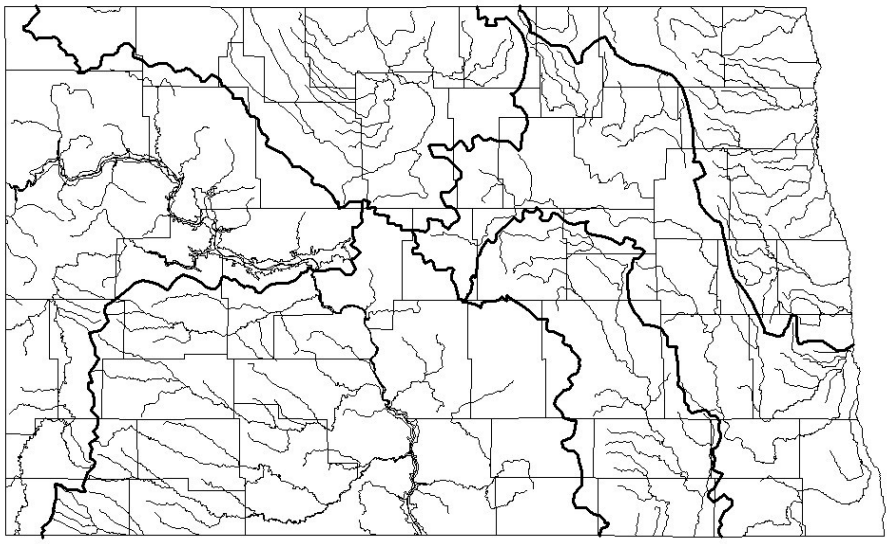
North Dakota
2002 Section 303(d) List of Waters Needing Total Maximum Daily Loads



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2002 Section 303(d) List of Waters Needing Total Maximum Daily Loads

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1.0 Background

Section 303(d) of the Clean Water Act (CWA) and its accompanying regulations (CFR Part 130 Section 7) requires each state to identify waterbodies (i.e., lakes, reservoirs, rivers, streams, and wetlands) which are considered water quality limited and require load allocations, waste load allocations, and 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 supported or 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. Even 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 pollutant (e.g., copper or phosphorus) is unknown a general cause category (e.g., metals or nutrients) should be included with the waterbody listing.

Section 303(d) of the CWA and accompanying EPA regulations and policy only require impaired and threatened waterbodies to be listed, and TMDLs developed, when the source of impairment is a pollutant. Pollution, by federal and state definition, is "any man-made or man induced alteration of the chemical, physical, biological, and radiological integrity of water." Based on the definition of a pollutant provided in Section 502(6) of the CWA and in 40 CFR 130.2(d) pollutants would include temperature, ammonia, chlorine, organic compounds, pesticides, trace elements, nutrients, BOD, sediment, and pathogens. Waterbodies impaired by habitat and flow alteration and the introduction of exotic species alone would not be included in the Section 303(d) TMDL list as these impairment categories would be considered pollution and not pollutants. In other words all pollutants are pollution, but not all pollution is a pollutant.

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 its 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.

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." The state of North Dakota last submitted its TMDL list to EPA in April 1998. Due to changes in federal regulations affecting TMDLs which were promulgated in July 2000 and the subsequent repeal of those regulations in August 2001, the state of North Dakota has not updated its Section 303(d) TMDL list since that time. Therefore this Section 303(d) list includes a list of waterbodies not meeting water quality standards, which need TMDLs and a list of waterbodies which have been removed from the list submitted in 1998. Reasons for removing a waterbody from the 1998 list include: 1) a TMDL has been completed for the waterbody and approved by EPA; 2) current data and/or information suggests the waterbody is now meeting water quality standards; 3) data and/or information used to list the waterbody as water quality limited has been determined to be insufficient and/or of poor quality data or the assessment was made based on best professional judgement; 4) the cause of the impairment was related to an impairment for which there is not clearly defined or scientifically defensible chemical criteria (e.g., nutrients); or 5) the water quality impairment is not due to a pollutant.

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 2002 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 comment, the state must submit its list to the EPA Regional Administrator. The EPA Regional Administrator then has 30 days to either approve or disapprove the state listings. 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.

2.0 Assessment 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 1998 TMDL list.

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 credible water quality data and/or information.

When compiling data and information used to develop its list, EPA requires states to consider "all existing and readily available water quality related data and information." The primary

source of information by which the state compiles its Section 303(d) list is the state 2002 Section 305(b) water quality assessment. Waterbodies identified in the Section 305(b) water quality assessment as not supporting beneficial uses or waterbodies which are currently fully supporting beneficial, but are not expected to be supporting one or more beneficial uses within the next two years (termed fully supporting, but threatened) due to a pollutant or pollutants are included in the Section 303(d) list as waterbodies needing a TMDL. Other sources of data or information which are considered in compiling the TMDL list include, waterbodies for which dilution calculations or predictive models indicate exceedences of applicable narrative or numeric water quality standards, and waterbodies for which water quality problems or potential problems have been reported by local, state, or federal agencies; members of the public; or academic institutions.

2.1 Assessment Database (ADB)

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 by specific lake, reservoir, wetland, river reach, or sub-watershed for the Section 305(b) report, is integrated as beneficial use assessments which are entered into a water quality assessment "accounting"/database management system developed by EPA. This system, which provides a standard format for water quality assessment information is termed the Assessment Database (ADB).

North Dakota's ADB contains 1,687 discreet assessment units representing 54,427 miles of rivers and streams and 223 lakes and reservoirs. Within the ADB, designated uses are defined for each assessment unit (i.e., river or stream reach, lake, reservoir, or wetland) based on the state's water quality standards. Each use is then assessed based on available chemical, physical, and/or biological data. The following provides a detailed description of the ADB and the state water quality assessment methodology.

With an estimated 54,427 miles of rivers and streams and 714,910 acres of lakes, it is impractical to adequately assess each and every mile of stream or every acre of lake. However, the department believes it is important to accurately assess those waters for which beneficial use assessment information is available and to account for those stream miles and lake acres that are not assessed. As a result, the department has adopted the "Assessment Database" (ADB) to manage water quality assessment information for the state's rivers, streams, lakes, and reservoirs.

The ADB is an Oracle® based "accounting"/database management system developed by EPA, which provides a standard format for water quality assessment information. It includes a software program for adding and editing assessment data and transferring assessment data between the personal computer and EPA. Assessment data, as compared to raw monitoring data, describes the overall health or condition of the waterbody by describing beneficial use impairment and, for those waterbodies where beneficial uses are impaired or threatened, the causes and sources of pollution affecting the beneficial use.

To create the state's ADB, the state's 54,427 miles of rivers and streams and 223 lakes and reservoirs have been delineated into 1,687 discreet assessment units (AUs). An AU can be an individual lake or reservoir, a specific river or stream reach, or a collection of stream reaches in a sub-watershed. North Dakota's ADB is currently represented by 1,464 river and stream AUs and 223 lake and reservoir AUs. Each of these AUs are then assessed individually, based on the availability of sufficient and credible data. In order to delineate and define AUs used in the ADB, the department followed a general set of guidelines:

1. Each AU is within the eight-digit USGS hydrologic unit.

2. Each river and stream AU was comprised of stream reaches of the same water quality standards classification (I, IA, II, or III).

3. To the extent practical, each AU is within a contiguous level IV ecoregion.

4. Mainstem perennial rivers were delineated as separate AUs. Where these rivers join with another major river or stream within the eight-digit hydrologic unit, the river was further delineated into two or more AUs.

5. Tributary rivers and streams, which are named on USGS 1:100,000 scale planimetric maps, were delineated as separate AUs. These AUs may have been further delineated, based on stream order or water quality standards classification.

6. Unnamed ephemeral tributaries to a delineated AU were consolidated into one unique AU. This was done primarily for accounting purposes, so that all tributary stream reaches identified in the National Hydrography Dataset (NHD) are included in the ADB.

7. Stream reaches, which were identified in the NHD and on USGS 1:24,000 scale maps and which did not form either an indirect or direct hydrologic connection with a perennial stream, were not included in the ADB. This would include small drainages which originate and flow into closed basin lakes or wetlands. (Note: This delineation criteria does not apply to tributaries to Devils Lake.)

The ADB provides an efficient accounting and data management system. It also allows for the graphical presentation of water quality assessment information by linking assessments contained in the ADB to the National Hydrography Dataset (NHD) file through geographic information systems (GIS). In order to facilitate the GIS datalink, the department has "reach-indexed" each AUs in the ADB to the NHD file. The product of this process is a GIS coverage which can be used to graphically display water quality assessment data entered in the ADB. An example can be seen in Figure 1 which depicts each of the reach-indexed AUs delineated in the Souris River Basin.

Assessments completed and entered into the ADB 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.

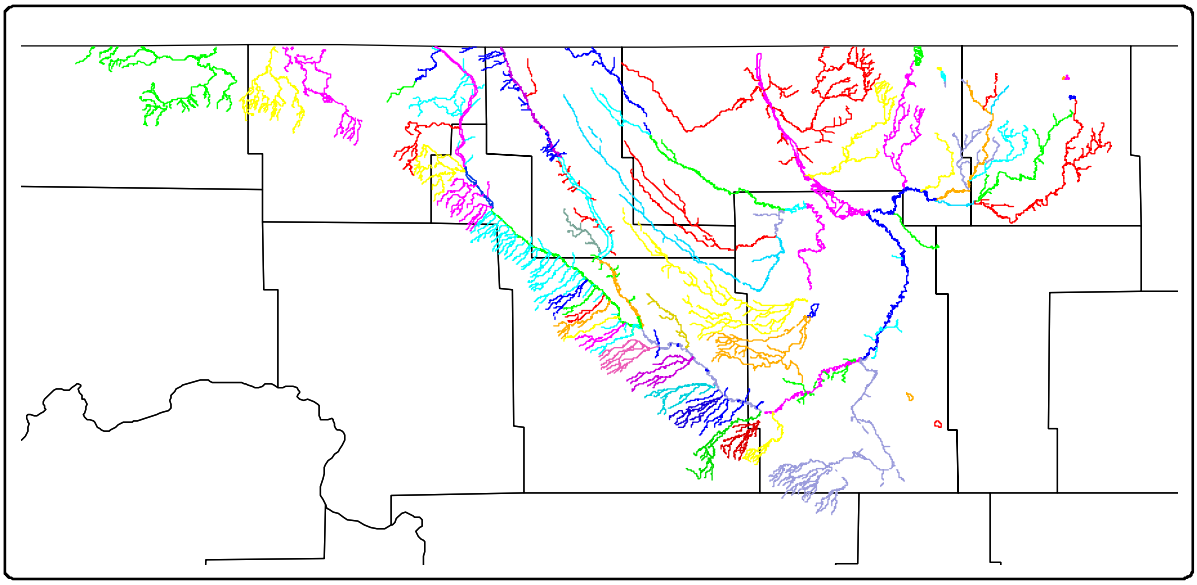

Figure 3. Map of Reach-Indexed Assessment Units Delineated in the Souris River Basin.

2.2 Beneficial Use Designation

As stated previously, Section 303(d) of the CWA requires states to identify waterbodies which are not meeting water quality standards and to develop TMDLs for those waters. This is accomplished by assessing whether the waterbody or AU is supporting its designated beneficial uses. Beneficial uses are not arbitrarily assigned to AUs, but rather, are assigned based on *State Water Quality Standards.* These regulations define the protected beneficial uses of the state's rivers, streams, lakes, and reservoirs.

Four beneficial uses (aquatic life, recreation, drinking water, and fish consumption) were assessed for purposes of section 303(d) listing. All waterbodies or AUs entered into the ADB and, therefore, all stream classes (I, IA, II, and III) and all lake classes (1-5) are assigned aquatic life and recreation beneficial uses. All Class I, IA, and II rivers and streams and all lakes are assigned the drinking water beneficial use.

While not specifically identified in state standards, fish consumption is protected through both narrative and numeric human health criteria specified in the *State Water Quality Standards*. Fish consumption, has been assigned to all Class I, IA, and II rivers and streams, to those Class III streams known to provide a sport fishery, and to all Class 1 through 4 lakes. The state's statewide fish consumption advisory applies to all waters known to provide a sport fishery.

Other beneficial uses identified in the *State Water Quality Standards* are agriculture (e.g., stock

watering, irrigation), and industrial (e.g., washing, cooling). These uses were not assessed for either the Section 305(b) water quality assessment report or the Section 303(d) TMDL list.

2.3 Sufficient and Credible Data Requirements

For purposes of Section 303(d) assessment and listing, the Department will use only what it considers to be sufficient and credible data. Sufficient and credible data are chemical, physical and biological data that, at a minimum, meet the following criteria:

- Data collection and analysis followed known and documented Quality Assurance/Quality Control procedures.
- Water column chemical data were 5 years old or less for rivers and streams and 10 years or less for lakes, unless there was adequate justification to use older data (e.g., land use or climatic conditions have not changed). Fish tissue methyl-mercury data are 5 years old or less.
- There are a minimum of 10 fish tissue samples per species per lake, reservoir, or river representing the range in sizes classes present in the waterbody.
- There are a minimum of 10 chemical samples or one biological (fish or macroinvertebrate) sample collected in the five year period. In the case of chemical samples, the 10 samples may consist of 2 samples collected in each of the five years or 10 samples all collected in one year. **Note: In some cases there may be overwhelming evidence to list a waterbody as impaired even though there may less than 10 samples collected within a five year period. For example, if only four or five chemical samples were collected within a five year period and all of them exceeded the water quality standard, then the water body would be listed as impaired based on this "overwhelming evidence."**

2.3.1 River and Stream Data

In response to this growing need for better water quality assessment information, the department initiated a biological monitoring program in 1993 and 1994. This program, a cooperative effort with the Minnesota Pollution Control Agency and the USGS's Red River National Water Quality Assessment Program, involved approximately 100 sites in the Red River Basin. The result of this initial program was development of the Index of Biotic Integrity (IBI) for fish in the Red River Basin. The program continued in the Red River Basin in 1995 and 1996. In 1997, biological monitoring was conducted in the Souris River Basin in 1997, the James River Basin in 1998, the Lake Sakakawea subbasin of the Missouri River Basin in 1999, and the Lake Oahe subbasin of the Missouri River Basin in 2000. The Upper Red River Basin, including the Sheyenne River and its tributaries, was sampled in 1995, while the Lower Red River Basin was sampled in 1996. Beginning in 1995, biological monitoring was expanded to include macroinvertebrate sampling. For purposes of the 2002 Section 305(b) report and Section 303(d) listing, only fish community data collected in the Red River Basin were used for assessing aquatic life use. The Department is currently in the process of developing multimetric macroinvertebrate and fish IBIs for the state's remaining basins.

At the same time the department was increasing its commitment to biological monitoring, it reduced the number of ambient chemical monitoring sites. Since 1994, the department has operated a network of 26 to 27 ambient monitoring sites. Where practical, sites are co-located with USGS flow gauging stations, thereby facilitating the analysis of chemical data with stream hydrologic data. All of these sites are established as basin or subbasin integrator sites, where the chemical characteristic measured at each of these sites reflects water quality effects in the entire watershed. It is the department's intention to maintain these as long-term monitoring sites for the purpose of assessing water quality trends and to describe the general chemical character of the state's major river basins.

In 1997, the Health Department began full implementation of its intensive survey approach to chemical monitoring and assessment. The approach complements the ambient water quality monitoring network maintained by the department and other program monitoring activities (e.g., lake water quality assessments, NPS pollution monitoring and assessment, point source compliance monitoring). The approach integrates chemical monitoring at targeted sites with biological monitoring at sites throughout the basin. The Souris River Basin, James River Basin, and the upper Missouri River Basin were sampled in 1997, 1998, and 1999, respectively.

The department also uses data collected by the USGS. The USGS maintains and operates several water quality monitoring sites which provide data used by the department for assessment purposes. Many of these sites are maintained by the USGS through cooperative agreements with other agencies (e.g., SWC, U. S. Bureau of Reclamation, COE), through international agreements (e.g., the Souris River Bilateral Agreement), or with the department itself.

