North Dakota 1998 Total Maximum Daily Load List

submitted in fulfillment of Section 303(d)
of the Clean Water Act
April 1, 1998

North Dakota Department of Health
1200 Missouri Ave.
Bismarck, ND

Background

Section 303(d) of the Clean Water Act and its accompanying regulations (CFR Part 130 Section 7) requires each state to identify waterbodies (i.e., lakes, reservoirs, rivers, and streams) which are considered water quality limited requiring load allocations, waste load allocations, or total maximum daily loads. A waterbody is considered water quality limited when it is known that its water quality does not meet applicable water quality standards or is not expected to meet applicable water quality standards. Waterbodies can be water quality limited due to point sources of pollution, nonpoint sources of pollution, or both.

In considering whether or not applicable water quality standards are being met, the state should not only consider the narrative and numeric criteria set forth in the standards to protect specific uses, but also the classified uses defined for the waterbody and whether the use or uses are fully, partially, on not supported due to any pollutant source or cause. Therefore, a waterbody could be considered water quality limited when it can be demonstrated that a beneficial use (e.g., aquatic life or recreation) is impaired even when there are no demonstrated exceedences of either the narrative or numeric criteria. When there is a use impairment and no exceedence of the numeric standard the state should provide information as to the cause of the impairment. Where the specific cause (e.g., copper or phosphorus) is unknown a general cause category (e.g., metals or nutrients) should be included with the waterbody listing.

Pollutants which can cause use impairment are, by federal and state definition, “any man-made or man induced alteration of the chemical, physical, biological, and radiological integrity of water.” Examples of pollutants which can cause use impairment include chemicals for which there are numeric standards (e.g., ammonia, chlorine, organic compounds and trace elements), nutrients, BOD, and pathogens. In addition to these common pollutant causes, pollutants can also be habitat alterations (e.g., stream channelization, dams or stream flow withdrawals) or the introduction of non-native aquatic species.

Where a waterbody is water quality limited the state is required to, in a reasonable time frame, determine the reduction in pollutant loading necessary for that waterbody to meet water quality standards, including beneficial uses. The process by which the pollutant loading capacity of a

waterbody is determined and the load is allocated to point and nonpoint sources is called a total maximum daily load or TMDL. While the term TMDL implies that loading capacity is determined on a daily time scale, TMDLs can range from meeting an instantaneous concentration (i.e., an acute standard) to computing an acceptable annual phosphorus load for a lake or reservoir.

When a state prepares its list of water quality limited waterbodies the state is required to prioritize waterbodies for TMDL development and to identify those waterbodies which will be targeted for TMDL development within the next two years. Factors to be considered when prioritizing waterbodies for TMDL development include: 1) the severity of pollution and the uses which are impaired; 2) the degree of public interest or support for the TMDL, including the likelihood of implementation of the TMDL; 3) recreational, aesthetic, and economic importance of the waterbody; 4) the vulnerability or fragility of a particular waterbody as an aquatic habitat; 5) immediate programmatic needs, such as wasteload allocations needed for permit decisions or load allocations for Section 319 nonpoint source project implementation plans; and 6) national policies and priorities identified by EPA.

Section 303(d) of the Clean Water Act requires states to submit their lists of water quality limited waterbodies "from time to time". Federal regulations have clarified this language, therefore, beginning in 1992 and by April 1st of every even numbered year thereafter, states are required to submit a revised list of waters needing TMDLs. This list has become known as the "TMDL list" or "Section 303(d) list."

Along with the "TMDL list", states are required to provide documentation to the EPA Regional Administrator in support of the state's decision to list or not list waterbodies. Information supporting North Dakota's 1998 TMDL list is provided in the section entitled "Methodology." At a minimum, a state's supporting information should include: 1) a description of the methodology used to develop the list; 2) a description of the data and information used to develop the list; 3) the rationale for any decision to not use any information or the rationale for removing waterbodies previously listed as water quality limited; and 4) a summary of comments received on the list during the state's public comment period.

Following an opportunity for public review and comment the state must submit its list to the EPA Regional Administrator by April 1, 1998. The EPA Regional Administrator then has 30 days to either approved or disapprove the state's listing. If the EPA Regional Administrator disapproves a state submittal EPA then has 30 days to develop a list for the state. This list is also required to undergo public comment prior to finalization.

Methodology

The purpose of this section is to describe the criteria and decision-making process used to identify and list water quality limited waterbodies needing TMDLs, as well as, the criteria used to de-list waterbodies previously identified in the state's 1996 TMDL list.

Listing Criteria

The decision to list a waterbody as water quality limited is not taken lightly, as it means that state and local water resource managers will commit significant resources, financial and personnel, in order to develop TMDLs necessary to restore the beneficial uses of the affected waterbody. Therefore, when the state makes a decision to list a waterbody as water quality limited and in need of a TMDL to restore beneficial uses, it is necessary for that decision to be based on sound defensible data or information.

When compiling data and information used to develop its list, states should consider "all existing and readily available water quality related data and information." Categories of data and information from which a list of water quality limited waterbodies can be assembled include: 1) waterbodies identified by the state in its Section 305(b) water quality assessment report as "partially meeting" or "not meeting" beneficial uses. (Note: Threatened waters should only be considered if water quality standards are not expected to be met withing the next two years); 2) waterbodies for which dilution calculations or predictive models indicate exceedences of applicable narrative or numeric water quality standards; 3) waterbodies identified by the state as impaired or "threatened" in the state's Section 319, Nonpoint Source Pollution Assessment Report; and 4) waterbodies for which water quality problems have been reported by local, state, or federal agencies; members of the public; or academic institutions.

Water quality assessments conducted as part of the Section 305(b) report form the basis for the state's TMDL list. The state of North Dakota considers the biennial Section 305(b) water quality assessment report to be an integrator of all credible "existing and available" water quality assessment data and information. This data and information, which is summarized statewide or by basin for the Section 305(b) report, is integrated as beneficial use assessments which are entered into a waterbody "accounting"/database management system developed by EPA. This system, which provides a standard format for water quality assessment information is termed the Waterbody Tracking System (WBS).

North Dakota's WBS contains 1,615 discreet waterbodies representing 53,989 miles of rivers and streams and 219 lakes and reservoirs. Within the WBS, designated uses are defined for each waterbody based on the state's water quality standards. Each use is then assessed based on available chemical, physical, and biological data. In some cases information gathered from local soil conservation districts, water resource boards, or federal agencies such as the Natural Resources Conservation are used to make use support determinations. A detailed description of the WBS as well as the state water quality assessment methodology can be found in the 1996 and draft 1998 Section 305(b) reports.

Assessments completed and entered into the WBS also form the basis for the state's Section 319 Nonpoint Source Assessment Report and Management Plan. Therefore, because of the way in which the Department's Surface Water Quality Management Program is structured there is a complete integration of the state's Section 305(b) water quality assessment report, the Section

303(d) TMDL list, and the Section 319 Nonpoint Source Assessment Report and Management Plan.

Tables 1 and 2 contain the state's 1998 Section 303(d) TMDL list of water quality limited waterbodies. Table 1 includes a list of reservoirs and lakes which need TMDLs, while Table 2 includes a list of rivers and streams needing TMDLs. The state's 1998 TMDL listed waterbodies are also displayed graphically by river basin in Figures 1 through 6. In compiling the states list of water quality limited rivers and streams, contiguous waterbodies in the WBS which are similarly water quality limited (i.e., similar use impairment, pollutant cause[s], and TMDL priority) were combined into a single listing.

