROR mode and does not store water, MP believes the Project has little to no effect on water quality in the Mississippi River.

Prairie River Project

Recent water quality data are available in the vicinity of the Prairie River Project (from Prairie River Reservoir and downstream of the Project). Data from 2001 through 2016 find that DO concentrations both upstream and downstream of Prairie River Dam were above the minimum state criterion with the exception of one reading in 2009. Similarly, all pH values were within the state criteria range of acceptable. The MPCA waived a §401 Water Quality Certification for the Prairie River Project on June 19, 1991.

Because the Prairie River Project operates in ROR mode and does not store water, MP believes the Project has little to no effect on water quality in the Prairie River or the Mississippi River.



6.2.2.2 Proposed Studies

Grand Rapids Project

MP will coordinate with the MPCA to obtain a reissuance of the §401 Water Quality Certification in support of relicensing. Additionally, MP proposes to conduct a temperature and dissolved oxygen study from May through October (the time at which potential thermal or dissolved oxygen excursion would occur) at the Project to confirm water quality standards and designated uses are being attained. Study methods and locations of monitoring equipment will be proposed in MP's PSP document.

Prairie River Project

MP will coordinate with the MPCA to obtain a §401 Water Quality Certification in support of relicensing. Additionally, MP proposes to conduct a temperature and dissolved oxygen study from May through October (the time at which any potential thermal or dissolved oxygen excursion would occur) at the Project to confirm water quality standards and designated uses are being attained. Study methods and locations of monitoring equipment will be proposed in MP's PSP Document.

6.2.2.3 Potential PM&E Measures

Grand Rapids

No PM&E measures are proposed related to water resources. PM&E measures may be proposed after the results of the water quality study are reviewed.

Prairie River Project

No PM&E measures are proposed related to water resources. PM&E measures may be proposed after the results of the water quality study are reviewed.

6.2.3 Fish and Aquatic Resources

6.2.3.1 Potential Issues

Grand Rapids Project

Aquatic resources within the Project Boundary are potentially affected by Project operations and maintenance. Potential resource concerns at the Project include fish entrainment and impingement, RTE species, invasive species, and fish passage.

Blandin Reservoir supports a variety of forage species and popular sportfish species such as largemouth bass, black crappie, sunfish, perch, pikes, walleye, and others. The MDNR has performed periodic fish surveys in Blandin Reservoir since 1973 and continuing through 2012. The overall composition of fish collections in Blandin Reservoir is consistent with historical data and with

the trophic status and ecological classification of the waterbody. No ESA- or state-listed threatened or endangered fish or aquatic species have been identified in the vicinity of the Project.

The upper Midwest and Mississippi River is subject to a number of regional or national-scale invasions of AIS, including recent observations of zebra mussels in Blandin Reservoir.

There are no fish passage facilities at the Project or at other dams on the Upper Mississippi, including the USACE's Mississippi Headwaters Project, a multi-development complex beginning at the Pokegama Dam, just upstream of the Grand Rapids Project. MP believes fish passage facilities at the Grand Rapids Project are unwarranted because this stretch of the Upper Mississippi River supports primarily non-migratory fish species in the Project vicinity, and because such facilities would provide limited benefit absent similar structures at the Mississippi Headwaters Project.

Prairie River Project

Aquatic resources within the Project Boundary are potentially affected by Project operations and maintenance. Potential resource concerns at the Project include fish entrainment and impingement, RTE species, invasive species, fish passage, and bypass flows.

Prairie River Reservoir supports a variety of forage species and popular sportfish species such as largemouth bass, black crappie, sunfish, perch, pikes, walleye, and others. The MDNR has performed periodic fish surveys in this reservoir since 1955 and continuing through 2012. The most recent species data was dominated by suckers, sunfish, largemouth bass, bullhead, and perch. The overall composition of fish collections in Prairie River Reservoir is consistent with historical data and with the trophic status and ecological classification of the waterbody. No ESA- or state-listed threatened or endangered fish or aquatic species have been identified in the vicinity of the Project.

The upper Midwest and Mississippi River is subject to a number of regional or national-scale invasions of AIS, including recent observations of zebra mussels near the Prairie River Project (in Blandin Reservoir).

There are no fish passage facilities at the Project. MP believes fish passage facilities would be of limited resource benefit because primarily non-migratory fish species occur in the Project vicinity, and because such facilities would provide limited benefit given the relatively small watershed upstream of the Project and multiple dams on the Mississippi River.

MP currently provides a minimum of 75 cfs flow into the bypass reach downstream of the dam during the months of April and May and a minimum of 50 cfs during June to enhance walleye spawning habitat and protecting young-of-year from April to June. These flows were established based on an IFIM study conducted in the bypass reach in support of the previous relicensing. Fish presence in



the Prairie River bypass channel drops substantially after the spring spawning season, as the fish move downstream into the Mississippi River.

6.2.3.2 Proposed Studies

Grand Rapids Project

Due to the nearly 40 years of historical fisheries data at, upstream, and downstream of the Project, MP believes existing data are sufficient to document fish communities, and no additional survey work is warranted. However, MP proposes to conduct a desktop entrainment and impingement study at the Project as no formal study has been conducted.

MP is not proposing studies related to AIS, which stem from regional-scale invasions beyond the control of MP. Existing MP protocols comply with Minnesota rules and regulations to prevent the spread of AIS.

Prairie River Project

Due to the nearly 60 years of historical fisheries data at, upstream, and downstream of the Project, MP believes existing data are sufficient to document fish communities, and no additional survey work is warranted. However, MP proposes to conduct a desktop entrainment and impingement study at the Project as no formal study has been conducted.

MP is not proposing studies related to AIS, which stem from regional-scale invasions beyond the control of MP. Existing MP protocols comply with Minnesota rules and regulations to prevent the spread of AIS.

MP currently provides a minimum of 75 cfs flow into the Prairie River bypass reach during the months of April and May and a minimum of 50 cfs during June. These flows were established based on an IFIM study conducted in the bypass reach in support of the previous relicensing. This prior IFIM study used industry-standard methods that are still in use to determine flow adequacy for resource protection. As a result, MP believes the study results remain relevant, and the current seasonal minimum flow requirements in the bypass reach are appropriate and adequate to protect fisheries. No additional studies are proposed in the bypass reach.

6.2.3.3 Potential PM&E Measures

Grand Rapids

No new PM&E measures are proposed related to aquatic resources. PM&E measures may be proposed after review of the proposed desktop entrainment and impingement study.

Prairie River Project

No new PM&E measures are proposed related to aquatic resources. PM&E measures may be proposed after review of the proposed desktop entrainment and impingement study.

6.2.4 Wildlife and Botanical Resources

6.2.4.1 Potential Issues

Grand Rapids Project

Blandin Reservoir and the Project vicinity support a diverse range of wildlife and botanical species. The Grand Rapids Project has been in operation for over 100 years, and the existing terrestrial environment has developed in response to the current and proposed Project operations. Because the Project is maintained in ROR mode with minimal reservoir fluctuations, wildlife and botanical species are not fundamentally affected by MP's operation of the Project. Nevertheless, MP implements best management practices to prevent the spread of terrestrial invasive species in accordance with MDNR's operational order 113 – Invasive Species Prevention and Management.

Prairie River Project

Prairie River Reservoir and the Project vicinity support a diverse range of wildlife and botanical species. The Prairie River Project has been in operation for nearly 100 years, and the existing terrestrial environment has developed in response to the current and proposed Project operations. Because the Project is maintained in ROR mode with minimal reservoir fluctuations, wildlife and botanical species are not fundamentally affected by MP's operation of the Project. Nevertheless, MP implements best management practices to prevent the spread of terrestrial invasive species in accordance with MDNR's operational order 113 – Invasive Species Prevention and Management.

6.2.4.2 Proposed Studies

Grand Rapids Project

No studies are proposed related to wildlife and botanical species, as these resources are not fundamentally affected by MP's operation of the Project. Similarly, MP is not proposing studies related to terrestrial invasive species such as purple loosestrife, which stem from regional-scale invasions beyond the control of MP.

Prairie River Project

No studies are proposed related to wildlife and botanical species, as these resources are not fundamentally affected by MP's operation of the Project. Similarly, MP is not proposing studies related to terrestrial invasive species such as purple loosestrife, which stem from regional-scale invasions beyond the control of MP.



6.2.4.3 Potential PM&E Measures

Grand Rapids

No new PM&E measures are proposed related to wildlife and botanical resources, as no resource issues associated with MP operations have been identified. MP will continue to implement best management practices to prevent the spread of terrestrial invasive species in accordance with MDNR's operational order 113 – Invasive Species Prevention and Management.

Prairie River Project

No new PM&E measures are proposed related to wildlife and botanical resources, as no resource issues associated with MP operations have been identified. MP will continue to implement best management practices to prevent the spread of terrestrial invasive species in accordance with MDNR's operational order 113 – Invasive Species Prevention and Management.

6.2.5 Wetlands, Riparian, and Littoral Habitat

6.2.5.1 Potential Issues

Grand Rapids Project

Existing data maintained by the USFWS and presented in this PAD indicate that the Grand Rapids Project supports a variety of wetland and riparian cover types. Because the Project is maintained in ROR mode with minimal reservoir fluctuations, these habitats are not fundamentally affected by MP's operation of the Project. Nevertheless, MP implements best management practices to prevent the spread of terrestrial and AIS in accordance with MDNR's operational order 113 – Invasive Species Prevention and Management

Prairie River Project

Existing data maintained by the USFWS and presented in this PAD indicate that the Prairie River Project supports a variety of wetland and riparian cover types. Because the Project is maintained in ROR mode with minimal reservoir fluctuations, these habitats are not fundamentally affected by MP's operation of the Project. Nevertheless, MP implements best management practices to prevent the spread of terrestrial and AIS in accordance with MDNR's operational order 113 – Invasive Species Prevention and Management.

6.2.5.2 Proposed Studies

Grand Rapids Project

No studies are proposed at the Grand Rapids Project related to wetlands, riparian, and littoral habitats, as these habitats are not fundamentally affected by MP's operation of the Project, and existing data are available to describe their extent.

Prairie River Project

No studies are proposed at the Prairie River Project related to wetlands, riparian, and littoral habitats, as these habitats are not fundamentally affected by MP's operation of the Project, and existing data are available to describe their extent.

6.2.5.3 Potential PM&E Measures

Grand Rapids

No new PM&E measures are proposed related to wetlands, riparian, and littoral habitat, as no resource issues associated with MP operations have been identified. MP will continue to implement best management practices to prevent the spread of invasive species in accordance with MDNR's operational order 113 – Invasive Species Prevention and Management.

Prairie River Project

No new PM&E measures are proposed related to wetlands, riparian, and littoral habitat, as no resource issues associated with MP operations have been identified. MP will continue to implement best management practices to prevent the spread of invasive species in accordance with MDNR's operational order 113 – Invasive Species Prevention and Management.

6.2.6 Rare, Threatened, and Endangered Species

6.2.6.1 Potential Issues

Grand Rapids Project

MP conferred with USFWS and MDNR regarding ESA and state-listed RTE species, critical habitat, sensitive natural communities, and species of special concern within the Grand Rapids Project vicinity. Canada lynx, gray wolf, and northern long-eared bat were reported as ESA-listed species potentially occurring within the Grand Rapids Project Boundary. Four state-listed species of special concern were listed as potentially occurring within ½ mile of the Grand Rapids Project. These species are the bald eagle, the freshwater mussels black sandshell and creek heelsplitter, and the vascular plant least moonwort. None are specifically reported to occur in the Project Boundary. Because the Project is maintained in ROR mode with minimal reservoir fluctuations, black sandshell



and creek heelsplitter are not fundamentally affected by MP's operation of the Project. Additionally, MP is not proposing any ground-disturbing activities or development that could affect bald eagle, least moonwort or ESA-listed wildlife.

Prairie River Project

MP conferred with USFWS and MDNR regarding federal and state-listed RTE species, critical habitat, sensitive natural communities, and species of special concern within the Prairie River Project vicinity. Canada lynx, gray wolf, and northern long-eared bat were reported as ESA-listed species potentially occurring within the Prairie River Project Boundary. Five state-listed species of special concern were listed as potentially occurring within ½ mile of the Prairie River Project. These species are bald eagle, the freshwater mussel black sandshell, and the vascular plants prairie moonwort, pale moonwort, and least moonwort. None are specifically reported to occur in the Project Boundary. Because the Project is maintained in ROR mode with minimal reservoir fluctuations, black sandshell are not fundamentally affected by MP's operation of the Project. Additionally, MP is not proposing any ground-disturbing activities or development that could affect bald eagle, moonworts or ESA-listed wildlife.

6.2.6.2 Proposed Studies

Grand Rapids Project

No studies are proposed related to rare, threatened, and endangered species, as no resource issues associated with MP operations have been identified.

Prairie River Project

No studies are proposed related to rare, threatened, and endangered species as no resource issues associated with MP operations have been identified.

6.2.6.3 Potential PM&E Measures

Grand Rapids

No PM&E measures are proposed related to rare, threatened, and endangered species.

Prairie River Project

No PM&E measures are proposed related to rare, threatened, and endangered species.

6.2.7 Recreation and Land Management

6.2.7.1 Potential Issues

Grand Rapids Project

Pursuant to Article 407 of the current license and the Project Recreation Management Plan, MP provides access to Blandin Reservoir through a canoe/kayak portage trail and other access points in partnership with community volunteers. A portage trail begins at a MP-maintained take-out on Blandin Reservoir, where signage provides directions for manual portage (approximately 0.5 miles) to a put-in site at Steamboat Park downstream of Blandin Dam. Alternatively, portage users can take out upstream at the USACE' Pokegama Dam and receive free assisted portage to Steamboat Park by a volunteer group who operate using a trailer donated by MP. This agreement was coordinated during the most recent public meeting and update to the Recreation Management Plan, held in March 2018. No issues have been identified relevant to recreation or land management.

Prairie River Project

Pursuant to Article 411 of the current license and the Project Public Access Plan, MP provides three shoreline fishing areas with access to Prairie River Reservoir. Additionally, MP also provides a canoe/kayak portage trail, extending from the southern bank of Lower Prairie Lake to the Prairie River, south of Prairie River Dam. One shoreline fishing area is located adjacent to the portage take-out, west-northwest of the dam. The other two shoreline fishing areas are located on the east and west sides of the peninsula leading to a portage put-in on the Prairie River. All of the fishing areas are accessible from the portage trail and include signage to direct anglers to the fishing areas. No issues have been identified relevant to recreation or land management.

6.2.7.2 Proposed Studies

Grand Rapids Project

Although a wide variety of recreation opportunities currently exist within the Project Boundary, MP proposes to conduct a recreational assessment of the Grand Rapids Project to evaluate current recreational opportunities and potential improvements. Additionally, MP will review the current Recreation Management Plan with interested stakeholders.

Prairie River Project

Although a wide variety of recreation opportunities currently exist within the Project Boundary, MP proposes to conduct a recreational assessment of the Prairie River Project to evaluate current recreational opportunities and potential improvements. Additionally, MP will review the current Public Access Plan with interested stakeholders.



6.2.7.3 Potential PM&E Measures

Grand Rapids

No PM&E measures are proposed related to recreation and land management. PM&E measures may be proposed after the results of MP's recreational assessment are reviewed.

Prairie River Project

No PM&E measures are proposed related to recreation and land management. PM&E measures may be proposed after the results of MP's recreational assessment are reviewed.

6.2.8 Aesthetic Resources

6.2.8.1 Potential Issues

Grand Rapids Project

The Grand Rapids Project has been in place since 1901 and has become part of the local environment. Blandin Reservoir includes private homes, parks, and trails in addition to the commercial and industrial development near Blandin Dam. No issues related to aesthetic resources have been identified at the Grand Rapids Project.

Prairie River Project

The Prairie River Project has been in place since 1920 and has become part of the local environment. Prairie River Reservoir is located in a scenic, moderately developed area with a park, private homes, cabins, and camping sites. No issues related to aesthetic resources have been identified at the Prairie River Project.

6.2.8.2 Proposed Studies

Grand Rapids Project

No studies are proposed related to aesthetic resources.

Prairie River Project

No studies are proposed related to aesthetic resources.

6.2.8.3 Potential PM&E Measures

Grand Rapids

No PM&E measures are proposed related to aesthetic resources. MP plans to continue the current ROR operations that lend to the aesthetic value of the Project.

Prairie River Project

No PM&E measures are proposed related to aesthetic resources. MP plans to continue the current ROR operations that lend to the aesthetic value of the Project.

6.2.9 Cultural Resources

6.2.9.1 Potential Issues

Grand Rapids Project

A Phase I survey of the Grand Rapids Project Boundary was conducted in 1994; the sites identified did not satisfy eligibility criteria for nomination to the National Registry of Historic Places (NRHP). Additionally, a survey and evaluation of standing structures with the Project's APE was completed and determined nothing within the APE was eligible for nomination to the NRHP. Pursuant to the existing CRMP, MP is required to conduct shoreline erosion monitoring every five years. The most recent monitoring report reported that none of the identified sites were experiencing shoreline erosion or other impacts.

Prairie River Project

A Phase I survey of the Prairie River Project Boundary was conducted in 1990 and identified multiple archaeological sites. A Phase II evaluation was completed for 17 of these sites in 1992 and one site in 1993. Of the evaluated sites, six were determined to be NRHP-eligible, in addition to the original Prairie River powerhouse, which was destroyed in a fire in 2008 and reconstructed in 2011-2013. The reconstructed powerhouse is no longer NRHP-eligible. Pursuant to the existing CRMP, MP is required to submit a report annually that summarizes cultural resource management or monitoring activities conducted the prior year. The 2017 monitoring concluded that sites were not experiencing shoreline erosion or other impacts.

6.2.9.2 Proposed Studies

Grand Rapids Project

No studies are proposed related to cultural resources, because the Grand Rapids Project Boundary has previously been subject to cultural resource survey efforts and MP complies with the requirements of the existing CRMP. As a result, MP believes that FERC has adequate information to complete cultural resources consultation under Section 106 of the NHPA. The Section 106 process (defined at 36 CFR Part 800) is intended to accommodate historic preservation concerns with the needs of federal undertakings through a process of consultation with agency officials, the SHPO, federally recognized Indian Tribes, and other parties with a potential interest in an undertaking's effects on historic properties.



Prairie River Project

No studies are proposed related to cultural resources, because the Prairie River Project Boundary has previously been subject to cultural resource survey efforts and MP complies with the requirements of the existing CRMP. As a result, MP believes that FERC has adequate information to complete cultural resources consultation under Section 106 of the NHPA. The Section 106 process (defined at 36 CFR Part 800) is intended to accommodate historic preservation concerns with the needs of federal undertakings through a process of consultation with agency officials, the SHPO, federally recognized Indian Tribes, and other parties with a potential interest in an undertaking's effects on historic properties.

6.2.9.3 Potential PM&E Measures

Grand Rapids

No new PM&E measures are proposed related to cultural resources. MP proposes to review the existing CRMP with the Minnesota SHPO and affected Indian Tribes to determine if updates are needed.

Prairie River Project

No new PM&E measures are proposed related to cultural resources. MP proposes to review the existing CRMP with the Minnesota SHPO and affected Indian Tribes to determine if updates are needed.

6.2.10 Socioeconomic Resources

6.2.10.1 Potential Issues

Grand Rapids Project

No issues have been identified relevant to socioeconomic resources.

Prairie River Project

No issues have been identified relevant to socioeconomic resources.

6.2.10.2 Proposed Studies

Grand Rapids Project

No studies are being proposed related to socioeconomic resources. MP expects that the detailed information to be included in the License Application will provide sufficient data for FERC's analysis of any socioeconomic impacts of relicensing the Grand Rapids Project.



Prairie River Project

No studies are being proposed related to socioeconomic resources. MP expects that the detailed information to be included in the License Application will provide sufficient data for FERC's analysis of any socioeconomic impacts of relicensing the Prairie River Project.

6.2.10.3 Potential PM&E Measures

Grand Rapids

No PM&E measures are being proposed related to socioeconomic resources measures, as no resource issues have been identified.

Prairie River Project

No PM&E measures are being proposed related to socioeconomic resources measures, as no resource issues have been identified.

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7 Comprehensive Plans for the Development of the Waterway Relevant to the Project (18 CFR §5.6(d)(4)(iii and iv))

7.1 Qualifying Comprehensive Plans Deemed Applicable

In accordance with 18 CFR §5.6(d)(4)(III and IV), MP has reviewed the January 2018 FERC List of Comprehensive Plans applicable to Minnesota and adopted by FERC under Section 10(a)(2)(A) of the FPA, 16 USC §803(a)(2)(A). Of the 32 comprehensive plans relevant to Minnesota, 13 are being considered applicable to the Project:

1. MDNR. 1983. Statewide outstanding rivers inventory. St. Paul, Minnesota. March 1983.
2. MDNR. 2015. Minnesota State Parks and Trails System Plan. St. Paul, Minnesota.
3. MDNR. 2016. Minnesota's Wildlife Action Plan, 2015-2025. St. Paul, Minnesota.
4. MDNR. n.d. Canoe and boating route program. St. Paul, Minnesota. 39 pamphlets.
5. MDNR. n.d. Minnesota's State Comprehensive Outdoor Recreation Plan (SCORP): 2014-2018. St. Paul, Minnesota.
6. MDNR. n.d. Strategic Conservation Agenda: The DNR's 10-year Strategic Plan, 2015-2025. St. Paul, Minnesota.
7. Mississippi Headwaters Board. 1981. A management plan for the Upper Mississippi River. Grand Rapids, Minnesota. January 1981.
8. NPS. The NRI. Department of the Interior, Washington, D.C. 1993.
9. Upper Mississippi River Basin Commission. 1981. Comprehensive master plan for the management of the Upper Mississippi River system – environmental report. Minneapolis, Minnesota. September 1981.
10. Upper Mississippi River Basin Commission. 1982. Comprehensive master plan for the management of the Upper Mississippi River system. Minneapolis, Minnesota. January 1, 1982.
11. USFWS. Canadian Wildlife Service. 1986. North American waterfowl management plan. Department of the Interior. Environment Canada. May 1986.
12. USFWS. 1993. Upper Mississippi River & Great Lakes Region joint venture implementation plan: A component of the North American waterfowl management plan. March 1993.
13. USFWS. n.d. Fisheries USA: the recreational fisheries policy of the U.S. Fish and Wildlife Service. Washington, D.C.



Based on a review of the 13 comprehensive plans, MP believes that the Projects, as currently operated, are consistent with each of these plans. MP anticipates additional consultation with the relicensing parties to confirm consistency.

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Appendix A
PAD Information Request Letter
and Distribution List



July 27, 2018

Distribution List

Re: Grand Rapids Hydroelectric Project No. 2362
Prairie River Hydroelectric Project No. 2361
Information Request

Dear Potential Stakeholders:

Minnesota Power (MP), a subsidiary of ALLETE, Inc., licensee for the Grand Rapids Hydroelectric Project No. 2362 and the Prairie River Hydroelectric Project No. 2361, plans to relicense these projects using the Integrated Licensing Process (ILP). Both licenses expire on December 31, 2023; therefore, the notice of intent (NOI) and a Pre-Application Document (PAD) are due to the Federal Energy Regulatory Commission (FERC) by December 31, 2018. The Grand Rapids Project is a 2.1 megawatt (MW), run-of-river (ROR) facility located on the Mississippi River in Grand Rapids, Minnesota, in Itasca County. The Prairie River Project is a 1.1 MW, ROR facility located on the Prairie River, near Grand Rapids, Minnesota, in Itasca County. Please refer to the attached map.

In an effort to submit a comprehensive PAD that will aid in the relicensing process, MP is asking if you or your organization are aware of any existing, relevant, and reasonably available information that describes the existing environment within the vicinity of these projects. In particular, MP is interested in information related to the following specific resources:

- Geology and soils
- Water resources
- Fish and aquatic resources
- Wildlife and botanical resources
- Wetlands, riparian, and littoral habitat
- Aesthetic resources
- Rare, threatened, and endangered species
- Recreation and land use
- Cultural resources
- Socio-economic resources
- Tribal resources

If you are aware of or have any information that will enhance the PAD for these projects or have any other questions or comments, please contact me at (218) 725-2101 or nrosemore@mnpower.com. Additional project-related information can be found at www.mphydro.com/oursystem.