An example of one such project is a cooperative study in the upper Red River Basin. This study, which was initiated in 1997 and concluded in September 1999, was a cooperative study between the USGS, the Minnesota Pollution Control Agency, and the Health Department. Objectives of the study were to determine loading contributions from different subbasins of the Upper Red River Basin and to evaluate the effects of constituent concentrations and loads on the aquatic community of the Red River. Physical, chemical, and sediment data were collected from 11 sites on the Red River and its tributaries in 1997 and from eight sites in 1998 and 1999.

In addition to the 27-station ambient chemical monitoring network and the intensive basin survey program, the Health Department cooperates with local project sponsors (e.g., SCDs and WRDs) in small watershed monitoring and assessment projects. The approach of these monitoring and assessment projects is similar to the highly successful Clean Lakes - Phase I Diagnostic/Feasibility Studies. These projects entail intensive water quality monitoring, stream flow measurements, land use assessments, and biological assessments. Where lake water quality is a concern, lake monitoring is also included in the sampling and analysis plan. The goal of these small watershed monitoring projects is to estimate pollutant loadings to the lake or stream and, where appropriate, set target load reductions necessary to improve beneficial uses (e.g., aquatic life, recreation). Most of these projects are followed by Section 319 NPS Pollution Management Program Watershed Implementation Projects. Water quality data collected through these cooperative efforts are also used in assessment of waterbodies for the Section 305(b) report and the TMDL list.

2.3.2 Lake and Reservoir Data

In 1991, through a grant from the EPA Clean Lakes Program, the Health Department initiated the Lake Water Quality Assessment (LWQA) Project. Since that time, the Department has completed sampling and analysis for 111 lakes and reservoirs in the state. The objective of the assessment project is to describe the general physical and chemical condition of the state's lakes and reservoirs.

The lakes and reservoirs targeted for assessment were chosen in conjunction with the North Dakota Game and Fish Department. Criteria used during the selection process were geographic distribution, local and regional significance, fishing and recreational potential, and relative trophic condition. Lakes without much historical monitoring information were given the highest priority.

The results from the LWQA Project have been prepared in a functional atlas-type format. Each lake report discusses the general description of the waterbody, general water quality characteristics, plant and phytoplankton diversity, trophic status estimates, and watershed condition.

One of the most useful measures of lake water quality is trophic condition. Trophic condition is a means of expressing a lake's productivity as compared to other lakes in a district or geographical area. In general, oligotrophic lakes are deep, clear lakes with low primary production, while eutrophic lakes are shallow and contain macrophytes and/or algae. Eutrophic lakes are considered moderately to highly productive.

The trophic condition or status is assessed for each of the lakes and reservoirs included in the LWQA. Accurate trophic status assessments are essential for making sound preservation or improvement recommendations. In order to minimize errors in classification, a multiple indicator approach was initiated.

Since trophic status indices specific to North Dakota waters have not been developed, Carlson's TSI was chosen to delineate the trophic status of an LWQA Project lake or reservoir. To create a numerical TSI value, Carlson's TSI (Carlson, 1977) uses a mathematical relationship based on three indicators: secchi disk transparency in meters, surface total phosphorus in $\mu g\ L^{-1}$, and chlorophyll-a in $\mu g\ L^{-1}$.

This numerical value then corresponds to a trophic condition ranging from 0 to 100, with increasing values indicating a more eutrophic condition. Carlson's TSI estimates are calculated using the following equations:

Trophic status based on secchi disk (TSIS):
TSIS = 60 - 14.41 ln (SD)
Where SD = Secchi disk transparency in meters.

Trophic status based on total phosphorus (TSIP):
TSIP = 14.20 ln (TP) + 4.15
Where TP = Total phosphorus concentration in μg L^{-1}.

Trophic status based on chlorophyll-a (TSIC):
TSIC = 9.81 ln (TC) + 30.60
Where TC = Chlorophyll-a concentrations in µg L^{-1}.

Trophic status using Carlson's TSI is also depicted graphically in Figure 2. A major drawback to using Carlson's TSI is that it was developed for lakes that are primarily phosphorus limited. Because most North Dakota lakes and reservoirs have an abundance of phosphorus, ancillary information (e.g., DO concentrations, frequency of nuisance algal blooms, phytoplankton community structure, and macrophyte biomass) was combined with Carlson's numerical TSI to prevent misclassification. Due to variations in geological and ecological regions and lake type (manmade, natural), numerical trophic status assessments are not assigned to waterbodies during the LWQA Project. Instead, the general trophic condition of the waterbody (e.g., mesotrophic, eutrophic, hypereutrophic) is identified.

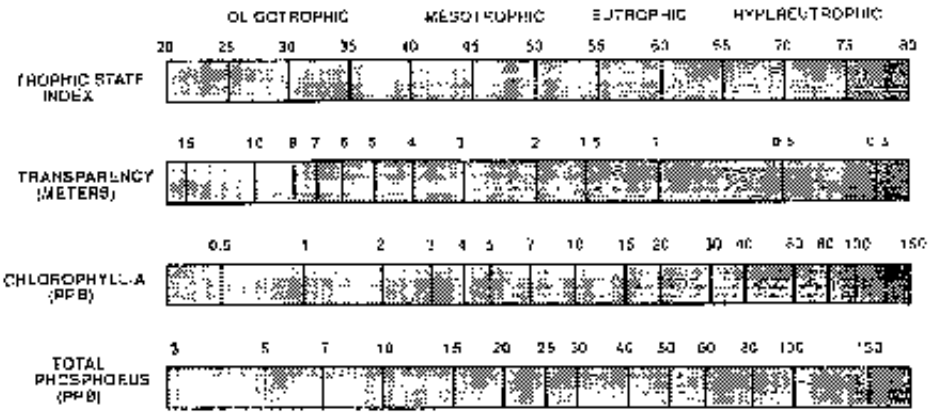

Figure 2. A Graphic Representation of Carlson's TSI.

In addition to the chemical monitoring and analysis, a land use assessment is completed for each lake assessment. Each lake's watershed is assessed to identify the major sources of point and NPS pollution. Land use and land use practices are inventoried by interviewing local NRCS field office staff and state NRCS personnel. This inventory was verified in the field in the late fall. An aerial watershed survey was also performed on approximately one-third of all lakes assessed.

Point source assessments were accomplished for each watershed with the assistance of the department's NDPDES Permit Program staff. All contributing point sources were identified, and an estimate was made of the probable nutrient and organic loading to each lake or reservoir and its impact.

Beginning in 1997, LWQA Project activities were integrated into the department's rotating basin monitoring strategy. Lake Darling and the Upper Des Lacs Reservoir were sampled as the department focused its monitoring activities in the Souris River Basin in 1997, Pipestem Dam and Jamestown Reservoir were sampled in 1998, Lake Sakakawea in 1999, and Bowman-Haley Reservoir, Patterson Lake, and Lake Tschida in 2000.

In addition to its inclusion in the annual LWQA Project, Devils Lake has received special attention. Devils Lake has increased in elevation 20 feet since 1993. In response to questions regarding water quality changes resulting from these water level increases, the department initiated a comprehensive water quality monitoring program in 1993 for Devils Lake. Devils Lake is sampled approximately five times per year, including once during the winter.

2.3.3 Fish Tissue Data

The Department has maintained an active fish tissue monitoring and contaminant surveillance program since 1990. As part of this program, individual fish tissue samples are collected from the state's major lakes, reservoirs, and rivers and analyzed for methyl-mercury. These data are then used to issue annual species specific fish advisories for the state's rivers, lakes, and reservoirs. Three rivers and 15 lakes and reservoirs met the "sufficient credible data" requirements described in section 2.3.

2.4 River and Stream Assessment Methodology

The following is a description of the assessment methodology or decision criteria used to assess aquatic life, recreation, and drinking water uses where they are assigned to rivers and streams in the state. The methodology used to assess the fish consumption use for both rivers and lakes is provided in section 2.6.

In general, water quality assessments entered into the ADB for Section 305(b) reporting fall into two categories, evaluated and monitored. "Evaluated" assessments are those for which the use support decision was based on information other than site-specific chemical, physical, or biological monitoring data. Evaluated assessment information includes land use information, known locations of pollutant sources, spill or fish kill incidents, water quality data and/or information provided by local residents or resource managers (e.g., SCDs,WRDs, ND Game and Fish Department) for which there is no known QA/QC, and water quality monitoring data over

five years old for rivers and streams and 10 years for lakes. Assessments which are extrapolated from data or assessments from adjacent AUs are also considered evaluated.

Water quality assessments defined as "monitored" are based on fixed station physical and chemical monitoring data and biological data which meet the criteria for sufficient and credible data. Only assessments based on monitoring data were used for Section 303(d) TMDL listing. Physical and chemical monitoring data used for Section 303(d) TMDL listing decisions came from two primary data sources: the USGS and the Health Department. Physical and chemical monitoring data used for these assessments included conventional pollutants (e.g., DO, pH, temperature, ammonia, fecal coliform bacteria) and toxic pollutants (e.g., trace elements and pesticides) data collected between 1997 and 2001. Biological monitoring data used for this report included fish community data collected by the department from the Red River Basin between 1993 and 1996. If more than one site occurred within a delineated AU, data from all sites and for all years was pooled for analysis.

As stated previously, use impairment for the state's rivers and streams was assessed for aquatic life, recreation, and drinking water. The following is the beneficial use decision criteria utilized for these assessments.

2.4.1 Aquatic Life

Aquatic life use, or biological integrity, can be defined as "the ability of an aquatic ecosystem to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitats of the region." (Karr, 1981) When aquatic life is similar to that of natural habitats in the region, it is assessed as "fully supporting." When it is not similar, it is assessed as either "fully supporting but threatened," or "not supporting," depending upon the degree of impairment. Where assessment information or data were not available, aquatic life use was considered "not assessed." Where chemical data were available, aquatic life use support assessment decisions were made using the following decision criteria.

In general, aquatic life use determinations utilizing chemical data were based on the number of exceedances of *State Water Quality Standards* for dissolved oxygen (DO), pH, and temperature and on the number of exceedances of the acute or chronic standards for ammonia, arsenic, cadmium, copper, cyanide, lead, nickel, selenium, silver, zinc, and chromium. Where available, dissolved metals data were used to make use support decisions. Where total recoverable metals data were available, the total recoverable value was converted to a dissolved metals value using the recommended conversion factors provided in Table 1.

> Fully Supporting: For conventional pollutants, the standards of 5 milligrams per liter (mg/L) (minimum) for DO, 7.0 to 9.0 (Class I and IA streams and all lakes) and 6.0 to 9.0 (Class II and III streams) for pH, and 29.4 °C (85 °F) (maximum) for temperature were exceeded in less than 10 percent of the samples collected in the AU. For ammonia and other toxic pollutants (e.g., trace elements and organics), the acute or chronic standard was not violated at any time between 1997 and 2001.

Fully Supporting, but Threatened: For DO, pH, and temperature, one or more standards were exceeded in 11 to 25 percent of the measurements taken between 1997 and 2001. For ammonia and other toxic pollutants, the acute or chronic standard was exceeded one or more times, but in less than 10 percent of the samples within any consecutive 3-year period between 1997 and 2001. Aquatic life use support was also assessed as fully supporting but threatened when land use, stream condition, or habitat were believed (using best professional judgement) to cause aquatic life to be not supporting within the next two years.

Not Supporting: For DO, pH, and temperature, one or more standards were exceeded in more than 25 percent of the samples collected between 1997 and 2001. Ammonia and other toxic pollutants, the acute or chronic standard was exceeded in more than 10 percent of the samples collected between 1997 and 2001.

While chemical data provides an indirect assessment of aquatic life use impairment, direct measures of the biological community are believed to be a more accurate assessment of aquatic life use or biological integrity. The department began a stream biological monitoring and assessment program in 1993. Since then, biological monitoring has been conducted throughout the entire state.

The department has adopted the "multi-metric" index approach to assess biological integrity or aquatic life use support for rivers and streams. The multi-metric index approach assumes that various measures of the biological community (e.g., species richness, species composition, trophic structure, individual health) respond to human-induced pollutant loadings or habitat alterations. Each measure of the biological community, termed a "metric," is evaluated and scored on a 1, 3, 5 point scale. Using this method, the higher the score, the better the biological condition and, presumably, the lower the pollutant or habitat impact.

For the department's fish community assessments, 12 metrics are used in the index with a total possible score of 60. While the department has conducted biological assessments throughout the state, it has only developed multimetric indices for fish in the Red River Basin. The following scoring criteria were used to assess aquatic life use impairment for the Red River Basin (Table 2). Multimetric fish IBIs are currently being developed for the Souris, James, and Missouri River basins and a macroinvertebrate IBI, stratified by ecoregion, is being developed based on data collected throughout the state.

Table 1. Recommended Factors for Converting Total Recoverable Metal Criteria to Dissolved Metal Criteria.

METAL	RECOMMENDED CONVERSION FACTORS	
	CMC[a]	CCC[a]
Arsenic (III)	1.000	1.000
Cadmium[b]		
Hardness = 50 mg/L	0.973	0.938
Hardness = 100 mg/L	0.944	0.909
Hardness = 200 mg/L	0.915	0.880
Chromium (III)	0.316	0.860[c]
Chromium (VI)	0.982	0.962
Copper	0.960	0.960
Lead[b]		
Hardness = 50 mg/L	0.892	0.892
Hardness = 100 mg/L	0.791	0.791
Hardness = 200 mg/L	0.690	0.690
Nickel	0.998	0.997
Selenium	0.922	0.922
Zinc	0.978	0.986

[a] CMC: Criterion Maximum Concentration
CCC: Criterion Continuous Concentration

[b] The recommended conversion factors (CFs) for any hardness can be calculated using the following equations:

Cadmium
CMC: CF = 1.136672 - [(In hardness) (0.041838)]
CCC: CF = 1.101672 - [(In hardness) (0.041838)]

Lead
CMC and CCC = 1.46203 - [(In hardness) (0.145712)]

where:
(In hardness) = natural logarithm of the hardness. The recommended CFs are given to three decimal places because they are intermediate values in the calculation of dissolved criteria.

[c] This CF applies only if the CCC is based on the test by Stevens and Chapman (1984). If the CCC is based on other chronic tests, it is likely that the CF should be 0.590, 0.376, or the average of these two values.

Source: Stephen, C. E., 1995

Table 2. Aquatic Life and Biological Integrity Scoring Criteria for Fish in the Red River Basin.

Biological Integrity	Aquatic Life Use	Fish IBI Score
Excellent	Fully Supporting	51-60
Good	Fully Supporting	41-50
Fair	Fully Supporting, but Threatened	31-40
Poor	Not Supporting	21-30
Very Poor	Not Supporting	12-20

2.4.2 Recreation

Recreation use includes swimming, boating, wading, or any recreational activity which relies on water. Recreation use in rivers and streams is considered fully supporting when there is little or no risk of illness through contact with the water. Recreation use determinations were made using fecal coliform data collected between 1997 and 2001. For each assessment based on fecal coliform data, the following criteria were used:

> Criterion 1: The geometric mean of the samples should not exceed 200 colony forming units (CFUs) per 100 milliliters (mL).
>
> Criterion 2: Not more than 10 percent of the samples should have a density exceeding 400 CFUs per 100 mL.

The two criteria were then applied using the following use support decision criteria:

> Fully Supporting: Both criteria 1 and 2 are met.
>
> Fully Supporting, but Threatened: Criteria 1 is met, but 2 is not.
>
> Not Supporting: Criteria 2 is not met and/or 1 is not met.

2.4.3 Drinking Water Supply

Drinking water is defined as "waters that are suitable for use as a source of water supply for drinking and culinary purposes, after treatment to a level approved by the Department." (*State Water Quality Standards*)

Drinking water use was assessed by comparing chemical concentration data to the human health standards for Class I, IA, and II rivers and streams. The human health standard for Class I, IA, and II rivers and streams considers two means of exposure: 1) ingestion of contaminated aquatic organisms and 2) ingestion of contaminated drinking water. Therefore, any waterbody with contaminant levels exceeding the human health standard would be considered not fully supporting its drinking water use designation.