De-listing Criteria

In compiling the state's 1998 TMDL list it was necessary to remove some waterbodies which were previously included on the 1996 TMDL list. In general, waterbodies were de-listed for two reasons. Either a TMDL has been completed and approved by EPA for the waterbody or the data or information used to list the waterbody as water quality limited in 1996 has been found to lack credibility. Data or information which lack credibility include: 1) data collected over 7 years ago (prior to January 1, 1991) and for which there are not more recent data; or 2) water quality assessments which were previously based only on "best professional judgement" and were not verified with field data or other objective evidence (e.g., land use information or habitat assessment). Table 3 contains a list of waterbodies which were de-listed. In addition to the waterbody name and description, the reason for de-listing is included.

Schedule for TMDL Development

The 1998 Section 303(d) list for North Dakota includes 69 river and stream waterbodies representing 4366.38 miles and 64 lake and reservoirs representing 100,394.30 acres. Twenty-one of these waterbodies, 18 river segments and 3 lakes, have been targeted for TMDL development in the next 2 years. The remaining 112 waterbodies are scheduled for TMDL development within the next 13 years or by the year 2011.

The state's schedule of 10-12 waterbodies per year for the next 13 years is an aggressive schedule which will require a serious commitment from the state, EPA, other federal agencies (e.g., USDA Natural Resources Conservation Service, US Fish and Wildlife Service, US Geological Survey, and UDSA Forest Service), and a number of local partners (e.g., soil conservation districts and water resource boards). In order for TMDLs to be accepted and implemented they must be based on scientifically credible data and modeling. This will require a commitment of additional financial resources by EPA to the state for TMDL development. Without these commitments the state cannot and should not be expected to meet this schedule.

Public Notice and Comments

A public notice as to the availability of the state's draft 1998 TMDL list for public review and comment was published in eight daily newspapers between February 27, 1998 and March 2, 1998 (Appendix A). The 30 day public comment period, which ended on March 31, 1998, resulted in no written public comments. One comment was received, by telephone call, from Mr. Kevin Johnson, representing the US Fish and Wildlife Service. Mr. Johnson suggested that in addition to the pollutant causes identified in the list for English Coulee, invasion of exotic plant species should be added as a cause of aquatic life use impairment. The state's final list reflects this change.

In addition to the public notice, comments on the draft 1998 TMDL list were requested at the March 19, 1998 Natural Resources Conservation Service State Technical Committee meeting. At that meeting copies of the draft TMDL list were provided to several agencies and organizations, including the US Fish and Wildlife Service, the North Dakota State Water Commission, the North Dakota Agriculture Department, the North Dakota State Land Department, the North Dakota Grain Growers Association, the North Dakota Association of Soil Conservation Districts, and the Natural Resources Conservation Service.

Table 1. 1998 Section 303(d) priority waterbody submittal for lakes and reservoirs.

Waterbody Name	Waterbody Size (acres)	Use Impairment	WQ Variable of Concern	TMDL Priority
SHORT CREEK DAM	96.30	Aquatic Life	Nutrients, Low DO	L [1]
NORTHGATE DAM	150.80	Aquatic Life	Nutrients, Low DO	L
CARBURY DAM	130.00	Aquatic Life	Nutrients	L
GEORGE LAKE	80.00	Aquatic Life	Nutrients, Low DO	L
LONG LAKE	287.00	Aquatic Life	Nutrients, Low DO	L
PELICAN LAKE	124.40	Aquatic Life	Nutrients, Low DO	L
STRAWBERRY LAKE	31.80	Aquatic Life	Nutrients, Low DO	L
BUFFALO LODGE LAKE	1381.80	Aquatic Life	Nutrients	L
LAKE ELSIE	260.50	Aquatic Life	Suspended sediment	L
ALKALI LAKE	104.00	Aquatic Life	Nutrients, Low DO	L
SILVER LAKE	91.00	Aquatic Life	Nutrients, Low DO	L
NORTH GOLDEN LAKE	281.50	Aquatic Life	Nutrients, Low DO	L
DEVILS LAKE	74500.00	Recreation	Nutrients	L
WARSING DAM	53.40	Aquatic Life	Nutrients, Low DO	L
BALTA DAM	108.00	Aquatic Life Recreation	Nutrients, Low DO Nutrients	L
LAKE ASHTABULA	5430.00	Recreation	Nutrients	H Targeted

Table 1 (con't). 1998 Section 303(d) priority waterbody submittal for lakes and reservoirs.

Waterbody Name	Waterbody Size (acres)	Use Impairment	WQ Variable of Concern	TMDL Priority
RED WILLOW LAKE	130.00	Aquatic Life	Nutrients, Low DO	L
MCVILLE DAM	33.40	Aquatic Life Recreation	Nutrients, Low DO, Sediment Nutrients	L
TOLNA DAM	152.00	Aquatic Life Recreation	Nutrients, Low DO, Sediment Nutrients	L
BREWER LAKE	128.00	Aquatic Life Recreation	Nutrients, Low DO, Sediment, Nutrients	L
DEAD COLT CREEK	124.00	Aquatic Life Recreation	Nutrients, Low DO, Sediment Nutrients	L
CARPENTER LAKE	787.00	Aquatic Life	Nutrients, Low DO	L
HOOKER LAKE	34.50	Aquatic Life	Nutrients, Sediment, Low DO	L
DION LAKE	82.10	Aquatic Life	Nutrients, Low DO	L
LAKE UPSILON	414.00	Aquatic Life Recreation	Nutrients, Sediment, Low DO Nutrients	L
ARMOURDALE DAM	79.80	Aquatic Life	Nutrients, Sediment, Low DO	L
JENSON LAKE	46.60	Aquatic Life	Nutrients, Sediment, Low DO	L
SKJERMO LAKE	40.30	Aquatic Life Recreation	Nutrients, Sediment, Low DO Nutrients	L
SMISHEK LAKE	187.50	Recreation	Nutrients	L

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Waterbody Name	Waterbody Size (acres)	Use Impairment	WQ Variable of Concern	TMDL Priority
ARNEGARD DAM	23.90	Aquatic Life	Nutrients, Sediment, Low DO	L
		Recreation	Nutrients	
CLEARWATER LAKE	132.30	Aquatic Life	Nutrients, Sediment, Low DO	L
WHITE EARTH DAM	174.00	Recreation	Nutrients	L
NORTH CARLSON LAKE	79.50	Aquatic Life	Nutrients, Sediment, Low DO	L
RICE LAKE	185.50	Aquatic Life	Nutrients, Sediment, Low DO	L
		Recreation	Nutrients	
MCGREGOR DAM	54.30	Recreation	Nutrients	L
SPRING LAKE	37.30	Aquatic Life	Nutrients, Sediment, Low DO	L
		Recreation	Nutrients	
DAVIS DAM	10.20	Aquatic Life	Nutrients, Sediment, Low DO	L
		Recreation	Nutrients	
ODLAND DAM	108.00	Recreation	Nutrients	L
CROOKED LAKE	375.00	Aquatic Life	Nutrients, Low DO	L
		Recreation	Nutrients	
STRAWBERRY LAKE	140.00	Recreation	Nutrients	L
LONG LAKE	206.00	Aquatic Life	Nutrients, Low DO	L
		Recreation	Nutrients	
LAKE HOLMES	427.50	Recreation	Nutrients	L
LAKE BREKKEN	249.30	Recreation	Nutrients	L
WELK DAM	28.20	Aquatic Life	Nutrients, Sediment	L

Table 1 (con't). 1998 Section 303(d) priority waterbody submittal for lakes and reservoirs.