Sincerely,

Nora Rosemore
Hydro Operations Superintendent

Attachment

cc: Grand Rapids Project and Prairie River Project Distribution List

Distribution List for Grand Rapids Hydroelectric Project (FERC No. 2362)
and Prairie River Project (FERC No. 2361)

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Guy Lutz, Area Supervisor (Grand Rapids)
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Nancy Stewart, Water Recreation Consultant
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Bryan Dodds, Director
Minnesota Department of Transportation Office of
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Minnesota Historical Society
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Rayna Churchill, Executive Director
Minnesota Indian Affairs Council
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Minnesota Pollution Control Agency
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Bill Wilde, Pollution Control Specialist
Minnesota Pollution Control Agency
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Jesse Anderson, Research Scientist
Minnesota Pollution Control Agency
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Minnesota Public Utilities Commission
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District
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Timothy Lapointe, Regional Director
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Randy Thoreson, Outdoor Recreation Planner
U.S. National Park Service - Rivers, Trails, &
Conservation Assistance Program & Hydro
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Fond du Lac Band of Lake Superior Chippewa
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Michael Blackwolf, THPO
Fort Belknap Indian Community of the Fort Belknap
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Indians
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Lac du Flambeau, WI 54538

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Lac du Flambeau Band of Lake Superior Chippewa
Indians
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Faron Jackson, Chairman
Leech Lake Band of Minnesota Chippewa Tribe
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Doug Cox, Chairperson
Menominee Indian Tribe of Wisconsin
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David Grington, THPO
Menominee Indian Tribe of Wisconsin
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Mille Lacs Band of Ojibwe
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Onamia, MN 56359

Natalie Weyaus, THPO
Mille Lacs Band of Ojibwe
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Minnesota Chippewa Tribe
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Kevin Jensvold, Chairperson
Upper Sioux Community of Minnesota
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Granite Falls, MN 56241

Samantha Odegard, THPO
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Granite Falls, MN 56241

Terrence Tibbetts, Chairman
White Earth Nation
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White Earth, MN 56591

Jaime Arsenault, THPO
White Earth Nation
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White Earth, MN 56591

Dale Adams, Mayor
City of Grand Rapids
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Grand Rapids, MN 55744

Dale Anderson, Director of Parks & Recreation
City of Grand Rapids
420 N Pokegama Avenue
Grand Rapids, MN 55744

Tony Clifton, Recreation Program Director
City of Grand Rapids
420 N Pokegama Avenue
Grand Rapids, MN 55744

Jeff Davies, Director of Public Works
City of Grand Rapids
420 N Pokegama Avenue
Grand Rapids, MN 55744

Rob Mattei, Director of Community Development
City of Grand Rapids
420 N Pokegama Avenue
Grand Rapids, MN 55744

Eric Trast, Community Development Specialist
City of Grand Rapids
420 N Pokegama Avenue
Grand Rapids, MN 55744

Matt Wegwerth, City Engineer
City of Grand Rapids
420 N Pokegama Avenue
Grand Rapids, MN 55744

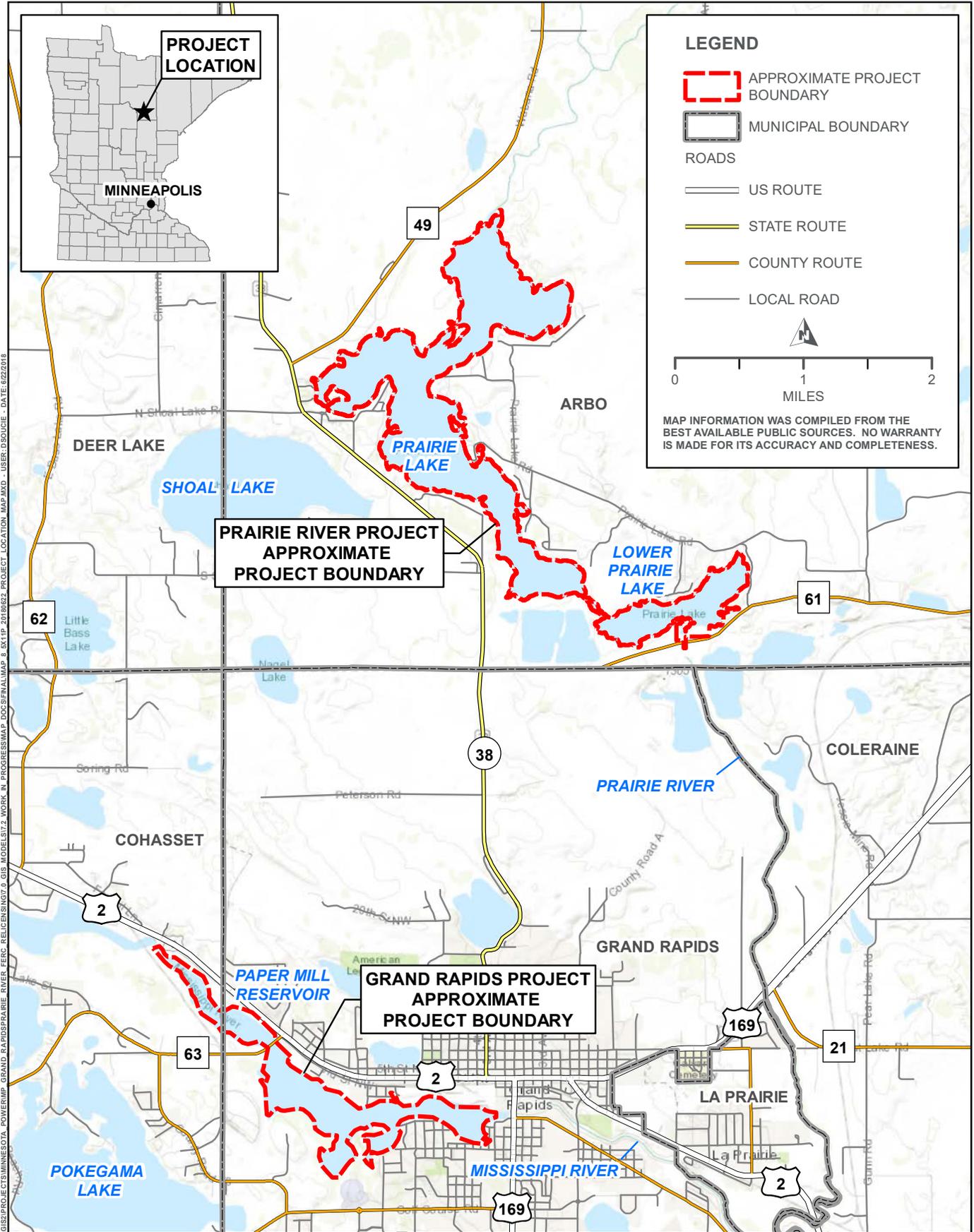
Sara Thompson, Forest Recreation Specialist
Itasca County
123 NE 4th Street
Grand Rapids, MN 55744

Brett Skyles, County Administrator
Itasca County
123 NE 4th Street
Grand Rapids, MN 55744

Mark Singleton, Executive Director
American Whitewater
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Cullowhee, NC 28723

John Lenczewski, Executive Director
Minnesota Trout Unlimited
P.O. Box 845
Chanhassen, MN 55317

Lilah J. Crowe, Executive Director
Itasca County Historical Society
201 North Pokegama Avenue
Grand Rapids, MN 55744



PATH: \\PWE-INF-01\GIS\PROJECTS\MINNESOTA_POWER\MP GRAND RAPIDS\RAIVER_FERC_RELICENSING\0_GIS_MODEL\12_WORK_IN_PROGRESS\MAP_DOC\SF\NAL\MAP_8_0\11P_20180622_PROJECT_LOCATION_MAP.MXD - USER:DSOUCIE - DATE: 6/22/2018



PROJECT LOCATION MAP
PRAIRIE RIVER & GRAND RAPIDS HYDROELECTRIC PROJECTS
 PRAIRIE RIVER (FERC NO. 2361) & GRAND RAPIDS (FERC NO. 2362)

JUNE 2018



Appendix B

Consultation Log

Grand Rapids Project and Prairie River Project Consultation Log

	Type	To (Individual/Title/Organization)	From (Individual/Title/Organization)	Subject
7/27/2018	Email and letter	Potential Stakeholders	Nora Rosemore (MP)	Request for Information
7/27/2018	Email and letter	Peter Fasbender (USFWS), Nick Utrup (USFWS)	Nora Rosemore (MP)	IPaC results confirmation
7/27/2018	Email and letter	Charlotte W. Cohn, Hydropower Projects Planner, MN Department of Natural Resources	Nora Rosemore (MP)	Request for Threatened and Endangered Species Information
7/27/2018	Email and letter	Amber Westerbur, Program Manager (MN Dept of Natural Resources [DNR])	Nora Rosemore (MP)	Coastal Zone Consistency Determination
7/30/2018	Email	Nora Rosemore (MP)	Nick Utrup (U.S. Fish and Wildlife Service, Minnesota/Wisconsin Field Office)	Concurrence of IPaC list
7/30/2018	Email	Nora Rosemore (MP)	Jesse Anderson, Research Scientist (MN Pollution Control Agency [MPCA])	Request for Information
8/2/2018	Email	Nora Rosemore (MP) with cc: to stakeholders	Randall Thoreson (National Park Service)	Request for Information
8/8/2018	Email	Nora Rosemore (MP)	Sarah Beimers (MN Department of Administration [ADM])	Response to Request for Information
8/9/2018	Email	William Wilde (MN Pollution Control Agency [MPCA])	Gregory Prom (MP)	Request for Information

From: Nora Rosemore (MP) <NRosemore@mnpower.com>
Sent: Friday, July 27, 2018 4:41 PM
To: 'john.jaschke@state.mn.us'; 'Ian.Chisholm@state.mn.us'; 'Charlotte.Cohn@state.mn.us'; 'don.pereira@state.mn.us'; 'guy.lunz@state.mn.us'; 'nancy.stewart@state.mn.us'; 'bryan.dodds@state.mn.us'; 'thorleif@umn.edu'; 'Sarah.Beimers@state.mn.us'; 'rayna.churchill@state.mn.us'; 'jim.brist@state.mn.us'; 'william.wilde@state.mn.us'; 'Melissa.Kuskie@state.mn.us'; 'Jesse.Anderson@state.mn.us'; 'Dan.Wolf@state.mn.us'; 'Nanette.m.bischoff@usace.army.mil'; 'timothy.lapointe@bia.gov'; 'Nick_Utrup@fws.gov'; 'Peter_Fasbender@fws.gov'; 'nicholas_chevance@nps.gov'; 'randy_thoreson@nps.gov'; 'ysrayna2018@gmail.com'; 'blatady@boisforte-nsn.gov'; 'cchavers@boisforte-nsn.gov'; 'vrichy@c-a-tribes.org'; 'ehamilton@c-a-tribes.org'; 'msutton@c-a-tribes.org'; 'kevindupuis@fdlrez.com'; 'JillHoppe@fdlrez.com'; 'reggiedefoe@fdlrez.com'; 'tomhowes@fdlrez.com'; 'andy.werk@ftbelknap.org'; 'mblackwolf@ftbelknap.org'; 'Norman@grandportage.com'; 'maryann@grandportage.com'; 'ldfthpo@ldftribe.com'; 'amy.burnette@llojibwe.org'; 'faron.jackson@llojibwe.org'; 'dgrignon@mitw.org'; 'natalie.weyaus@millelacsband.com'; 'kade.ferris@redlakenation.org'; 'dseki@redlakenation.org'; 'THPO@uppersiouxcommunity-nsn.gov'; 'jaime.arsenault@whiteearth.com'; 'mayoradams@cityofgrandrapidsmn.com'; 'communitydev@cityofgrandrapids.com'; 'communitydev@cityofgrandrapids.com'; 'engineering@cityofgrandrapidsmn.com'; 'sara.thompson@co.itasca.mn.us'; 'brett.skyles@co.itasca.mn.us'; 'mark@americanwhitewater.org'; 'ichs@paulbunyan.net'
Cc: Malkin, Devin; MacVane, Kelly; Gregory Prom (MP); David Chura (MP)
Subject: Request for information
Attachments: 201800727 MP PAD Info Request.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Potential Stakeholders:

Minnesota Power plans to relicense the Grand Rapids Hydroelectric Project No. 2362 and Prairie River Hydroelectric Project No. 2361 using the Integrated Licensing Process (ILP). Both licenses expire on December 31, 2023; therefore, the notice of intent (NOI) and a Pre-Application Document (PAD) are due to the Federal Energy Regulatory Commission (FERC) by December 31, 2018.

Attached is a letter requesting any existing, relevant, and reasonably available information that describes the existing environment within the vicinity of the Grand Rapids Project and Prairie River Project. The information will be used in the development of the PAD. Any potential relevant information, or questions, can be sent to me at nrosemore@mnpower.com. A hard copy of the attached letter will follow.

Enjoy your day,

Nora Rosemore
Hydro Operations Superintendent
Minnesota Power
(218) 725-2101



July 27, 2018

Distribution List

Re: Grand Rapids Hydroelectric Project No. 2362
Prairie River Hydroelectric Project No. 2361
Information Request

Dear Potential Stakeholders:

Minnesota Power (MP), a subsidiary of ALLETE, Inc., licensee for the Grand Rapids Hydroelectric Project No. 2362 and the Prairie River Hydroelectric Project No. 2361, plans to relicense these projects using the Integrated Licensing Process (ILP). Both licenses expire on December 31, 2023; therefore, the notice of intent (NOI) and a Pre-Application Document (PAD) are due to the Federal Energy Regulatory Commission (FERC) by December 31, 2018. The Grand Rapids Project is a 2.1 megawatt (MW), run-of-river (ROR) facility located on the Mississippi River in Grand Rapids, Minnesota, in Itasca County. The Prairie River Project is a 1.1 MW, ROR facility located on the Prairie River, near Grand Rapids, Minnesota, in Itasca County. Please refer to the attached map.

In an effort to submit a comprehensive PAD that will aid in the relicensing process, MP is asking if you or your organization are aware of any existing, relevant, and reasonably available information that describes the existing environment within the vicinity of these projects. In particular, MP is interested in information related to the following specific resources:

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- Water resources
- Fish and aquatic resources
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- Tribal resources

If you are aware of or have any information that will enhance the PAD for these projects or have any other questions or comments, please contact me at (218) 725-2101 or nrosemore@mnpower.com. Additional project-related information can be found at www.mphydro.com/oursystem.

Sincerely,

Nora Rosemore
Hydro Operations Superintendent

Attachment

cc: Grand Rapids Project and Prairie River Project Distribution List

Distribution List for Grand Rapids Hydroelectric Project (FERC No. 2362) and Prairie River Project (FERC No. 2361)

John Jaschke, Executive Director
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Rayna Churchill, Executive Director
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Jim Brist, 401 Water Quality Program
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Grand Rapids, MN 55744

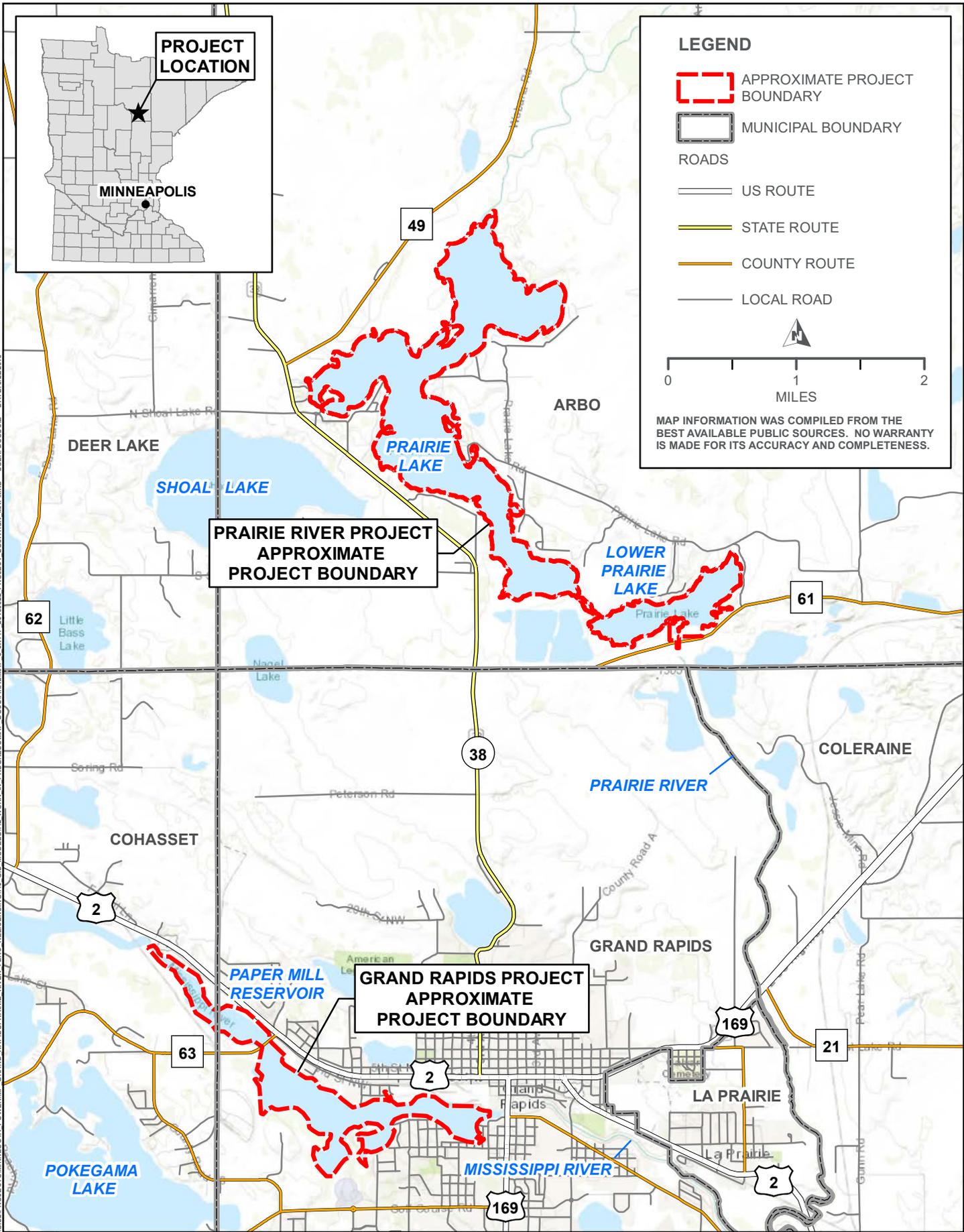
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Cullowhee, NC 28723

John Lenczewski, Executive Director
Minnesota Trout Unlimited
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Chanhassen, MN 55317

Lilah J. Crowe, Executive Director
Itasca County Historical Society
201 North Pokegama Avenue
Grand Rapids, MN 55744

PATH: \\P:\ME\INFO\GIS\PROJECTS\MINNESOTA_POWER\MP GRAND RAPIDS\PRRAIE RIVER_FERC_RELICENSING\2_WORK_N_PROGRESS\MAP_DOCS\FINAL\MAP_8_5X11P_20180622_PROJECT_LOCATION_MAP.MXD USER: DSOUCHE DATE: 6/22/2018



LEGEND

-  APPROXIMATE PROJECT BOUNDARY
-  MUNICIPAL BOUNDARY
- ROADS
-  US ROUTE
-  STATE ROUTE
-  COUNTY ROUTE
-  LOCAL ROAD



MAP INFORMATION WAS COMPILED FROM THE BEST AVAILABLE PUBLIC SOURCES. NO WARRANTY IS MADE FOR ITS ACCURACY AND COMPLETENESS.



PROJECT LOCATION MAP
PRAIRIE RIVER & GRAND RAPIDS HYDROELECTRIC PROJECTS
PRAIRIE RIVER (FERC NO. 2361) & GRAND RAPIDS (FERC NO. 2362)

MacVane, Kelly

From: Nora Rosemore (MP) <NRosemore@mnpower.com>
Sent: Friday, July 27, 2018 4:32 PM
To: Peter_Fasbender@fws.gov; nick_utrup@fws.gov
Cc: Malkin, Devin; MacVane, Kelly; Gregory Prom (MP); David Chura (MP)
Subject: Request for threatened and endangered species information
Attachments: 20180727 GR USFWS RTE Request.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Peter and Nick,

Minnesota Power plans to relicense the Grand Rapids Hydroelectric Project No. 2362 and Prairie River Hydroelectric Project No. 2361 using the Integrated Licensing Process (ILP). Both licenses expire on December 31, 2023; therefore, the notice of intent (NOI) and a Pre-Application Document (PAD) are due to the Federal Energy Regulatory Commission (FERC) by December 31, 2018.

Attached is a letter requesting your concurrence that the information we received using the USFWS IPaC system is accurate. The information will be used to prepare the PAD. A hard copy of the attached letter will follow.

Enjoy your weekend,

Nora

*Nora Rosemore
Hydro Operations Superintendent
Minnesota Power
(218) 725-2101*



July 27, 2018

Peter Fasbender, Field Supervisor
United States Fish and Wildlife Service
2661 Scott Tower Dr.
New Franken, WI 54229-9565

**Subject: Grand Rapids Hydroelectric Project (FERC No. 2362) and Prairie River Hydroelectric Project (FERC No. 2361)
Request for Threatened and Endangered Species Information**

Dear Mr. Fasbender,

ALLETE, Inc. (d.b.a. Minnesota Power) is gathering information in support of the Pre-Application Document (PAD) for the upcoming Federal Energy Regulatory Commission (FERC) relicensing of the Grand Rapids Hydroelectric Project (FERC No. 2362) and Prairie River Hydroelectric Project (FERC No. 2361). In support of this process, Minnesota Power has requested an official species list regarding any threatened or endangered species and any critical habitat within the area of the Projects using the United States Fish and Wildlife Service's (USFWS) IPaC system online.

The Grand Rapids Project is a 2.1 megawatt (MW), run-of-river (ROR) facility located on the Mississippi River in Grand Rapids, Minnesota, in Itasca County. The Prairie River Project is a 1.1 MW, ROR facility located on the Prairie River near Grand Rapids, Minnesota, in Itasca County. The attached report was generated from the USFWS' IPaC system and includes a map that shows the area of interest for which the information was requested and the general location of the facilities.

It is our intent to include these results in the PAD. Therefore, we respectfully request your concurrence that this information is accurate within 30 days of the date of this letter. If you have any questions or need additional information regarding these Projects or their location, please feel free to contact me at (218) 725-2101 or nrosemore@mnpower.com.

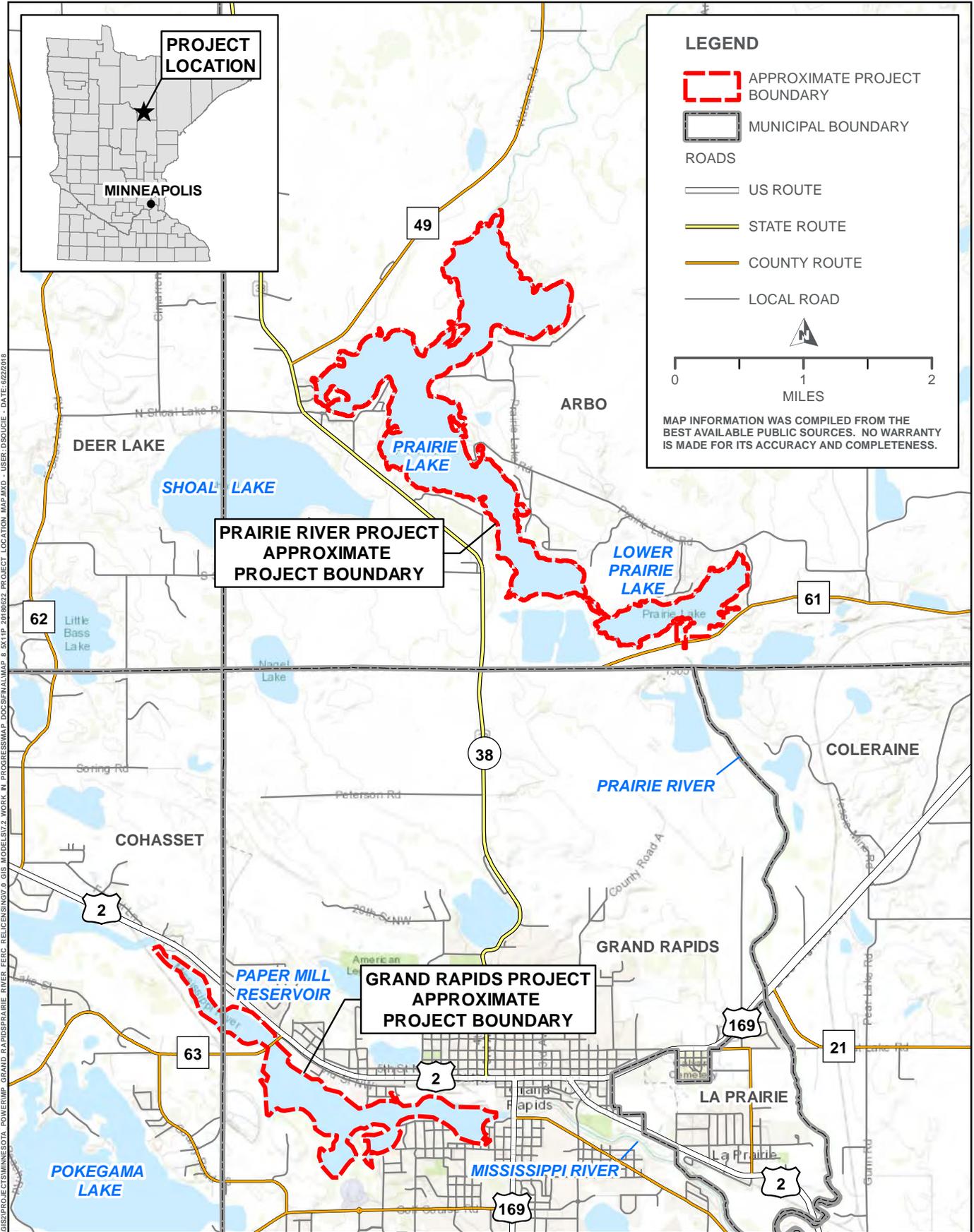
Thank you for your assistance with this request.

Sincerely,

Nora Rosemore
Hydro Operations Superintendent

Attachments

cc: Nick Utrup, U.S. Fish and Wildlife Service



PROJECT LOCATION MAP

PRAIRIE RIVER & GRAND RAPIDS HYDROELECTRIC PROJECTS

PRAIRIE RIVER (FERC NO. 2361) & GRAND RAPIDS (FERC NO. 2362)

JUNE 2018



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United States Department of the Interior



FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
4101 American Blvd E
Bloomington, MN 55425-1665
Phone: (952) 252-0092 Fax: (952) 646-2873

<http://www.fws.gov/midwest/Endangered/section7/s7process/step1.html>

In Reply Refer To:

July 16, 2018

Consultation Code: 03E19000-2018-SLI-1127

Event Code: 03E19000-2018-E-02366

Project Name: Prairie River Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The attached species list identifies any federally threatened, endangered, proposed and candidate species that may occur within the action area the area that is likely to be affected by your proposed project. The list also includes any designated and proposed critical habitat that overlaps with the action area. This list is provided to you as the initial step of the consultation process required under section 7(c) of the Endangered Species Act, also referred to as Section 7 Consultation.

Section 7 of the Endangered Species Act of 1973 requires that actions authorized, funded, or carried out by Federal agencies not jeopardize federally threatened or endangered species or adversely modify designated critical habitat. To fulfill this mandate, Federal agencies (or their designated non-federal representatives) must consult with the Service if they determine their project may affect listed species or critical habitat. Agencies must confer under section 7(a)(4) if any proposed action is likely to jeopardize species proposed for listing as endangered or threatened or likely to adversely modify any proposed critical habitat.

Under 50 CFR 402.12(e) (the regulations that implement Section 7 of the Endangered Species Act) the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally. You may verify the list by visiting the ECOS-IPaC website <http://ecos.fws.gov/ipac/> at regular intervals during project planning and implementation and completing the same process you used to receive the attached list. As an alternative, you may contact this Ecological Services Field Office for updates.

Please use the species list provided and visit the U.S. Fish and Wildlife Service's Region 3 Section 7 Technical Assistance website at - <http://www.fws.gov/midwest/endangered/section7/>

[s7process/index.html](#). This website contains step-by-step instructions that will help you determine if your project will have an adverse effect on listed species or critical habitat and will help lead you through the Section 7 process.