In order to make beneficial use determinations for drinking water, the following decision criteria were used:

> Fully Supporting: For each human health contaminant, greater than 50 percent of the samples had concentrations lower than the water quality standard, and there are no drinking water complaints on record.
>
> Fully Supporting, but Threatened: For each contaminant, greater than 50 percent of the samples had concentrations lower than the standard; however, knowledge of taste and odor problems or increased treatment costs have been associated with pollutants.
>
> Not Supporting: For at least one contaminant, greater than 50 percent of the samples exceed the human health standard, and/or frequent taste and odor complaints are on record or drinking water supply closure is on record within the period 1997-2001.

2.5 Lake and Reservoir Assessment Methodology

The following is a description of the assessment methodology or decision criteria used to assess aquatic life, recreation, and drinking water uses for lakes and reservoirs in the state. The methodology used to assess the fish consumption use for both rivers and lakes is provided in section 2.6.

2.5.1 Aquatic Life and Recreation

Trophic status is the primary indicator used to assess beneficial uses in the state's lakes and reservoirs. Trophic status is the measure of productivity of a lake or reservoir as directly related to the level of nutrients (phosphorus and nitrogen) entering the lake or reservoir from its watershed. Highly productive lakes, termed "hypereutrophic," contain excessive phosphorus and are characterized by large growths of weeds, bluegreen algal blooms, and low DO concentrations. These lakes experience frequent fish kills and are generally characterized as having excessive rough fish populations (carp, bullhead, sucker) and poor sport fisheries. Due to the frequent algal blooms and excessive weed growth, these lakes are also undesirable for recreational uses such as swimming and boating.

Mesotrophic and eutrophic lakes, on the other hand, have lower phosphorus concentrations, low to moderate levels of aquatic plant growth, and good DO concentrations throughout the year. Mesotrophic lakes do not experience algal blooms, while eutrophic lakes may occasionally experience algal blooms of short duration, typically a few days to a week.

Due to the relationship between trophic status and the aquatic community (as reflected by the fishery), or between trophic status and the frequency of algal blooms, trophic status becomes an effective indicator of aquatic life and recreation use support in lakes and reservoirs. It assumed, for purposes of this report, that hypereutrophic lakes do not fully support a sustainable sport fishery and are limited in recreational uses; whereas mesotrophic lakes fully support both aquatic life and recreation use. Eutrophic lakes may be assessed as fully supporting, fully supporting but threatened, or not supporting their uses for aquatic life or recreation. Eutrophic lakes are further assessed based on: 1)

information provided by local water resource managers and the public, 2) the knowledge of land use in the lake's watershed, and/or 3) the relative degree of eutrophication.

For example, a eutrophic lake, which has a well-balanced sport fishery and experiences infrequent algal blooms, is assessed as fully supporting. A eutrophic lake, which experiences periodic algal blooms and limited swimming use, would be assessed as not supporting recreation use. A lake fully supporting its aquatic life and/or recreation use but which, through monitoring, has shown a decline in its trophic status, (i.e., increasing phosphorus concentrations over time), would be assessed as fully supporting but threatened.

It is recognized that this assessment procedure ignores the fact that, through natural succession, some lakes and reservoirs may display naturally high phosphorus concentrations and experience high productivity. While natural succession or eutrophication can cause high phosphorus concentrations, recent research suggests that these lakes are typically eutrophic and that lakes classified as hypereutrophic are reflecting external nutrient loading in excess of that occurring naturally.

2.5.2 Drinking Water

All lakes and reservoirs classified in *State Water Quality Standards*, with the exception of Lake George in Kidder County, are assigned the drinking water beneficial use. While most lakes and reservoirs are assigned this use, few are currently used as a drinking water supply. Lake Sakakawea, the current drinking water supply for the Southwest Water Pipeline and the cities of Garrison, Parshall, Pick City, and Riverdale, is assessed as fully supporting. All other lakes and reservoirs assigned the drinking water supply beneficial use were not assessed.

2.6 Fish Consumption Assessment Methodology for Rivers and Lakes

Fish consumption use was assessed based on EPA guidance. EPA recommends a fish tissue-based criterion of 0.3 μg methyl-mercury / gram of fish tissue to protect people from exposure to methyl-mercury. This criterion is based on national average consumption rates of fish by recreational users, adjusted for exposures due to consumption of commercial fish. To determine whether the fish tissue criterion of 0.3 μg/g has been exceeded in a lake, reservoir, or river and therefore listed in the Section 303(d) list of impaired waters needing TMDLs, the average fish tissue concentration, weighted by distribution of consumption, is determined for each species in each lake, reservoir, or lake.

The weighted average methyl-mercury concentration for each fish species in each lake or river is calculated by taking the average methyl-mercury concentration for size range of fish times the relative proportion of that size class in the creel of fisherman catching and keeping fish from that lake or river. Data to estimate the proportion of each size class in the creel of fisherman were obtained from North Dakota Game and Fish Department creel survey reports. The weighted average concentration for each species in each lake or reservoir is then calculated by summing the average concentrations for each size class. Of the 3 rivers and 15 lakes and reservoirs for which their were sufficient credible methyl-mercury data, only Devils Lake, Lake Sakakawea, the Missouri River (including Lake Oahe), and the Red River were assessed for the Section 303(d) list. Creel survey reports were not available for the other lakes and rivers. Weighted average concentrations for each waterbody are presented in Appendices A-D.

3.0 Prioritization of TMDL Listed Waters

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, including the presence of threatened or endangered species; 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.

After considering each of the six factors, the state has developed a three tiered priority ranking. Assessment units which are listed as priority 1 are those river and stream segments and lakes and reservoirs for which TMDLs are scheduled to begin in the next two years. The majority of these priority 1 AUs were identified as such based largely on their degree of public support and interest and the likelihood of implementation of the TMDL once completed. Priority 2 AUs are those river and stream segments and lakes and reservoirs which are scheduled for completion in the next 10 years.

Waterbodies for which fish consumption use is impaired due to methyl-mercury are considered priority 3. These AUs are a low priority for TMDL development in the state. TMDL development for methyl-mercury contaminated waterbodies is complicated by several factors, including: 1) uncertainty regarding the fate and transport of atmospheric sources of mercury; and 2) the complexity of the biological and geochemical interactions which affect the conversion of elemental mercury to methyl-mercury and its bioaccumulation rate in fish. Due to these complexities and the interstate and international nature of atmospheric mercury sources, it is the Department's recommendation that EPA take the lead in developing mercury TMDLs.

4.0 Public Participation Process

Public comment was solicited on the draft 2002 TMDL list through a public notice published between November 23 and 27, 2002 in eight major daily newspapers located across the state (Appendix E). Through this public notice the public was encouraged to obtain a copy of the draft TMDL list by contacting the department in writing, by phone, or by accessing the list through the Department's web site at www.health.state.nd. No public comments were received following the end of the comment period which ended on December 27, 2002.

Comment on the draft TMDL list was also requested from specific natural resource agencies and organizations in the state (e.g., Natural Resources Conservation Service, US Fish and Wildlife Service, local soil conservation districts), the state Water Pollution Advisory Board, NRCS State Technical Committee, and from EPA Region VIII. Through this process comments were only received from EPA Region VIII (Appendix F). These comments have been addressed in the final 2002 Section 303(d) TMDL list.

5.0 Listing of Impaired Waters Needing TMDLs

Tables 3, 4, 5 and 6 provide a list of surface waters in the Souris, Red, Missouri, and James River Basins, respectively, that are impaired and are in need of a TMDL. These impaired waters are also depicted graphically for the Souris River Basin (Figure 3), the Upper and Lower Red River Basins (Figures 4 and 5), the Lake Sakakawea and Lake Oahe sub-basins of the Missouri River Basin (Figures 6 and 7), and the James River Basin (Figure 8).

Included in Tables 3, 4, 5 and 6, are the Red River of the North, Devils Lake and Lake Sakakawea. These AUs are listed as impaired for fish consumption. Use impairment is due to methyl-mercury contamination.

While not specifically assessed for purposes of this report, the biotic community functions of isolated wetlands in the state are currently considered vulnerable to loss from filling and drainage and to contamination from chemical pollutants. For example, the Department considers wetlands on the Lostwood National Wildlife Refuge and Wilderness area to be particularly vulnerable to methyl-mercury contamination from near-by coal fired power plants exacerbated by the natural water level fluctuations and the burning of adjacent uplands. Assuming financial resources are available, this risk of contamination should be assessed through additional monitoring.

6.0 Delisting of 1998 Listed TMDL Waters

Tables 7, 8, 9, and 10 provide a list of lakes, reservoirs, rivers, and streams that were listed in the previous 1998 TMDL report but have been removed from this years Section 303(d) list submittal. Assessment units were removed from the TMDL list for a number of reasons. The following are the primary reasons for de-listing an AU:

- Based on most recent data, use is fully supported.
- Use impairment due to a non-pollutant (habitat).
- Lacks sufficient credible data and/or information to make a use support determination.

In most cases, when the original assessment was judged not to be representative of current water quality conditions due to a lack of sufficient credible data, one of the following usually occurred.

- The data used to conduct the assessment are now greater than 5 years old for rivers and streams and 10 years old for lakes and reservoirs and based on best professional judgement the assessment is no longer believed to be valid. This would occur if is believed that water quality has been altered due to significant changes in land use and/or due to climatic changes.
- The original assessment was based only on best professional judgement.
- The original assessment was based on data extrapolated from a monitoring station(s) located in an adjacent AU.

River and stream assessment units listed during the last cycle as threatened or impaired due to nutrients were also de-listed. These assessment units will remain off the TMDL list until scientifically defensible nutrient criteria are developed.

7.0 2002 TMDL Development Schedule and Rationale

TMDL development following the 1998 listing cycle has been hampered by a lack of dedicated TMDL resources. Including both technical and financial resources necessary to complete the state's TMDL development priorities identified in the 1998 list. This resource short fall has recently been rectified through the hiring of an additional three FTEs in the Surface Water Quality Management Program. These three additional FTEs are each located in a regional field office and are responsible for all TMDL development activities in their region (Figure 9). Regional offices are located in Dickinson, Fargo, and Towner. Technical support for TMDL development projects and overall program coordination are provided by Surface Water Quality Management Program staff located in Bismarck, ND.

In addition to the improvement in state's technical resources for TMDL development, the state's TMDL program has also seen an improvement in the financial resources available for TMDL development projects. While still significantly short of the funding necessary to meet the state's TMDL development schedule, EPA and the state of North Dakota have made available additional grants and funding to complete TMDLs. Examples of these new financial resources include the TMDL development grant available through EPA Regional VIII and state funding through the North Dakota Game and Fish Department's "Save Our Lake's" program.

The 2002 Section 303(3)(d) TMDL list for North Dakota includes 48 lakes and reservoirs totaling 517,782 acres and 132 river and stream segments totaling 4,594 miles. With the additional state TMDL program staff and with anticipated financial commitments from EPA and the state, the Department has set an aggressive schedule for the completion of TMDLs in the next two years. By the end of 2004 the Department expects to have completed TMDLs for 14 of the 48 listed lakes and reservoirs and 57 of the listed 132 river and stream segments. Based on an anticipated TMDL completion schedule of 12-13 additional assessment units per year following 2004, the Department expects to have completed TMDLs for all listed waters in 10 years.

Table 3. 2002 List of Section 303(d) TMDL Waters for the Souris River Basin in North Dakota.

Assessment Unit ID	AU Description	AU Size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-09010001-001-L_00	Short Creek Dam	96.3 acres	Recreation	Fully Supporting, but Threatened	Nutrients/Eutrophication	2
ND-09010001-001-S_00	Souris River from the ND-Saskatchewan border downstream to Lake Darling	43.4 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrients/Eutrophication	2
					Oxygen, Dissolved	2
			Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	
ND-09010001-002-S_01	Long Creek mainstem	25 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-09010002-002-L_00	Northgate Dam	150.8 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrients/Eutrophication	1
					Oxygen, Dissolved	1
					Sedimentation/Siltation	1
			Recreation	Fully Supporting, but Threatened	Nutrients/Eutrophication	1
ND-09010003-001-L_00	Carbury Dam	130 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Oxygen, Dissolved	1
					Sedimentation/Siltation	1
			Recreation	Fully Supporting, but Threatened	Nutrients/Eutrophication	1
ND-09010003-001-S_00	Souris River from its confluence with Oak Creek downstream to its confluence with the Wintering River	51.7 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	2
			Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2

Table 3. 2002 List of Section 303(d) TMDL Waters for the Souris River Basin in North Dakota (con't).

Assessment Unit ID	AU Description	AU Size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-09010003-003-S_00	Wintering River, including tributaries	195.9 miles	Recreation	Not Supporting	Total Fecal Coliform	2
ND-09010003-005-S_00	Souris River from its confluence with the Wintering River downstream to its confluence with Willow Creek	76.2 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Oxygen, Dissolved	2
ND-09010003-009-S_00	Boundary Creek, including tributaries	143.8 miles	Recreation	Not Supporting	Total Fecal Coliform	2
ND-09010004-001-S_00	Willow Creek from its confluence with Ox Creek downstream to its confluence with the Souris River	39.4 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-09010004-002-L_00	Long Lake	287 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrients/Eutrophication	2
					Oxygen, Dissolved	2

[1] Priority 1 are those AUs which are scheduled for TMDL development in the next 2 years. Priority 2 are those AUs which are scheduled for TMDL development in the next 10 years. AUs listed as priority 3 are listed as impaired for fish consumption due to methyl-mercury. These AUs are a low priority for the state due to complexities related to the fate and transport of methyl-mercury and due to the interstate and international nature of atmospheric mercury sources, it is the Department's recommendation that EPA take the lead in developing mercury TMDLs.

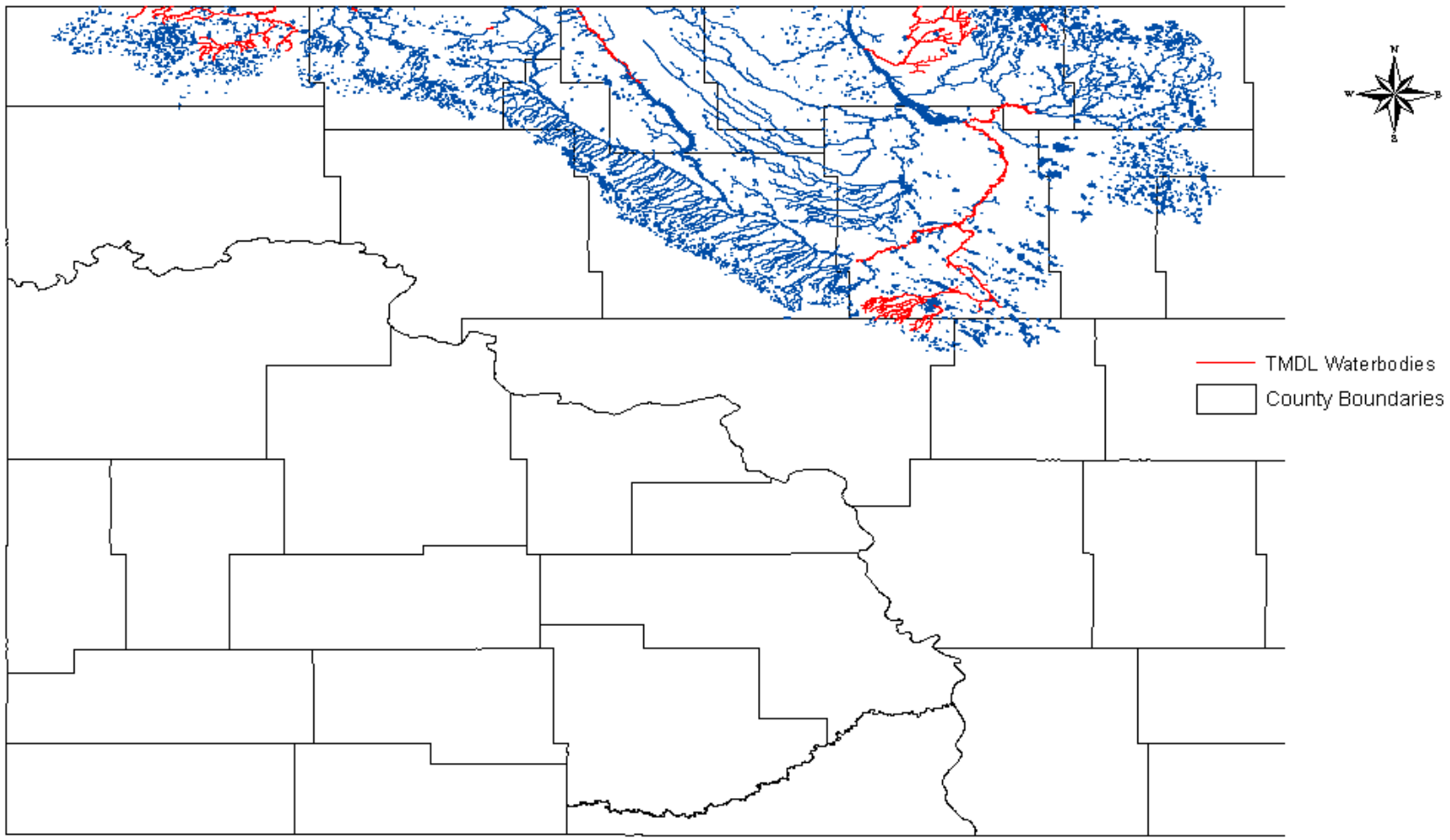

Figure 5. Graphical Depiction of 2002 List of Impaired Waters Needing TMDLs in the Souris River Basin.

