

Appendix F

Red River of the North Comprehensive Fisheries Management Plan

**Red River of the North
Comprehensive Fisheries Management Plan**

**Minnesota Department of Natural Resources
North Dakota Game and Fish
South Dakota Game, Fish and Parks
Manitoba Ministry of Natural Resources**

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Description of the Basin

The Red River lies in the bed of glacial Lake Agassiz, and originates at the confluence of the Bois de Sioux and Otter Tail Rivers in Wahpeton, ND and Breckenridge, MN and flows north through southern Manitoba draining into Lake Winnipeg (Figure 1). It is wide (200 to 500 ft), with a maximum depth of 30 ft and an average thalweg depth of 6 ft and is classified as a C/E channel with high sinuosity (>2; Martini and Stewig 2002). The river is 545 miles long and forms the boundary between Minnesota and North Dakota for 400 miles to the Canadian border (Renard et al. 1986). The Red River drains approximately 45,000 square miles excluding the Assiniboine River basin, which joins the Red River at Winnipeg (International Joint Commission 2000). Of the drainage area approximately, 21,000 square miles are located in North Dakota, 17,500 square miles in Minnesota, 810 square miles in South Dakota, and the remaining 5,700 square miles in Manitoba (Eddy et al. 1972). The Red River is fed by the drainage of 21 sub-basins found in North Dakota, Minnesota, and Manitoba (Table 1).

Table 1. List of major drainage basins contributing to the flow the Red River by state starting upstream and moving downstream.

<u>State/Province</u>		
North Dakota	Minnesota	Manitoba
1) Wild Rice River	10) Bois de Sioux River	19) Joe River
2) Sheyenne River	11) Otter Tail River	20) Roseau River
3) Maple River	12) Buffalo River	
4) Elm River	13) Wild Rice River	
5) Goose River	14) Sand Hill River	
6) Turtle River	15) Red Lake River	
7) Forest River	16) Middle/Snake River	
8) Park River	17) Tamarac River	
9) Pembina River	18) Two River	

Management History

Long Range Goal

- Promote and act upon opportunities to protect and rehabilitate riverine, riparian, and upland habitat on the Red River of the North and its watershed to sustain or enhance stream components necessary for a healthy and stable river system.
- Promote healthy fish populations and sustainable angling opportunities through habitat protection and enhancement, active fish management, fisheries resource monitoring, and regulations.

Maintain a high quality channel catfish fishery with secondary angling opportunities for walleye, sauger, and northern pike

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Re-establish a self-supporting population of lake sturgeon in the Red River of the North Basin.

- Remove or modify dams to restore fish migration potential.
- Enhance public access to the Red River and its tributaries for fishing, boating, canoeing, kayaking, and other non-consumptive activities.
- Expand educational opportunities and promote appreciation for the Red River Ecosystem.

Reach-Specific Fisheries Objectives

*****Reach specific objectives from ND, SD, and Manitoba needed--recommend standard gear and metrics for all jurisdictions*