For all wind energy projects and projects that include installing towers that use guy wires or are over 200 feet in height, please contact this field office directly for assistance, even if no federally listed plants, animals or critical habitat are present within the action area.

Although no longer protected under the Endangered Species Act, be aware that bald eagles (*Haliaeetus leucocephalus*) are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.) and Migratory Bird Treaty Act (16 U.S.C. 703 et seq), as are golden eagles (*Aquila chrysaetos*). Projects affecting these species may require measures to avoid harming eagles or may require a permit. If your project is near a bald eagle nest or winter roost area, see our Eagle Permits website at <http://www.fws.gov/midwest/midwestbird/EaglePermits/index.html>. The information available at this website will help you determine if you can avoid impacting eagles or if a permit may be necessary.

We appreciate your concern for threatened and endangered species. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- Migratory Birds

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Minnesota-Wisconsin Ecological Services Field Office
4101 American Blvd E
Bloomington, MN 55425-1665
(952) 252-0092

Project Summary

Consultation Code: 03E19000-2018-SLI-1127

Event Code: 03E19000-2018-E-02366

Project Name: Prairie River Project

Project Type: DAM

Project Description: Existing hydroelectric Project (FERC No. 2361)

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/47.309487800179106N93.5557692502351W>



Counties: Itasca, MN

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Canada Lynx <i>Lynx canadensis</i> Population: Wherever Found in Contiguous U.S. There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened
Gray Wolf <i>Canis lupus</i> Population: MN There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4488	Threatened
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Bittern <i>Botaurus lentiginosus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/6582	Breeds Apr 1 to Aug 31
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31

NAME	BREEDING SEASON
Black Tern <i>Chlidonias niger</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Canada Warbler <i>Cardellina canadensis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10
Cape May Warbler <i>Setophaga tigrina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Jul 31
Connecticut Warbler <i>Oporornis agilis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 15 to Aug 10
Evening Grosbeak <i>Coccothraustes vespertinus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Golden-winged Warbler <i>Vermivora chrysoptera</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8745	Breeds May 1 to Jul 20
Harris's Sparrow <i>Zonotrichia querula</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Rusty Blackbird <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Jul 20

NAME	BREEDING SEASON
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ “Proper Interpretation and Use of Your Migratory Bird Report” before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (-)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [E-bird Explore Data Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical](#)

[Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ “Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds” at the bottom of your migratory bird trust resources page.

From: Nora Rosemore (MP) <NRosemore@mnpower.com>
Sent: Friday, July 27, 2018 4:28 PM
To: Cohn, Charlotte W (DNR)
Cc: Gregory Prom (MP); Malkin, Devin; MacVane, Kelly; David Chura (MP)
Subject: Request for threatened and endangered species information
Attachments: 20180727 GR and PR DCR RTE Request.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Charlotte,

Minnesota Power plans to relicense the Grand Rapids Hydroelectric Project No. 2362 and Prairie River Hydroelectric Project No. 2361 using the Integrated Licensing Process (ILP). Both licenses expire on December 31, 2023; therefore, the notice of intent (NOI) and a Pre-Application Document (PAD) are due to the Federal Energy Regulatory Commission (FERC) by December 31, 2018.

Attached is a letter requesting information on threatened and endangered species within the vicinity of the Grand Rapids Project and Prairie River Project. This information will be used to prepare the PAD. A hard copy of the attached letter will follow.

Enjoy your weekend,

Nora

*Nora Rosemore
Hydro Operations Superintendent
Minnesota Power
(218) 725-2101*



July 27, 2018

Charlotte W. Cohn, Hydropower Projects Planner
Minnesota Department of Natural Resources
500 Lafayette Road
Eco. Resources – Box 25
Saint Paul, MN 55155-4020

**Subject: Grand Rapids Hydroelectric Project (FERC No. 2362) and Prairie River Hydroelectric Project (FERC No. 2361)
Request for Threatened and Endangered Species Information**

Dear Ms. Cohn,

ALLETE, Inc. (d.b.a. Minnesota Power) is gathering information in support of the Pre-Application Document (PAD) for the upcoming Federal Energy Regulatory Commission (FERC) relicensing of the Grand Rapids Hydroelectric Project (FERC No. 2362) and Prairie River Hydroelectric Project (FERC No. 2361). In support of this process, Minnesota Power is requesting information regarding the following within the area of the Projects:

- State-listed threatened or endangered species;
- Species proposed for listing as threatened or endangered, or species of concern;
- Designated or proposed critical habitat; and
- Candidate species.

The Grand Rapids Project is a 2.1 megawatt (MW), run-of-river (ROR) facility located on the Mississippi River in Grand Rapids, Minnesota, in Itasca County. The Prairie River Project is a 1.1 MW, ROR facility located on the Prairie River near Grand Rapids, Minnesota, in Itasca County. The attached map shows the area of interest for which the information is being requested and the general location of the facilities.

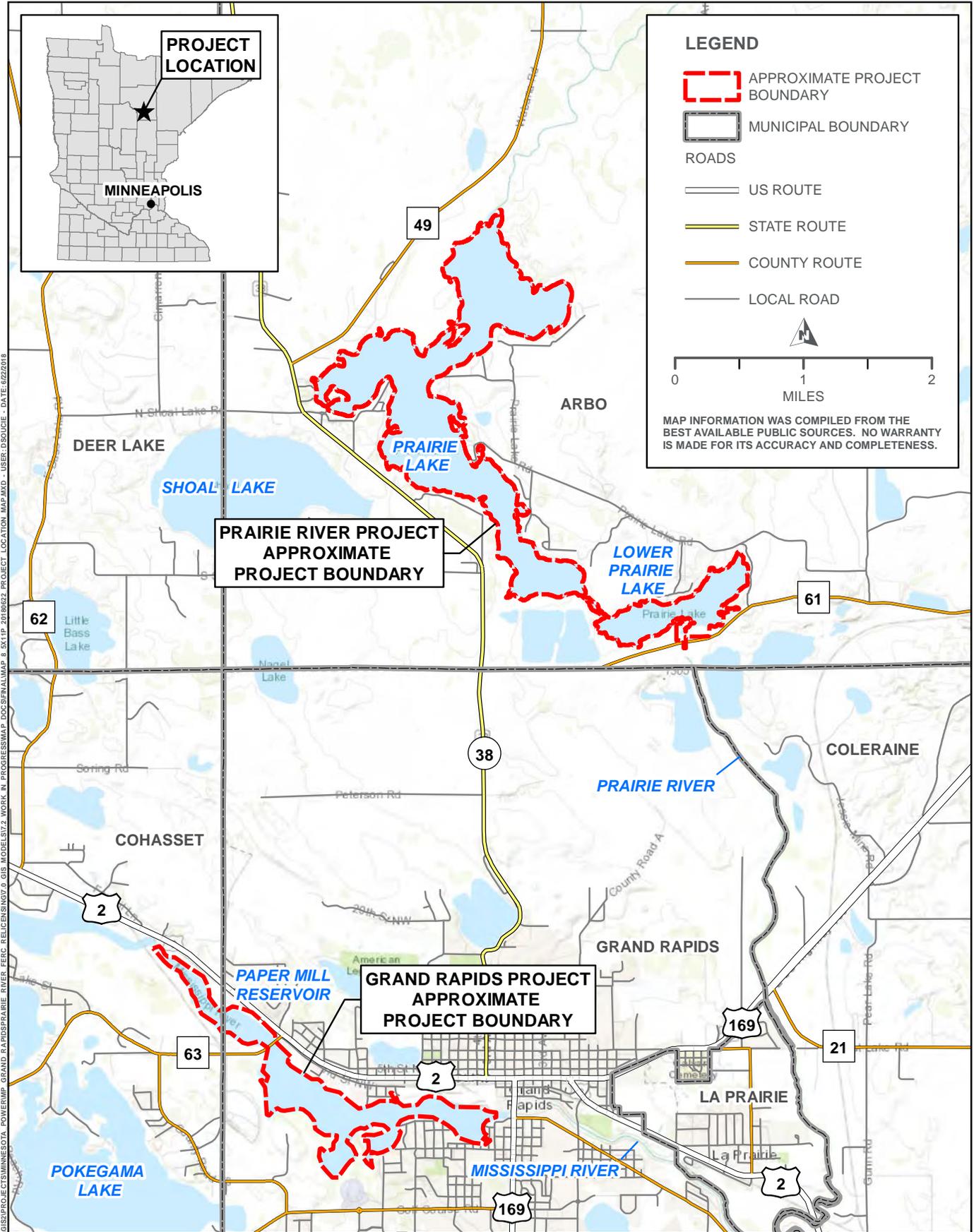
It is our intent to include the results of this information request in the PAD. Therefore, we respectfully request a response to this request within 30 days of the date of this letter. If you have any questions or need additional information regarding these Projects or their location, please feel free to contact me at (218) 725-2101 or nrosemore@mnpower.com.

Thank you for your assistance with this request.

Sincerely,

Nora Rosemore
Hydro Operations Superintendent

Attachment



PATH: \\PWE-INF-01\GIS\PROJECTS\MINNESOTA_POWER\MP GRAND RAPIDS\RAIVER_FERC_RELICENSING\0_GIS_MODEL\LIST2_WORK_IN_PROGRESS\MAP_DOC\SF\NAL\MAP_8_5\11P_20180622_PROJECT_LOCATION_MAP.MXD - USER: DSOLUCIE - DATE: 6/22/2018



PROJECT LOCATION MAP
PRAIRIE RIVER & GRAND RAPIDS HYDROELECTRIC PROJECTS
 PRAIRIE RIVER (FERC NO. 2361) & GRAND RAPIDS (FERC NO. 2362)

JUNE 2018

From: Nora Rosemore (MP) <NRosemore@mnpower.com>
Sent: Friday, July 27, 2018 4:40 PM
To: 'Amber.Westerbur@state.mn.us'
Cc: Cohn, Charlotte W (DNR); Malkin, Devin; MacVane, Kelly; Gregory Prom (MP); David Chura (MP)
Subject: Coastal Zone Consistency Determination
Attachments: 20180727 PR and GR CZMA Determination Request.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Ms. Westerbur,

Minnesota Power plans to relicense the Grand Rapids Hydroelectric Project No. 2362 and Prairie River Hydroelectric Project No. 2361 using the Integrated Licensing Process (ILP). Both licenses expire on December 31, 2023; therefore, the notice of intent (NOI) and a Pre-Application Document (PAD) are due to the Federal Energy Regulatory Commission (FERC) by December 31, 2018.

Attached is a letter requesting a determination from your office within 30 days regarding the applicability of the State's Coastal Zone Policies to these Projects. The results of this determination will be included in the PAD. A hard copy of the attached letter will follow.

Enjoy your weekend,

Nora Rosemore

Nora Rosemore
Hydro Operations Superintendent
Minnesota Power
(218) 725-2101



July 27, 2018

Amber Westerbur, Program Manager
Minnesota Department of Natural Resources
Minnesota Lake Superior Coastal Program
1568 Hwy 2
Two Harbors, Minnesota 55616

**Subject: Grand Rapids Hydroelectric Project (FERC No. 2362) and Prairie River
Hydroelectric Project (FERC No. 2361)
Coastal Zone Consistency Determination**

Dear Ms. Westerbur,

ALLETE, Inc. (d.b.a. Minnesota Power) is gathering information in support of the Pre-Application Document (PAD) for the upcoming Federal Energy Regulatory Commission (FERC) relicensing of the Grand Rapids Hydroelectric Project (FERC No. 2362) and Prairie River Hydroelectric Project (FERC No. 2361).

Consistent with this effort, Minnesota Power is requesting a determination from your office regarding the applicability of the State's Coastal Zone Policies to the Grand Rapids Project and Prairie River Project, which are located on the Mississippi River and Prairie River, respectively. Based on a review of applicable information, we do not believe that the Projects are located within the State's Coastal Zone and are requesting confirmation of this determination from your office. In support of this confirmation, we have included maps indicating the location of these facilities.

It is our intent to include the results of the determination in the PAD. Therefore, we respectfully request a response to this determination within 30 days of the date of this letter. If you have any questions or need additional information regarding these Projects or their location, please feel free to contact me at (218) 725-2101 or nrosemore@mnpower.com.

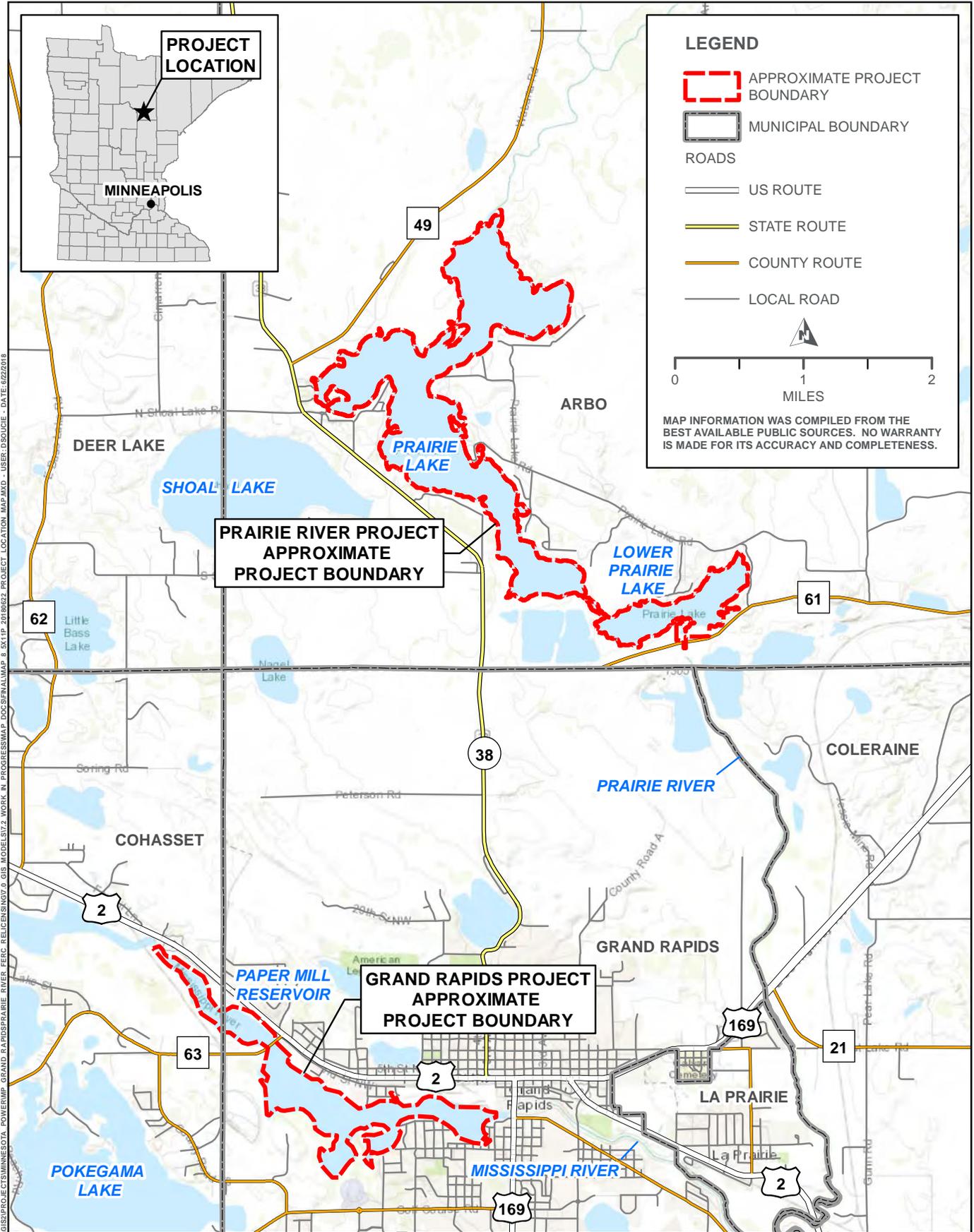
Thank you for your assistance with this request.

Sincerely,

Nora Rosemore
Hydro Operations Superintendent

Attachment

cc: Charlotte Cohn, Minnesota Department of Natural Resources



PROJECT LOCATION MAP
PRAIRIE RIVER & GRAND RAPIDS HYDROELECTRIC PROJECTS
 PRAIRIE RIVER (FERC NO. 2361) & GRAND RAPIDS (FERC NO. 2362)

JUNE 2018

PATH: \\PWE-INF-01\GIS\PROJECTS\MINNESOTA_POWER\MP GRAND RAPIDS\PRAIRIE RIVER_FERC_RELICENSING\0_GIS_MODEL\LIST2_WORK_IN_PROGRESS\MAP_DOCUMENT\MAP_8_5X11P_20180622_PROJECT_LOCATION_MAP.MXD - USER:DSOUCIE - DATE:6/22/2018

From: Nick Utrup <nick_utrup@fws.gov>
Sent: Monday, July 30, 2018 7:48 AM
To: Nora Rosemore (MP)
Cc: Peter Fasbender; Malkin, Devin; MacVane, Kelly; gprom@mnpower.com; David Chura (MP)
Subject: Re: [EXTERNAL] Request for threatened and endangered species information

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Nora,

We reviewed your IPaC results and concur that the list is accurate for the identified project areas. Please let me know if you have any further questions as we go through the license process.

Thanks,

Nick

Nick Utrup
U.S. Fish and Wildlife Service
Minnesota/Wisconsin Field Office
4101 American Boulevard East
Bloomington, MN 55425

Office: (952) 252-0092 Ext. 204
FAX: (952) 646-2873
Email: Nick_Utrup@fws.gov

Subject:

RE: Request for information, MN Power Hydro License

From: Anderson, Jesse (MPCA) [<mailto:jesse.anderson@state.mn.us>]**Sent:** Monday, July 30, 2018 9:13 AM**To:** Nora Rosemore (MP) <NRosemore@mnpower.com>**Cc:** Bosch, Anna (MPCA) <anna.bosch@state.mn.us>**Subject:** RE: Request for information, MN Power Hydro License

[ALERT – External Email – Handle Accordingly]

Hi Nora, the MPCA has a lot of environmental information on the Mississippi River- Grand Rapids and Prairie River watersheds.

Please see the website below for links to the Watershed's detailed Monitoring and Assessment Report and the Restoration and Projection strategy documents.

<https://www.pca.state.mn.us/water/watersheds/mississippi-river-grand-rapids>

The MPCA's watershed project manager for this area is Anna Bosch, out of our Brainerd office. Please keep her and I up to date on Minnesota Power's hydro licensing process. Thanks.

Jesse Anderson
Research Scientist
Water Quality Monitoring Unit
Minnesota Pollution Control Agency
525 S. Lake Ave., Suite 400
Duluth MN, 55802
(218)-302-6621
800-657-3864

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From: Thoreson, Randall <randy_thoreson@nps.gov>
Sent: Thursday, August 2, 2018 4:12 PM
To: Nora Rosemore (MP)
Cc: john.jaschke@state.mn.us; lan.Chisholm@state.mn.us; Charlotte.Cohn@state.mn.us; don.pereira@state.mn.us; guy.lunz@state.mn.us; nancy.stewart@state.mn.us; bryan.dodds@state.mn.us; thorleif@umn.edu; Sarah.Beimers@state.mn.us; rayna.churchill@state.mn.us; jim.brist@state.mn.us; william.wilde@state.mn.us; Melissa.Kuskie@state.mn.us; Jesse.Anderson@state.mn.us; Dan.Wolf@state.mn.us; Nanette.m.bischoff@usace.army.mil; timothy.lapointe@bia.gov; Nick_Utrup@fws.gov; Peter_Fasbender@fws.gov; nicholas_chevance@nps.gov; ysrayna2018@gmail.com; blatady@boisforte-nsn.gov; cchavers@boisforte-nsn.gov; vrichey@c-a-tribes.org; ehamilton@c-a-tirbes.org; msutton@c-a-tribes.org; kevindupuis@fdlrez.com; JillHoppe@fdlrez.com; reggiedefoe@fdlrez.com; tomhowes@fdlrez.com; andy.werk@ftbelknap.org; mblackwolf@ftbelknap.org; Norman@grandportage.com; maryanng@grandportage.com; ldftpo@ldftribe.com; amy.burnette@llojibwe.org; faron.jackson@llojibwe.org; dgrignon@mitw.org; natalie.weyaus@millelacsband.com; kade.ferris@redlakenation.org; dseki@redlakenation.org; THPO@uppersiouxcommunity-nsn.gov; jaime.arsenault@whiteearth.com; mayoradams@cityofgrandrapidsmn.com; communitydev@cityofgrandrapids.com; engineering@cityofgrandrapidsmn.com; sara.thompson@co.itasca.mn.us; brett.skyles@co.itasca.mn.us; mark@americanwhitewater.org; ichs@paulbunyan.net; Malkin, Devin; MacVane, Kelly; Gregory Prom (MP); David Chura (MP)
Subject: Re: [EXTERNAL] Request for information
Follow Up Flag: Follow up
Flag Status: Flagged

Yes, the NPS is involved in the review and FERC process of Hydro Projects.

To be specific, the following paragraph and Authority outline the NPS review authorities. I have been involved in Hydro reviews for many years and the main areas NPS is interested in include primarily Recreation with associated reviews and input on Natural Resource, Land Use and Aesthetics.

The NPS should be consulted on all hydrokinetic projects, not just those with the potential to affect units of the National Park System. Regulations created pursuant to the Federal Power Act, as amended, require consultation with the NPS and other resource agencies (18 C.F.R. § 4.38(a) and 18 C.F.R. § 5.1(d)). The NPS provides technical assistance about outdoor recreation resources pursuant to the Outdoor Recreation Act of 1963 (16 U.S.C. § 4601-1), the NPS Organic Act (16 U.S.C. § 1 et seq.), the Wild and Scenic Rivers Act of 1968 (Public Law 90-542), and the National Trails System Act of 1968 (16 U.S.C. § 1246(a)).

- Randy Thoreson
MN NPS/RTCA and Hydro

Subject: RE: Request for information

From: Beimers, Sarah (ADM) [<mailto:sarah.beimers@state.mn.us>]

Sent: Wednesday, August 8, 2018 10:58 AM

To: Nora Rosemore (MP) <NRosemore@mnpower.com>

Subject: RE: Request for information

[ALERT – External Email – Handle Accordingly]

Nora,

Have you submitted this request to our office in hard copy per our usual procedure? Unfortunately, we do not have the capabilities to accept electronic review requests submittals. Please review the information and procedures on [our website](#) as they pertain to SHPO review requests.

Thank you,

Sarah



Sarah Beimers | Environmental Review Program Manager

State Historic Preservation Office

203 Administration Building

50 Sherburne Avenue

Saint Paul MN 55155

(651) 201-3290

sarah.beimers@state.mn.us

From: Gregory Prom (MP) [mailto:gprom@mnpower.com]
Sent: Thursday, August 9, 2018 11:15 AM
To: 'william.wilde@state.mn.us' <william.wilde@state.mn.us>
Cc: Nora Rosemore (MP) <NRosemore@mnpower.com>; Malkin, Devin <Devin.Malkin@hdrinc.com>; MacVane, Kelly <Kelly.MacVane@hdrinc.com>; Richard Fannin (MP) <rfannin@mnpower.com>
Subject: FW: Request for information RE: Grand Rapids P-2362 and Prairie River P-2361 Hydroelectric Relicensing Projects

Dear Mr. Wilde,

Based on our conversation on August 6, 2018 and the follow-up email request below, I have put together the requested information to some additional questions you had.

The draft PAD will be completed by December 31, 2018, and sent out to the stakeholders for comments under the FERC Integrated License Process (ILP).

Minnesota Power (MP) is not planning on making any modifications to the hydro generation capacity and therefore there are no anticipated operational changes that should impact dissolved oxygen (DO), temperature, or total suspended solids (TSS).

You requested documentation on the 401 water quality certifications for these Projects and an additional map showing both hydro's and their connectivity via the waterways can be provided. The attached map shows both the Blandin and Prairie Lake reservoirs along with the location of the Prairie River flowing into the Mississippi, downstream of the Grand Rapids Hydroelectric dam (southeast).

In 1990, Blandin performed DO and temperature sampling on the Blandin reservoir. In 1989 and 1990 DO and temperature measurements were also collected on the Prairie River reservoir. The Prairie River sampling information is available in the 1991 license application in the Environmental Assessment Exhibit E. I have attached a table with the DO and Temp readings from that report.

A 401 water quality certification was issued for Grand Rapids Hydroelectric Project on December 11, 1992. I have attached the 1992 MPCA letter to this email, explaining the 401 certification .

On December 10, 1990, Minnesota Power (MP) applied to the Minnesota Pollution Control Agency (MPCA) for a 401 water quality certification for the Prairie River Hydro Project. The MPCA did not act on the requested within one year, and therefore the FERC waved the certification in Commission Order 533 (June 19, 1991). The 1993 order re-issuing the license for Prairie River describes it below.

WATER QUALITY CERTIFICATION

Minnesota Power applied to the Minnesota Pollution Control Agency (MPCA) for a water quality certification on December 10, 1990. On December 11, 1990, the MPCA received Minnesota Power's request. Since MPCA did not act on the request within one year from the effective date of Commission Order 533 (June 19, 1991), the certificate is deemed waived.

FERC has recently changed the default hydro license to a 40 year license. The final request from MP on the license request has not been determined, but it will be at least a 40 year license request.

The schedule for re-issuance of the project licenses is 2023. The final scheduled of studies are to be determined, but will follow the ILP scheduling timelines. The timelines will be presented in further detail following the PAD submittal and issuance of the FERC Scoping Document.

I hope this answers most of your initial questions as more information will be presented as the relicensing process proceeds. If you have any other questions please feel free to ask.

Sincerely,

Greg Prom

Environmental Compliance Specialist Senior
Minnesota Power/ALLETE
30 West Superior Street
Duluth, Minnesota 55802

Office: 218-355-3191
Cell: 218-461-6856
Email: gprom@allete.com



From: Wilde, William (MPCA) [<mailto:>]
Sent: Wednesday, August 8, 2018 3:41 PM
To: Gregory Prom (MP) <gprom@mnpower.com>
Subject: RE: Request for information RE: Grand Rapids P-2362 and Prairie River P-2361 Hydroelectric Relicensing Projects

[ALERT – External Email – Handle Accordingly]

Hi Greg,

To close the loop on our 8/6/2018 discussion see bullets below. Also, a few questions in yellow.