Table 4. 2002 List of Section 303(d) TMDL Waters for the Red River Basin in North Dakota.

Assessment Unit ID	AU Description	AU Size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-09020101-001-S_00	Bois De Sioux River from the ND-SD border downstream to its confluence with the Rabbit River	12.77 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	2
ND-09020101-002-S_00	Bois De Sioux River from its confluence with the Rabbit River downstream to its confluence with the Ottertail River	15.03 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	2
			Recreation	Not Supporting	Total Fecal Coliform	2
ND-09020104-001-S_00	Red River of the North from its confluence with the Ottertail River downstream to its confluence with Whiskey Creek	26.81 miles	Recreation	Not Supporting	Total Fecal Coliform	2
			Fish Consumption	Not Supporting	Methyl-mercury	3
ND-09020104-002-S_00	Red River of the North From its confluence with Whiskey Creek downstream to its confluence with the Wild Rice River	51.64 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
			Fish Consumption	Not Supporting	Methyl-mercury	3
ND-09020104-003-S_00	Red River of the North from its confluence with the Wild Rice River downstream to the 12th Ave bridge in Fargo, ND (just upstream from the Moorhead, MN waste water discharge)	21 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1
			Fish Consumption	Not Supporting	Methyl-mercury	3
ND-09020104-004-S_00	Red River of the North from the 12 Ave N bridge in Fargo, ND downstream to its confluence with the Sheyenne River	20.09 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Ammonia	1
					BOD, carbonaceous	1
					Oxygen, Dissolved	1
			Recreation	Not Supporting	Total Fecal Coliform	1
			Fish Consumption	Not Supporting	Methyl-mercury	3

Table 4. 2002 List of Section 303(d) TMDL Waters for the Red River Basin in North Dakota (con't).

Assessment Unit ID	AU Description	Au size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-09020104-005-S_00	Red River of the North from its confluence with the Sheyenne River downstream to its confluence with the Buffalo River	10.45 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1
			Fish Consumption	Not Supporting	Methyl-mercury	3
ND-09020105-001-L_00	Lake Elsie	260.5 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	2
					Turbidity	2
ND-09020105-001-S_00	Wild Rice River from its confluence with the Colfax watershed downstream to its confluence with the Red River of the North	38.01 miles	Fish and Other Aquatic Biota	Not Supporting	Sedimentation/Siltation	1
			Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1
ND-09020105-003-S_00	Wild Rice River from its confluence with a tributary NE of Great Bend, ND downstream to its confluence with the Colfax watershed	51.8 miles	Fish and Other Aquatic Biota	Not Supporting	Sedimentation/Siltation	1
ND-09020105-005-S_00	Antelope Creek downstream to its confluence with the Wild Rice River	40.09 miles	Fish and Other Aquatic Biota	Not Supporting	Sedimentation/Siltation	1
					Temperature, water	1
ND-09020105-009-S_00	Wild Rice River from Elk Creek downstream to its confluence with the a tributary NE of Great Bend, ND	52.31 miles	Fish and Other Aquatic Biota	Not Supporting	Sedimentation/Siltation	1

Table 4. 2002 List of Section 303(d) TMDL Waters for the Red River Basin in North Dakota (con't).

Assessment Unit ID	AU Description	Au size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-09020105-012-S_00	Wild Rice River from its confluence with Shortfoot Creek downstream to its confluence with Elk Creek	44.78 miles	Fish and Other Aquatic Biota	Not Supporting	Sedimentation/Siltation	1
ND-09020105-016-S_00	Shortfoot Creek from its confluence with the Wild Rice River upstream to the ND-SD border, including tributaries	16.16 miles	Recreation	Not Supporting	Total Fecal Coliform	1
ND-09020105-017-S_00	Unnamed tributaries to the Wild Rice River (ND-09020105-015-S), including Crooked Creek	16.17 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1
ND-09020105-018-S_00	Wild Rice River from its confluence with the Silver Lake diversion downstream to Lake Tewaukon	18.82 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1
ND-09020105-019-S_00	Wild Rice River upstream from its confluence with Wild Rice Creek, including tributaries	57.06 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1
ND-09020105-020-S_00	Wild Rice Creek from its confluence with the Wild Rice River upstream to the ND-SD border, including tributaries	118.17 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1
ND-09020105-022-S_00	Wild Rice River from its confluence with Wild Rice Creek downstream to its confluence with the Silver Lake diversion	5.54 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1

Table 4. 2002 List of Section 303(d) TMDL Waters for the Red River Basin in North Dakota (con't).

Assessment Unit ID	AU Description	Au size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-09020107-001-S_00	Red River of the North from its confluence with the Buffalo River downstream to its confluence with the Elm River	29.4 miles	Fish Consumption	Not Supporting	Methyl-mercury	3
ND-09020107-001-S_00	Red River of the North from its confluence with the Elm River downstream to its confluence with the Marsh River	29.83 miles	Fish Consumption	Not Supporting	Methyl-mercury	3
ND-09020107-008-S_00	Elm River from dam NW of Galesburg, ND downstream to dam NE of Galesburg	20.49 miles	Fish and Other Aquatic Biota	Not Supporting	Sedimentation/Siltation	2
ND-09020107-011-S_00	North Branch Elm River downstream to its confluence with the Elm River	33.4 miles	Fish and Other Aquatic Biota	Not Supporting	Sedimentation/Siltation	2
ND-09020109-001-S_00	Goose River from a tributary upstream from Hillsboro, ND downstream to its confluence with the Red River of the North	27.68 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-09020109-002-L_00	South Golden Lake	323.5 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrients/Eutrophication	2
					Oxygen, Dissolved	2
			Recreation	Fully Supporting, but Threatened	Nutrients/Eutrophication	2
ND-09020109-011-S_00	Goose River from its confluence with Beaver Creek downstream to its confluence with the South Branch Goose River	19.38 miles	Fish and Other Aquatic Biota	Not Supporting	Sedimentation/Siltation	2

Table 4. 2002 List of Section 303(d) TMDL Waters for the Red River Basin in North Dakota (con't).

Assessment Unit ID	AU Description	Au size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-09020201-006-L_00	Devils Lake	125000 acres	Recreation	Fully Supporting, but Threatened	Nutrients/Eutrophication	2
			Fish Consumption	Not Supporting	Methyl-mercury	3
ND-09020202-001-L_00	Warsing Dam.	53.4 acres	Recreation	Fully Supporting, but Threatened	Nutrients/Eutrophication	2
ND-09020202-002-L_00	Balta Dam	108 acres	Recreation	Fully Supporting, but Threatened	Nutrients/Eutrophication	2
ND-09020203-001-L_00	Lake Ashtabula	5430 acres	Recreation	Not Supporting	Nutrients/Eutrophication	2
ND-09020203-002-S_00	Baldhill Creek from tributary watershed (ND-09020203-005-S) downstream to Lake Ashtabula	30.21 miles	Recreation	Fully Supporting, But Threatened	Total Fecal Coliform	1
ND-09020203-004-L_00	Red Willow Lake	130 acres	Recreation	Fully Supporting, But Threatened	Nutrients/Eutrophication	2
ND-09020203-004-S_00	Silver Creek, including Gunderson Creek and all tributaries	38.51 miles	Recreation	Fully Supporting, But Threatened	Total Fecal Coliform	2
ND-09020203-007-L_00	McVille Dam	33.4 acres	Recreation	Fully Supporting, but Threatened	Nutrients/Eutrophication	2
ND-09020203-008-L_00	Tolna Dam	152 acres	Recreation	Fully Supporting, but Threatened	Nutrients/Eutrophication	2
ND-09020203-008-S_00	unnamed tributary watershed to Baldhill Creek (ND-09020203-007-S)	16.07 miles	Recreation	Not Supporting	Total Fecal Coliform	1
ND-09020203-012-S_00	Pickerel Lake Creek, including tributaries	28.04 miles	Recreation	Not Supporting	Total Fecal Coliform	1
ND-09020203-013-S_00	unnamed tributary watershed to the Sheyenne River (ND-09020203-001-S)	33.92 miles	Recreation	Not Supporting	Total Fecal Coliform	1
ND-09020204-003-L_00	Brewer Lake	128 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrients/Eutrophication	2
					Oxygen, Dissolved	2
					Sedimentation/Siltation	2
			Recreation	Fully Supporting, but Threatened	Nutrients/Eutrophication	2

Table 4. 2002 List of Section 303(d) TMDL Waters for the Red River Basin in North Dakota (con't).

Assessment Unit ID	AU Description	Au size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-09020204-003-S_00	Sheyenne River from its confluence with the Maple River downstream to its confluence with the Red River of the North	18.51 miles	Recreation	Not Supporting	Total Fecal Coliform	2
ND-09020204-004-S_00	Rush River from its confluence with an unnamed tributary watershed (ND-09020204-011-S) downstream to its confluence with the Sheyenne River	17.44 miles	Fish and Other Aquatic Biota	Not Supporting	Sedimentation/Siltation	2
ND-09020204-005-L_00	Dead Colt Creek Dam	124 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrients/Eutrophication	1
					Oxygen, Dissolved	1
					Sedimentation/Siltation	1
			Recreation	Fully Supporting, but Threatened	Nutrients/Eutrophication	1
ND-09020204-007-S_00	Rush River downstream to unnamed tributary watershed (ND-09020204-011-S)	40.92 miles	Fish and Other Aquatic Biota	Not Supporting	Sedimentation/Siltation	2
ND-09020204-022-S_00	Sheyenne River from tributary near Lisbon (ND-09020204-0024-S) downstream to its confluence with Dead Colt Creek(ND-09020204-021-S)	11.37 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1
ND-09020204-027-S_00	Sheyenne River from its confluence with a tributary watershed below Valley City (ND-09020204-028-S) downstream to its confluence with a tributary near Highway 46 (ND-09020204-026-S)	33.59 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1

Table 4. 2002 List of Section 303(d) TMDL Waters for the Red River Basin in North Dakota (con't).

Assessment Unit ID	AU Description	Au size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-09020204-034-S_00	Sheyenne River from its confluence with a tributary above Valley City, near railroad bridge, (ND-09020204-038-S) downstream to its confluence with a tributary below Valley City (ND-09020204-028-S)	13.18 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1
ND-09020204-040-S_00	Sheyenne River from Lake Ashtabula downstream to its confluence with a tributary above Valley City, near Railroad bridge, (ND-09020204-038-S)	4.13 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1
ND-09020301-001-S_00	Red River of the North from its confluence with the Marsh River downstream to its confluence with Sandhill Creek	21.26 miles	Fish Consumption	Not Supporting	Methyl-mercury	3
ND-09020301-002-S_00	English Coulee from its confluence with a tributary upstream from Grand Forks, ND downstream to its confluence with the Red River of the North (lower reach)	5.53 miles	Fish and Other Aquatic Biota	Not Supporting	Sedimentation/Siltation	2
			Recreation	Not Supporting	Total Fecal Coliform	2
ND-09020301-005-S_00	English Coulee from its confluence with an upstream tributary downstream to its confluence with a tributary upstream from Grand Forks, ND (middle reach)	6.16 miles	Fish and Other Aquatic Biota	Not Supporting	Sedimentation/Siltation	2
ND-09020301-007-S_00	Red River of the North from its confluence with the Sand Hill River downstream to its confluence with Cole Creek	31.13 miles	Fish Consumption	Not Supporting	Methyl-mercury	3
ND-09020301-010-S_00	Red River of the North from its confluence with Cole Creek downstream to its confluence with the Red Lake River	8.06 miles	Fish Consumption	Not Supporting	Methyl-mercury	3

Table 4. 2002 List of Section 303(d) TMDL Waters for the Red River Basin in North Dakota (con't).

Assessment Unit ID	AU Description	Au size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-09020301-014-S_00	Red River of the North from its confluence with the Red Lake River downstream to its confluence with English Coulee	4.02 miles	Fish Consumption	Not Supporting	Methyl-mercury	3
ND-09020306-001-S_00	Red River of the North from its confluence with English Coulee downstream to its confluence with Grand Marais Creek	8.65 miles	Fish Consumption	Not Supporting	Methyl-mercury	3
ND-09020306-003-S_00	Red River of the North from its confluence with Grand Marais Creek downstream to its confluence with the Turtle River	12.62 miles	Fish Consumption	Not Supporting	Methyl-mercury	3
ND-09020306-004-S_00	Red River of the North from its confluence with the Turtle River downstream to its confluence with the Forest River	31.94 miles	Fish Consumption	Not Supporting	Methyl-mercury	3
ND-09020306-005-S_00	Red River of the North from its confluence with the Forest River downstream to its confluence with the Park River	22.02 miles	Fish Consumption	Not Supporting	Methyl-mercury	3
ND-09020307-001-S_00	Turtle River from its confluence with Salt Water Coulee downstream to its confluence with the Red River of the North	30.36 miles	Fish and Other Aquatic Biota	Not Supporting	Cadmium	2
					Sedimentation/Siltation	2
					Selenium	2
ND-09020308-001-L_00	Fordville Dam	197 acres	Recreation	Fully Supporting, but Threatened	Nutrients/Eutrophication	2

Table 4. 2002 List of Section 303(d) TMDL Waters for the Red River Basin in North Dakota (con't).

Assessment Unit ID	AU Description	Au size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-09020308-001-S_00	Forest River from Lake Ardoch downstream to its confluence with the Red River of the North	16.17 miles	Fish and Other Aquatic Biota	Not Supporting	Sedimentation/Siltation	2
ND-09020308-002-L_00	Whitman Dam	143 acres	Recreation	Fully Supporting, but Threatened	Nutrients/Eutrophication	2
ND-09020308-003-L_00	Matejcek Dam	130 acres	Recreation	Fully Supporting, but Threatened	Nutrients/Eutrophication	2
ND-09020310-001-L_00	Homme Dam	194 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrients/Eutrophication	2
					Sedimentation/Siltation	2
			Recreation	Fully Supporting, but Threatened	Nutrients/Eutrophication	2
ND-09020310-001-S_00	Park River from its confluence with Salt Lake outlet (ND-09020310-009-S) downstream to its confluence with the Red River of the North	15.06 miles	Fish and Other Aquatic Biota	Not Supporting	Sedimentation/Siltation	2
ND-09020310-010-S_00	Park River from its confluence with a tributary east of Grafton, ND (ND-09020310-012-S) downstream to its confluence with the outlet from Salt Lake (ND-09020310-009-S)	14.68 miles	Fish and Other Aquatic Biota	Not Supporting	Sedimentation/Siltation	2
ND-09020310-013-S_00	Park River from the confluence of the South Branch Park River and the Middle Branch Park River downstream its confluence with a tributary east of Grafton, ND (ND-09020310-012-S)	6.83 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	2

Table 4. 2002 List of Section 303(d) TMDL Waters for the Red River Basin in North Dakota (con't).