Waterbody Name	Waterbody Size (acres)	Use Impairment	WQ Variable of Concern	TMDL Priority
BRADDOCK LAKE	69.50	Aquatic Life	Nutrients, Sediment	L
		Recreation	Nutrients	
LAKE ISABEL	805.70	Aquatic Life	Nutrients, Low DO	L
BEAVER LAKE	953.10	Aquatic Life	Nutrients, Sediment, Low DO	L
		Recreation	Nutrients	
GREEN LAKE	868.60	Aquatic Life	Nutrients, Low DO	L
LAKE HOSKINS	553.50	Aquatic Life	Nutrients, Low DO	L
		Recreation	Nutrients	
LAKE TSCHIDA	5018.00	Recreation	Nutrients	L
LAKE PATTERSON	1191.00	Aquatic Life	Nutrients, Sediment/Turbidity, Low DO	H Targeted
		Recreation	Nutrients	
DICKINSON DIKE	22.00	Aquatic Life	Nutrients, Low DO	L
CROWN BUTTE DAM	31.20	Aquatic Life	Nutrients, Sediment, Low DO	L
		Recreation	Nutrients	
SWEETBRIAR DAM	270.60	Recreation	Nutrients	L
NYGREN DAM	6.80	Recreation	Nutrients	L
DANZIG DAM	147.50	Aquatic Life	Nutrients, Sediment, Low DO	L
		Recreation	Nutrients	
SHEEP CREEK DAM	84.40	Recreation	Nutrients	L

Table 1 (con't). 1998 Section 303(d) priority waterbody submittal for lakes and reservoirs.

Waterbody Name	Waterbody Size (acres)	Use Impairment	WQ Variable of Concern	TMDL Priority
INDIAN CREEK DAM	222.00	Aquatic Life	Nutrients, Sediment, Low DO	L
		Recreation	Nutrients	
CEDAR LAKE	198.50	Recreation	Nutrients,	H Targeted
JAMESTOWN RESERVOIR	2086.00	Aquatic Life	Nutrients, Sediment, Organic enrichment	L
		Recreation	Nutrients	
SCHLECT-WEIXEL DAM	10.30	Aquatic Life	Nutrients, Sediment, Low DO	L
		Recreation	Nutrients	
LEHR DAM	9.50	Aquatic Life	Nutrients, Sediment, Low DO	L
		Recreation	Nutrients	
PHEASANT LAKE	232.10	Recreation	Nutrients	L
KULM-EDGELEY DAM	28.70	Recreation	Nutrients	L

[1] L and H refers to low and high TMDL priority, respectively. High priority waterbodies are targeted for TMDL development in the next two years.

Table 2. 1998 Section 303(d) priority waterbody submittal for rivers and streams.

Waterbody Name	Waterbody Description	Waterbody Size (mi.)	Use Impairment	WQ Variable of Concern	TMDL Priority
Souris River	Souris River downstream from Saskatchewan border to Lake Darling	43.40	Aquatic Life Recreation	Sediment, Habitat, Flow, Metals Bacteria	L [1]
Souris River	Souris River from its confluence with the Des Lacs River downstream to its confluence with Oak Creek	62.20	Recreation	Bacteria	L
Souris River	Souris River its confluence with Oak Creek downstream to its confluence with Willow Creek	127.90	Aquatic Life Recreation	Nutrients, Sediment Bacteria	H Targeted
Wintering River watershed	Wintering River upstream from its confluence with the Souris River, including tributaries	195.90	Aquatic Life	Nutrients, Habitat	H Targeted
Boise de Sioux River	Boise de Sioux River from ND-SD border downstream to confluence with Otter Tail River	27.80	Aquatic Life	Nutrients, Habitat	L
Red River of the North	Red River from the confluence of Boise de Sioux and Otter Tail Rivers to its confluence with Whiskey Creek	26.81	Aquatic Life Recreation	Unknown, Bacteria	H Targeted
Red River of the North	Red River from the 12th Ave N bridge in Fargo, ND downstream to its confluence with the Buffalo River	30.54	Aquatic Life	Ammonia, Low DO	H Targeted
Wild Rice River	Wild Rice River from its confluence with the Colfax watershed downstream to its confluence with the Red River of the North	38.01	Aquatic Life Recreation	Nutrients, Sediment Habitat, Bacteria	H Targeted
Wild Rice River	Wild Rice River from its confluence with Elk Creek downstream to downstream to its confluence with the Colfax watershed	94.11	Aquatic Life	Sediment, Nutrients, Organic Enrichment Habitat	H Targeted
Antelope Creek	Antelope Creek downstream to its confluence with the Wild Rice River	40.09	Aquatic Life	Nutrients, Sediment,	H Targeted
South Branch Antelope Creek watershed	South Branch Antelope Creek upstream from its confluence with Antelope Creek, including tributaries	63.74	Aquatic Life Recreation	Nutrients, Sediment, Habitat Nutrients, Bacteria	H Targeted
Elm River	Elm River from a dam NW of Galesburg, ND downstream to its confluence to its confluence with the South Branch Elm River	50.39	Aquatic Life	Nutrients, Sediment, Habitat	L

Table 2 (con't). 1998 Section 303(d) priority waterbody submittal for rivers and streams.

Waterbody Name	Waterbody Description	Waterbody Size (mi.)	Use Impairment	WQ Variable of Concern	TMDL Priority
North Branch Elm River	North Branch Elm River downstream to its confluence with the Elm River	33.40	Aquatic life	Nutrients, Sediment, Habitat	L
Goose River	Goose River from its confluence with Beaver Creek downstream to its confluence with the South Branch Goose River	19.38	Aquatic Life	Nutrients, Sediment, Habitat	L
Beaver Creek	Beaver Creek downstream to the Golden Lake diversion channel	37.01	Aquatic Life	Sediment, Habitat	L
Little Goose River	Little Goose River from the Little Goose River National Wildlife Refuge downstream to its confluence with the Goose River	28.64	Aquatic Life	Sediment, Habitat	L
Sheyenne River	Sheyenne River from Harvey Dam downstream to Tolna Dam outlet	84.36	Aquatic Life	Nutrients, Sediment, Organic enrichment, Habitat	L
Big Coulee watershed	Big Coulee downstream to its confluence with the Sheyenne River, including tributaries	6.99	Aquatic Life	Nutrients, Sediment, Organic enrichment, Habitat	L
North Fork Sheyenne River	North Fork Sheyenne River downstream to its confluence with the Sheyenne River	11.66	Aquatic Life	Nutrients, Sediment, Organic enrichment, Habitat	L
Sheyenne River	Sheyenne River from Lake Ashtabula downstream to the Barnes County line	50.90	Aquatic Life Recreation	Nutrients, Sediment, Habitat Bacteria	H Targeted
Sheyenne River	Sheyenne River from a tributary east of Lisbon, ND downstream to a tributary near Davenport, ND	84.40	Aquatic Life	Nutrients, Sediment, Habitat	L
Sheyenne River	Sheyenne River from a tributary near Davenport, ND downstream to its confluence with the Red River	43.77	Recreation	Bacteria	L
Rush River	Rush River downstream to its confluence with the Sheyenne River, including tributary from Brewer Lake downstream to the Rush River	65.43	Aquatic Life	Nutrients, Sediment, Organic enrichment, Habitat,	L
Spring Creek	Spring Creek upstream from Clausen Springs Dam	14.73	Aquatic Life	Nutrient, Sediment, Habitat	L

Table 2 (con't). 1998 Section 303(d) priority waterbody submittal for rivers and streams.