- As mentioned below, there will be two Notice of Intent (NOI) documents - one for the P-2361 and one for P-2362;
- Both NOI will be combined into one Pre-Application Document. Will the PAD be completed by December 31, 2018?
- MP will send MPCA more detailed map[s] that identify both hydroelectric dam locations and flow direction on the Mississippi River. Also, include more detailed locations of impaired waters and beneficial use impacted - relative to each Dam.
- MP said that this project is strictly for Relicensing of both P-2361 and P-2362 Hydroelectric generating dams/facilities. The relicense will not require an increase in capacity, new equipment, or any type of structural change or modification. There will be no flow increases. Estimated concentrations of total suspended solids (TSS) (sediment) will remain at current (or reduced?) levels. However, dissolved oxygen (DO) concentration may increase. Why, I did not catch MP explanation for both TSS and DO?
- If the project requires a USACE standard individual 404 Permit, it will also require a MPCA 401 certification. As part of the certification an Antidegradation Assessment will also be required. If needed, attached is the Anti-deg assessment. Note: the form is not required, however, the information on the form is.
- At this time, the USACE has not determined if the relicensing project will be permitted under an standard individual permit, LOP, RGP, NWP, or other vehicle.
- MP will research records for previous MPCA permits and certifications. Also, information from other agencies maybe helpful too.
- What year is the estimated license expiration date for both P-2361 and P-2362? Is this considered a 30, 40, 50 – year license?
- MP or FERC - When will a project timeline be completed? Also, the timeline must include the estimated date (month and year) for the MPCA 401 certification request?
- Required studies noted on the July 27,2018, letter will be completed during year 2019, 2020, and 2021 if necessary.
- Other Items?

MP = Minnesota Power

FERC = Federal Energy and Regulatory Commission

Please fill in any missed topics and let me know if you have any additional questions or concerns from the MPCA 401 Program.

Thanks,

Bill Wilde
Minnesota Pollution Control Agency
401 Program
520 Lafayette Road
St. Paul, Minnesota 55155
(651) 757-2825

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From: Gregory Prom (MP) <gprom@mnpower.com>
Sent: Friday, August 03, 2018 9:05 AM
To: Nora Rosemore (MP) <NRosemore@mnpower.com>; Wilde, William (MPCA) <william.wilde@state.mn.us>
Cc: Malkin, Devin (Devin.Malkin@hdrinc.com) <Devin.Malkin@hdrinc.com>; 'MacVane, Kelly' <Kelly.MacVane@hdrinc.com>; David Chura (MP) <dchura@mnpower.com>
Subject: RE: Request for information RE: Grand Rapids P-2362 and Prairie River P-2361 Hydroelectric Relicensing Projects

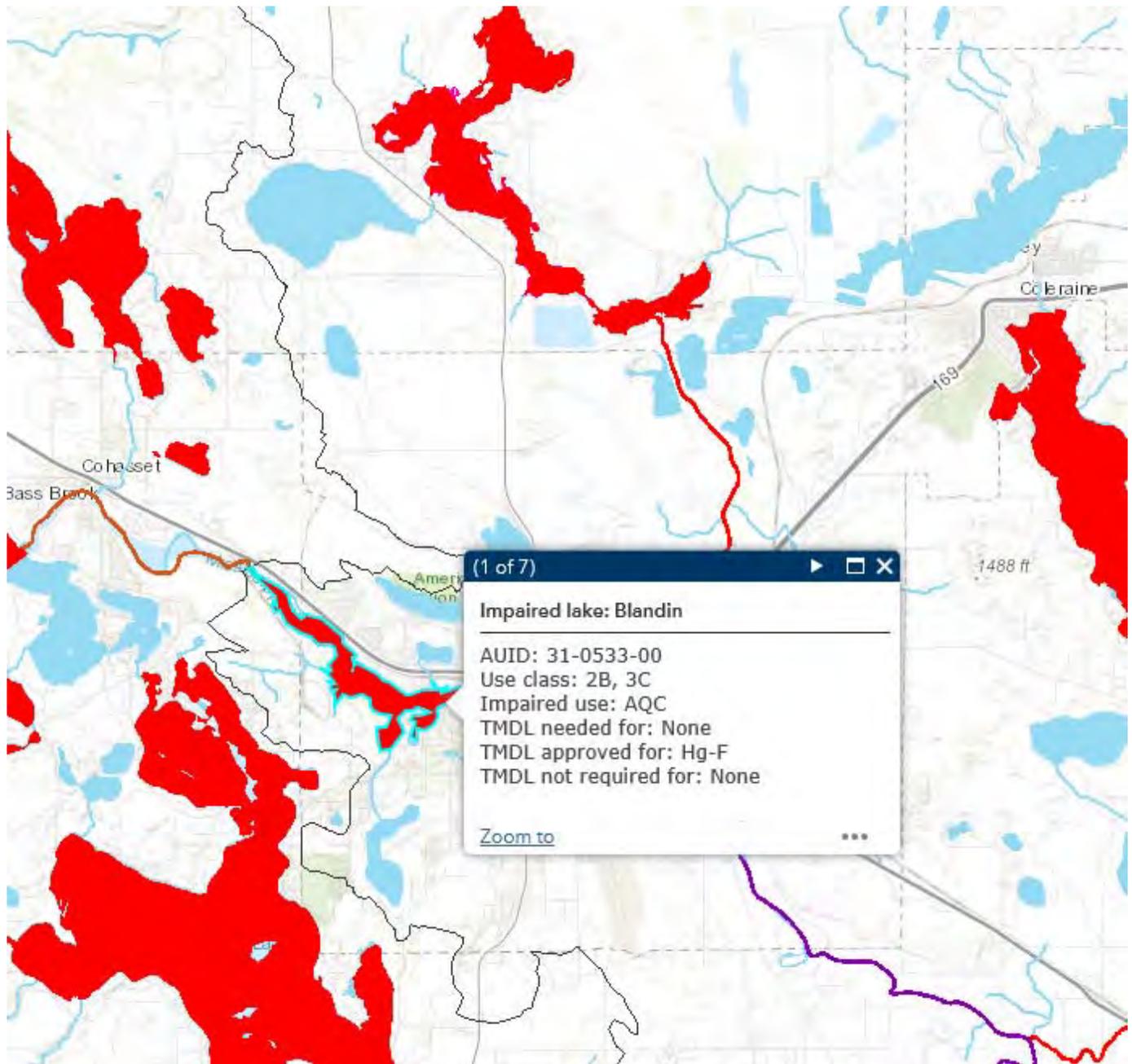
Dear Mr. Wilde,

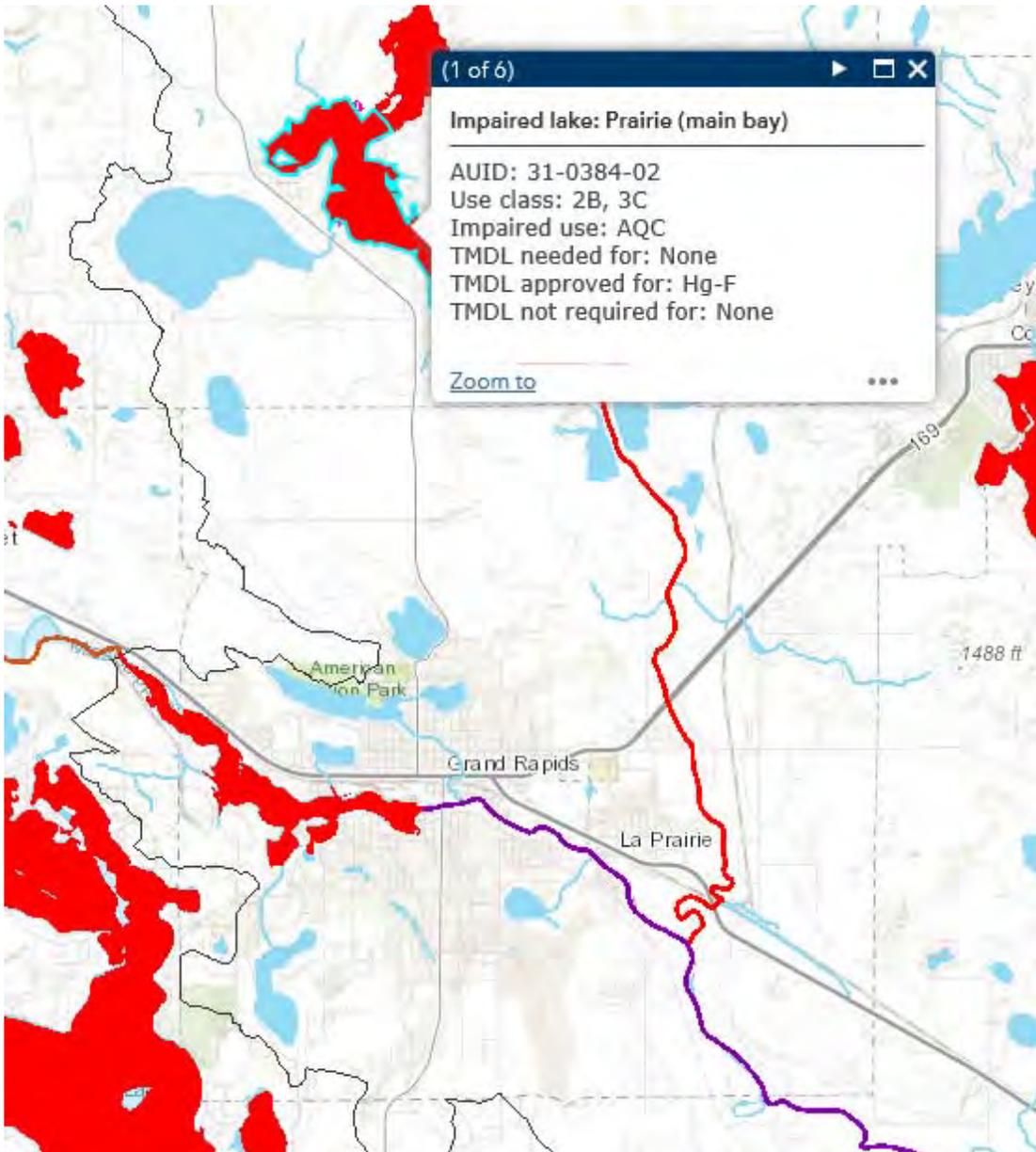
I am responding for Nora as she is out of the office this week.

To your question on if MP plans to file one PAD and NOI, Minnesota Power (MP) plans to file separate NOIs for each hydroelectric project but one combined PAD that will include both projects. The scoping document will be prepared by FERC. MP would prefer one scoping document to cover both projects but the final decision will come from FERC.

I have attached the maps that shows the Mississippi River at Blandin Reservoir and Prairie Lake Reservoir from the MPCA Impaired Waters website. As shown on the maps, the Prairie River flows south-southeast into the Mississippi. The Mississippi River flows east-southeast from the Grand Rapids Hydro. The Prairie River connects into the Mississippi River approximately 2.5 miles southeast of the Grand Rapids Dam.

The MPCA website for Impaired waters of the State list both the Blandin Reservoir and Prairie Lake reservoir as being impaired for consumption of fish due to mercury in fish tissue. Here are the maps from the website.





Thanks for the information regarding the 404 permit and 401 certification. The USACE is also included as a stakeholder in the relicensing process. If you have any new or updated 401 certification information that may be relevant to the relicensing effort, we would be happy to receive it.

Thanks for your response and we look forward to working together on these relicensing projects.

Sincerely,

Greg Prom

Environmental Compliance Specialist Senior
Minnesota Power/ALLETE
30 West Superior Street
Duluth, Minnesota 55802

Office: 218-355-3191

Cell: 218-461-6856
Email: gprom@allete.com



From: "Wilde, William (MPCA)" <william.wilde@state.mn.us>
Date: August 1, 2018 at 7:21:36 AM AKDT
To: "Nora Rosemore (MP)" <NRosemore@mnpower.com>
Subject: RE: Request for information RE: Grand Rapids P-2362 and Prairie River P-2361 Hydroelectric Relicensing Projects

[ALERT – External Email – Handle Accordingly]

Hello Nora:

This is a follow-up to the telephone message I left.

Will there be *one* Pre-Application Document and Notice of Intent for both P-2361 and P-2362? Will scoping documents and required studies also be under *one* application for both Project Numbers: 2361 & 2362?

Is there another Project Location Map that better identifies both the Prairie River Dam and Grands Rapids Dam locations? Also, a map to display where the Prairie River flows into the Mississippi River and arrow to show direction of flow for Mississippi.

In addition, are there any impaired waters of the state located within one mile of each Dam and specific reach of the rivers? If so what are the impairments and the beneficial use affected?

As you may already know, the 401 water quality certification program now includes an Antidegradation (anti-deg) Assessment, if the project requires an USACE individual 404 permit. However, if project falls under the USACE general permit (GP), nationwide permit (NWP), or letter of permission (LOP), no 401 certification and anti-deg are usually required.

Let me know if you need any information from the MPCA 401 program.

Thanks,

Bill Wilde
Minnesota Pollution Control Agency
401 Program
520 Lafayette Road
St. Paul, Minnesota 55155
(651) 757-2825

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From: Nora Rosemore (MP) <NRosemore@mnpower.com>
Sent: Friday, July 27, 2018 3:41 PM
To: Jaschke, John (BWSR) <john.jaschke@state.mn.us>; Chisholm, Ian M (DNR) <ian.chisholm@state.mn.us>; Cohn, Charlotte W (DNR) <charlotte.cohn@state.mn.us>; Pereira, Don (DNR) <don.pereira@state.mn.us>; Lunz, Guy J (DNR) <guy.lunz@state.mn.us>; Stewart, Nancy (DNR) <nancy.stewart@state.mn.us>; Dodds, Bryan (DOT) <bryan.dodds@state.mn.us>; 'thorleif@umn.edu' <thorleif@umn.edu>; Beimers, Sarah (ADM) <sarah.beimers@state.mn.us>; 'rayna.churchill@state.mn.us' <rayna.churchill@state.mn.us>; Brist, Jim (MPCA) <jim.brist@state.mn.us>; Wilde, William (MPCA) <william.wilde@state.mn.us>; Kuskie, Melissa (MPCA) <melissa.kuskie@state.mn.us>; Anderson, Jesse (MPCA) <jesse.anderson@state.mn.us>; Wolf, Dan (PUC) <dan.wolf@state.mn.us>; 'Nanette.m.bischoff@usace.army.mil' <Nanette.m.bischoff@usace.army.mil>; 'timothy.lapointe@bia.gov' <timothy.lapointe@bia.gov>; 'Nick Utrup@fws.gov' <Nick Utrup@fws.gov>; 'Peter Fasbender@fws.gov' <Peter Fasbender@fws.gov>; 'nicholas chevance@nps.gov' <nicholas chevance@nps.gov>; 'randy thoreson@nps.gov' <randy thoreson@nps.gov>; 'ysrayna2018@gmail.com' <ysrayna2018@gmail.com>; 'blatady@boisforte-nsn.gov' <blatady@boisforte-nsn.gov>; 'cchavers@boisforte-nsn.gov' <cchavers@boisforte-nsn.gov>; 'vrichey@c-a-tribes.org' <vrichey@c-a-tribes.org>; 'ehamilton@c-a-tirbes.org' <ehamilton@c-a-tirbes.org>; 'msutton@c-a-tribes.org' <msutton@c-a-tribes.org>; 'kevindupuis@fdlrez.com' <kevindupuis@fdlrez.com>; 'JillHoppe@fdlrez.com' <JillHoppe@fdlrez.com>; 'reggiedefoe@fdlrez.com' <reggiedefoe@fdlrez.com>; 'tomhowes@fdlrez.com' <tomhowes@fdlrez.com>; 'andy.werk@ftbelknap.org' <andy.werk@ftbelknap.org>; 'mblackwolf@ftbelknap.org' <mblackwolf@ftbelknap.org>; 'Norman@grandportage.com' <Norman@grandportage.com>; 'maryann@grandportage.com' <maryann@grandportage.com>; 'ldfthpo@ldftribe.com' <ldfthpo@ldftribe.com>; 'amy.burnette@llojibwe.org' <amy.burnette@llojibwe.org>; 'faron.jackson@llojibwe.org' <faron.jackson@llojibwe.org>; 'dgrignon@mitw.org' <dgrignon@mitw.org>; 'natalie.weyaus@millelacsband.com' <natalie.weyaus@millelacsband.com>; 'kade.ferris@redlakenation.org' <kade.ferris@redlakenation.org>; 'dseki@redlakenation.org' <dseki@redlakenation.org>; 'THPO@upper Sioux community-nsn.gov' <THPO@upper Sioux community-nsn.gov>; 'jaime.arsenault@whiteearth.com' <jaime.arsenault@whiteearth.com>; 'mayoradams@cityofgrandrapidsmn.com' <mayoradams@cityofgrandrapidsmn.com>; 'communitydev@cityofgrandrapids.com' <communitydev@cityofgrandrapids.com>; 'communitydev@cityofgrandrapids.com' <communitydev@cityofgrandrapids.com>; 'engineering@cityofgrandrapidsmn.com' <engineering@cityofgrandrapidsmn.com>; 'sara.thompson@co.itasca.mn.us' <sara.thompson@co.itasca.mn.us>; 'brett.skyles@co.itasca.mn.us' <brett.skyles@co.itasca.mn.us>; 'mark@americanwhitewater.org' <mark@americanwhitewater.org>; 'ichs@paulbunyan.net' <ichs@paulbunyan.net>
Cc: Malkin, Devin <Devin.Malkin@hdrinc.com>; MacVane, Kelly <Kelly.MacVane@hdrinc.com>; Gregory Prom (MP) <gprom@mnpower.com>; David Chura (MP) <dchura@mnpower.com>
Subject: Request for information

Dear Potential Stakeholders:

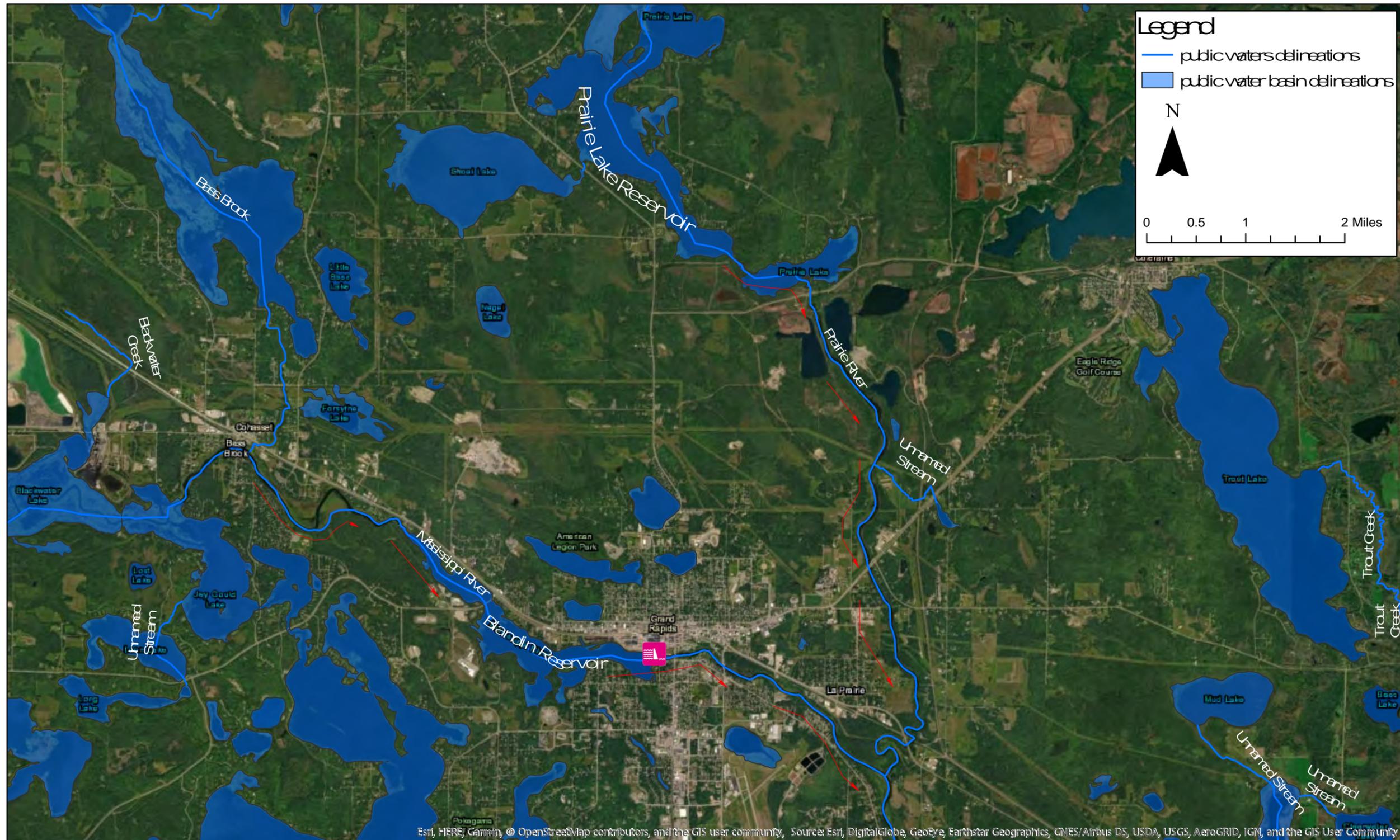
Minnesota Power plans to relicense the Grand Rapids Hydroelectric Project No. 2362 and Prairie River Hydroelectric Project No. 2361 using the Integrated Licensing Process (ILP). Both licenses expire on December 31, 2023; therefore, the notice of intent (NOI) and a Pre-Application Document (PAD) are due to the Federal Energy Regulatory Commission (FERC) by December 31, 2018.

Attached is a letter requesting any existing, relevant, and reasonably available information that describes the existing environment within the vicinity of the Grand Rapids Project and Prairie River Project. The information will be used in the development of the PAD. Any potential relevant information, or questions, can be sent to me at nrosemore@mnpower.com. A hard copy of the attached letter will follow.

Enjoy your day,

Nora Rosemore
Hydro Operations Superintendent
Minnesota Power
(218) 725-2101

Minnesota Power - FERC Hydro Projects - Prairie River # 2361 Grand Rapids # 2362





ORIGINAL

Minnesota Pollution Control Agency

Celebrating our 25th anniversary and the 20th anniversary of the Clean Water Act

December 11, 1992

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Robert L. Comstock
Assistant Vice-President of Engineering,
Maintenance, and Power
Blandin Paper Company
115 First Street SW
Grand Rapids, Minnesota 55744

52 DEC 14 PM 2:45
FEDERAL ENERGY REGULATORY COMMISSION

Dear Mr. Comstock:

RE: Blandin Paper Company
Blandin Hydroelectric Project
Mississippi River
FERC Project #2362 - 002

This letter is submitted by the Minnesota Pollution Control Agency (MPCA) under authority of Section 401 of the Clean Water Act (33 USC 1251, et seq.) and Minn. Stat. chs. 115 and 116. The project involves the proposed issuance of the Federal Energy Regulatory Commission license referenced above.

The MPCA will certify that the project is in compliance with applicable water quality and effluent standards given the condition that the Blandin Hydroelectric Project refines its operation to change it from the current run-of-reservoir operation to a genuine run-of-river mode. Blandin can accomplish this through the development of and adherence to a Reservoir Operation/Release Regulation Plan.

This plan must include a procedure for a closer coordination of flows with the damtender at the U.S. Army Corps of Engineers' (C.O.E.) Pokegama Dam. Blandin should develop a schedule for matching all flow changes at the Pokegama Dam through a series of gradual, stepped release of flows at Blandin. (The flow release field test that was conducted was deficient in that no conclusions were presented nor were any recommendations offered.) To ensure that Blandin is releasing the same flows as the Pokegama Dam, regularly scheduled communication must occur between the Pokegama damtender and the operator at Blandin, regardless of any change in releases from the Pokegama Dam. An example of how this can be accomplished is the coordination between the Minnesota Power & Light Company's Knife Falls Plant and the Potlatch-Cloquet facility. The MPCA reserves the right to review an Operation Plan and require any changes necessary to protect the water quality of the Mississippi River.

9212180083

DEC 14 1992
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520 Lafayette Rd.; St. Paul, MN 55155-3898; (612) 296-6300; Regional Offices: Duluth • Brainerd • Detroit Lakes • Marshall • Rochester

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Mr. Robert L. Comstock

Page 2

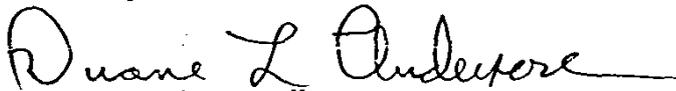
Blandin should have a flow gage installed upstream of their facility. A flow gage would improve Blandin's ability to monitor river flow over that of the pneumatic sensor and the staff gage that are currently being used to observe reservoir levels. The flow gage would also confirm flows received from the Pokegama Dam. The readings from the upstream and downstream gages would also yield a better comparison of flows and, thus, further facilitate the refinement of the plant's operation. A permanent structure should be constructed, to house the flow gage, at a site upstream of the Blandin facility that would not be influenced by eddies, backwater flows or other irregular flow patterns (similar to the gaging stations on the Watonwan River near Garden City, MN; on Garvin Brook near Minnesota City, MN, which was destroyed by a flood event; and on the Vermillion River near Empire, MN).

Blandin needs to be an active participant in the development of a low flow plan that is under study by the C.O.E., the state Department of Natural Resources, and other concerned agencies and groups for the Mississippi River. This plan should rely more on accurate flow measurements, precipitation records, temperature, and time of year and place less emphasis on pool elevations.

This action does not exempt the applicant from the responsibility of complying with all applicable local, state, and federal requirements, nor does it grant any right to violate personal or property rights.

If you have any questions regarding this matter, please call Judy Bostrom either through the MPCA's toll-free telephone number (1-800-657-3864) or directly at 1-612-296-7315.

Sincerely,



Duane L. Anderson, Manager
Assessment and Planning Section
Water Quality Division

DLA/JB:jae

cc: Ms. Lois Cashell, Secretary, Federal Energy Regulatory Commission
Mr. Milo Anderson, U.S. Environmental Protection Agency, Chicago
Mr. Gene Clark, Woodward-Clyde Consultants
Mr. Art Norton, Itasca County Soil & Water Conservation District

Table 2. Prairie River Hydroelectric Project Dissolved Oxygen (DO) Survey Data, 1989 and 1990. Flow in cfs, Depth in Meters, Temperature in Degrees Celcius, and DO in mg/l.