Assessment Unit ID	AU Description	Au size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-09020311-001-S_00	Red River of the North from its confluence with the Park River downstream to its confluence with a small tributary north of Drayton, ND	19.02 miles	Fish Consumption	Not Supporting	Methyl-mercury	3
ND-09020311-003-S_00	Red River of the North from its confluence with a small tributary north of Drayton, ND downstream to its confluence with Two River	30.3 miles	Fish Consumption	Not Supporting	Methyl-mercury	3
ND-09020311-005-S_00	Red River of the North from its confluence with Two Rivers downstream to its confluence with the Pembina River	17.99 miles	Fish Consumption	Not Supporting	Methyl-mercury	3
ND-09020311-007-S_00	Red River of the North from its confluence with the Pembina River downstream to the US-Canada border	3.0 miles	Fish Consumption	Not Supporting	Methyl-mercury	3
ND-09020313-002-L_00	Renwick Dam	220 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	2
			Recreation	Fully Supporting, but Threatened	Nutrients/Eutrophication	2
ND-09020313-007-L_00	Lake Upsilon	414 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrients/Eutrophication	2
					Oxygen, Dissolved	2
			Recreation	Fully Supporting, but Threatened	Nutrients/Eutrophication	2
ND-09020313-011-L_00	Armourdale Dam	79.8 acres	Fish and Other Aquatic Biota	Not Supporting	Nutrients/Eutrophication	1
					Oxygen, Dissolved	1
					Sedimentation/Siltation	1
			Recreation	Not Supporting	Nutrients/Eutrophication	1

[1] Priority 1 are those AUs which are scheduled for TMDL development in the next 2 years. Priority 2 are those AUs which are scheduled for TMDL development in the next 10 years. AUs listed as priority 3 are listed as impaired for fish consumption due to methyl-mercury. These AUs are a low priority for the state due to complexities related to the fate and transport of methyl-mercury and due to the interstate and international nature of atmospheric mercury sources, it is the Department's recommendation that EPA take the lead in developing mercury TMDLs.

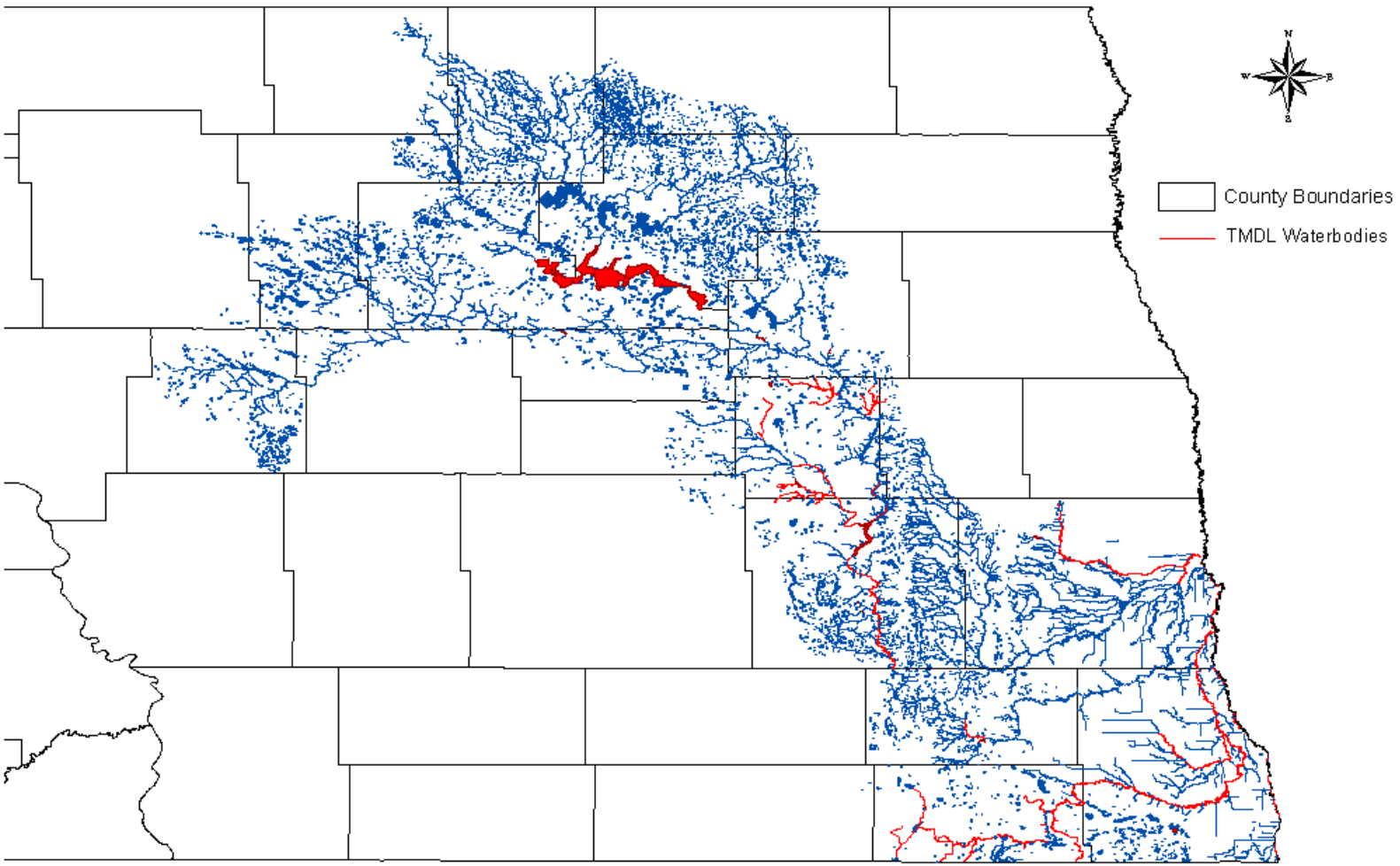

Figure 6. Graphical Depiction of 2002 List of Impaired Waters Needing TMDLs in the Upper Red River Basin.

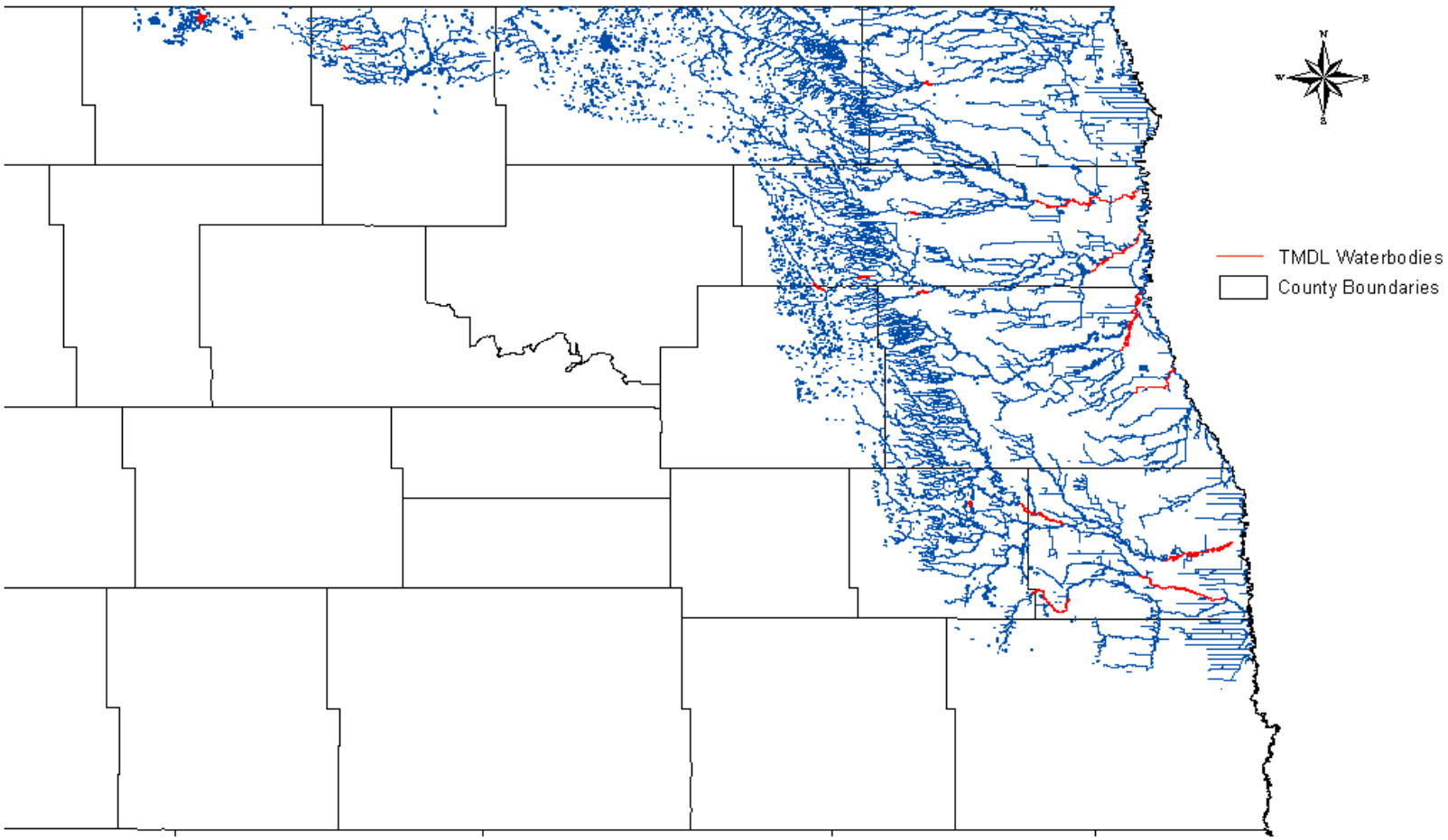

Figure 7. Graphical Depiction of 2002 List of Impaired Waters Needing TMDLs in the Lower Red River Basin.

Table 5. 2002 List of Section 303(d) TMDL Waters for the Missouri River Basin in North Dakota.

Assessment Unit ID	AU Description	AU Size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-10100004-001-S_00	Yellowstone River from the ND-MT border downstream to its confluence with the Missouri River	21.62 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Selenium	2
ND-10110101-001-L_00	Powers Lake	950.6 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrient/Eutrophication	1
					Oxygen, Dissolved	1
					Sedimentation/Siltation	1
			Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	1
ND-10110101-012-L_00	Rice Lake	185.5 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrient/Eutrophication	1
					Oxygen, Dissolved	1
			Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	1
ND-10110101-019-L_00	McGregor Dam	54.3 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrient/Eutrophication	1
					Sedimentation/Siltation	1
			Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	1
ND-10110101-021-L_00	Lake Sakakawea	368,231 acreas (base elevation at full pool)	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Oxygen, Dissolved	1
					Temperature	1
			Fish Consumption	Not Supporting	Methyl-mercury	3
ND-10110101-080-S_00	Little Knife River from Stanley Reservoir downstream to Lake Sakakawea	45.44 miles	Recreation	Not Supporting	Total Fecal Coliform	2
ND-10110102-003-L_00	Blacktail Dam	160 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrient/Eutrophication	1
					Oxygen, Dissolved	1
					Sedimentation/Siltation	1
			Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	1

Table 5. 2002 List of Section 303(d) TMDL Waters for the Missouri River Basin in North Dakota (con't).

Assessment Unit ID	AU Description	AU Size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-10110203-025-S_00	Little Missouri River from its confluence with Deep Creek downstream to its confluence with Andrews Creek	48.25 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10110203-057-S_00	Little Missouris River from its confluence with Andrews Creek downstream to its confluence with Government Creek	9.89 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10110205-001-S_00	Little Missouri River from its confluence with Beaver Creek downstream to Highway 85	58.94 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10110205-033-S_00	Little Missouri River from Highway 85 downstream to its confluence with Cherry Creek	23.79 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10130101-002-L_00	Brush Lake	200 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
					Oxygen, Dissolved	2
			Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
ND-10130101-002-S_00	Square Butte Creek from its confluence with Otter Creek downstream to its confluence with the Missouri River	1.79 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	2
			Recreation	Not Supporting	Total Fecal Coliform	2
ND-10130101-003-L_00	Crooked Lake	375 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
				Fully Supporting, but Threatened	Oxygen, Dissolved	2
			Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
ND-10130101-004-L_00	Strawberry Lake	140 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
					Oxygen, Dissolved	2
			Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
ND-10130101-006-S_00	unnamed tributaries to Square Butte Creek (ND-10130101-005-S)	97.75 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2

Table 5. 2002 List of Section 303(d) TMDL Waters for the Missouri River Basin in North Dakota (con't).

Assessment Unit ID	AU Description	AU Size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-10130101-009-S_00	Square Butte Creek from Nelson Lake downstream to its confluence with Otter Creek	38.15 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	2
			Recreation	Not Supporting	Total Fecal Coliform	2
ND-10130103-003-L_00	Braddock Lake	69.5 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
					Oxygen, Dissolved	2
					Sedimentation/Siltation	2
			Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
ND-10130103-007-S_00	Hay Creek downstream to its confluence with Apple Creek	15.78 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1
ND-10130103-010-L_00	Lake Isabel	805.7 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
					Oxygen, Dissolved	2
			Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
ND-10130103-014-L_00	McDowell Dam	55.2 acres	Fish and Other Aquatic Biota	Not Supporting	Oxygen, Dissolved	1
					Nutrient/Eutrophication	1
			Recreation	Not Supporting	Nutrient/Eutrophication	1
ND-10130104-001-L_00	Beaver Lake	953.1 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
					Oxygen, Dissolved	2
					Sedimentation/Siltation	2
			Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
ND-10130104-001-S_00	Beaver Creek from its confluence with Sand Creek downstream to Lake Oahe	8.43 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1
ND-10130104-003-S_00	Beaver Creek from its confluence with Spring Creek downstream to its confluence with Sand Creek	14.9 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1
ND-10130104-004-S_00	Sand Creek, including tributaries	108.56 miles	Recreation	Not Supporting	Total Fecal Coliform	1
ND-10130104-005-S_00	Spring Creek, including tributaries	63.14 miles	Recreation	Not Supporting	Total Fecal Coliform	1

Table 5. 2002 List of Section 303(d) TMDL Waters for the Missouri River Basin in North Dakota (con't).