Waterbody Name	Waterbody Description	Waterbody Size (mi.)	Use Impairment	WQ Variable of Concern	TMDL Priority
Maple River	Maple River downstream to its confluence with the Sheyenne River	158.53	Aquatic Life	Nutrients, Sediment, Habitat	L
Swan Creek	Swan Creek upstream from Cassleton Reservoir, including tributaries	76.37	Aquatic Life	Sediment, Habitat	L
English Coulee	English Coulee downstream to its confluence with the Red River	20.55	Aquatic Life	Nutrients, Sediment, TDS, Habitat, Flow alteration, Exotic plant species, Organic enrichment	L
			Recreation	Nutrients, Sediment	
Turtle River	Turtle River from Turtle River State Park downstream to its confluence with the Red River	56.28	Aquatic Life	Sediment TDS, metals, Habitat	L
Forest River	Forest River from Lake Ardoch downstream to its confluence with the Red River	16.17	Aquatic Life	Nutrients, Sediment, TDS, Habitat, Flow alteration	L
			Recreation	Bacteria	
Middle Branch Forest River	Middle Branch Forest River from Matecjek Dam downstream to its confluence with the North Branch Forest River	8.85	Aquatic Life	Sediment, Habitat, Flow alteration	L
Park River	Park River from its confluence with the South Branch Park River and the Middle Branch Park River downstream to its confluence with the Red River	36.57	Aquatic Life	Nutrients, Sediment, TDS, metals, Organic Enrichment, Habitat	L
Tongue River	Tongue River from Renwick Dam downstream to its confluence with Big Slough	38.45	Aquatic Life	Sediment, Habitat	L
Little South Pembina River	Little South Pembina River upstream from Mt. Carmel Dam, including tributaries	46.63	Aquatic Life	Nutrients, Sediment, Habitat	L
			Recreation	Bacteria	
Mulberry Creek watershed	Mulberry Creek upstream from Langdon Reservoir, including tributaries	10.87	Aquatic Life	Nutrients, Sediment, Habitat	L
			Recreation	Bacteria	

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Waterbody Name	Waterbody Description	Waterbody Size (mi.)	Use Impairment	WQ Variable of Concern	TMDL Priority
Pembina River	Pembina River from its confluence with the Tongue River downstream to its confluence with the Red River	8.76	Recreation	Bacteria	L
Pembina River	Pembina River from Neche, ND downstream to its confluence with the Tongue River	32.72	Aquatic Life Recreation	Nutrients, Sediment, Habitat Bacteria	L
Yellowstone River	Yellowstone River from the ND-MT border downstream to its confluence with the Missouri River	21.62	Aquatic Life Recreation	Metals Bacteria	L
Bear Den Creek	Bear Den Creek downstream to Lake Sakakawea	29.17	Recreation	Bacteria	L
White Earth River	White Earth River from Smishek Lake downstream to Lake Sakakawea	78.71	Recreation	Bacteria	L
Stoney Creek	Stoney Creek upstream from Lake Sakakawea	5.00	Aquatic Life	TDS, Chloride	H Targeted
East Fork Shell Creek watershed	East Fork Shell Creek upstream from Lake Sakakawea, including tributaries	126.36	Recreation	Bacteria	L
Little Knife River watershed	Little Knife River upstream from Lake Sakakawea to Stanley Reservoir, including tributaries	190.71	Recreation	Bacteria	
Little Missouri River	Little Missouri River from its confluence with Deep Creek downstream to its confluence with Government Creek	58.14	Aquatic Life Recreation	Nutrients, Metals Bacteria	L
Little Missouri River	Little Missouri River from its confluence with Beaver Creek downstream to Little Missouri Bay, Lake Sakakawea	103.76	Aquatic Life Recreation	Metals, Habitat Bacteria	L
Squaw Creek watershed	Squaw Creek upstream from its confluence with Little Missouri Bay, Lake Sakakawea, including tributaries	41.34	Recreation	Bacteria	L
Moccasin Creek watershed	Moccasin Creek upstream from its confluence with Little Missouri Bay, Lake Sakakawea, including tributaries	91.71	Recreation	Bacteria	L
Square Butte Creek	Square Butte Creek from Nelson Lake downstream to its confluence with the Missouri River	39.94	Aquatic Life Recreation	Nutrients, Sediment, Habitat, Flow alteration Bacteria	L
Knife River	Knife River from its confluence with Coyote Creek downstream to its confluence with the Missouri River	52.31	Recreation	Bacteria	L

Table 2 (con't). 1998 Section 303(d) priority waterbody submittal for rivers and streams.

Waterbody Name	Waterbody Description	Waterbody Size (mi.)	Use Impairment	WQ Variable of Concern	TMDL Priority
Otter Creek	Otter Creek upstream from its confluence with the Knife River	130.98	Aquatic Life Recreation	Sediment, Habitat Bacteria	H Targeted
Spring Creek	Spring Creek from Lake Ilo downstream to its confluence with the Knife River	87.95	Recreation	Bacteria	L
Spring Creek	Spring Creek downstream to Lake Ilo	23.89	Aquatic Life Recreation	Nutrients, Sediment, Habitat Bacteria	L
Heart River	Heart River from Belfield, ND downstream to Patterson Lake	30.37	Aquatic Life Recreation	Nutrients, Sediment, Habitat, Organic Enrichment Bacteria	H Targeted
South Branch Heart River	South Branch Heart River downstream to its confluence with the Heart River	12.75	Aquatic Life	Sediment, Habitat	H Targeted
Heart River	Heart River from Patterson Lake downstream to its confluence with the Green River	24.70	Aquatic Life	Nutrients, Sediment, Habitat, Flow alteration, Organic enrichment	H Targeted
Heart River	Heart River from its confluence with Antelope Creek downstream to its confluence with Plum Creek	25.18	Aquatic Life	Sediment, Habitat	L
Heart River	Heart River from its confluence with Government Creek downstream to Lake Tschida	18.12	Aquatic Life	Sediment, Habitat	L
Sweet Briar Creek watershed	Sweet Briar Creek upstream from Sweet Briar Dam, including tributaries	207.72	Aquatic Life Recreation	Nutrients, Sediment, Habitat Organic enrichment Bacteria	L
Big Muddy Creek	Big Muddy Creek from its confluence with Hailstone Creek downstream to its confluence with the Heart River	21.01	Recreation	Bacteria	L
Heart River	Heart River from its confluence with Fish Creek downstream to its confluence with the Missouri River	41.47	Recreation	Bacteria	L
Cannonball River	Cannonball River from its confluence with Philbrick Creek downstream to its confluence with Cedar Creek	227.25	Recreation	Bacteria	L
Sheep Creek watershed	Sheep Creek upstream from its confluence with the Cannonball River, including tributaries	73.28	Aquatic Life	Nutrients, Sediment, Habitat	L
Indian Creek watershed	Indian Creek upstream from Indian Creek Dam, including tributaries	17.53	Aquatic Life	Nutrients	L

Table 2 (con't). 1998 Section 303(d) priority waterbody submittal for rivers and streams.