		Date: June 30, 1989	July 24, 1989		September 1, 1989		March 28, 1990		April 19, 1990		May 31, 1990		July 6, 1990		July 25, 1990		
		Time: 0900	N/A		1000		N/A		0900		0820		0830		0830		
		Flow: Use: 544	372		261		401		417		253		420		0		
		Waste: 124	5		0		0		0		0		195.45		15.95		
Site	Depth	Temp.	DO	Temp.	DO	Temp.	DO	Temp.	DO	Temp.	DO	Temp.	DO	Temp.	DO	Temp.	DO
1	0.0	20.8	7.1	25.0	4.8	19.2	6.9	N/A	N/A	N/A	N/A	17.2	8.6	N/A	N/A	24.0	8.4
	1.0	20.8	7.1	24.5	4.6	19.2	6.8					16.3	8.6			23.9	7.7
	2.0	20.7	6.9	24.5	4.6	19.0	6.7					15.9	8.6			23.6	7.5
	3.0	20.5	6.8	24.2	4.3	18.8	6.4					15.2	7.9			23.4	7.3
	4.0	19.9	6.2	23.9	2.7												
2	0.0	20.6	7.8	26.8	4.8	17.7	5.9	N/A	9.2	N/A	6.2	13.9	5.3	N/A	N/A	23.0	8.0
3	0.0	20.5	7.1	24.4	5.6	19.1	7.0	N/A	N/A	N/A	N/A	16.5	8.4	N/A	N/A	24.2	8.6
	1.0	20.5	7.1	24.5	5.4	19.1	7.0					16.6	8.4			23.7	8.4
	2.0	20.5	7.1	24.5	5.4	19.1	7.0					16.6	8.4			23.4	7.9
4	0.0	20.5	7.4	24.9	5.4	19.2	6.8	N/A		N/A		16.0	8.1	23.2	6.3	22.7	6.2

* Powerhouse Discharge



Appendix C
Grand Rapids Project Single-Line
Diagram
(Filed as CUI/CEII)



Appendix D
Prairie River Project Single-Line Diagram
(Filed as CUI/CEII)

Appendix E

National Inventory of Dams in the Upper Mississippi River Basin

List of Dams in the Upper Mississippi River Basin

National Inventory of Dams Name
AARON LAKE
ALDRICH
AMIK LAKE
ARCTURUS T*
ARCTURUS WATER SUPPLY*
ARLINGTON DETENTION
BALD EAGLE LAKE
BALL CLUB
BALSAM LAKE*
BATTLE CREEK
BEAR BROOK
BEMIDJI LAKE
BENSON F
BERNINGS MILL
BERSCHIED STRUCTURE
BERTRAM LAKE
BIG BIRCH LAKE
BIRCHDALE LAKE
BLACKBEAR LAKE
BLACKWATER LAKE
BLANCHARD
BLANDIN*
BORDEN LAKE
BOWEN LAKE
BRAINERD
BROPHY LAKE
BUCKEYE T NO. 2*
BUTLER TACONITE INITIAL T*
CALHOUN LAKE DIVERSION
CALHOUN LAKE OUTLET
CALHOUN LAKE-WEST
CEDAR LAKE
CHARTER*
CLEARWATER LAKE
COLD SPRING
COLLINWOOD LAKE
COON RAPIDS
CORNISH FLOWAGE*

National Inventory of Dams Name
CORNISH TOWNSHIP*
CRACKEL POND
CRANBERRY WMA
CROSS LAKE
CROW WING 5TH LAKE
CROW WING 8TH LAKE
CUBA
D. STOERZINGER NO.1
DAGGETT BROOK
DEER LAKE
DIAMOND LAKE
DUBBELS DAM
DUCK LAKE
EAGLE LAKE
ECKLUND
ELK RIVER
ELKHORN LAKE REARING POND
ELM CREEK
EMILY LAKE
FAIRHAVEN DAM
FISH HOOK RIVER
FOX LAKE
FOX POND
FRY POND
GENEVA LAKE
GEORGE LAKE
GLOCKZIN POND
GOLD POND
GREEN LAKE
GREER LAKE
GROVE LAKE
GULL LAKE
H.GROSCHER POND
HAMPTON HILLS GOLF COURSE
HANGING KETTLE LAKE
HANOVER
HARTLEY LAKE*
HATTIE LAKE
HAWTHORNE
HEFT POND

National Inventory of Dams Name
HIBBING TACONITE STARTER NO. 1*
HIBBING TACONITE STARTER NO. 3*
HIGHLAND CREEK
HILL ANNEX NO. 1*
HILL ANNEX NO. 3*
HILL LAKE*
HOLT LAKE
HUNNER T*
HUNTERSVILLE NO. 3
HUNTERSVILLE NO. 4
HUTCHINSON
IDA LAKE
ISLAND LAKE
JEWETT WMA DIKE NO. 1
JEWETT WMA DIKE NO. 2
KANDIYOHI LAKE INLET
KAPOSIA PARK
KAYLOR FISH POND
KELLER LAKE
KING LAKE GROUP LAKE*
KORSNESS POOL
KRAMER POND
KUGLER STRUCTURE
KURTZ POND
L. KOMINEK POND
LANGE POND*
LEECH LAKE DAM
LIND GREENWAY*
LITTLE FALLS
LITTLE HILL F POND*
LITTLE KANDIYOHI LAKE
LITTLE PINE CREEK
LITTLE ROCK CREEK
LITTLE SPLITHAND LAKE*
LITTLE SWAN LAKE
LITTLE WAVERLY LAKE
LITTLE WILLOW RIVER
LITTLE WILLOW RIVER F AREA
LITTLE WOLF LAKE F IMPOUNDMENT*
LOBERG F POND

National Inventory of Dams Name
LOBSTER LAKE
LOCKE LAKE
LONG LAKE*
LONG LAKE UPPER
LOON LAKE
LOON LAKE TWP
LORY LAKE STRUCTURE NO. 1
LOUISE LAKE
LOWER LONG LAKE
LUNSTEN LAKE
MARGARET LAKE
MARION LAKE
MAYHEW LAKE
MAYO LAKE
MILL CREEK
MILTONA LAKE
MISSISSIPPI RIVER
MOOSE-WILLOW NO. 1*
MOOSE-WILLOW NO. 2*
MOVIL LAKE
MUD LAKE-WOODLAND WMA
MUD-GOOSE LAKE
NEST LAKE
NESVOLD WETLAND
NEW LONDON
NORWAY LAKE
NSP-BOTTOM ASH
NSPC INITIAL T*
NSPC STAGE TWO T*
OBRIEN NORTH*
OGECHIE LAKE
ONAMIA LAKE
OSSAWINNAMAKEE LAKE
PASCOE LAKE
PATRICK STILLING*
PELICAN LAKE
PELTIER LAKE
PERKINS POND
PERRY-WYMAN T*
PESCHEL DAM

National Inventory of Dams Name
PIERZ LAKE
PIGEON LAKE
PILLAGER
PINE LAKE
PINE MOUNTAIN LAKE
PINE RIVER DAM
POINTON LAKE
POKEGAMA LAKE DAM
PORTAGE LAKE
PORTAGE LAKE
POTATO LAKE
PRAIRIE RIVER*
R. BIERMAIER STRUCTURE
R. HANSEN WILDLIFE DAM
RAMSEY LAKE
RESERVOIR #2*
RESERVOIR #5*
RESERVOIR #6*
RICE LAKE
RICE LAKE POOL
RICE RIVER POOL
RICE-SKUNK LAKES
RIPPLE LAKE
ROOSEVELT LAKE
ROSE LAKE
ROUND LAKE
ROUND LAKE
RUM RIVER
SANDY LAKE*
SANDY LAKE DAM LOCK*
SARTELL
SAUK CENTER
SAUK RIVER MELROSE
SHERBURNE NAT L DIKE NO. 6A
SHERBURNE NAT L POOL NO. 14A
SHERBURNE NAT L POOL NO. 17
SHERBURNE NAT L POOL NO. 18B
SHERBURNE NAT L POOL NO. 19
SHERBURNE NAT L POOL NO. 20
SHERBURNE NAT L POOL NO. 28

National Inventory of Dams Name
SHERBURNE NAT L POOL NO. 7A
SHERBURNE NAT L POOL NO. 7B
SIBLEY LAKE
SIX MILE CREEK
SOUTH FORK PINE RIVER
SOUTH STANCHFIELD LAKE
SPLITHAND LAKE*
SPRUCE CREEK
ST ANTHONY FALLS LOWER LOCK DAM
ST. CLOUD
STANCHFIELD LAKE
STAPLES WMA
STOERZINGER POND NO. 2
STRAIGHT LAKE
SUCKER BAY
SWART WATTS LAKE
SYLVAN
TROUT LAKE T*
TWO INLETS LAKE
VELVET LAKE
VICTORIA LAKE
VOKATY-YONAK
WABANA LAKE*
WASHBURN LAKE*
WAUKENABO LAKE
WILL-O-B
WILLOW RIVER*
WING RIVER
WINNIBIGOSHISH DAM
WINSTED LAKE
WOLF LAKE*
YAEGER LAKE

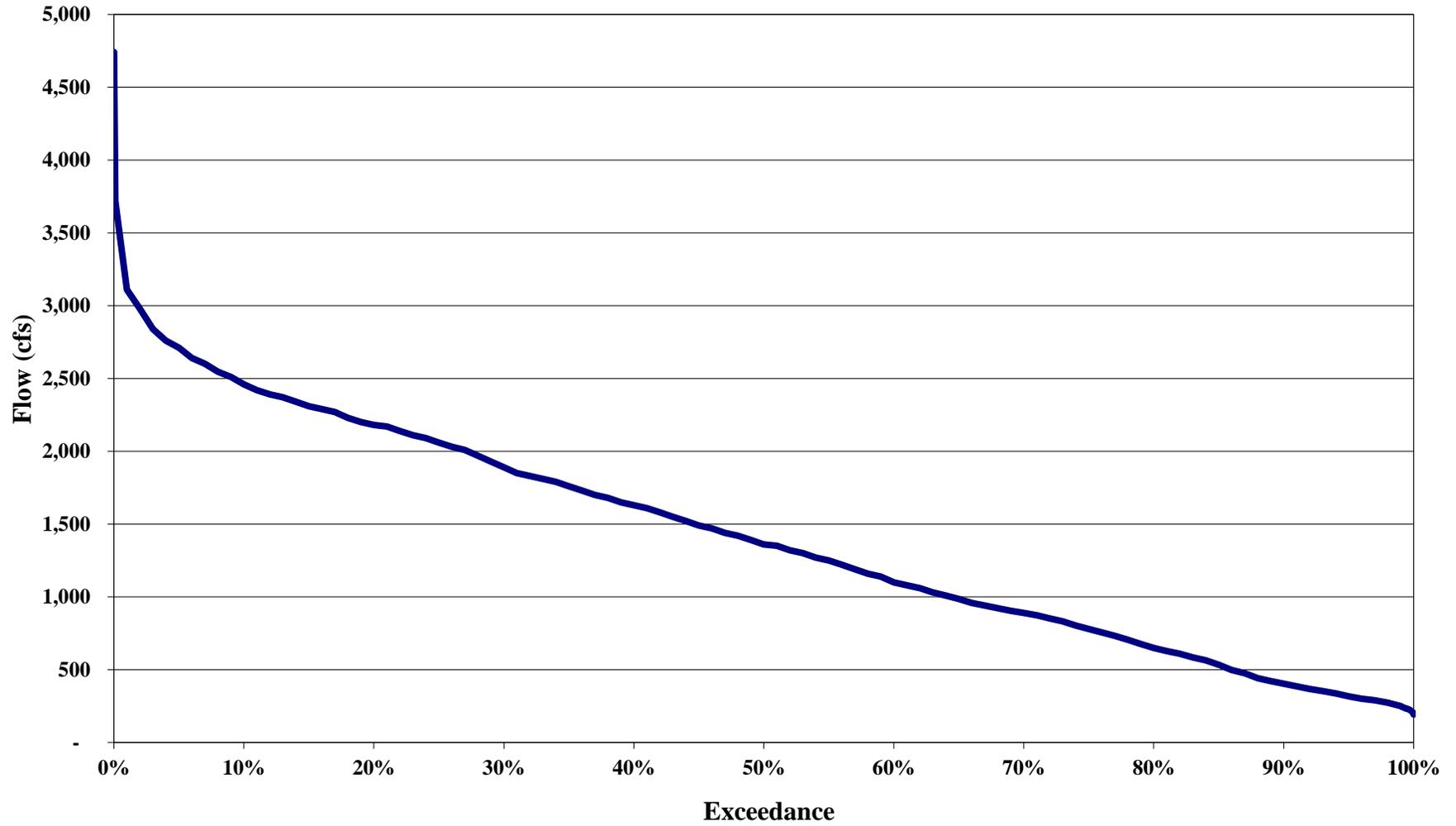
* Located in Prairie-Willow watershed
Source: USACE 2016



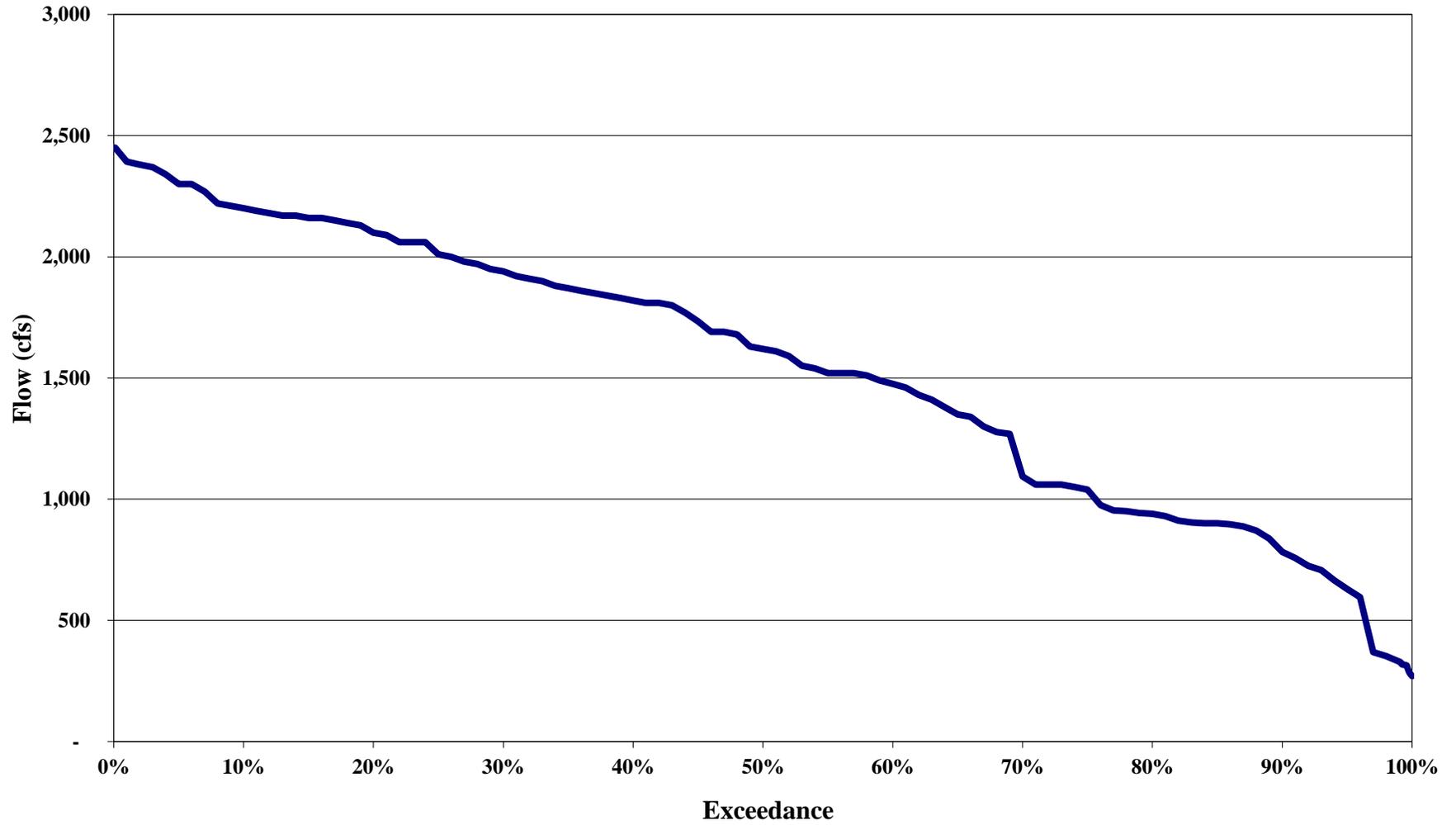
Appendix F

Grand Rapids Project Flow Duration Curves

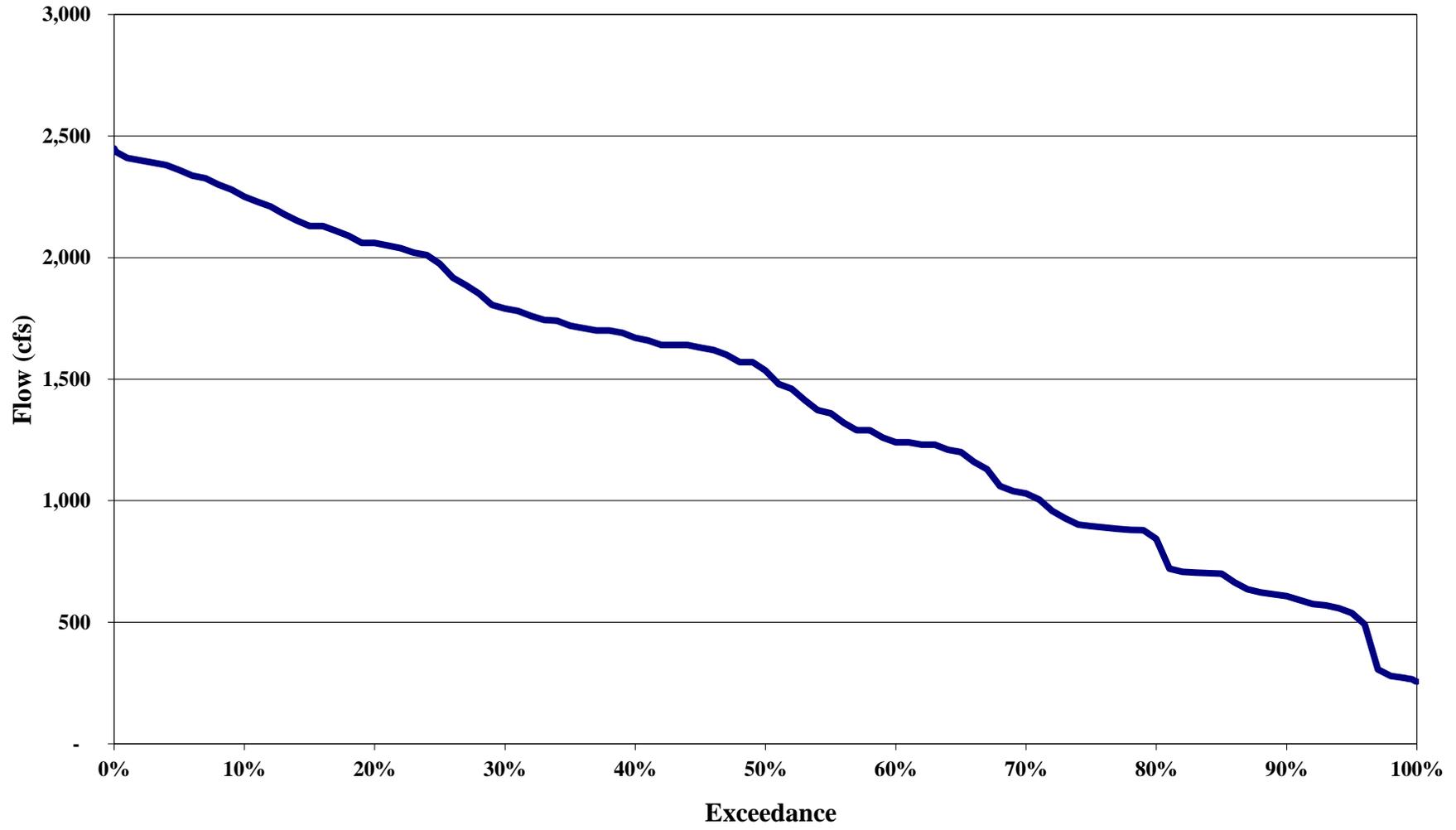
**Flow Exceedance
Grand Rapids Project
Annual 1993 -- 2017**



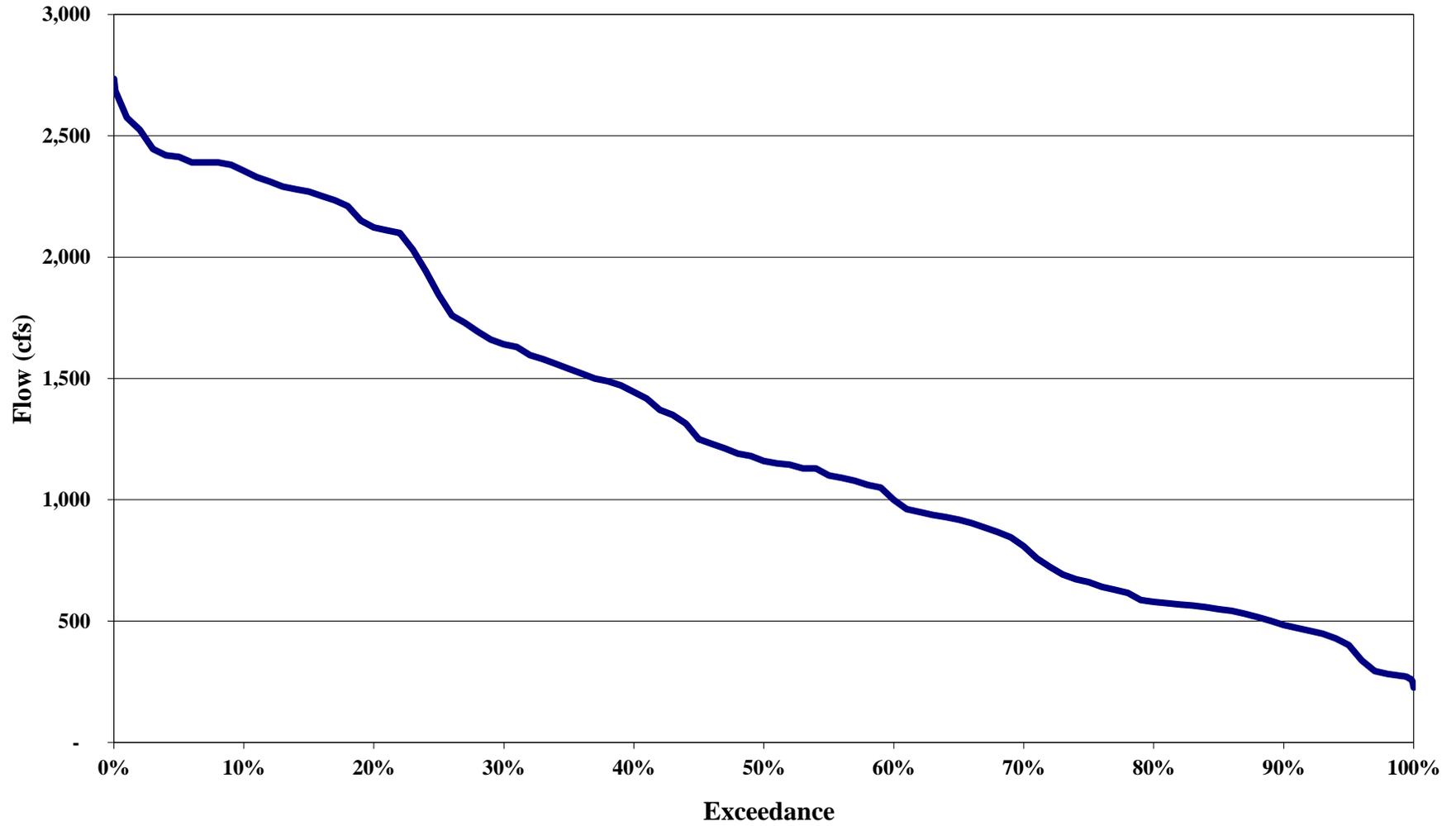
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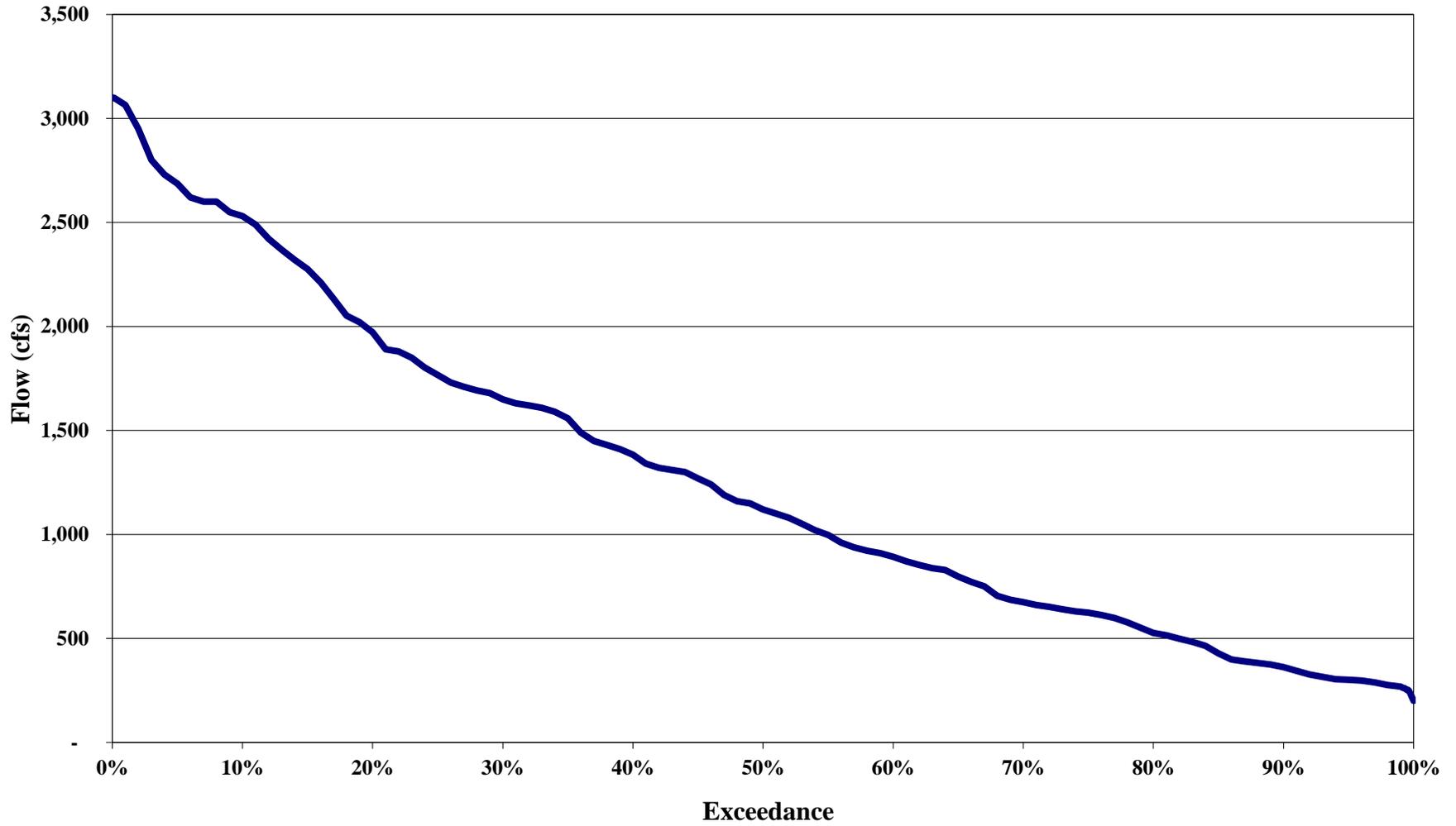
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February 1993 -- 2017**