Assessment Unit ID	AU Description	AU Size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-10130104-007-S_00	Beaver Creek from its confluence with the South Branch Beaver Creek downstream to its confluence with Spring Creek	37.68 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1
ND-10130104-008-S_00	Clear Creek, including tributaries	108.95 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1
ND-10130104-010-S_00	Beaver Creek from Beaver Lake downstream to its confluence with the South Branch Beaver Creek	38.92 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1
ND-10130104-012-S_00	unnamed tributary which is at the south end of Beaver Lake	158.02 miles	Recreation	Not Supporting	Total Fecal Coliform	1
ND-10130104-014-S_00	South Branch Beaver Creek from its confluence with the South Branch Beaver Creek watershed (ND-10130104-015-S) downstream to its confluence with Beaver Creek	43.45 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1
ND-10130106-002-L_00	Green Lake	868.6 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
					Oxygen, Dissolved	2
			Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
ND-10130106-003-L_00	Lake Hoskins	553.5 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
			Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
ND-10130201-001-S_00	Spring Creek from its confluence with Goodman Creek downstream to its confluence with the Knife River	28.56 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10130201-002-S_00	Knife River from its confluence with Antelope Creek downstream to its confluence with the Missouri River	19.83 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10130201-003-S_00	Knife River from its confluence with Spring Creek downstream to its confluence with Antelope Creek	17.83 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2

Table 5. 2002 List of Section 303(d) TMDL Waters for the Missouri River Basin in North Dakota (con't)

Assessment Unit ID	AU Description	AU Size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-10130201-007-S_00	Antelope Creek mainstem downstream to its confluence with East Branch Antelope Creek watershed (ND-10130201-016-S)	21.32 miles	Recreation	Not Supporting	Total Fecal Coliform	2
ND-10130201-010-S_00	Otter Creek from its confluence with a tributary watershed (ND-10130201-012-S) downstream to its confluence with the Knife River	18.45 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10130201-013-S_00	Otter Creek upstream from its confluence with a tributary watershed (ND-10130201-012-S), including tributaries	95.19 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10130201-014-S_00	Antelope Creek from its confluence with East Branch Antelope Creek watershed (ND-10130201-016-S) downstream to its confluence with the Knife River	8.57 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10130201-015-S_00	unnamed tributaries to Antelope Creek (ND-10130201-014-S)	16.7 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10130201-016-S_00	East Branch Antelope Creek upstream from Antelope Creek, including tributaries	83.04 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10130201-035-S_00	Knife River from its confluence with Coyote Creek downstream to its confluence with Spring Creek	14.65 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10130201-037-S_00	Coyote Creek from its confluence with Beaver Creek downstream to its confluence with the Knife River	17.24 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10130201-042-S_00	Knife river from its confluence with branch knife river downstream to its confluence with coyote creek	35.99 miles	Recreation	Not Supporting	Total Fecal Coliform	2
ND-10130202-001-L_00	Lake Tschida	5018 acres	Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	2

Table 5. 2002 List of Section 303(d) TMDL Waters for the Missouri River Basin in North Dakota (con't)

Assessment Unit ID	AU Description	AU Size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-10130202-002-L_00	Patterson Lake	1191 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrient/Eutrophication	1
					Sedimentation/Siltation	1
					Turbidity	1
			Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	1
ND-10130202-003-S_00	Heart River from its confluence with South Branch Heart River downstream to Patterson Lake	15.49 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1
ND-10130202-004-L_00	Dickinson Dike	22 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrient/Eutrophication	1
					Oxygen, Dissolved	1
					Sedimentation/Siltation	1
			Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	1
ND-10130202-056-S_00	Heart River from its confluence with a tributary watershed near Belfield, ND (ND-10130202-067-S) downstream to its confluence with the South Branch Heart River	14.88 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1
ND-10130202-057-S_00	South Branch Heart River from its confluence with Bull Creek downstream to its confluence with the Heart River	12.75 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1
ND-10130203-002-L_00	Crown Butte Dam	31.2 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
					Oxygen, Dissolved	2
					Sedimentation/Siltation	2
			Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
ND-10130203-005-L_00	Sweetbriar Reservoir	270.6 acres	Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	2

Table 5. 2002 List of Section 303(d) TMDL Waters for the Missouri River Basin in North Dakota (con't)

Assessment Unit ID	AU Description	AU Size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-10130203-007-L_00	Danzig Dam	147.5 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
					Oxygen, Dissolved	2
					Sedimentation/Siltation	2
			Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
ND-10130204-001-L_00	Sheep Creek Dam	84.4 acres	Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
ND-10130204-001-S_00	Cannonball River from its confluence with Snake Creek downstream to its confluence with Cedar Creek	34.16 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1
ND-10130204-006-L_00	Indian Creek Dam	222 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrient/Eutrophication	1
					Oxygen, Dissolved	1
					Sedimentation/Siltation	1
			Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	1
ND-10130204-014-S_00	Thirtymile Creek from its confluence with Springs Creek downstream to its confluence with the Cannonball River	39.97 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10130204-017-S_00	Thirtymile Creek from tributary watershed (ND-10130204-019-S)	19.75 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10130204-044-S_00	Dead Horse Creek, including tributaries	40.18 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10130204-047-S_00	Cannonball River from its confluence with White Lake watershed (ND-10130204-049-S) downstream to its confluence with Philbrick Creek	33.25 miles	Recreation	Not Supporting	Total Fecal Coliform	1
ND-10130204-051-S_00	Philbrick Creek from its confluence with Adobe Wall Creek downstream to its confluence with the Cannonball River	11.7 miles	Recreation	Not Supporting	Total Fecal Coliform	2

Table 5. 2002 List of Section 303(d) TMDL Waters for the Missouri River Basin in North Dakota (con't)

Assessment Unit ID	AU Description	AU Size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-10130205-001-S_00	Cedar Creek from its confluence with Hay Creek downstream to its confluence with the Cannonball River	40.3 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10130205-003-L_00	Cedar Lake	198.5 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrient/Eutrophication	1
					Oxygen, Dissolved	1
					Sedimentation/Siltation	1
			Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	1
ND-10130205-006_S_00	Crooked Creek, including tributaries	40.68 miles	Recreation	Not Supporting	Total Fecal Coliform	2
ND-10130205-012_00	Brushy Creek, including tributaries	49.99 miles	Recreation	Not Supporting	Total Fecal Coliform	2
ND-10130205-017-S_00	Timber Creek from its confluence with Sheep Creek downstream to its confluence with Cedar Creek	23.57 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10130205-021_S_00	Plum Creek, including tributaries	79.34 miles	Recreation	Not Supporting	Total Fecal Coliform	2
ND-10130205-024-S_00	Cedar Creek from its confluence with Chanta Peta Creek downstream to its confluence with Duck Creek	67.56 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10130205-033-S_00	Cedar Creek from Cedar Lake downstream to its confluence with Chanta Peta Creek	43.06 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10130205-042-S_00	Cedar Creek from its confluence with South Fork Cedar Creek downstream to Cedar Lake	30.86 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1
			Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1
ND-10130205-043-S_00	North Fork Cedar Creek, including tributaries	14.5 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1
ND-10130205-047-S_00	North Cedar Creek, including tributaries	115.13 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1
			Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1

Table 5. 2002 List of Section 303(d) TMDL Waters for the Missouri River Basin in North Dakota (con't)

Assessment Unit ID	AU Description	AU Size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-10130206-001-S_00	Cannonball River from its confluence with Dogtooth Creek downstream to Lake Oahe	20.83 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10130206-007-S_00	Cannonball River from its confluence with a tributary watershed near Shields, ND (ND-10130206-028-S) downstream to its confluence with Dogtooth Creek	21.15 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10130206-027-S_00	Cannonball River from Cedar Creek downstream to a tributary near Shields, ND	23.52 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2

[1] Priority 1 are those AUs which are scheduled for TMDL development in the next 2 years. Priority 2 are those AUs which are scheduled for TMDL development in the next 10 years. AUs listed as priority 3 are listed as impaired for fish consumption due to methyl-mercury. These AUs are a low priority for the state due to complexities related to the fate and transport of methyl-mercury and due to the interstate and international nature of atmospheric mercury sources, it is the Department's recommendation that EPA take the lead in developing mercury TMDLs.

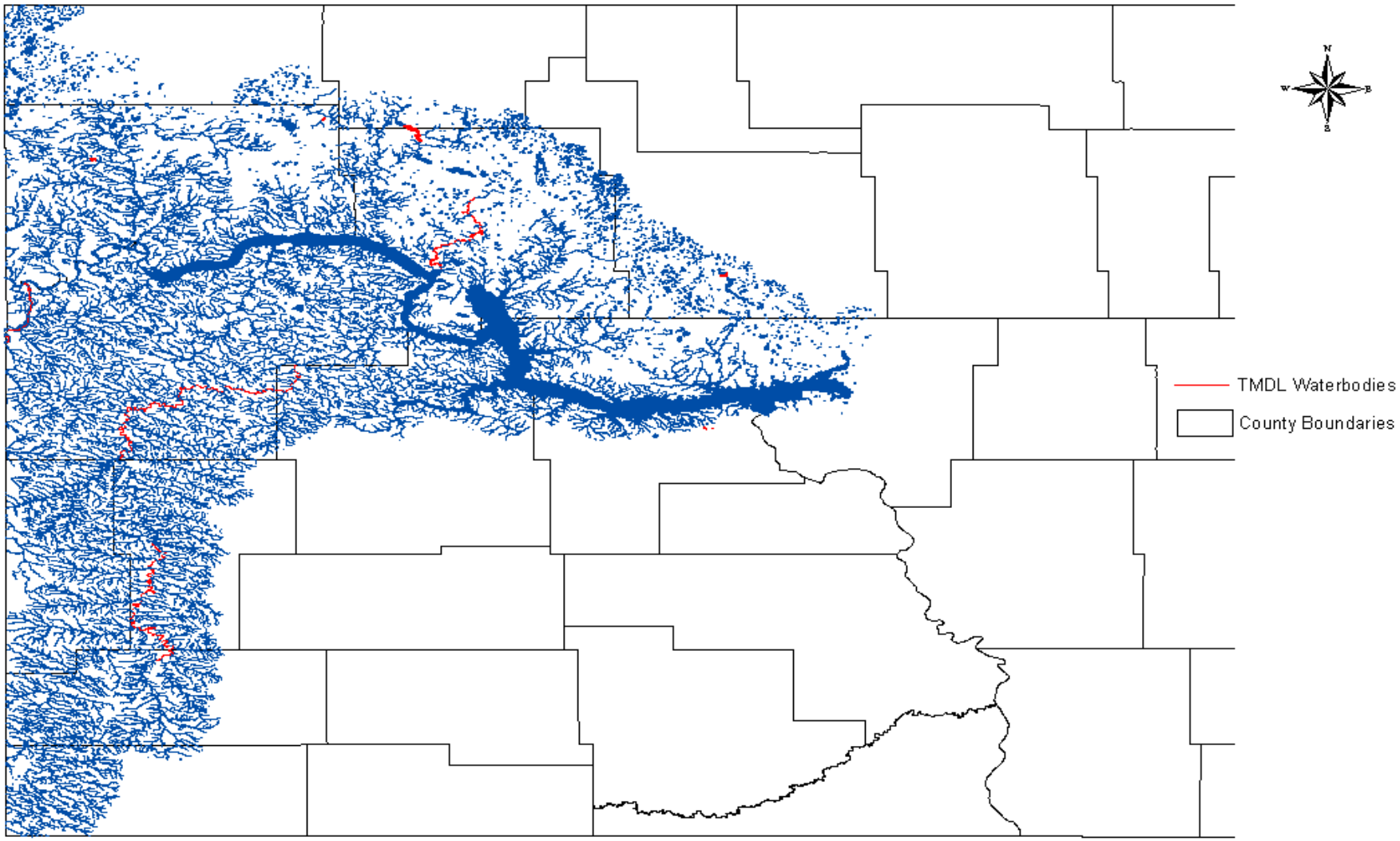

Figure 8. Graphical Depiction of 2002 List of Impaired Waters Needing TMDLs in the Lake Sakakawea/Missouri River Basin.

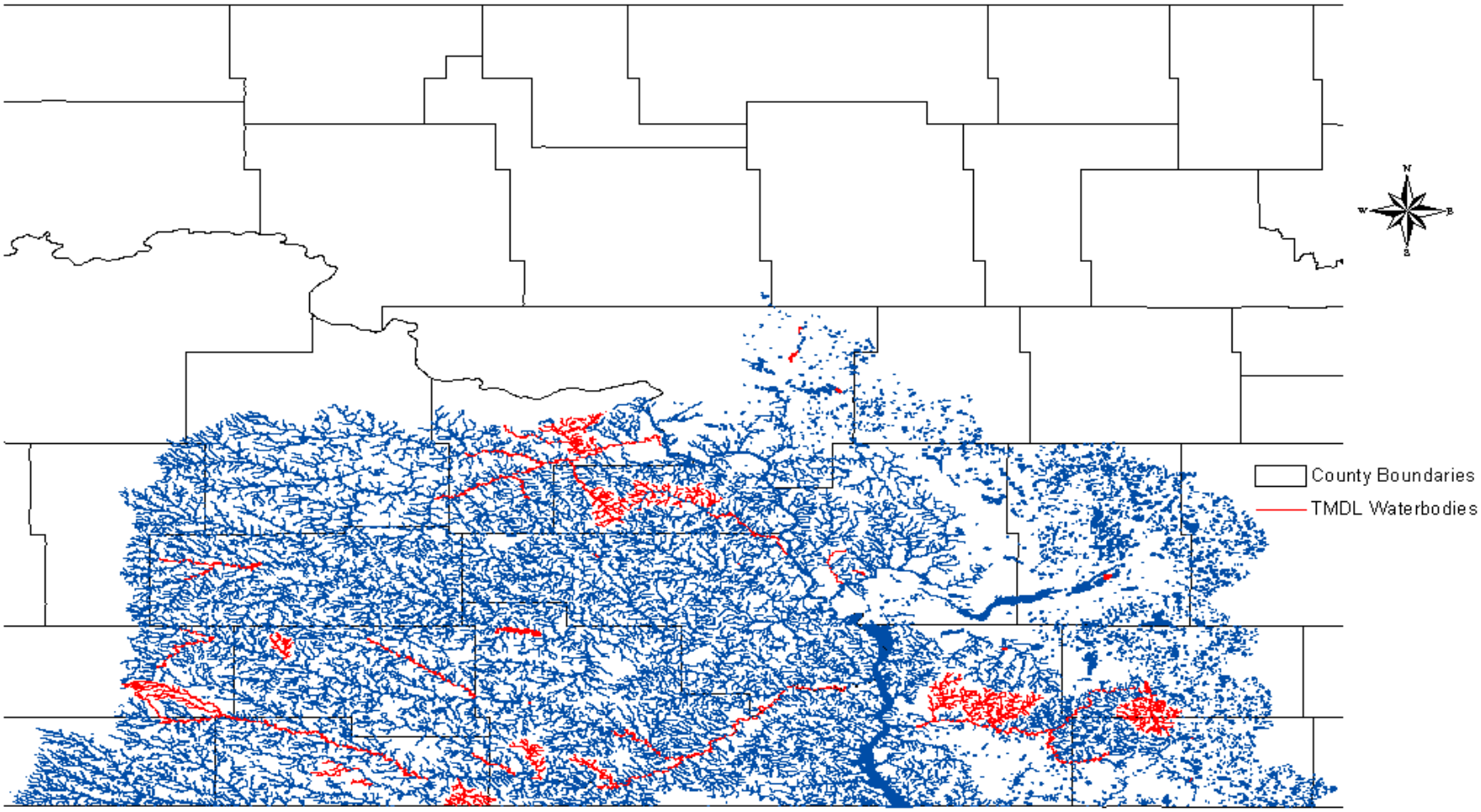

Figure 9. Graphical Depiction of 2002 List of Impaired Waters Needing TMDLs in the Lake Oahe/Missouri River Basin.

Table 6. 2002 List of Section 303(d) TMDL Waters for the James River Basin in North Dakota.

Assessment Unit ID	AU Description	AU Size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-10160001-002-L_00	Jamestown Reservoir	2086 acres	Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
ND-10160001-003-S_00	James River from Arrowwood Lake downstream to Mud Lake	2.98 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Oxygen, Dissolved	2
ND-10160001-013-S_00	James River from its confluence with Big Slough downstream to its confluence with Rocky Run	20.47 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10160002-001-L_00	Pipestem Reservoir	892 acres	Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	2
ND-10160003-001-S_00	James River from its confluence with Pipestem Creek downstream to its confluence with Sevenmile Coulee	14.41 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Ammonia	1
					Oxygen, Dissolved	1
			Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1
ND-10160003-003-S_00	Cottonwood Creek downstream to Lake Lamoure	66.69 miles	Recreation	Not Supporting	Total Fecal Coliform	1
ND-10160003-029-S_00	James River from its confluence with Bone Hill Creek downstream to its confluence with Cottonwood Creek	38.17 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	2
ND-10160003-032-S_00	Bear Creek from tributary watershed (ND-10160003-035-S) downstream to its confluence with the James River	29.34 miles	Recreation	Not Supporting	Total Fecal Coliform	1
ND-10160004-002-S_00	Maple River from its confluence with South Fork Maple River downstream to the ND-SD border	41.07 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1
			Recreation	Not Supporting	Total Fecal Coliform	1
ND-10160004-003-S_00	Weber Gulch, including tributaries	114.75 miles	Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1

Table 6. 2002 List of Section 303(d) TMDL Waters for the James River Basin in North Dakota (con't).