Waterbody Name	Waterbody Description	Waterbody Size (mi.)	Use Impairment	WQ Variable of Concern	TMDL Priority
Cedar Creek watershed	Cedar Creek upstream from Cedar Lake, including South Fork Cedar Creek, North Fork Cedar Creek and tributaries	312.96	Aquatic Life Recreation	Nutrients, Sediment, Salinity, Habitat Bacteria	H Targeted
Cedar Creek	Cedar Creek from its confluence with Timber Creek downstream to its confluence with the Cannonball River	85.63	Recreation	Bacteria	H Targeted
Cannonball River	Cannonball River from its confluence with Cedar Creek downstream to Lake Oahe	65.50	Recreation	Bacteria	H Targeted
James River	James River from Jamestown Reservoir downstream to its confluence Pipestem Creek	1.48	Aquatic Life Recreation	Low DO, Flow, Habitat Bacteria	L
James River	James River from its confluence with Pipestem Creek downstream to its confluence with Seven Mile Coulee	14.41	Aquatic Life	Low DO	H Targeted
Elm River	Elm River from Pheasant Lake downstream to the ND-SD border ND-SD border	5.27	Aquatic Life	Nutrients, Organic enrichment, Metals	L
Elm River	Elm River upstream from Pheasant Lake, including tributaries ND-SD border	145.03	Aquatic Life	Nutrients, Sediment, Habitat	L

[1] L and H indicates low and high TMDL priority, respectively. High priority waterbodies are targeted for TMDL development in the next two years.

Table 3. Waterbodies de-listed from 1996 Section 303(d) TMDL list.

Waterbody Name	Waterbody Description	Rationale for De-listing
Lake Darling	A 9458.4 acre reservoir located on the Souris River	This waterbody was previously listed as water quality limited based on best Professional judgement and the effects of the drought which occurred between 1988 and 1993.
Des Lacs River	Des Lacs River from Lower Des Lacs Lake downstream to its confluence with the Souris River	This waterbody was previously listed as water quality limited based on best professional judgement. Current water quality data assess recreation use as fully supporting. There are no credible data or information to suggest that this segment is, or will become aquatic life use impaired in the next two years.
Lake Metigoshe	A 1618.7 acre lake located in the Turtle Mts. north of Bottineau, ND	This waterbody was previously listed as water quality limited based on data collected between 1980 and 1985. Current water quality data collected as part of the Department's Lake Water Quality Assessment Project and by lake monitoring volunteers suggest it is fully supporting recreation and aquatic life uses.
Gravel Lake	A 97.5 acre lake located in the Turtle Mts. near Belcourt, ND	This waterbody was previously listed as water quality limited based on best professional judgement. Current water quality data collected as part of the Department's Lake Water Quality Assessment Project it is fully supporting recreation and aquatic life uses. These uses may be threatened, however there are no data or information to suggest these waterbody will become water quality limited in the next two years.
Deep River	Deep River from its confluence with Little Deep Creek downstream to its confluence with the Souris River	The previous listing was based on aquatic life use being fully supporting, but threatened. This assessment was based on best professional judgement. There are no credible data or information to suggest that this segment is, or will become aquatic life use impaired in the next two years.
Red River of the North	Red River from its confluence with Whiskey Creek downstream to the 12th Ave bridge in Fargo, ND	This river reach was previously listed based on data extrapolated from an upstream site located at Brushville, ND. The Department has concluded that it is inappropriate to apply data collected at the Brushville site that far downstream.
Goose River	Goose River from its confluence with the South Branch Goose River downstream to its confluence with the Red River	The previous TMDL listing was for the Goose River from Beaver Creek to the Red River. Current biological monitoring data only supports listing the reach from Beaver Creek to the South Branch Goose River. There are no data to support listing this reach as water quality limited.
Red River of the North	Red River from its confluence with English Coulee downstream to its the North Dakota - Manitoba, Canada border	The previous listing was based on both aquatic life and recreation use being fully supporting, but threatened. This assessment was based on best professional judgement and limited water quality data. Current monitoring data support recreation use as fully supporting. Monitoring data also support an aquatic life use assessment of fully supporting, but threatened. There are no credible data or information to suggest that this segment is, or will become, aquatic life use impaired in the next two years.
Pembina River	Pembina River from its confluence with the Little South Pembina River downstream to Neche, ND	The previous TMDL listing was for the Pembina River from the Little South Pembina River to the Red River. Current biological monitoring data only supports listing the reach from Neche, ND to the Red River. Current biological and chemical support an assessment of this reach as fully supporting, but threatened. Current data do not suggest that this reach will become water quality limited in the next two years.

Table 3 (con't). Waterbodies de-listed from 1996 Section 303(d) TMDL list.

Waterbody Name	Waterbody Description	Rationale for De-listing
Little Missouri River	Little Missouri River from its confluence with Little Beaver Creek downstream to its confluence with Deep Creek	This river reach was previously listed based on data extrapolated from a downstream site located at Medora, ND. The Department has concluded that it is inappropriate to apply data collected at the Medora site that far upstream.
Little Missouri River	Little Missouri River from its confluence with Government Creek downstream to its confluence with Beaver Creek	This river reach was previously listed based on data extrapolated from a upstream site located at Medora, ND. The Department has concluded that it is inappropriate to apply data collected at the Medora site that far downstream.
Beaver Creek watershed	Beaver Creek upstream from its confluence with the Little Missouri River, including tributaries	The previous listing was based on both aquatic life and recreation use being fully supporting, but threatened. This assessment was based on best professional judgement and limited water quality data. Current monitoring data and Information obtained from the local SCD also support an aquatic life and Recreation use assessment of fully supporting, but threatened. However, data or information do not suggest that this segment is, or will become, aquatic life use impaired in the next two years.
Antelope Creek watershed	Antelope Creek upstream from its confluence with the Knife River, including tributaries	A TMDL was completed and submitted to EPA as a Section 319 Nonpoint Source Pollution Program Project Implementation Plan (PIP)
Green River watershed	Green River upstream from its confluence with the Heart River, including tributaries	The previous listing was based on aquatic life and recreation use being fully supporting, but threatened. This assessment was based on best professional judgement and limited water quality data. There are no credible data or information to suggest that this segment is, or will become aquatic life or recreation use impaired in the next two years.
Heart River	Heart River from Lake Tschida downstream to its confluence to with Fish Creek	This river reach was previously listed based on data extrapolated from a downstream site located at Mandan, ND. The Department has concluded that it is inappropriate to apply data collected at the Mandan site that far upstream.
Mirror Lake	Mirror Lake near Hettinger, ND	A TMDL was completed and submitted to EPA as a Section 319 Nonpoint Source Pollution Program Project Implementation Plan (PIP)
Flat Creek watershed	Flat Creek upstream from Mirror Lake, including tributaries	A TMDL was completed and submitted to to EPA as a Section 319 Nonpoint Source Pollution Program Project Implementation Plan (PIP)