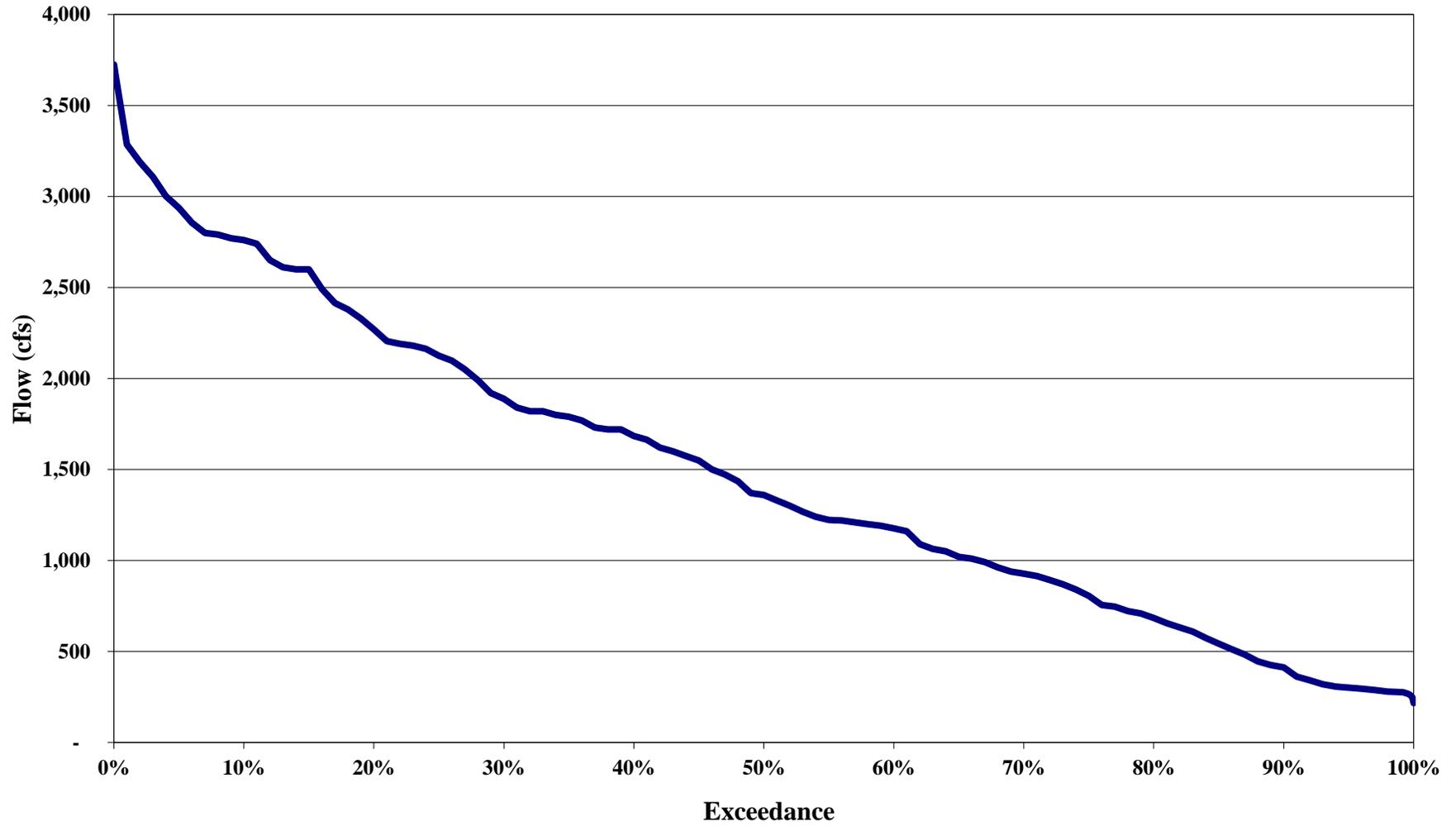
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March 1993 -- 2017**



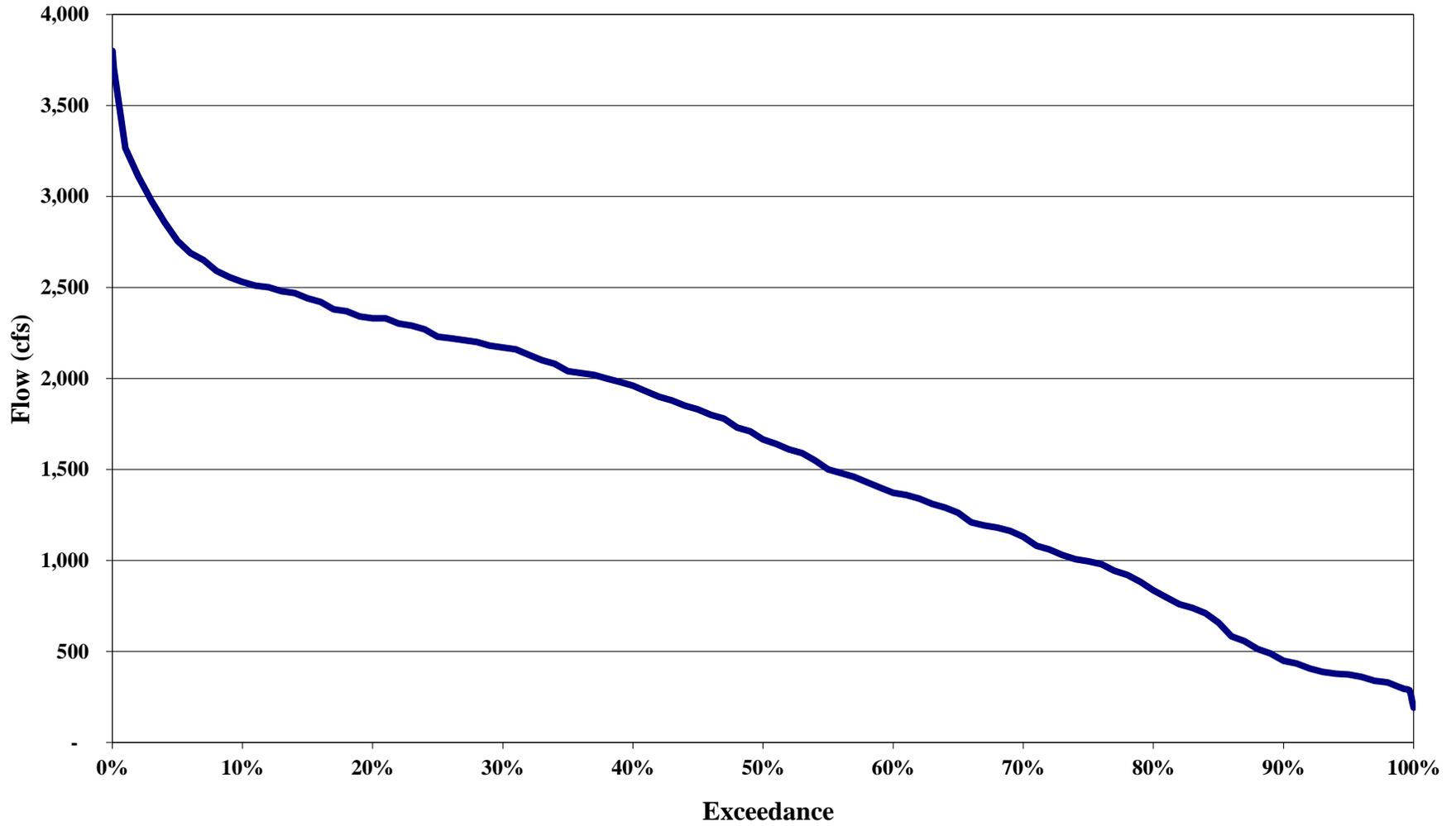
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Grand Rapids Project
April 1993 -- 2017**



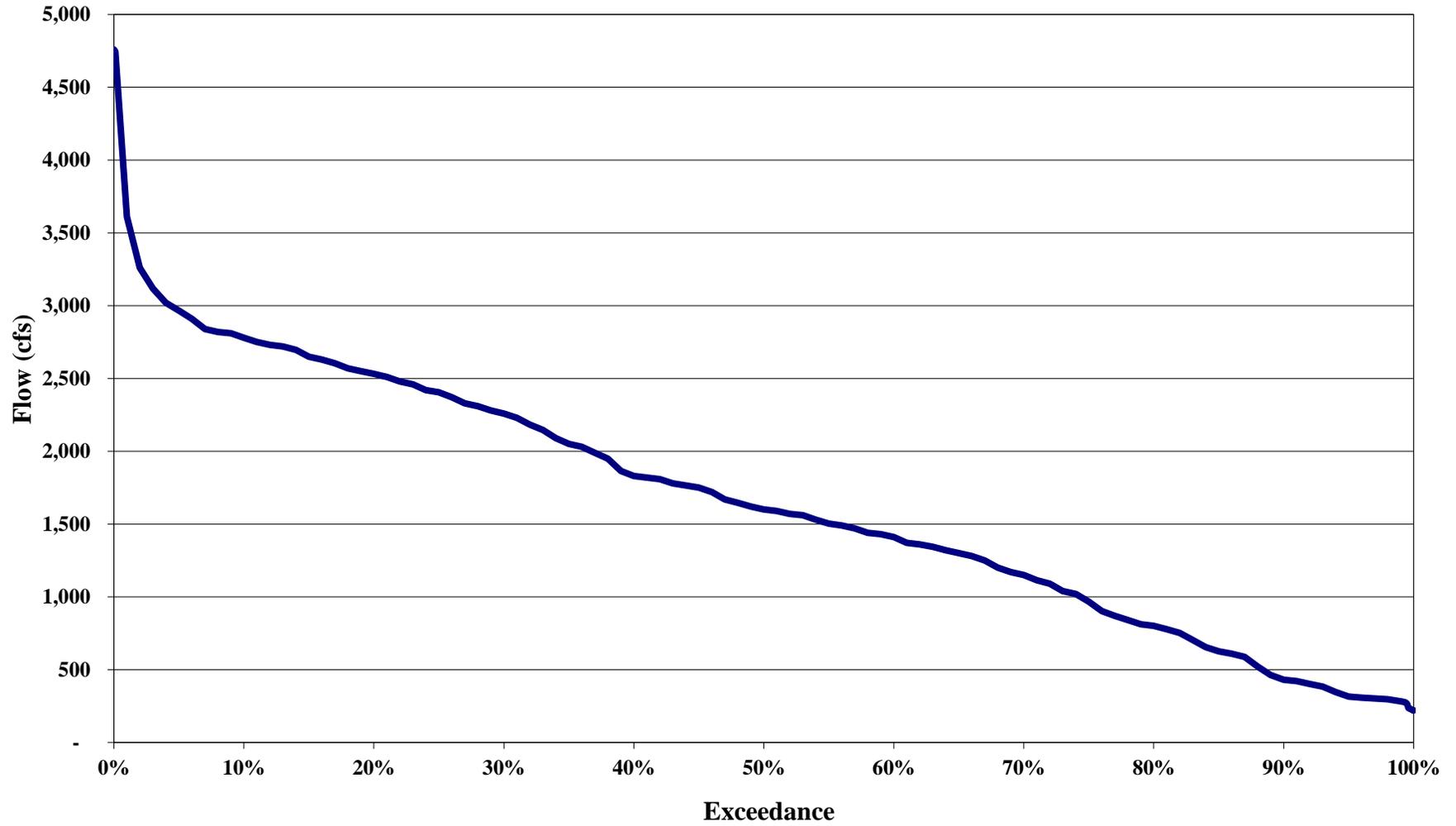
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May 1993 -- 2017**



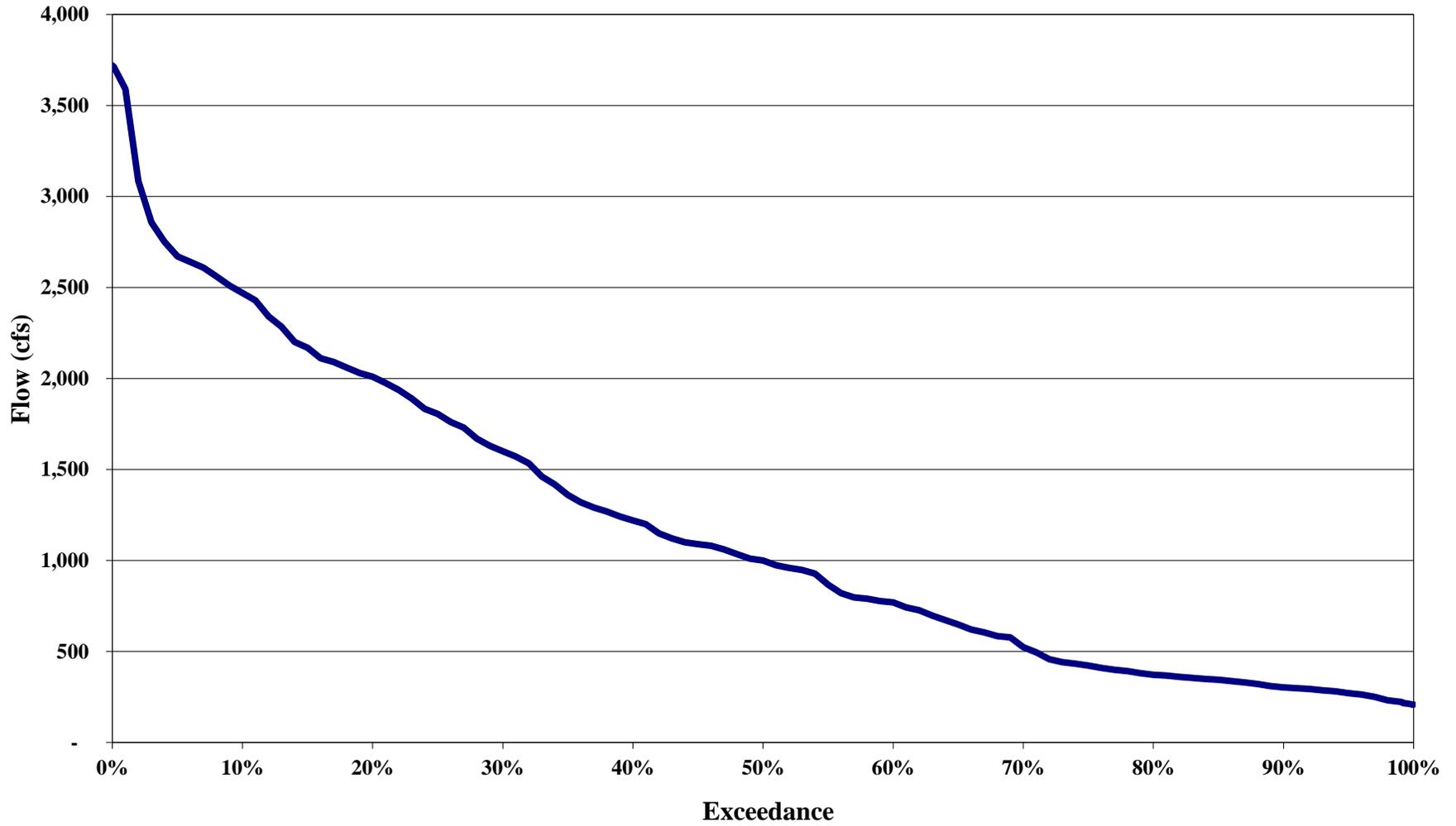
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June 1993 -- 2017**



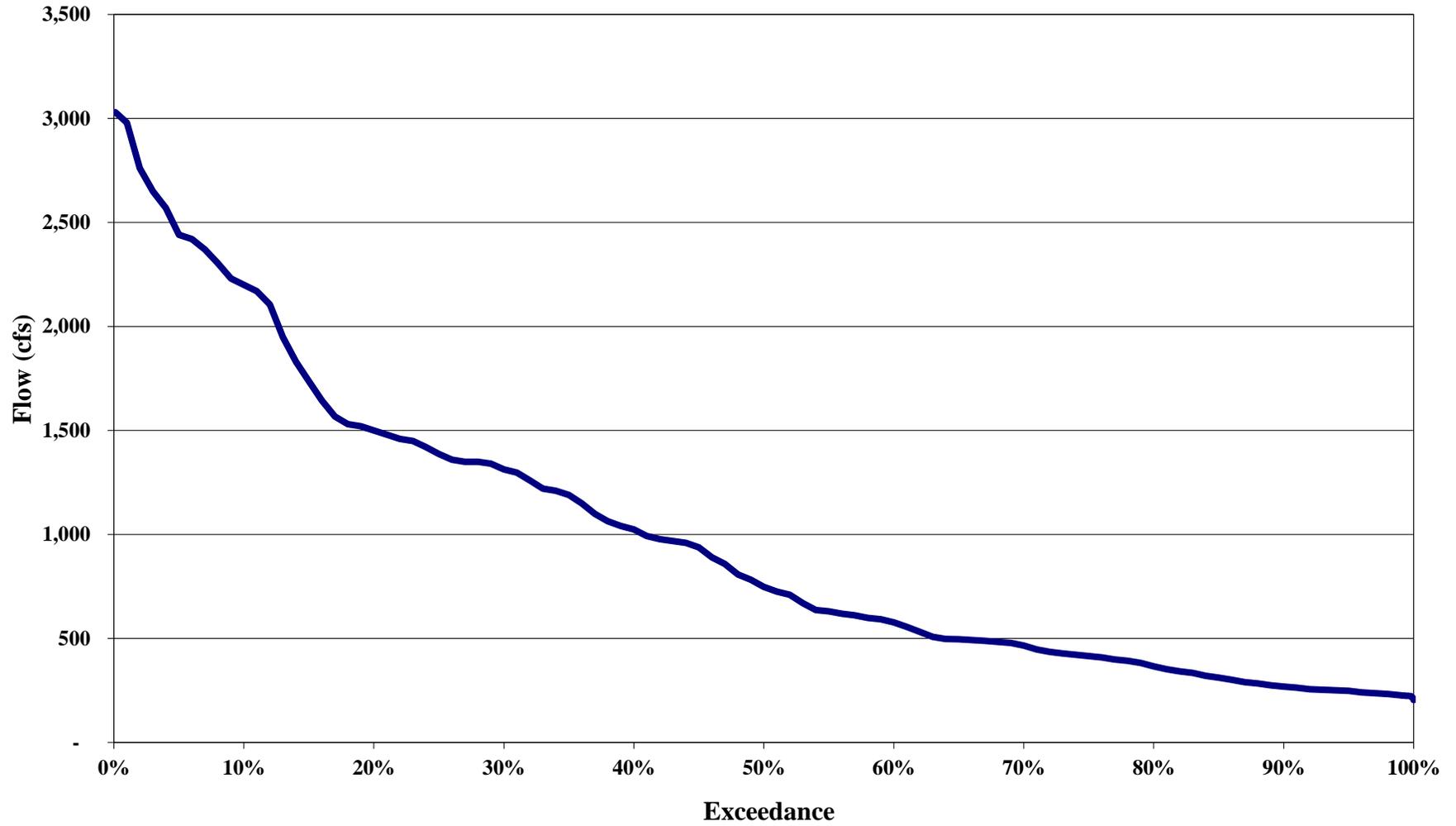
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July 1993 -- 2017**



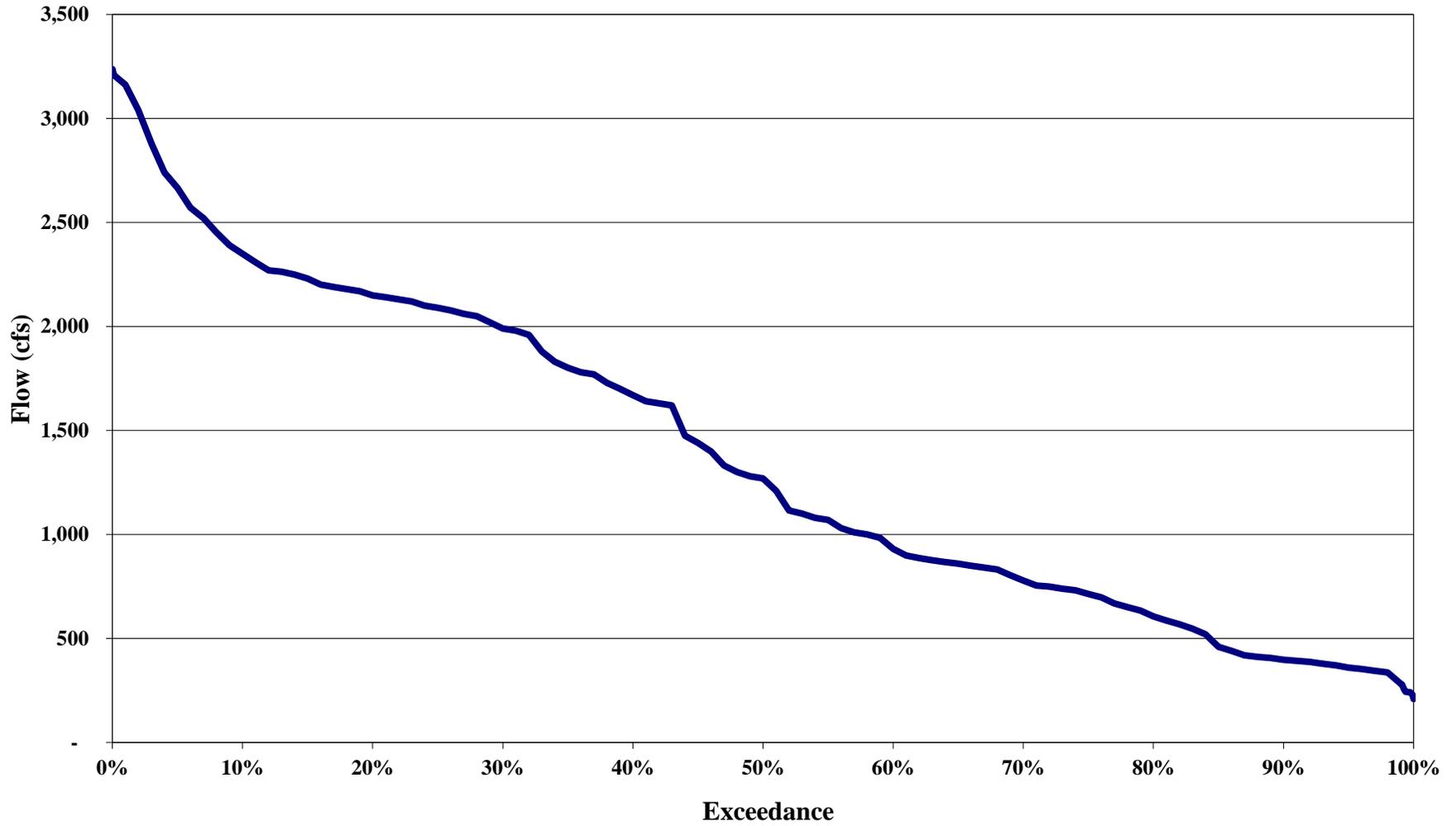
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August 1993 -- 2017**