- **Reach 1:** Breckenridge-Wahpeton to Fargo-Moorhead (River Mile 300-400)
 - Channel catfish-trap net catch rate of 15 fish/lift, and trotline catch rate of 4 fish/25 hook lift.
 - Walleye-maintain a self-sustaining population.
 - Lake sturgeon-establish a self-sustaining population.
- **Reach 2:** Fargo-Moorhead to Grand Forks-East Grand Forks (River Mile 145-300)
 - Channel catfish-trap net catch rate of 15 fish/lift, and trotline catch rate of 4 fish/25 hook lift.
 - Walleye-trap net catch rate of 2 fish/lift, with a mean weight per fish of 2.0 lbs.
 - Sauger-trap net catch rate of 2 fish/lift, with a mean weight per fish of 1.0 lbs.
 - Northern pike-trap net catch rate of 0.5 fish/lift, with a mean weight per fish of 5.0 lbs.
 - Lake sturgeon-establish a self sustaining population.
- **Reach 3:** Grand Forks-East Grand Forks to Drayton (River Mile 50-145)
 - Channel catfish-trotline catch rate of 4 fish/25 hook lift with 50% of the catch over 24 inches and 20% of catch over 30 inches.
 - Walleye-trap net catch rate of 2 fish/lift with 2% over 28 inches.
 - Sauger-maintain a self-sustaining population.
 - Northern pike-trap net catch rate of 2 fish/lift with 4 % over 26.
 - Lake sturgeon-establish a self sustaining population.
- **Reach 4:** Drayton to Minnesota/Manitoba border (River Mile 0-50)
 - Channel catfish-trotline catch rate of 4 fish/25 hook lift with 50% of the catch over 24 inches and 20% of catch over 30 inches.
 - Walleye-trap net catch rate of 2 fish/lift with 2% over 28 inches.
 - Sauger-maintain a self-sustaining population.
 - Northern pike-trap net catch rate of 2 fish/lift with 4 % over 26.
 - Lake sturgeon-establish a self sustaining population.

Reach 5: Minnesota/Manitoba border to Lake Winnipeg

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Reach Specific Habitat Objectives

*****No specific habitat objectives received. What standard or metric to be used?*

Operational Plan

Surveys and Assessments

*****Assessment plans from ND, SD, and Manitoba needed*

*****Standardize sampling protocol (periodicity and gear) between jurisdictions recommended*

- Fish populations will be sampled on a 5-year schedule, with assessments planned for 2005 and 2010. Sampling gear for assessments should include trap nets (3' by 6' single frame, 3/4" mesh) and trotlines (25 hook) surveys in June, and spring and/or fall electrofishing surveys using the sampling protocol established during the 2000 investigation.
- Recreational use surveys (ND and MN) will be conducted every 2 of 10 years to estimate angler pressure and harvest by species for the entire main stem reach. The next two-year investigation will be scheduled for 2010 and 2011 using the standard survey design (citation). *****Frequency of creel survey discussion needed with ND*
- Evaluate assessment, creel survey, and other pertinent information to ensure the sustainability of the fisheries resources and make necessary management recommendations.

Habitat

- Utilize the environmental review process to maintain, enhance and protect riverine and upland habitat and function. Particular attention will focus on flood control, municipal water appropriation, irrigation, sedimentation, pollution, and riparian habitat or channel alteration.
 - *Snag Removal:* Maintaining and preserving functional riparian areas is the key to provide long term fisheries benefits. Marshes along the Red River and its tributaries stabilize flows, provides spawning, rearing, and forage areas. Catfish and other gamefish species prefer snag areas in warmwater streams. Instream sites with complex woody vegetation (snags, fallen trees, root systems, etc.) are important for (1) catfish spawning and nesting, (2) cover for fish, and (3) feeding locations for piscivorous species and their prey. Consequently, instream snag removal and floodplain tree removal projects should be scrutinized and discouraged when proposed solely for aesthetics. Snagging projects shall be required to follow the guidelines of the American Fisheries Society for snag removal.

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- Promote watershed and flood plain uses that are compatible with a healthy river systems including the protection of the riparian corridor, restoration of altered stream reaches, channels, and setback levees, restoration of wetlands, and the maintenance of critical flows regimes.
- Reconnect river habitat and energy pathways by removing or modifying all dams on the main stem and desirable dams on tributaries streams to address public safety concerns and promote fish passage. Continue to develop partnerships with private, local, state, and federal entities to promote the removal or modification of dams.
- Identify, protect and enhance critical fish habitat or areas of concern by acquiring land as Aquatic Management Areas and by funding and supporting fish habitat improvement projects.
- Continue to participate in the International Red River Fisheries Steering Committee, other interstate, and interagency groups or committees focused on natural resource conservation to coordinate management strategies.
- Continue to foster relationships with local watershed districts, communities, interest groups, landowners, and concerned citizens to discuss natural resource issues, promote sound land management practices, and implement projects that meet mutual goals.
- Continue to participate and support educational programs to promote a better understanding of natural stream processes, habitat conservation, and management.