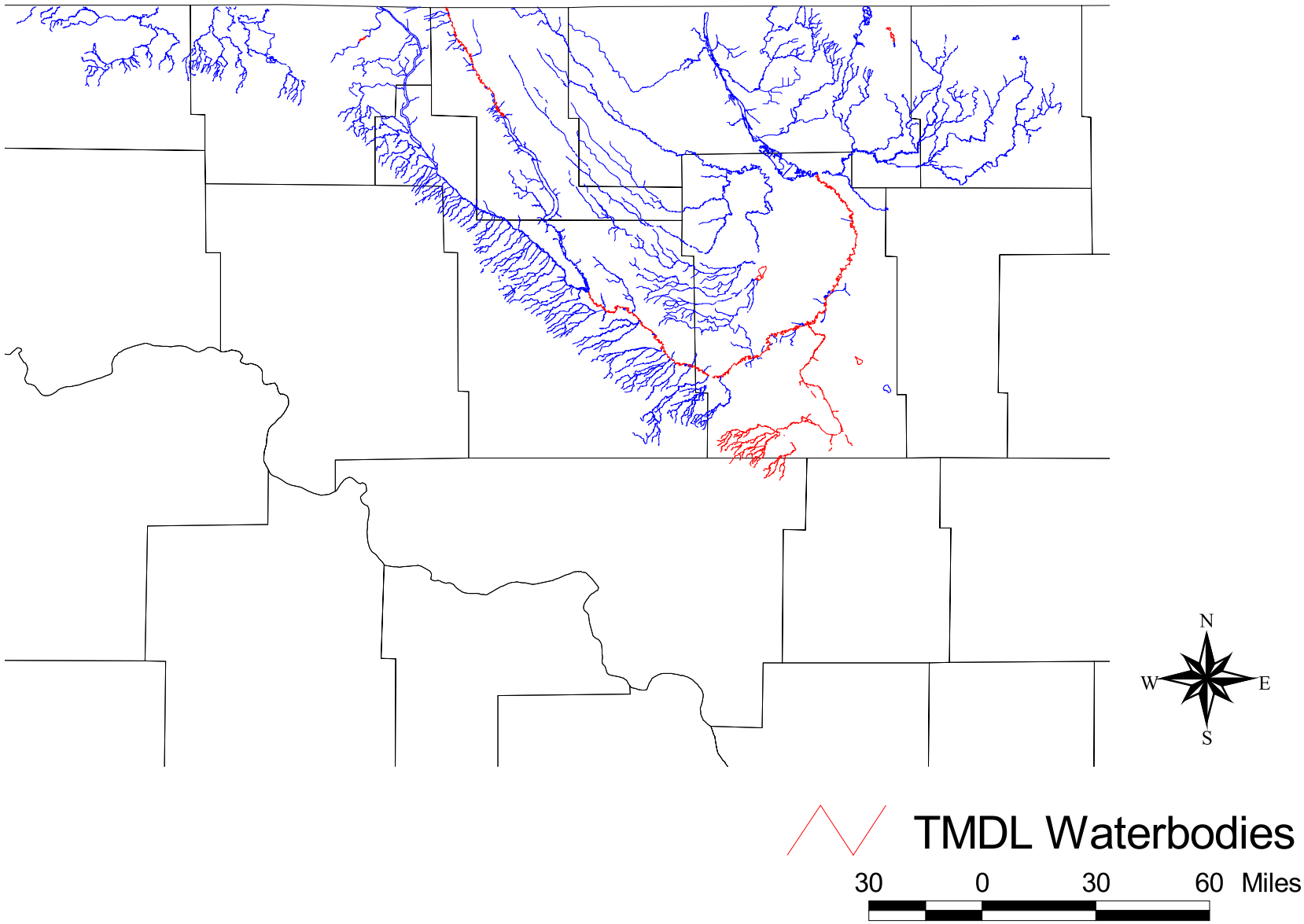

Figure 1. 1998 Section 303(d) TMDL waterbodies for the Souris River Basin.

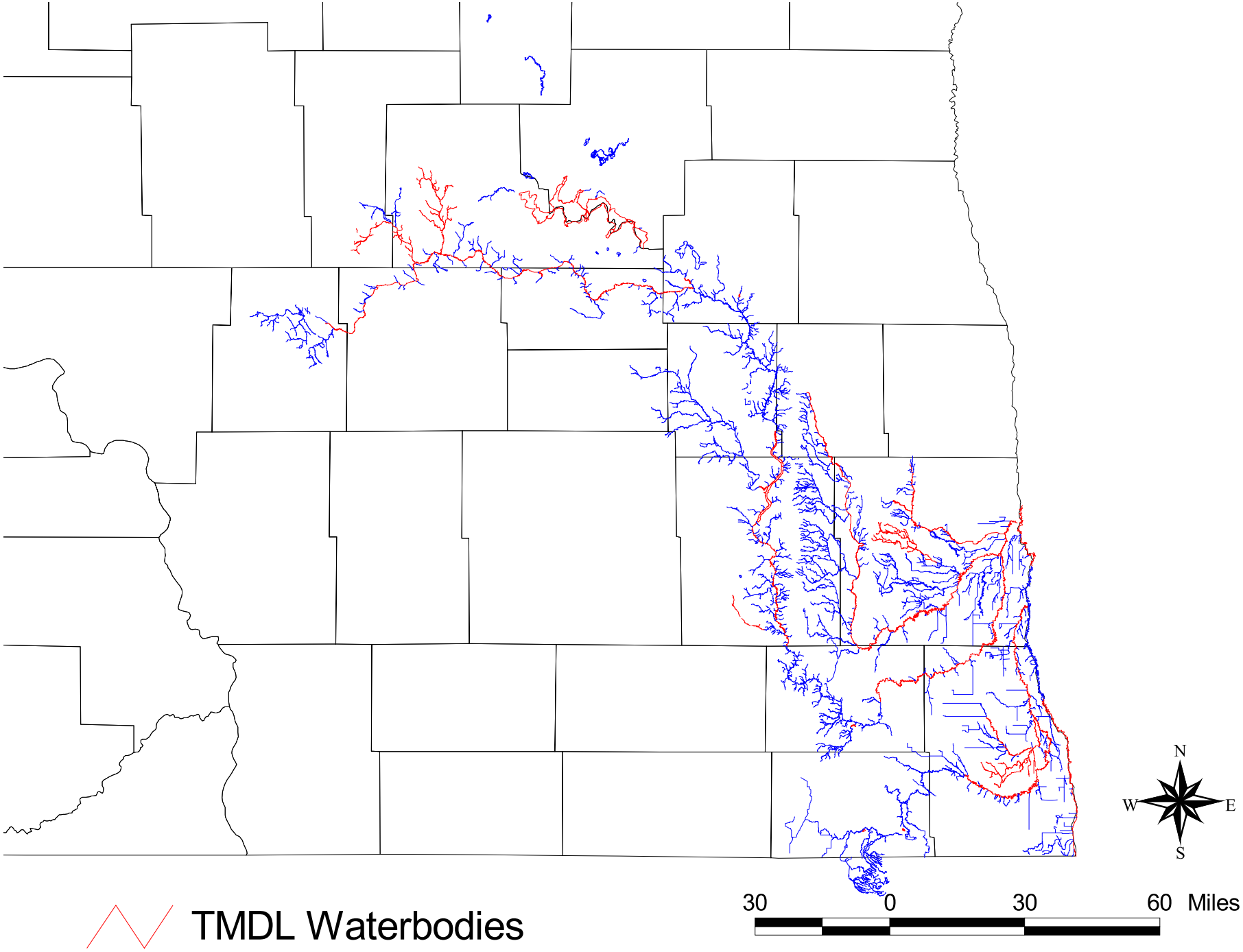

Figure 2. 1998 Section 303(d) TMDL waterbodies for the Upper Red River Basin.