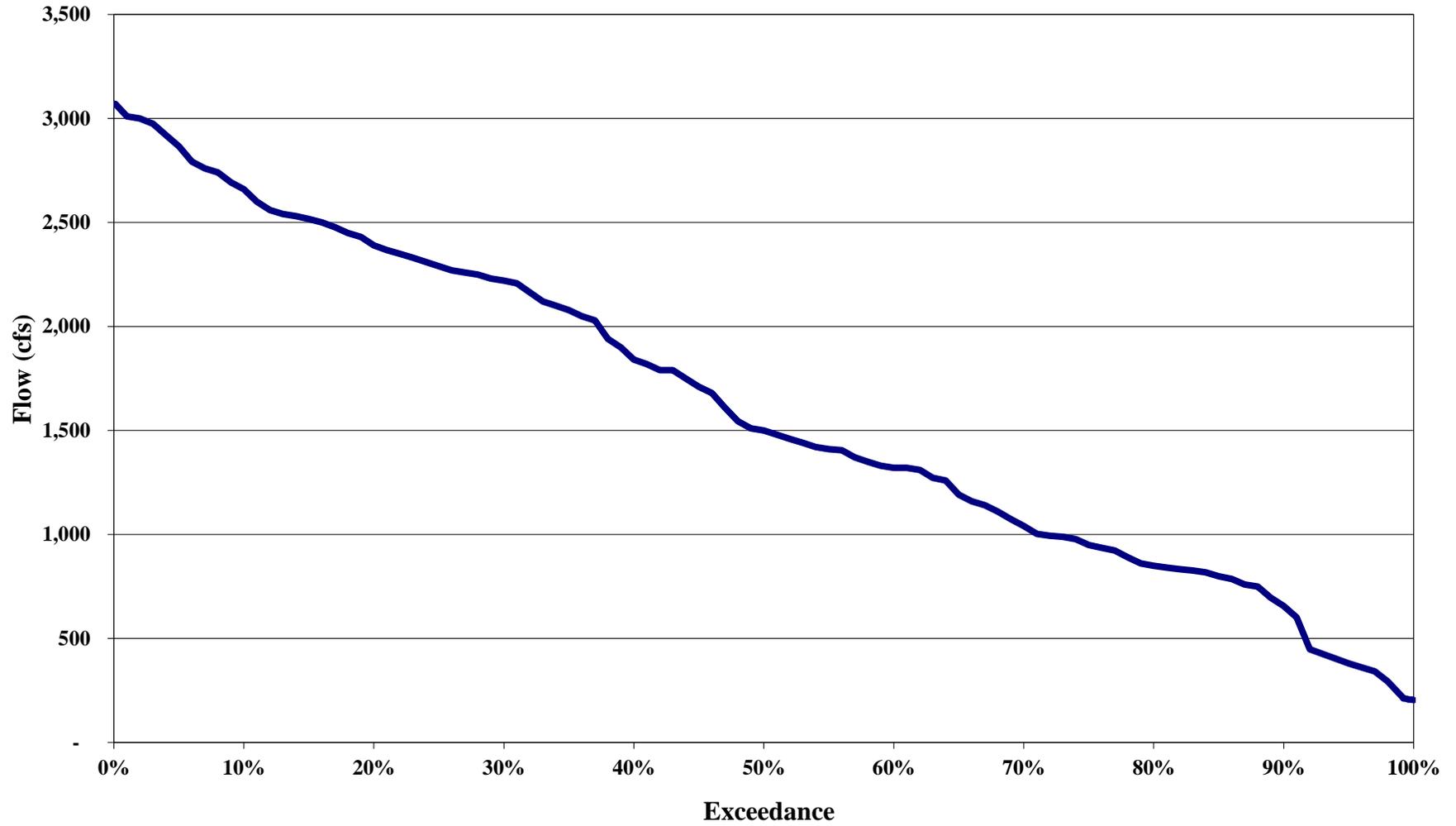
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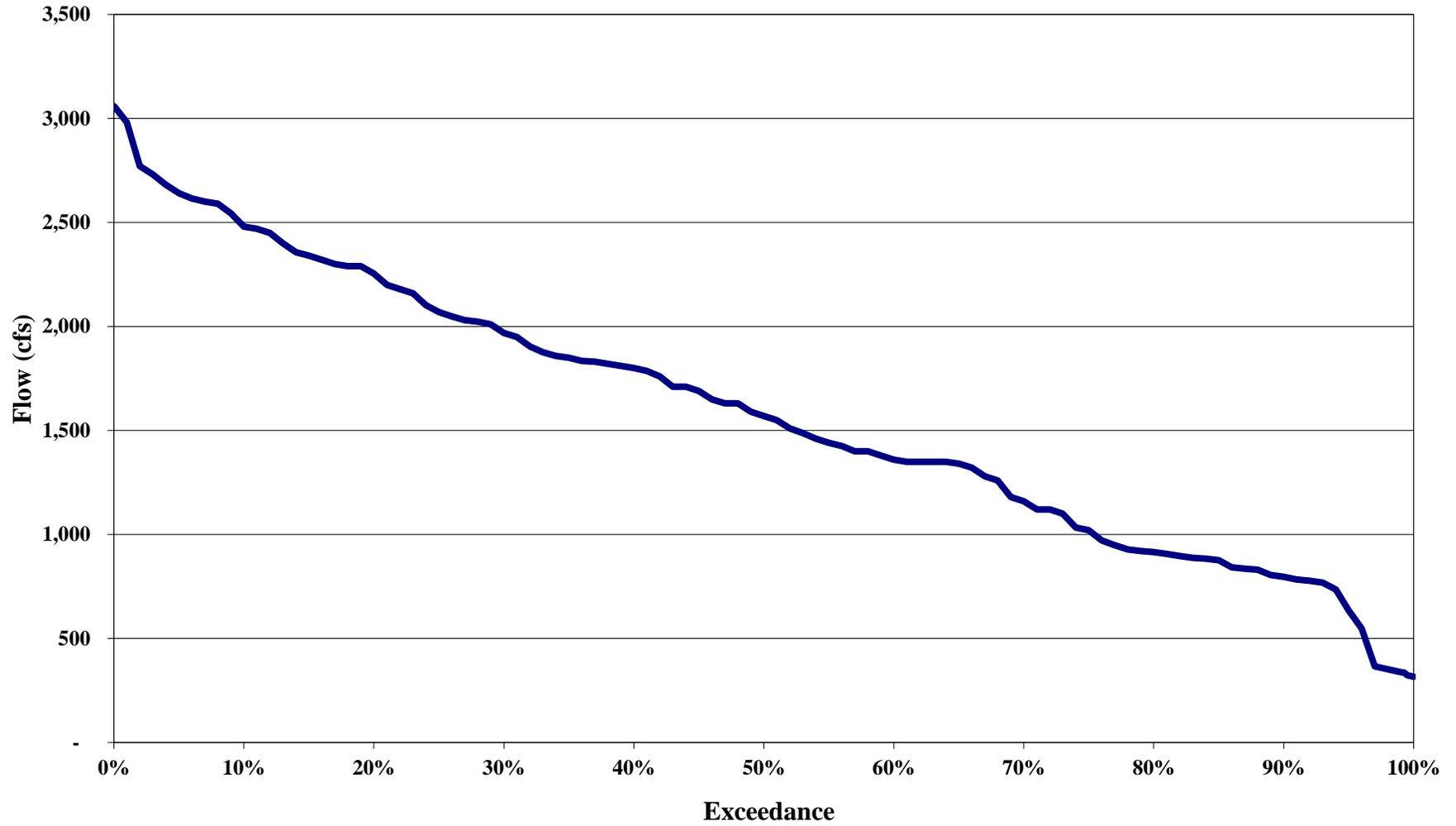
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October 1993 -- 2017**



**Flow Exceedance
Grand Rapids Project
November 1993 -- 2017**



**Flow Exceedance
Grand Rapids Project
December 1993 -- 2017**

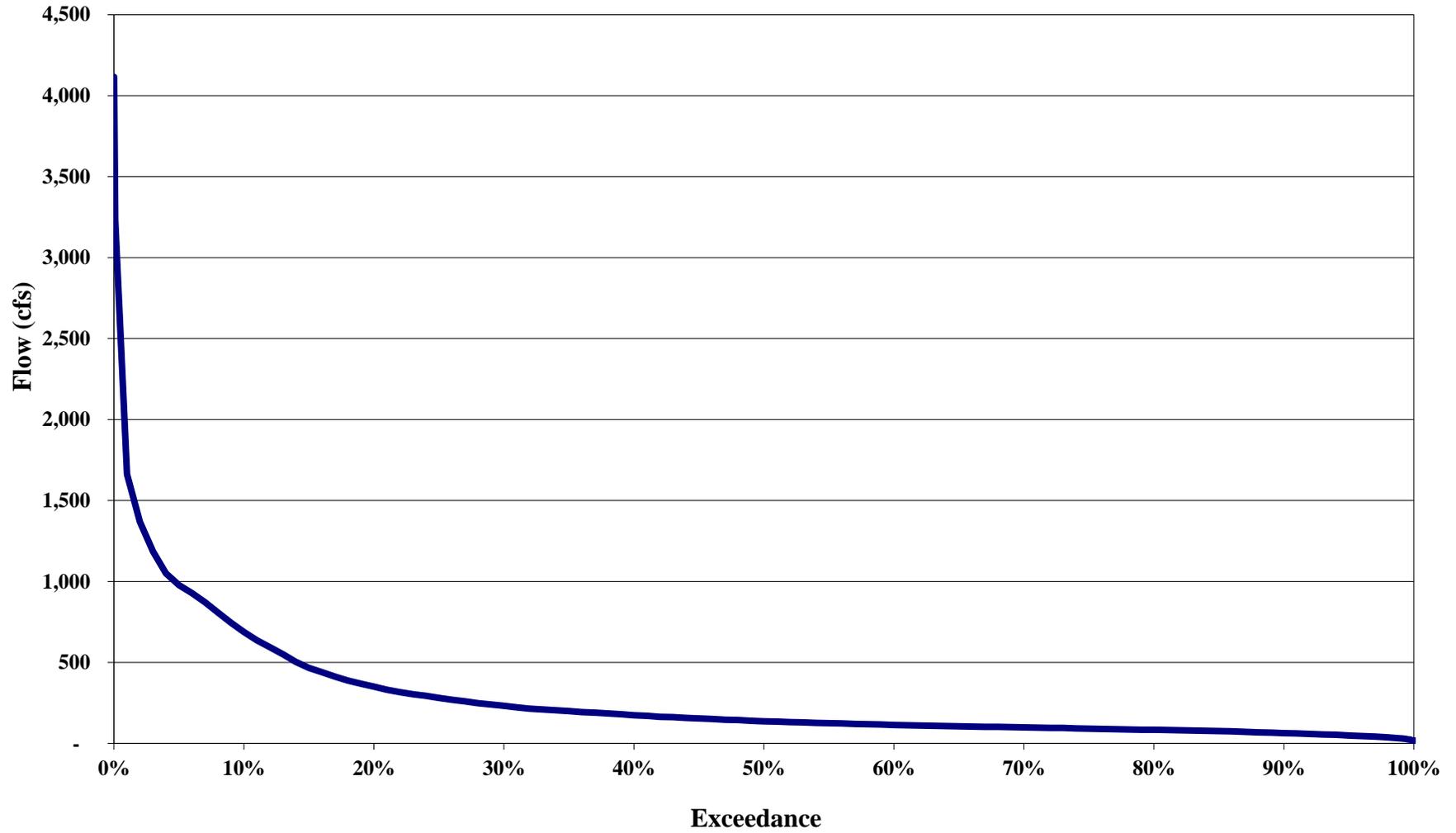




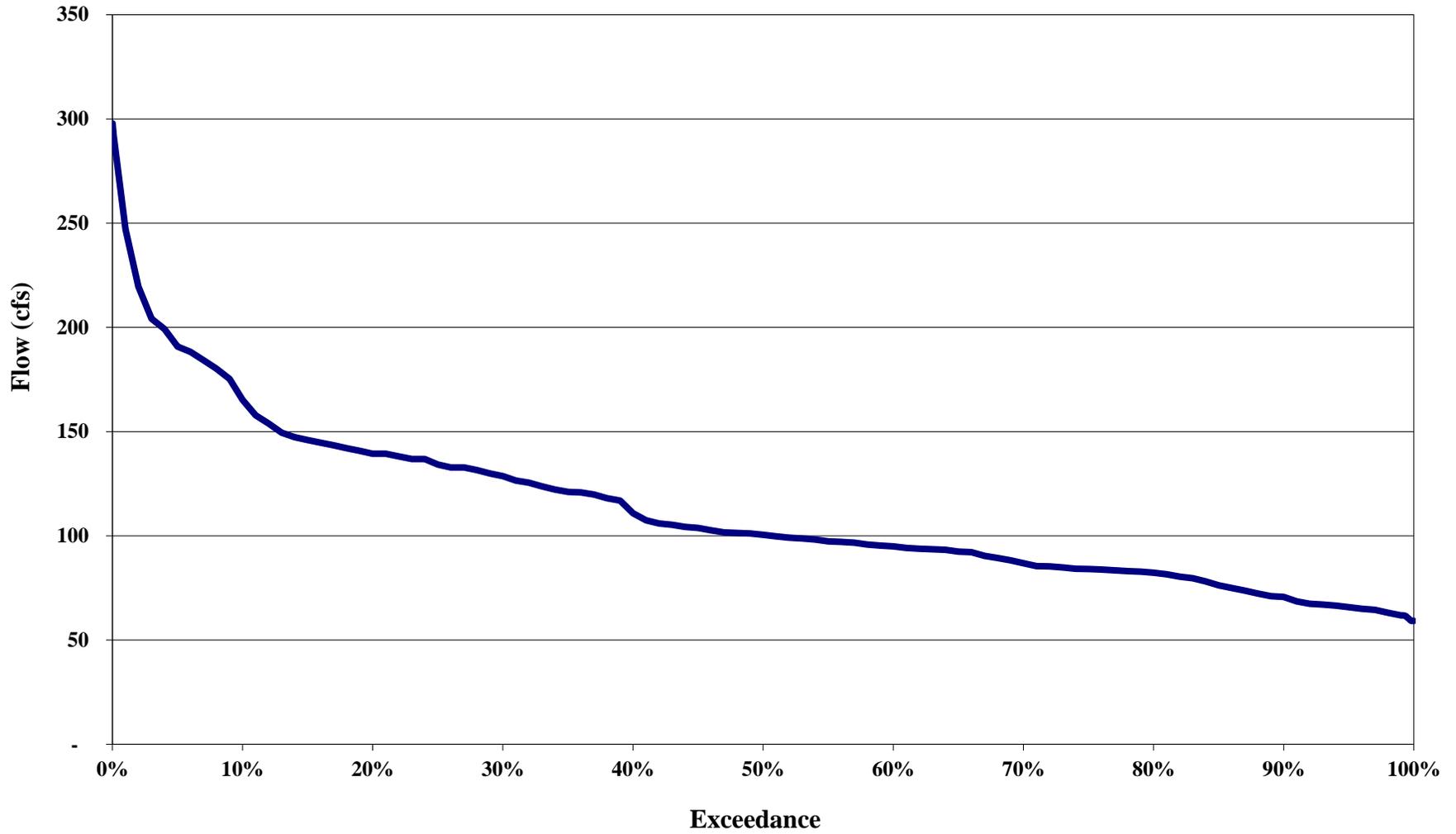
Appendix G

Prairie River Project Flow Duration Curves

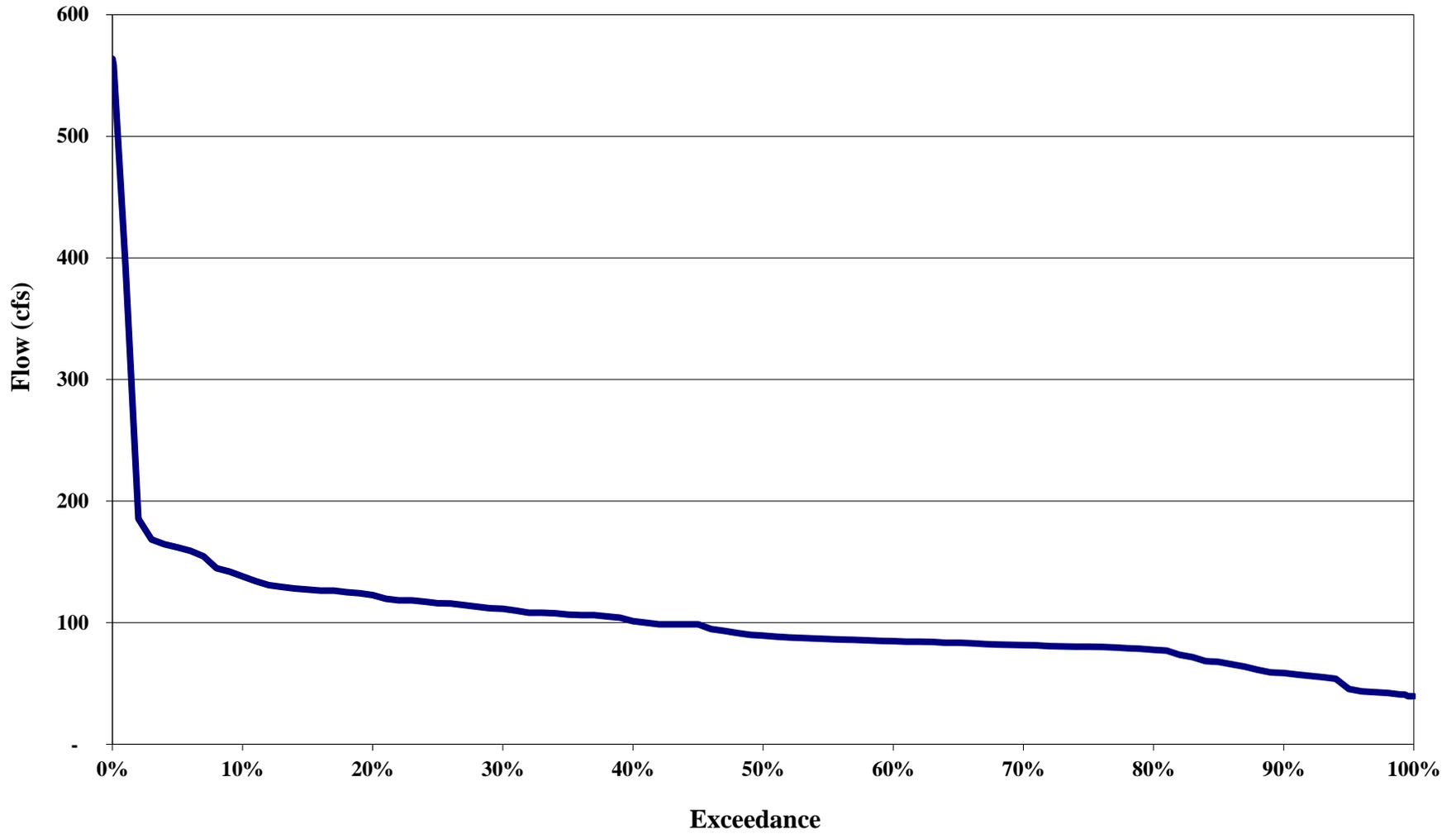
**Flow Exceedance
Prairie River Project
Annual 1993 -- 2017**



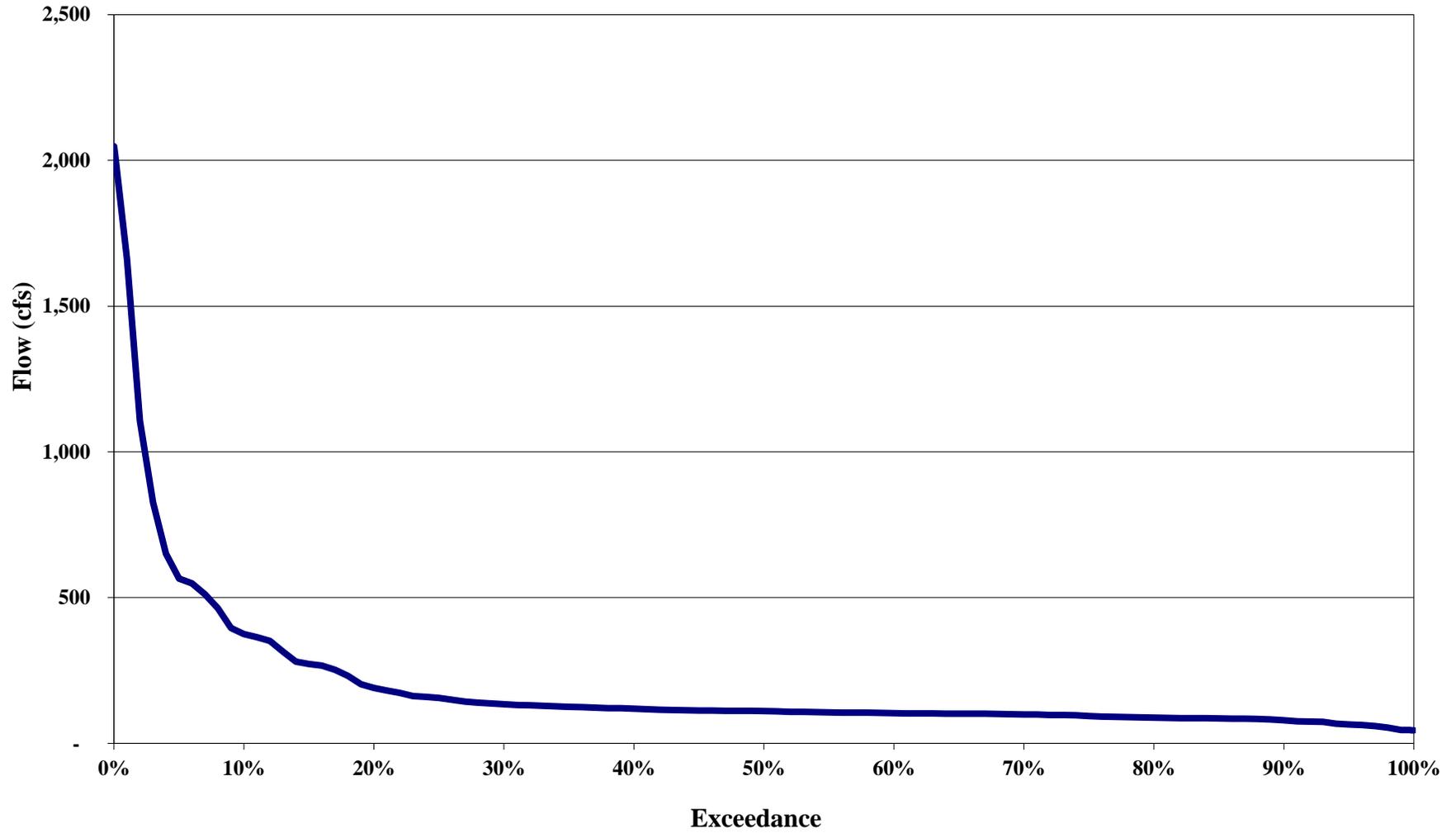
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Prairie River Project
January 1993 -- 2017**



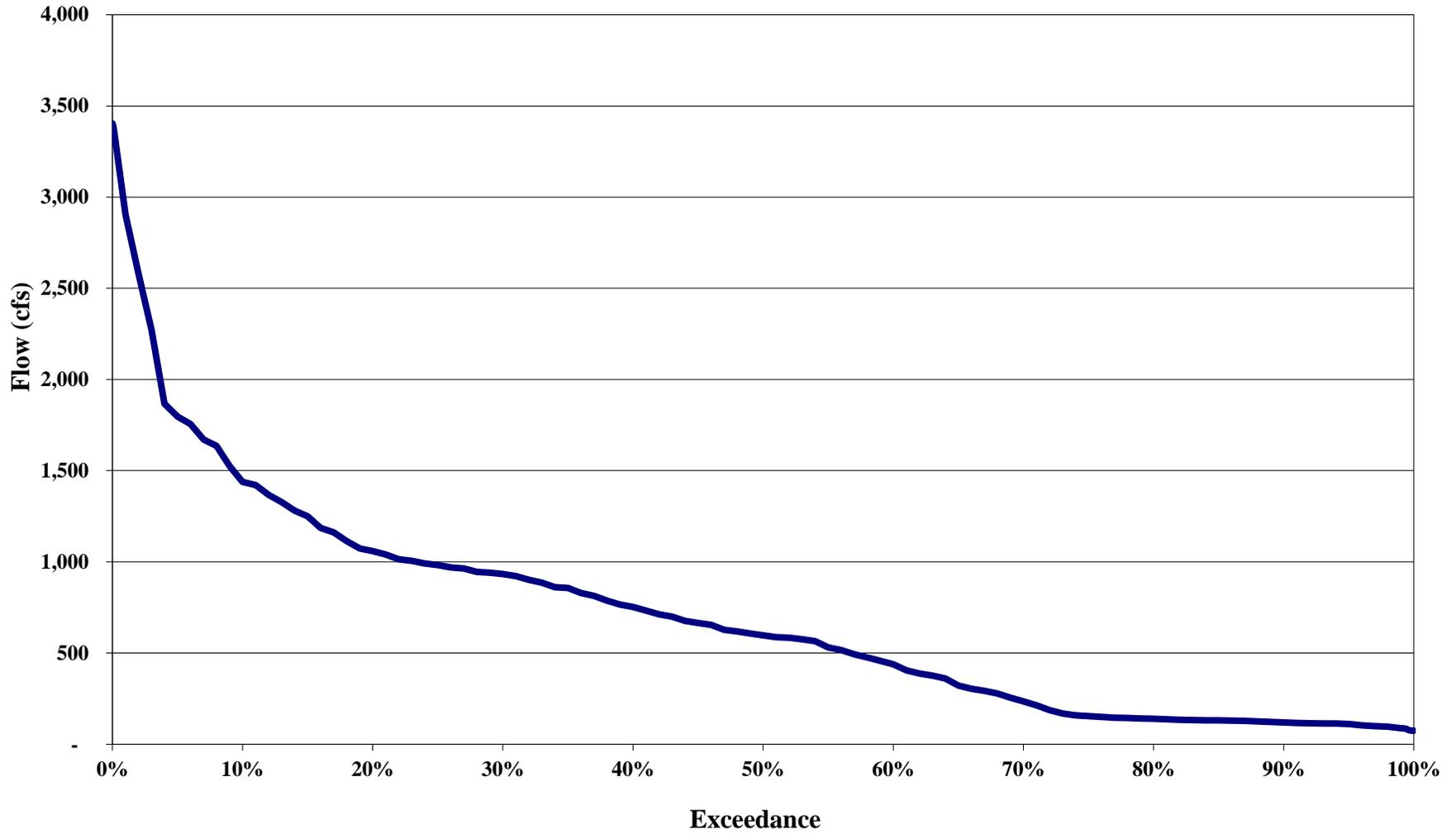
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Prairie River Project
February 1993 -- 2017**