Regulations

- Angling regulations will be standardized where possible to protect the fisheries resources and allow ease of angler understanding and enforcement.
- Enhance angler compliance through a pro-active information campaign and effective enforcement. (news releases, pamphlets, signage).
- Species covered under the ND-Minnesota border water regulations are open to a year round angling except for sturgeon (no open season). In 2000, a conservation season (CS) was established for walleye, sauger, and northern pike from March 1 to the first Friday in May. During this period, more restrictive regulations were enacted to protect these species during a time high vulnerability and potentially high fishing pressure. Walleye and sauger limit is 5 (either or combined) except during the CS when the limit is 3 (only 2 walleye less than 18"; all fish from 18-28" must be immediately released; and only 1 walleye over 28". The year round northern pike limit is 3 (no size restriction) except during CS when no pike over 27" are allowed. Channel catfish limit is 5 (only 1 over

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24”); largemouth/smallmouth bass limit is 3, yellow perch limit is 50, muskellunge limit is 1 (minimum size 40”).

- **Regulations for waters in Canada**

Angler Use

- Develop a long-range plan for acquisition, development, and maintenance of public access sites for bank fishing and boat access opportunities and implement projects to meet the objectives of the plan.
- Update and reprint the “Fishing on the Red River of the North” brochure as needed.

Stocking

- Stock lake sturgeon fry and fingerlings in the Red River Basin to re-establish the population as per the lake sturgeon restoration plan (Restoration of extirpated lake sturgeon, *Acipenser fulvescens*, in the Red River of the North Watershed, MNDNR 2002). Lake sturgeon will be stocked annually for a period of twenty years in the following waters:

<u>Stocking Location</u>	<u>Life Stage</u>	<u>Number</u>	<u>Frequency</u>	<u>Jurisdiction</u>
Otter Tail Lake	Fingerling	15,000	Annual	MNDNR
White Earth Lake	Fingerling	8,000	Annual	White Earth
Round Lake	Fingerling	5,000	Annual	White Earth
Big Detroit Lake	Fingerling	4,000	Annual	MNDNR
Otter Tail River	Fingerling	1,000	Annual	MNDNR
Buffalo River	Fingerling	1,000	Annual	MNDNR
Red Lake River	Fry	400,000	Annual	MNDNR
Roseau River	Fry	200,000	Annual	MNDNR

- No other stocking is recommended

Narrative

Lake Sturgeon Restoration

Historical accounts suggest that lake sturgeon were abundant in the Red River basin until the late 1800's. Lake sturgeon populations, in the Red River basin, were decimated by over exploitation, construction of dams, and declines in water quality. By the mid-1900's lake sturgeon had effectively been extirpated from the Red River basin. Although there are occasional, unconfirmed reports of lake sturgeon being caught in the Red River, there is little chance that this population could recover on its own.

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The long-range goal for lake sturgeon restoration in the Red River basin will be to establish a self-sustaining population over the next 20 to 30 years. Restoration activities will focus on the removal or modification of dams so that the maturing lake sturgeon population will be able to access historic spawning areas and reproduce naturally.

A major component of the lake sturgeon restoration plan will include the reintroduction of lake sturgeon at selected sites in the Red River basin utilizing fry and fingerling stocking. Successful reintroduction efforts may hinge upon stocking a young enough life stage so that imprinting to the receiving water is maximized. Because lake sturgeon grow so slow and mature at such a late age it is recommended that a minimum of 20 lake sturgeon year classes be stocked. It is recommended that fry and fingerlings not be stocked in the same water each year as this would complicate the evaluation analysis.

Other restoration activities will include a public information/outreach program to inform the public of our restoration plan, a no harvest regulation will remain in effect indefinitely on the Red River and all inland tributaries, and both agencies will promote the improvement/protection of water quality in the Red River basin.