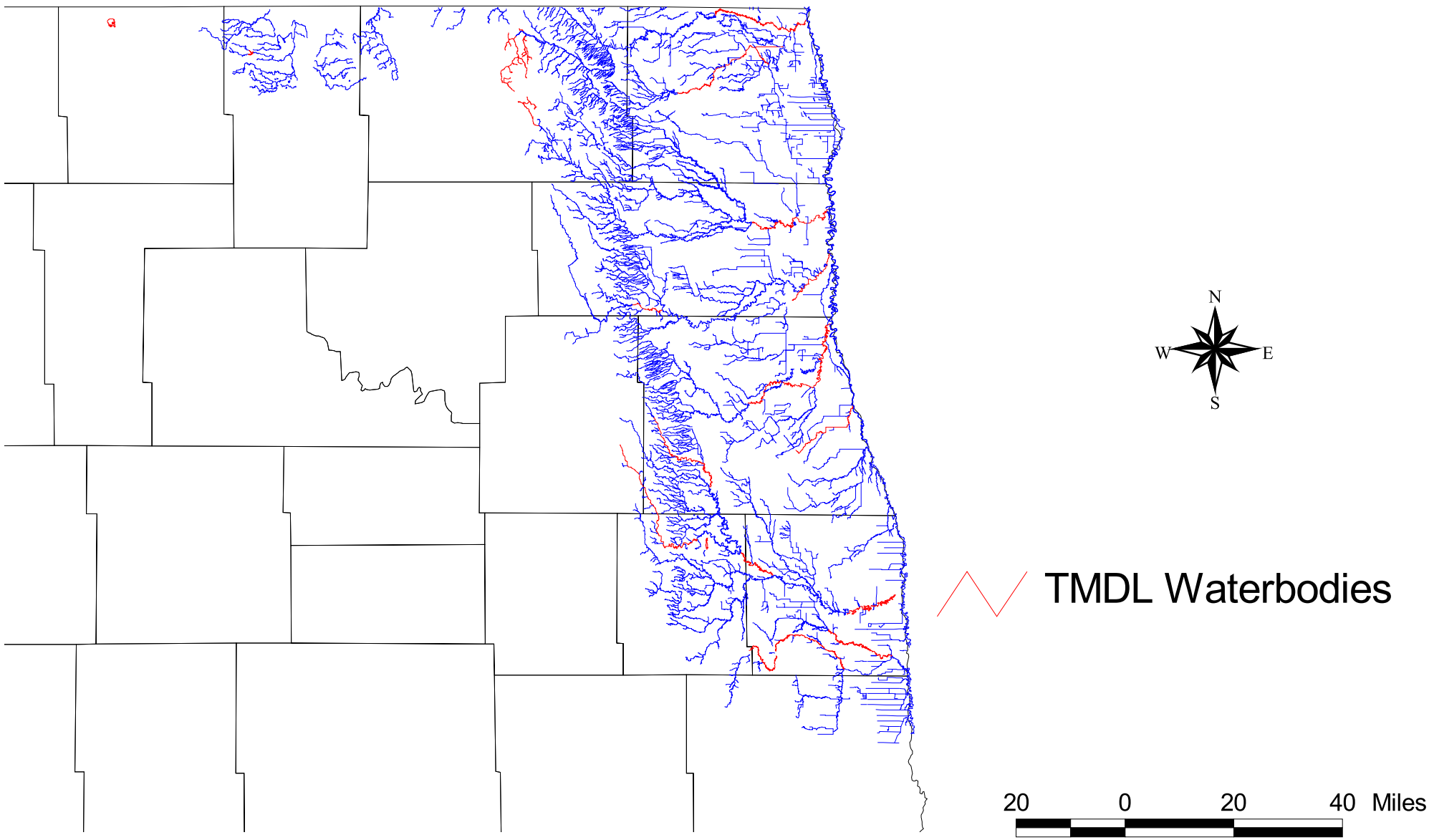

Figure 3. 1998 Section 303(d) TMDL waterbodies for the Lower Red River Basin.

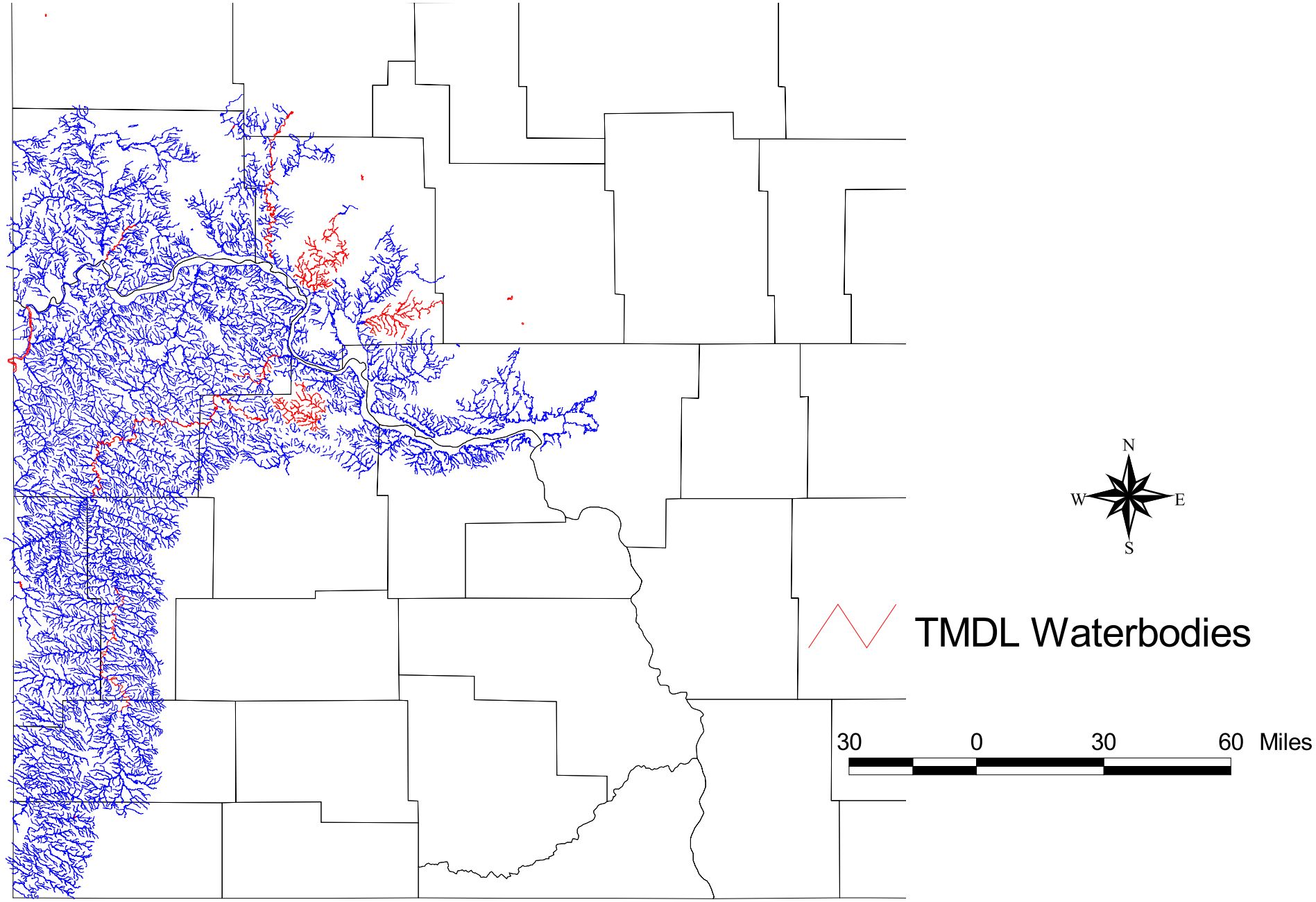

Figure 4. 1998 Section 303(d) TMDL waterbodies for the Upper Missouri River Basin.