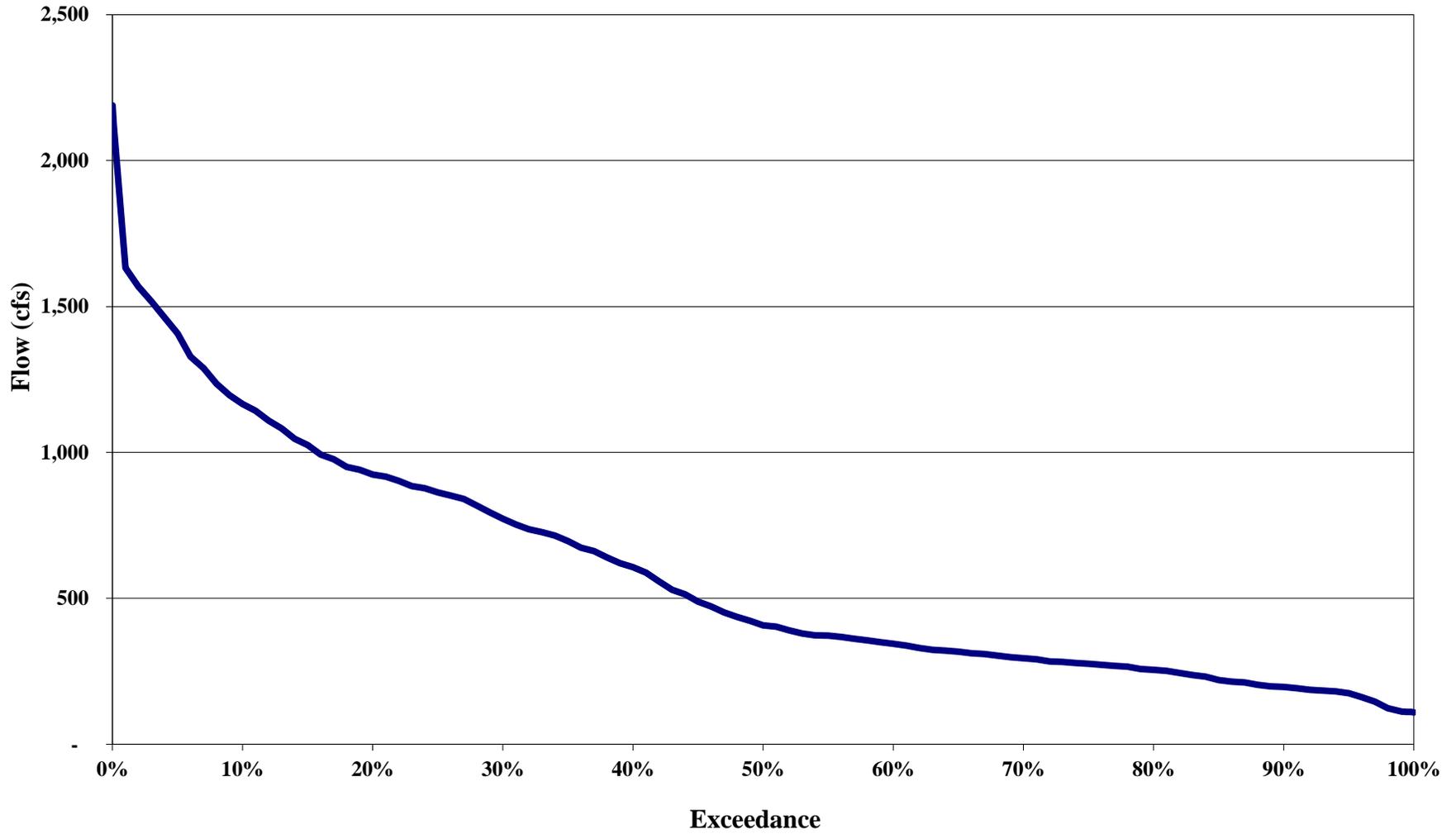
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Prairie River Project
March 1993 -- 2017**



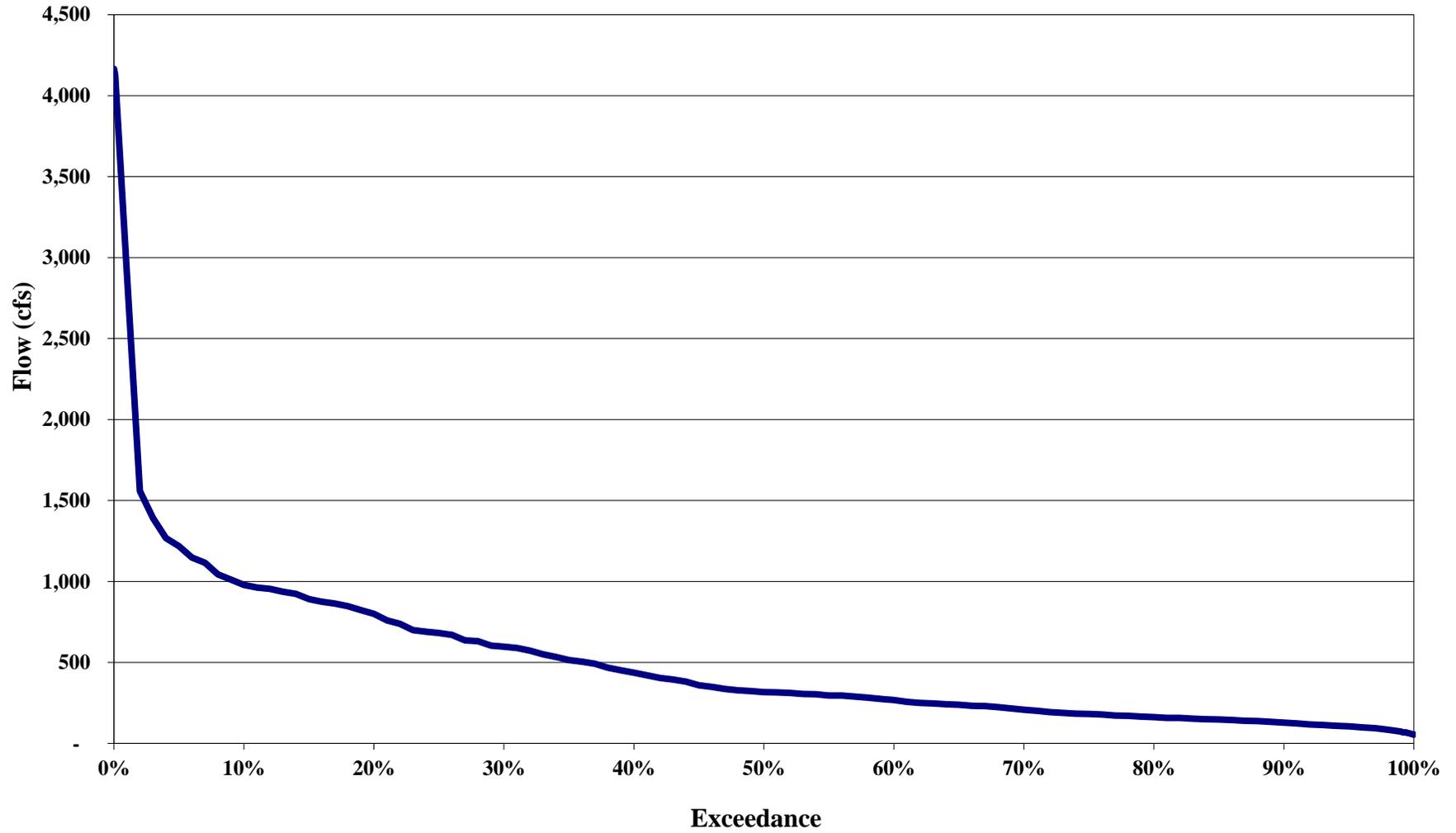
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April 1993 -- 2017**



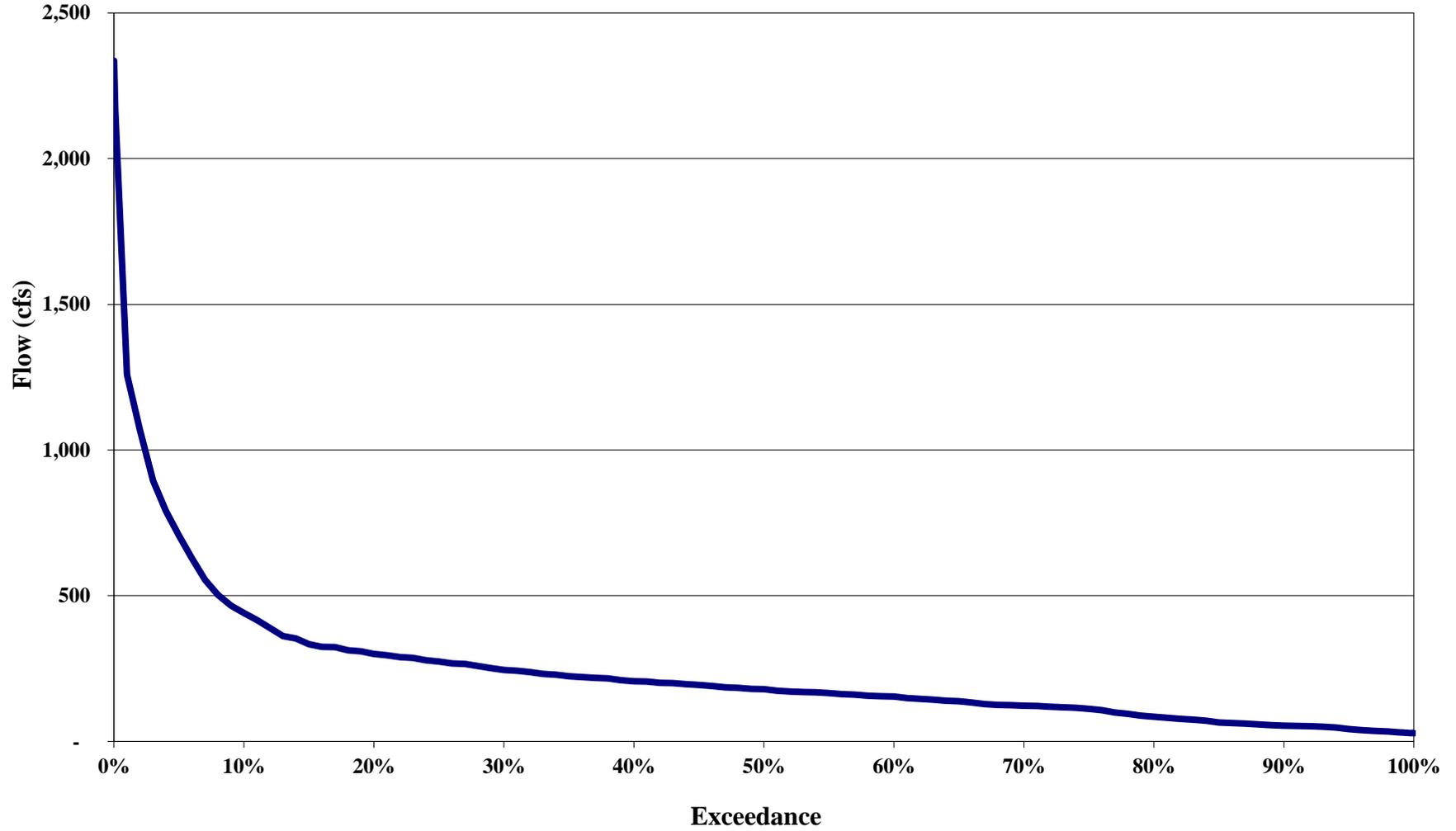
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Prairie River Project
May 1993 -- 2017**



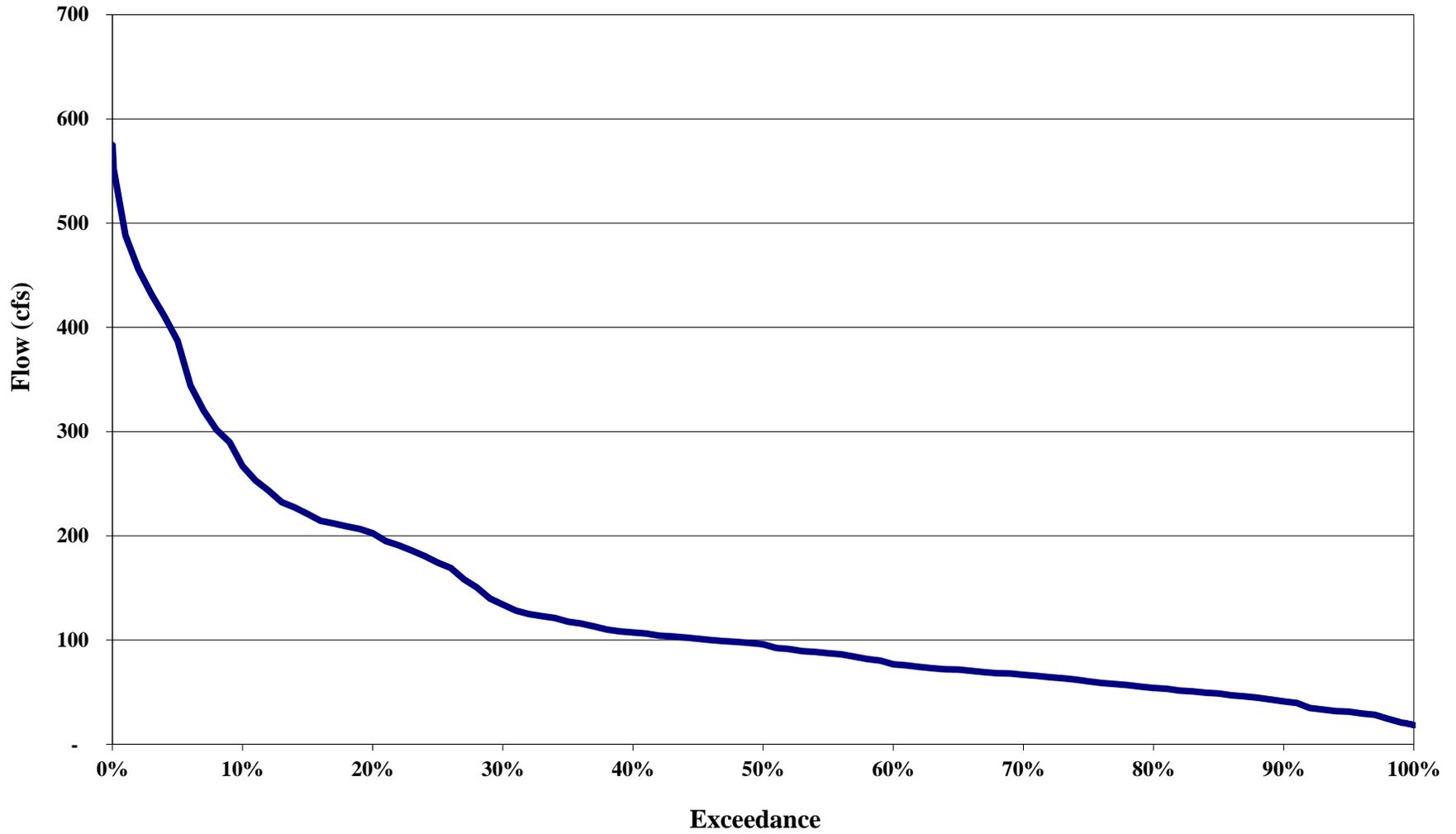
**Flow Exceedance
Prairie River Project
June 1993 -- 2017**



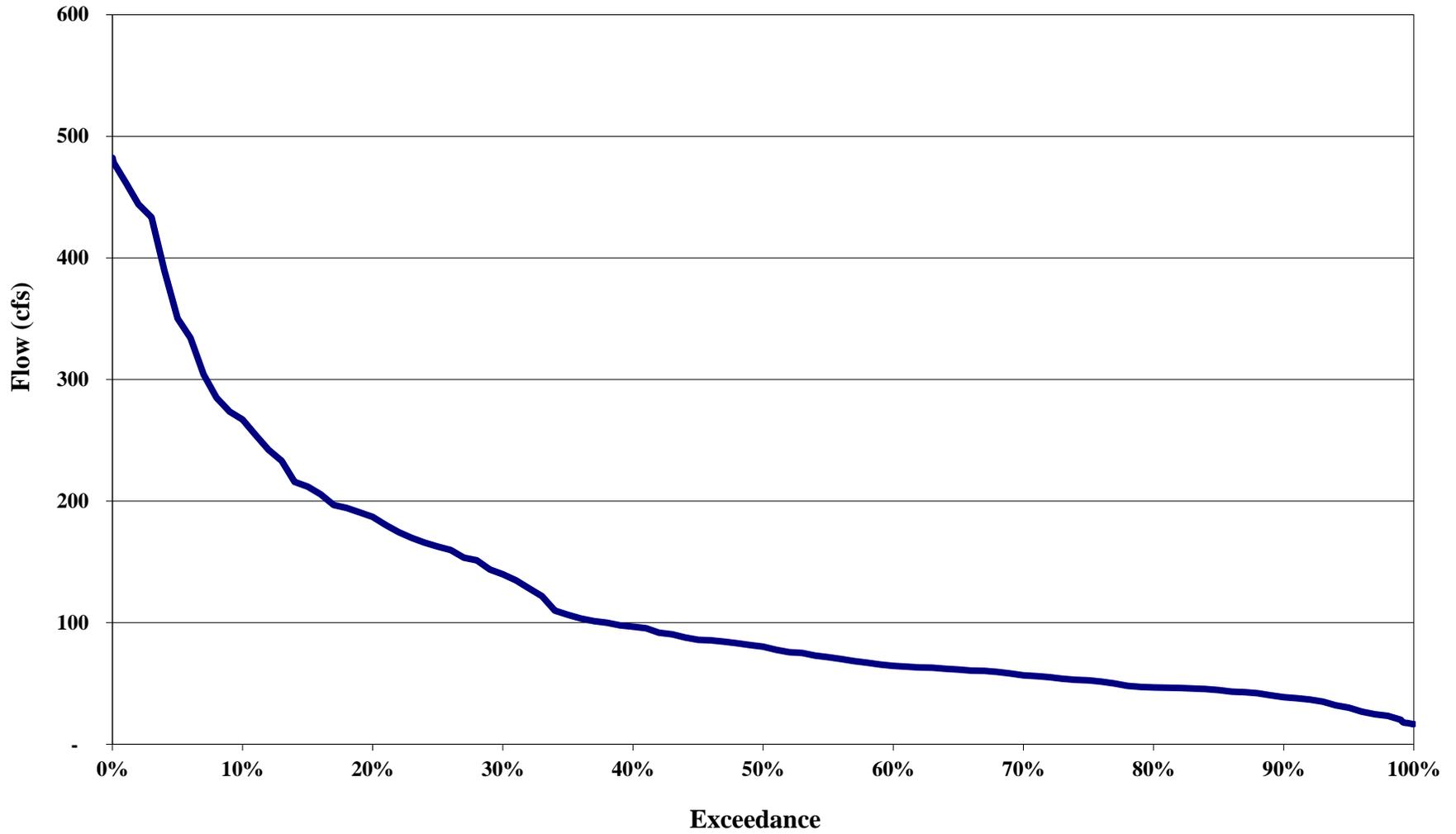
**Flow Exceedance
Prairie River Project
July 1993 -- 2017**



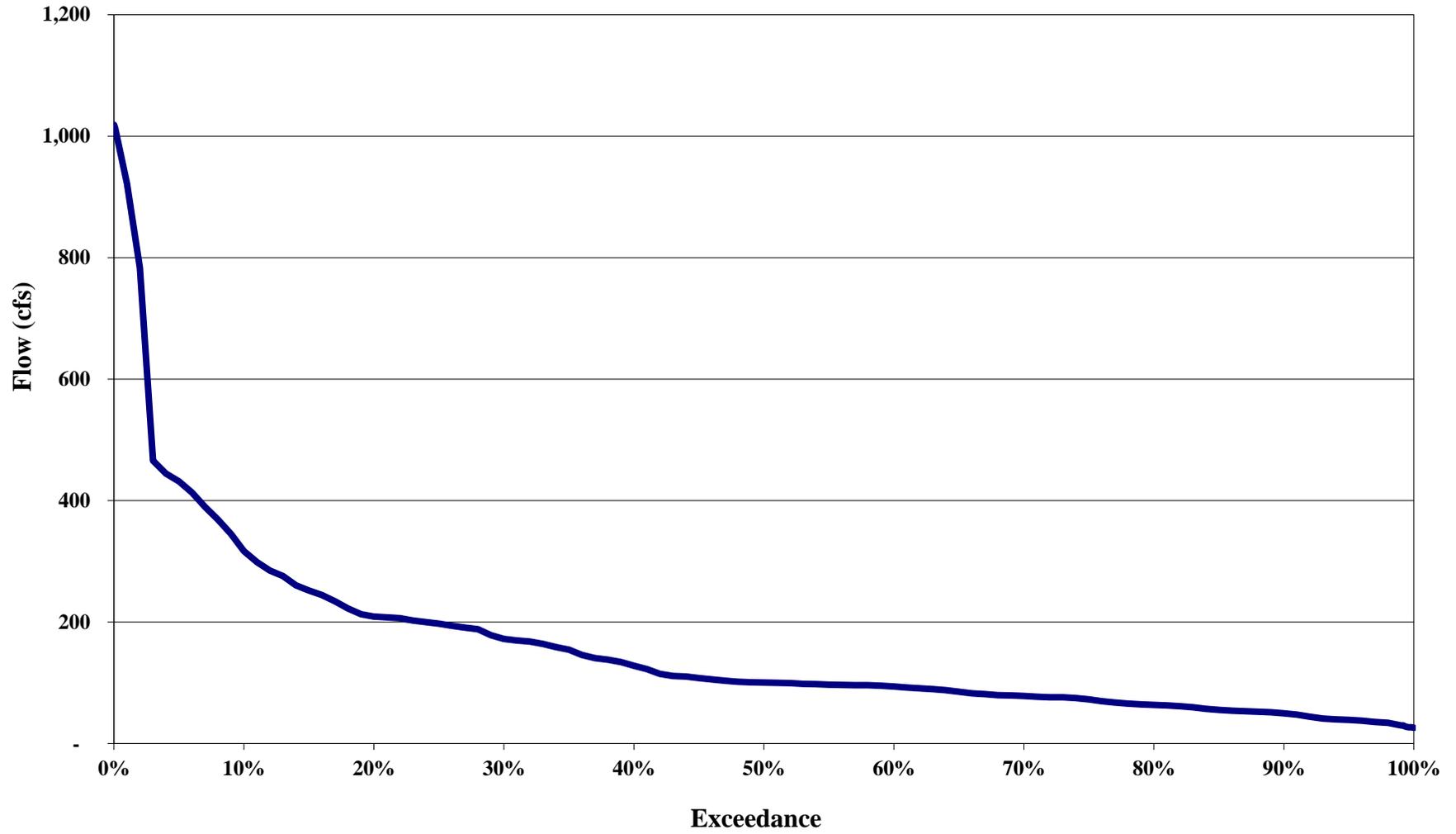
**Flow Exceedance
Prairie River Project
August 1993 -- 2017**



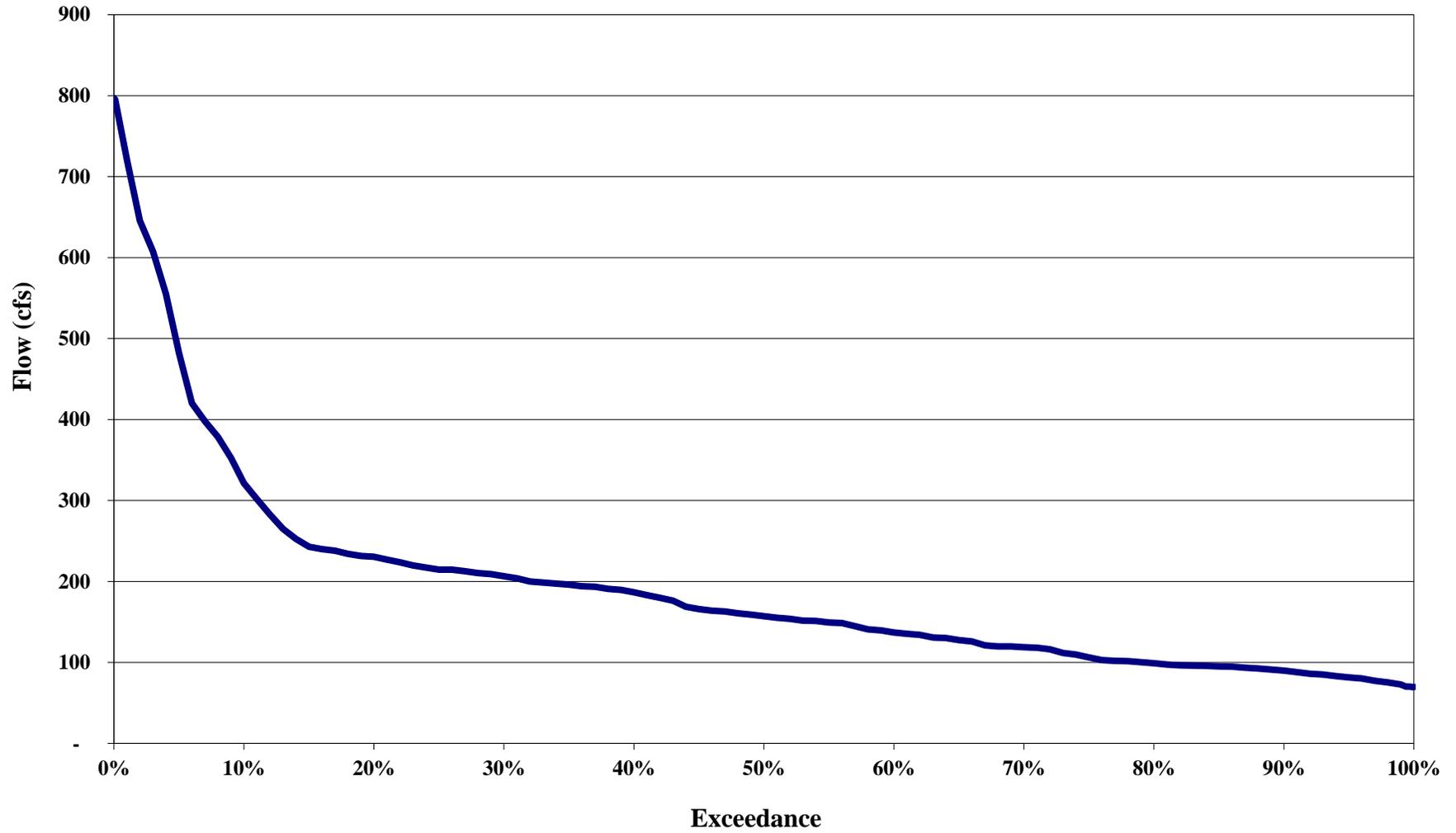
**Flow Exceedance
Prairie River Project
September 1993 -- 2017**



**Flow Exceedance
Prairie River Project
October 1993 -- 2017**



**Flow Exceedance
Prairie River Project
November 1993 -- 2017**



**Flow Exceedance
Prairie River Project
December 1993 -- 2017**