For a more complete report on Minnesota's plan for lake sturgeon restoration on inland lakes and tributaries to the Red River see Minnesota Department of Natural Resources publication, Restoration of Extirpated Lake Sturgeon (*Acipenser fulvescens*) in the Red River of the North Watershed, 2002.

Dam Removal and Stream Restoration

The flow of the Red River is directly affected by the presence of 8 low head dams in the U.S. The purpose of those dams is to store municipal water supplies, control river levels, or both. Approximately 160 dams on tributary waters in Minnesota alone indirectly affect flow, with numerous flood control projects presently proposed. Primary purposes of tributary dams include (1) floodwater retention, (2) lake level maintenance, (3) water supply, or (4) waterfowl production.

Often, these dams are in disrepair and serve no discernable function. The dams are barriers to fish migration and pose a drowning threat to the public. The MNDNR and many other project partners have been involved to remove or modify dams to allow for fish migration and address public safety concerns. Currently, 4 of the 8 main stem dams have been modified: the Fargo Midtown Dam (Fargo, ND) was modified in 1997; the Kidder Dam (Wahpeton, ND) was modified in 2000; the Riverside Dam modification (Grand Forks, ND) was completed in 2002; and the modification of the North Dam (Fargo, ND) was completed in 2002. Plans for other main stem dam removal/modification projects are progressing which included South (Fargo, ND), Christine, Hickson, and Drayton dams.

Dam removal/modification projects on tributary streams include the Lake Breckenridge dam fish by-pass (Breckenridge, MN on Otter Tail River) in 1998; the Roseau City dam modification (Roseau River) and Old Mill State Park dam removal (Middle River) projects in 2001; the Buffalo River State Park dam (Buffalo River) removal project in 2002; the Diversion dam fish

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by pass-project (Fergus Falls, MN Otter Tail River) in 2002, the Lions Park Club Dam modification project (Frazee MN, Ottetail River) in 2003, and the East Grand Forks dam modification project (Red Lake River) in 2003. Plans have been completed and funds pending for the Crookston Dam modification project (Crookston, MN Red Lake River). Other potential projects include Heiberg dam (Wild Rice River), White Earth dam (White Earth River), Argyle dam (Middle River), and Stephens dam (Tamarac River).

Water Quality

Major issues concerning the Red River include flood control, irrigation, sedimentation, pollution (industrial, agricultural and municipal), recreation enhancement and municipal water appropriation. Several communities are established on the banks of the Red. The three largest include the metropolitan areas of Fargo-Moorhead and Grand Forks-East Grand Forks in the U.S., and Winnipeg in Manitoba.

The Red River watershed lies in an area of intense agricultural land use, with extensive ditch and highway systems. A majority of the wetlands in the Red River Valley have been drained and the streams channelized. Ditches are steeply sloped with unstable banks and, in many cases, with no or inadequate vegetation buffer strips adjacent to bank edges. This situation results in heavy silt loads being carried to the Red River causing increased sedimentation and turbidity. Increased sedimentation, in turn, increases stress and mortality to aquatic organisms and directly effects spawning, nursery and other important fish habitat by covering unique substrates and reducing depth in pool areas.

As indicated by extreme river turbidity (15-20 cm secchi disk), there is need for increased erosion control on all lands within the Red River watershed, especially those under frequent tillage. The four general methods to improve water quality (reduced turbidity, PCBs and fecal coliform levels) in the Red River are: (1) restore a functional, grass, shrub, and tree buffer zone along the banks; (2) improve soil conservation practices on watershed lands; (3) protect and restore wetlands throughout the watershed, and (4) continue improvements in municipal and industrial point source discharges.

Exotics

Encourage and implement a pro-active prevention program throughout the Red River Watershed.