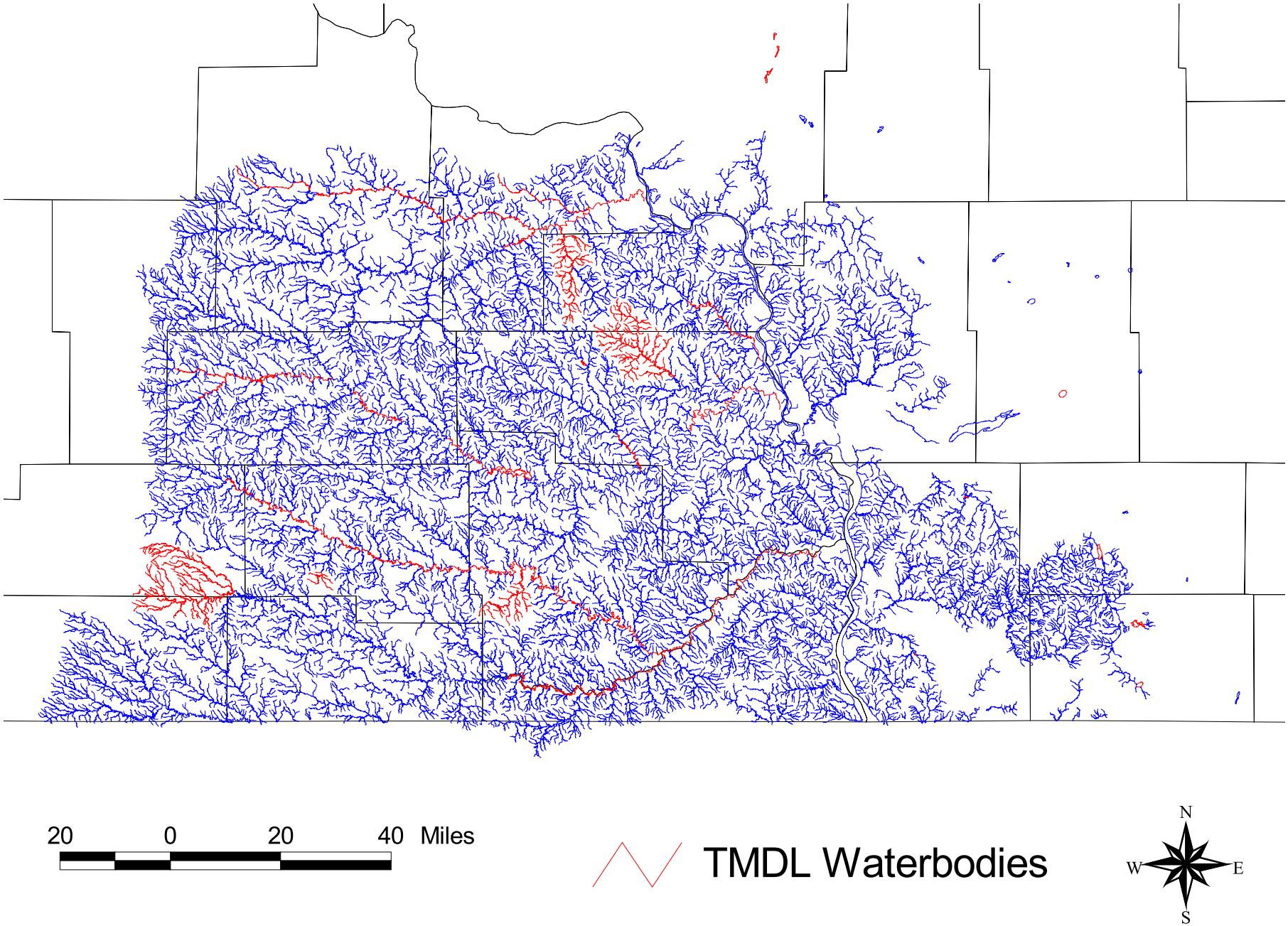

Figure 5. 1998 Section 303(d) TMDL waterbodies for the Lower Missouri River Basin.

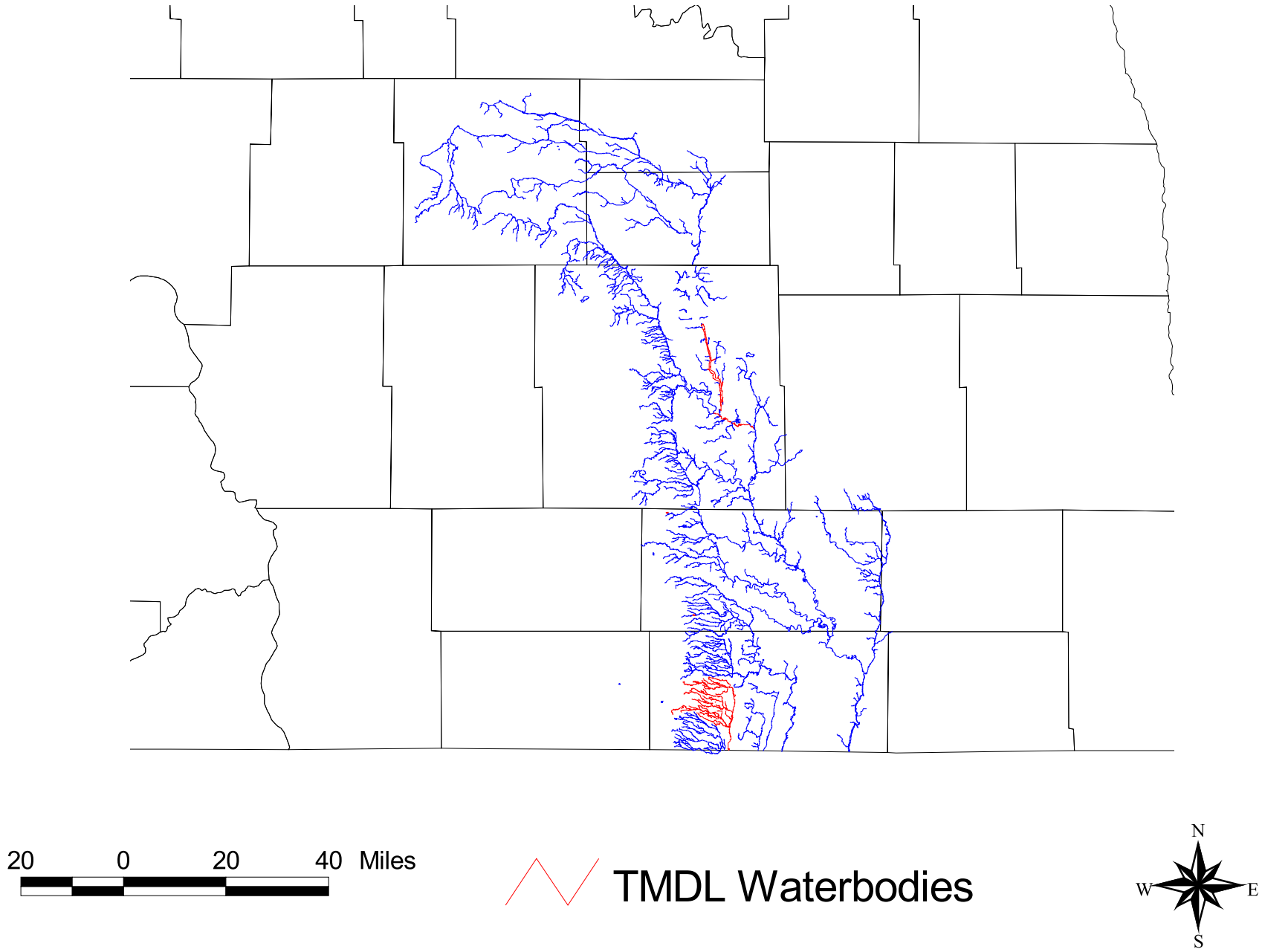

Figure 6. 1998 Section 303(d) TMDL waterbodies for the James River Basin.