Assessment Unit ID	AU Description	AU Size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-10160004-005-L_00	Pheasant Lake	232.1 acres	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Nutrient/Eutrophication	1
					Oxygen, Dissolved	1
					Sedimentation/Siltation	1
			Recreation	Fully Supporting, but Threatened	Nutrient/Eutrophication	1
ND-10160004-005-S_00	Elm River downstream to Pheasant Lake	13.4 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1
ND-10160004-006-S_00	Upper Elm River, including tributaries	14.95 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1
ND-10160004-007-S_00	Bristol Gulch, including tributaries	43.45 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1
ND-10160004-008-S_00	unnamed tributaries to Elm River (ND-10160004-005-S)	21.2 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1
ND-10160004-009-S_00	unnamed tributary to Pheasant Lake	2.38 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1
ND-10160004-013-S_00	Maple River from its confluence with Maple Creek downstream to its confluence with South Fork Maple River	15.79 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1
			Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1
ND-10160004-015-S_00	South Fork Maple River from its confluence with three tributaries downstream to its confluence with the Maple River	14.53 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1
			Recreation	Not Supporting	Total Fecal Coliform	1

Table 6. 2002 List of Section 303(d) TMDL Waters for the James River Basin in North Dakota (con't).

Assessment Unit ID	AU Description	AU Size	Designated Use	Use Support	Impairment	TMDL Priority[1]
ND-10160004-022-S_00	Maple Creek downstream to its confluence with the Maple River	33.91 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1
			Recreation	Not Supporting	Total Fecal Coliform	1
ND-10160004-026-S_00	Maple River from Schlect-Thom Dam downstream to its confluence Maple Creek	20.01 miles	Fish and Other Aquatic Biota	Fully Supporting, but Threatened	Sedimentation/Siltation	1
			Recreation	Fully Supporting, but Threatened	Total Fecal Coliform	1

[1] Priority 1 are those AUs which are scheduled for TMDL development in the next 2 years. Priority 2 are those AUs which are scheduled for TMDL development in the next 10 years. AUs listed as priority 3 are listed as impaired for fish consumption due to methyl-mercury. These AUs are a low priority for the state due to complexities related to the fate and transport of methyl-mercury and due to the interstate and international nature of atmospheric mercury sources, it is the Department's recommendation that EPA take the lead in developing mercury TMDLs.

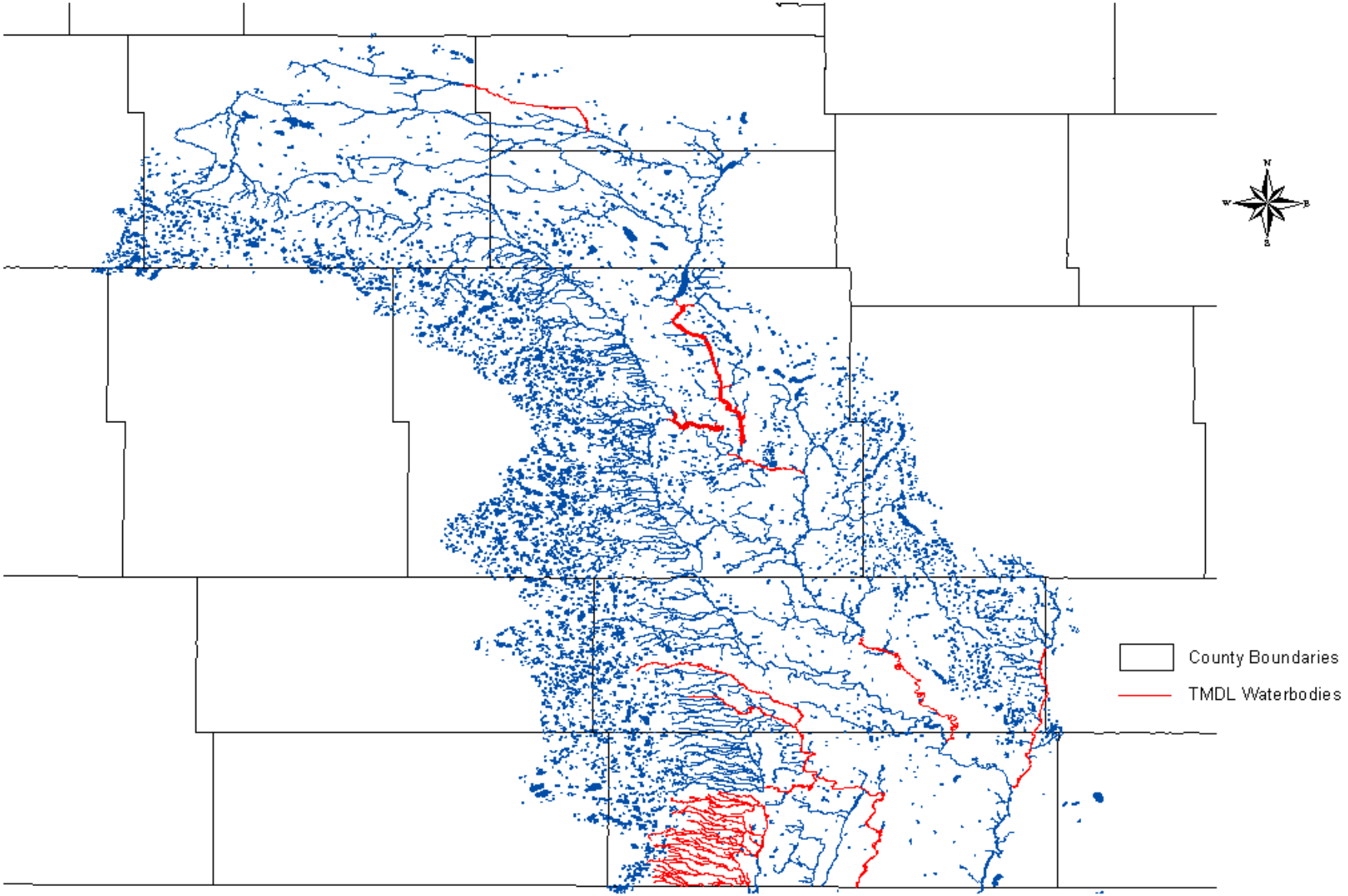

Figure 10. Graphical Depiction of 2002 List of Impaired Waters Needing TMDLs in the James River Basin.

Table 7. 1998 Section 303(d) TMDL Waters in the Souris River Basin Which Have Been De-listed for 2002.

Assessment Unit ID	AU Description	AU Size	Impaired Use	Rationale for De-listing
ND-09010001-007-S_01	Souris River from its confluence with the Des Lacs River downstream to Logan, ND	40.0 miles	Recreation	Based on most recent data, use is fully supported.
ND-09010001-007-S_02	Souris River from near Logan, ND downstream to its confluence with Oak Creek at the downstream end of CU 09010001	22.2 miles	Recreation	Based on most recent data, use is fully supported.
ND-09010003-003-L_00	George Lake	80 acres	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previous listing based on best professional judgement.
ND-09010003-005-S_00	Souris River from its confluence with the Wintering River downstream to its confluence with Willow Creek	76.2 miles	Recreation	Based on most recent data, use is fully supported.
ND-09010004-003-L_00	Pelican Lake	124.4 acres	Aquatic Life	Based on most recent data, use is fully supported.
ND-09010004-005-L_00	Strawberry Lake	31.8 acres	Aquatic Life	Based on most recent data, use is fully supported.
ND-09010005-001-L_00	Buffalo Lodge Lake	1381.8 acres	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previous listing based on best professional judgement.

Table 8. 1998 Section 303(d) TMDL Waters in the Red River Basin Which Have Been De-listed for 2002.

Assessment Unit ID	AU Description	AU Size	Impaired Use	Rationale for De-listing
ND-09020104-001-S_00	Red River of the North from its confluence with the Ottertail River downstream to its confluence with Whiskey Creek	26.81 miles	Aquatic Life	Based on most recent data, use is fully supported.
ND-09020105-003-L_00	Alkali Lake	104 acres	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previous listing based on best professional judgement.
ND-09020105-004-L_00	Silver Lake	91 acres	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previous listing based on best professional judgement.
ND-09020105-006-S_00	South Branch Antelope Creek, including tributaries	63.74 miles	Aquatic Life Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use using best professional judgement based on known land use and riparian condition. Recreation use previously listed as impaired based on data extrapolated from Antelope Creek located downstream.
ND-09020107-006-S_00	Elm River from dam NE of Galesburg, ND downstream to its confluence with the South Branch Elm River	29.9 miles	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination.
ND-09020109-003-L_00	North Golden Lake	281.5 acres	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previous listing based on limited data, assessment based largely on best professional judgement.
ND-09020109-027-S_00	Beaver Creek downstream to the Golden Lake diversion channel	37.01 miles	Aquatic Life	Use impairment due to a non-pollutant (habitat).

Table 8. 1998 Section 303(d) TMDL Waters in the Red River Basin Which Have Been De-listed for 2002 (con't).

Assessment Unit ID	AU Description	AU Size	Impaired Use	Rationale for De-listing
ND-09020109-034-S_00	Little Goose River from Little Goose River National Wildlife Refuge downstream to the Goose River	28.64 miles	Aquatic Life	Use impairment due to a non-pollutant (habitat).
ND-09020202-001-S_00	Sheyenne River from its confluence with the Warsing Dam watershed downstream to the end of the hydrologic unit	8.9 miles	Aquatic Life	Use impairment due to a non-pollutant (habitat).
ND-09020202-004-S_00	Sheyenne River from its confluence with Big Coulee downstream to its confluence with the Warsing Dam watershed (ND-09020202-003-S)	40.37 miles	Aquatic Life	Use impairment due to a non-pollutant (habitat).
ND-09020202-006-S_00	Sheyenne River from Harvey Dam downstream to its confluence with Big Coulee	35.06 miles	Aquatic Life	Use impairment due to a non-pollutant (habitat).
ND-09020203-018-S_00	Sheyenne River downstream to the Tolna Dam outlet (ND-09020203-020-S)	56.61 miles	Aquatic Life	Based on most recent data, use is fully supported.
ND-09020202-007-S_00	Big Coulee, including its tributaries	73.77 miles	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use using best professional judgement based on known land use and riparian condition.
ND-09020202-008-S_00	North Fork Sheyenne River upstream from its confluence with the Sheyenne River, excluding the Trappers Coulee and Buffalo Coulee watersheds	52.66 miles	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use based on biological assessment data extrapolated from one site located downstream.

Table 8. 1998 Section 303(d) TMDL Waters in the Red River Basin Which Have Been De-listed for 2002 (con't).

Assessment Unit ID	AU Description	AU Size	Impaired Use	Rationale for De-listing
ND-09020204-027-S_00	Sheyenne River from its confluence with a tributary watershed below Valley City (ND-09020204-028-S) downstream to its confluence with a tributary near Highway 46 (ND-09020204-026-S)	33.59 miles	Recreation	Based on most recent data, use is fully supported.
ND-09020204-034-S_00	Sheyenne River from its confluence with a tributary above Valley City, near Railroad bridge, (ND-09020204-038-S) downstream to its confluence with a tributary below Valley City (ND-09020204-028-S)	13.18 miles	Recreation	Based on most recent data, use is fully supported.
ND-09020204-040-S_00	Sheyenne River from Lake Ashtabula downstream to its confluence with a tributary above Valley City, near Railroad bridge, (ND-09020204-038-S)	4.13 miles	Recreation	Based on most recent data, use is fully supported.
ND-09020204-001-S_00	Sheyenne River from it confluence with an unnamed tributary watershed (ND-09020204-014-S) downstream to its confluence with the Maple River	25.26 miles	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for recreation use based on bacteria data extrapolated form a site located downstream of the AU.
ND-09020204-015-S_00	Sheyenne River from its confluence with tributary watershed (ND-09020204-016-S) downstream to tributary (ND-09020204-014-S)	27.68 miles	Aquatic Life	Use impairment due to a non-pollutant (habitat).
ND-09020204-017-S_00	Sheyenne River from unnamed tributary (ND-09020204-018-S) downstream to unnamed tributary watershed (ND-09020204-016-S)	56.72 miles	Aquatic Life	Use impairment due to a non-pollutant (habitat).

Table 8. 1998 Section 303(d) TMDL Waters in the Red River Basin Which Have Been De-listed for 2002 (con't).

Assessment Unit ID	AU Description	AU Size	Impaired Use	Rationale for De-listing
ND-09020204-031-S_00	Spring Creek upstream from Clausen Springs Dam, including tributaries	14.73 miles	Aquatic Life	Use impairment due to a non-pollutant (habitat).
ND-09020205-001-S_00	Maple River from its confluence with Buffalo Creek downstream to its confluence with the Sheyenne River	27.02 miles	Aquatic Life	Use impairment due to a non-pollutant (habitat).
ND-09020205-010-S_00	Maple River from its confluence with tributary near Leonard (ND-09020205-011-S) downstream to its confluence with Buffalo Creek	13.96 miles	Aquatic Life	Use impairment due to a non-pollutant (habitat).
ND-09020205-012-S_00	Maple River from its confluence with the South Branch Maple River downstream to its confluence with a tributary near Leonard	25.92 miles	Aquatic Life	Use impairment due to a non-pollutant (habitat).
ND-09020205-015-S_00	Maple River from its confluence with a tributary watershed near Buffalo, ND (ND-09020205-019-S) downstream to its confluence with the South Branch Maple River	41.6 miles	Aquatic Life	Use impairment due to a non-pollutant (habitat).
ND-09020205-021-S_00	Maple River from a tributary near the Steel, Cass, Barnes Co. line (ND-09020205-023-S) downstream to a tributary watershed near Buffalo, ND (ND-09020205-019-S)	21.97 miles	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use based on biological assessment data extrapolated from one site located downstream.
ND-09020205-024-S_00	Maple River downstream to its confluence with tributary near the Steele, Cass, Barnes Co. line (ND-09020205-023-S)	28.06 miles	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use based on biological assessment data extrapolated from one site located downstream.

Table 8. 1998 Section 303(d) TMDL Waters in the Red River Basin Which Have Been De-listed for 2002 (con't).

Assessment Unit ID	AU Description	AU Size	Impaired Use	Rationale for De-listing
ND-09020205-004-S_00	Swan Creek upstream from Casselton Reservoir, including tributaries	76.37 miles	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use using best professional judgement based on known land use and riparian condition.
ND-09020301-005	English Coulee from its confluence with an upstream tributary downstream to its confluence with a tributary upstream from Grand Forks, ND (middle reach)	6.16 miles	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use using best professional judgement based on known land use and riparian condition.
ND-09020301-006-S_00	English Coulee downstream to its confluence with a tributary upstream from Grand Forks, ND	8.86 miles	Aquatic Life Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use using best professional judgement based on known land use and riparian condition.
ND-09020307-006-S_00	Turtle River from its confluence with Kelly Slough downstream to its confluence with Salt Water Coulee	0.65	Aquatic Life	Based on most recent data, use is fully supported.
ND-09020307-019-S_00	Turtle River from its confluence with a tributary NE of Turtle River State Park downstream to its confluence with Kelly Slough	25.27	Aquatic Life	Based on most recent data, use is fully supported.
ND-09020308-001-S_00	Forest River from Lake Ardoch downstream to its confluence with the Red River of the North	16.17 miles	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use using best professional judgement based on known land use and riparian condition.

Table 8. 1998 Section 303(d) TMDL Waters in the Red River Basin Which Have Been De-listed for 2002 (con't).

Assessment Unit ID	AU Description	AU Size	Impaired Use	Rationale for De-listing
ND-09020308-023-S_00	Middle Branch Forest River from Matecjek Dam downstream to its confluence with North Branch Forest River	8.85 miles	Aquatic Life	Based on most recent data, use is fully supported.
ND-09020313-006-S_00	Tongue River from its confluence with a tributary NE of Cavalier, ND downstream to its confluence with Big Slough	22.54 miles	Aquatic Life	Use impairment due to a non-pollutant (habitat)
ND-09020313-009-S_00	Tongue River from Renwick Dam downstream to a tributary NE of Cavalier, ND	15.91 miles	Aquatic Life	Use impairment due to a non-pollutant (habitat)
ND-09020313-037-S_00	Little South Pembina River downstream to Mt. Carmel Dam	14.89	Aquatic Life Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use and using best professional judgement based on known land use and riparian condition. Recreation use previously listed as impaired based on known land use.
ND-09020313-038-S_00	unnamed tributaries to the Little South Pembina River (ND-09020313-037-S)	19.34	Aquatic Life Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use using best professional judgement based on known land use and riparian condition. Recreation use previously listed as impaired based on known land use.