Critical Habitat

Greenways

Research Needs

Literature Cited

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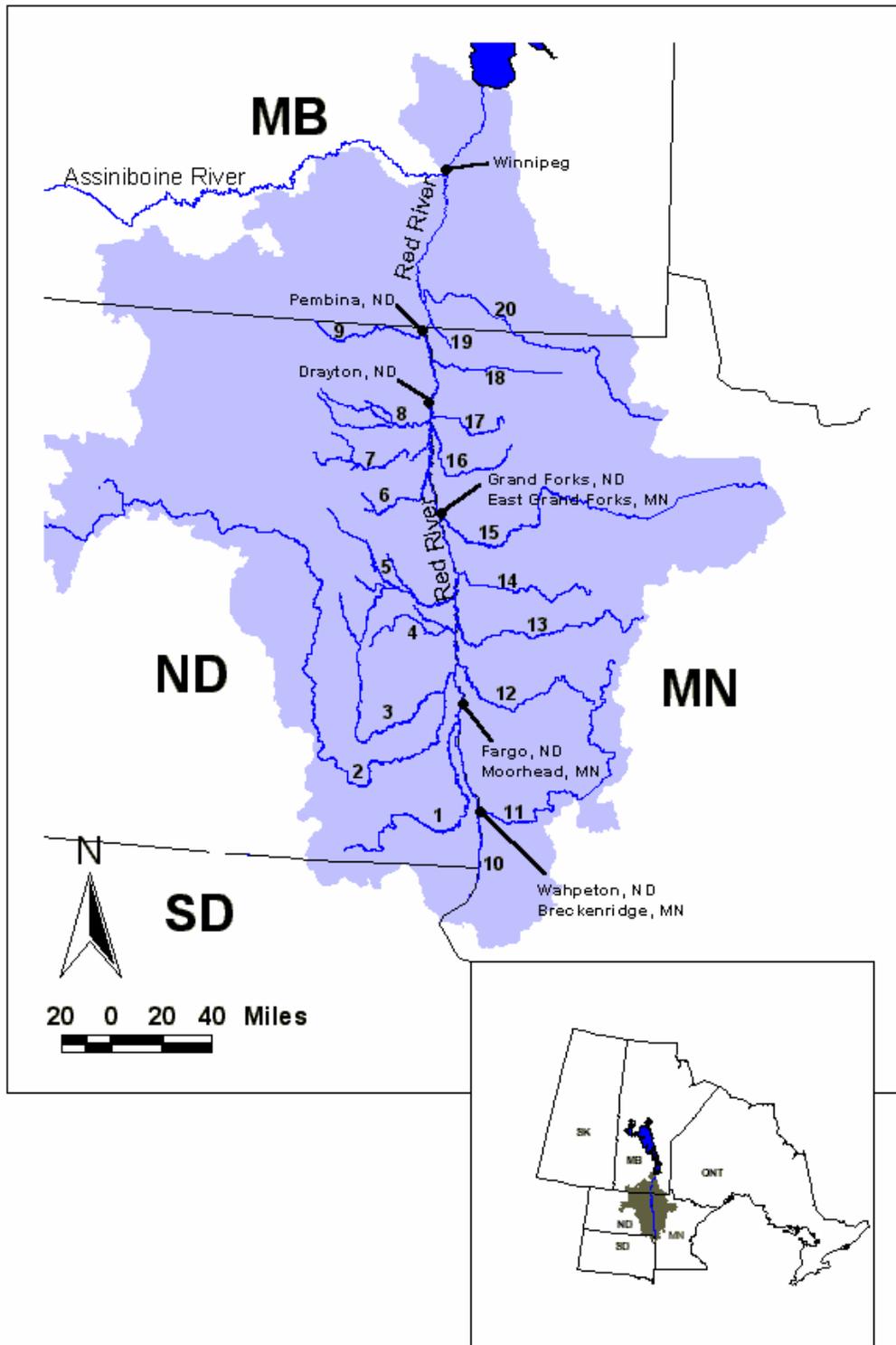


Figure 1. Map of the Red River Basin depicting the major drainage basins. Drainage numbers refer to the number associated in Table 1.

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