Table 8. 1998 Section 303(d) TMDL Waters in the Red River Basin Which Have Been De-listed for 2002 (con't).

Assessment Unit ID	AU Description	AU Size	Impaired Use	Rationale for De-listing
ND-09020313-039-S_00	Mulberry Creek, including tributaries	10.87 miles	Aquatic Life Recreation	Lacks sufficient credible data and/or information to make a use support determination. Data are greater than 5 years old, however, due to the implementation of BMPs as part of a Section 319 NPS project, water quality conditions and land use have been known to have improved significantly since listing in 1998.
ND-09020313-001-S_00	Pembina River from its confluence with the Tongue River downstream to its confluence with the Red River of the North	8.76 miles	Recreation	Based on most recent data, use is fully supported.
ND-09020313-003-L_00	Carpenter Lake	787 acres	Aquatic Life	Based on most recent data, use is fully supported.
ND-09020313-004-L_00	Hooker Lake	34.5 acres	Aquatic Life	Based on most recent data, use is fully supported.
ND-09020313-005-L_00	Dion Lake	82.1 acres	Aquatic Life	Based on most recent data, use is fully supported.
ND-09020313-010-L_00	Jenson Lake	46.6 acres	Aquatic Life	Based on most recent data, use is fully supported.
ND-09020313-021-S_00	Pembina River from its confluence with a tributary west of Neche, ND downstream to its confluence with the Tongue River	32.72 miles	Aquatic Life	Use impairment due to a non-pollutant (habitat)
ND-09020313-021-S_00	Pembina River from its confluence with a tributary west of Neche, ND downstream to its confluence with the Tongue River	32.72 miles	Recreation	Based on most recent data, use is fully supported.

Table 9. 1998 Section 303(d) TMDL Waters in the Missouri River Basin Which Have Been De-listed for 2002.

Assessment Unit ID	AU Description	AU Size	Impaired Use	Rationale for De-listing
ND-10060007-001-L_00	Skjermo Lake	40.3 acres	Aquatic Life Recreation	Based on most recent data, use is fully supported.
ND-10110101-002-L_00	Smishek Lake	187.5 acres	Recreation	Based on most recent data, use is fully supported.
ND-10100004-001-S_00	Yellowstone River from the ND-MT border downstream to its confluence with the Missouri River	21.62 miles	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for recreation use based on limited (n=3) bacteria data extrapolated form a site located upstream of the AU.
ND-10110101-002-S_00	Bear Den Creek downstream to Lake Sakakawea	29.17 miles	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for recreation use based on data greater than 5 years old. Current water quality is believed to have improved significantly based on land use changes and the implementation of BMPs to address animal feeding operations in the watershed.
ND-10110101-003-L_00	Arnegard Dam	23.90 acres	Aquatic Life Recreation	Based on most recent data, use is fully supported.
ND-10110101-004-S_00	White Earth River from its confluence with Paulsen Creek downstream to Lake Sakakawea	49.24 miles	Recreation	Based on most recent data, use is fully supported.
ND-10110107-007-S_00	Clearwater Lake	132.3 acres	Aquatic Life	Based on most recent data, use is fully supported.
ND-10110107-008-S_00	White Earth Dam	174.0 acres	Recreation	Based on most recent data, use is fully supported.

Table 9. 1998 Section 303(d) TMDL Waters in the Missouri River Basin Which Have Been De-listed for 2002 (con't).

Assessment Unit ID	AU Description	AU Size	Impaired Use	Rationale for De-listing
ND-10110101-008-S_00	White Earth River from Smishek Lake downstream to its confluence with Paulsen Creek	29.47 miles	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for recreation use based on data extrapolated from a site located downstream. Current data from the downstream site show the AU is fully supporting.
ND-10110107-011-S_00	North Carlson Lake	79.5 acres	Aquatic Life	Based on most recent data, use is fully supported.
ND-10110101-029-S_01	Stoney Creek from the AKZO plant downstream to Lake Sakakawea	5.0 miles	Aquatic Life	Remaining aquatic life use impairment due to non-pollutant (habitat). Effects of TDS have been minimized due to remediation project.
ND-10110101-072-S_00	East Fork Shell Creek downstream to Lake Sakakawea	31.25 miles	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for recreation use based on data greater than 5 years old. Current water quality is believed to have improved significantly based on land use changes and the implementation of BMPs to address animal feeding operations in the watershed.
ND-10110101-073-S_00	Unnamed tributaries to East Fork Shell Creek	95.11 miles	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for recreation use based on data greater than 5 years old extrapolated from a site on the mainstem East Fork Shell Creek.
ND-10110101-082-S_00	Unnamed tributaries to the Little Knife River	145.27 miles	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for recreation use based on data extrapolated from a site located on the Little Knife River.

Table 9. 1998 Section 303(d) TMDL Waters in the Missouri River Basin Which Have Been De-listed for 2002 (con't).

Assessment Unit ID	AU Description	AU Size	Impaired Use	Rationale for De-listing
ND-10110201-001-L_00	Spring Lake	37.3 acres	Aquatic Life Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life and recreation use using only best professional judgement based on known land use.
ND-10110203-004-L_00	Davis Dam	10.2 acres	Aquatic Life Recreation	Based on most recent data, use is fully supported.
ND-10110203-025-S_00	Little Missouri River from its confluence with Deep Creek downstream to its confluence with Andrews Creek	48.25 miles	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use based on limited metals data expressed total metals data rather than as total recoverable or dissolved. Dissolved metals data collected in 1999 shows that there are no exceedences of water quality criteria for selected trace elements.
ND-10110203-057-S_00	Little Missouri River from its confluence with Andrews Creek downstream to its confluence with Government Creek	9.89 miles	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use based on limited metals data expressed total metals data rather than as total recoverable or dissolved. Additionally, the data were extrapolated from a site upstream of the AU. Dissolved metals data collected in 1999 shows that there are no exceedences of water quality criteria for selected trace elements.
ND-10110204-001-L_00	Odland Dam	108.0 acres	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for recreation use using only best professional judgement based on known land use.

Table 9. 1998 Section 303(d) TMDL Waters in the Missouri River Basin Which Have Been De-listed for 2002 (con't).

Assessment Unit ID	AU Description	AU Size	Impaired Use	Rationale for De-listing
ND-10110205-001-S_00	Little Missouri River from its confluence with Beaver Creek downstream to Highway 85	58.94 miles	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use based on limited metals data expressed total metals data rather than as total recoverable or dissolved. Additionally, the data were extrapolated from a site upstream of the AU. Dissolved metals data collected in 1999 shows that there are no exceedences of water quality criteria for selected trace elements.
ND-10110205-033-S_00	Little Missouri River from Highway 85 downstream to its confluence with Cherry Creek	23.79 miles	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use based on limited metals data expressed total metals data rather than as total recoverable or dissolved. Dissolved metals data collected in 1999 shows that there are no exceedences of water quality criteria for selected trace elements.
ND-10110205-059-S_00	Little Missouri River from its confluence with Cherry Creek downstream to Little Missouri Bay, Lake Sakakawea (Lost Bridge)	21.03 miles	Aquatic Life Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use based on limited metals data expressed total metals data rather than as total recoverable or dissolved. Additionally, the data were extrapolated from a site upstream of the AU. Dissolved metals data collected in 1999 shows that there are no exceedences of water quality criteria for selected trace elements.

Table 9. 1998 Section 303(d) TMDL Waters in the Missouri River Basin Which Have Been De-listed for 2002 (con't).

Assessment Unit ID	AU Description	AU Size	Impaired Use	Rationale for De-listing
ND-10110205-069-S_00	Squaw Creek, including tributaries	41.34 miles	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for recreation use based on data extrapolated from the mainstrem Little Missouri River.
ND-10110205-070-S_00	Moccasin Creek, including tributaries	91.71 miles	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for recreation use based on data extrapolated from the mainstrem Little Missouri River.
ND-10130101-005-L_00	Long Lake	206.0 acres	Aquatic Life Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life and recreation use using only best professional judgement based on known land use.
ND-10130101-007-L_00	Lake Holmes	427.50 acres	Recreation	Based on most recent data, use is fully supported.
ND-10130101-011-L_00	Lake Brekken	249.3 acres	Recreation	Based on most recent data, use is fully supported.
ND-10130102-003-L_00	Welk Dam	28.2 acres	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Available data are greater than 10 years old and due to changes in land use and climate (i.e., increased precipitation), water quality is known to have improved significantly.
ND-10130201-010-S_00	Otter Creek from its confluence with a tributary watershed (ND-10130201-012-S) downstream to its confluence with the Knife River	18.45 miles	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use based on limited biological data from a site located upstream of the AU.

Table 9. 1998 Section 303(d) TMDL Waters in the Missouri River Basin Which Have Been De-listed for 2002 (con't).

Assessment Unit ID	AU Description	AU Size	Impaired Use	Rationale for De-listing
ND-10130201-013-S_00	Otter Creek upstream from its confluence with a tributary watershed (ND-10130201-012-S), including tributaries	95.19 miles	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use based on one biological monitoring sample from one site. No IBI has been developed with which assessment decisions can be based.
ND-10130201-023-S_00	Spring Creek from its confluence with North Creek downstream to its confluence with Goodman Creek	36.36	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for recreation use based on data extrapolated from a site located downstream on Goodman Creek.
ND-10130201-028-S_00	Spring Creek from Lake Ilo downstream to its confluence with North Creek	23.3	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for recreation use based on data extrapolated from a site located downstream.
ND-10130201-032-S_00	Spring Creek downstream to Lake Ilo	23.89 miles	Aquatic Life Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life and recreation use using only best professional judgement based on known land use.
ND-10130202-002-S_00	Heart River from its confluence with Government Creek downstream to Lake Tschida	18.12 miles	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use based only on a habitat assessment conducted by the ND Game and Fish Dept.

Table 9. 1998 Section 303(d) TMDL Waters in the Missouri River Basin Which Have Been De-listed for 2002 (con't).

Assessment Unit ID	AU Description	AU Size	Impaired Use	Rationale for De-listing
ND-10130202-003-S_00	Heart River from its confluence with South Branch Heart River downstream to Patterson lake	15.49 miles	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for recreation use based on best professional judgement and limited nutrient data rather than on bacteria data.
ND-10130202-025-S_00	Heart River from its confluence with Antelope Creek downstream to its confluence with Plum Creek	25.18 miles	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use based only on a habitat assessment conducted by the ND Game and Fish Dept.
ND-10130202-050-S_00	Heart River from Patterson Lake downstream to its confluence with the Green River	24.7 miles	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use based only on a habitat assessment conducted by the ND Game and Fish Dept.
ND-10130202-056-S_00	Heart River from its confluence with a tributary watershed near Belfield, ND (ND-10130202-067-S) downstream to its confluence with the South Branch Heart River	14.88 miles	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for recreation use based on best professional judgement and limited nutrient data rather than on bacteria data.
ND-10130203-001-S_00	Heart River from Dead Heart Slu downstream to its confluence with the Missouri River	7.25 miles	Recreation	Based on most recent data, use is fully supported.

Table 9. 1998 Section 303(d) TMDL Waters in the Missouri River Basin Which Have Been De-listed for 2002 (con't).

Assessment Unit ID	AU Description	AU Size	Impaired Use	Rationale for De-listing
ND-10130203-002-S_00	Big Muddy Creek from its confluence with Hailstone Creek downstream to its confluence with the Heart River	21.01 miles	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for recreation use based on data which is now greater than 7 years old. Water quality is believed to be have improved significantly due to increased CRP acreage in the watershed.
ND-10130203-006-L_00	Nygren Dam	6.8 acres	Recreation	Based on most recent data, use is fully supported.
ND-10130203-009-S_00	Heart River from its confluence with Fish Creek downstream to its confluence with Dead Heart Slu	33.52 miles	Recreation	Based on most recent data, use is fully supported. Previously listed as impaired for recreation use based on data extrapolated from a site located downstream from the AU.
ND-10130203-016-S_00	Sweet Briar Creek from its confluence with a tributary watershed near Youngtown, ND (ND-10130203-019-S) downstream to Sweet Briar Dam	13.73 miles	Aquatic Life Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life and recreation use using only best professional judgement based on known land use.
ND-10130203-017-S_00	Unnamed tributaries to Sweet Briar Creek (ND-10130203-016-S)	82.46 miles	Aquatic Life Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life and recreation use using only best professional judgement based on known land use.
ND-10130203-019-S_00	Unnamed tributary watershed to Sweet Briar Creek (ND-10130203-016-S) near Youngtown, ND	58.54 miles	Aquatic Life Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life and recreation use using only best professional judgement based on known land use.

Table 9. 1998 Section 303(d) TMDL Waters in the Missouri River Basin Which Have Been De-listed for 2002 (con't).

Assessment Unit ID	AU Description	AU Size	Impaired Use	Rationale for De-listing
ND-10130203-020-S_00	Sweet Briar Creek upstream from its confluence with a tributary watershed near Youngtown, ND (ND-10130203-019-S), including tributaries	52.99 miles	Aquatic Life Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life and recreation use using only best professional judgement based on known land use.
ND-10130204-007-S_00	Cannonball River from its confluence with Sheep Creek downstream to its confluence with Snake Creek	46.7 miles	Recreation	Based on most recent data, use is fully supported.
ND-10130204-011-S_00	Cannonball River from its confluence with Spring Creek downstream to its confluence with Sheep Creek	45.71 miles	Recreation	Based on most recent data, use is fully supported.
ND-10130204-012-S_00	Sheep Creek upstream from Sheep Creek Dam, including tributaries	72.43 miles	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use using only best professional judgement based on known land use and riparian condition.
ND-10130204-022-S_00	Cannonball River from its confluence with Indian Creek downstream to its confluence with Spring Creek	46.43 miles	Recreation	Based on most recent data, use is fully supported.
ND-10130204-032-S_00	Cannonball River from its confluence with Philbrick Creek downstream to its confluence with Indian Creek	54.25 miles	Recreation	Based on most recent data, use is fully supported.
ND-10130204-037-S_00	Indian Creek upstream from Indian Creek Dam, including tributaries	17.53 miles	Aquatic Life	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life use using only best professional judgement based on known land use and riparian condition.

Table 9. 1998 Section 303(d) TMDL Waters in the Missouri River Basin Which Have Been De-listed for 2002 (con't).

Assessment Unit ID	AU Description	AU Size	Impaired Use	Rationale for De-listing
ND-10130205-008-S_00	Cedar Creek from its confluence with Timber Creek downstream to its confluence with Hay Creek	45.33 miles	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for recreation use based on data extrapolated from a site located upstream of the AU.
ND-10130205-043-S_00	North Fork Cedar Creek, including tributaries	14.5 miles	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for recreation use based on best professional judgement and limited nutrient data rather than on bacteria data.
ND-10130205-044-S_00	Unnamed tributaries to Cedar Creek (ND-10130205-042-S)	81.25 miles	Aquatic Life Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life and recreation use using only on best professional judgement based on known land use and riparian condition.
ND-10130205-045-S_00	South Fork Cedar Creek, including tributaries	21.99 miles	Aquatic Life Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life and recreation use using only on best professional judgement based on known land use and riparian condition.
ND-10130205-046-S_00	Cedar Creek upstream from its confluence with South Fork Cedar Creek, including tributaries	49.23 miles	Aquatic Life Recreation	Lacks sufficient credible data and/or information to make a use support determination. Previously listed as impaired for aquatic life and recreation use using only on best professional judgement based on known land use and riparian condition.

Table 10. 1998 Section 303(d) TMDL Waters in the James River Basin Which Have Been De-listed for 2002.

Assessment Unit ID	AU Description	AU Size	Impaired Use	Rationale for De-listing
ND-10160001-002-S_00	James River downstream from Jamestown Reservoir to its confluence with Pipestem Creek	1.48 miles	Aquatic Life	Use impairment due to a non-pollutant (habitat).
ND-10160001-002-S_00	James River downstream from Jamestown Reservoir to its confluence with Pipestem Creek	1.48 miles	Recreation	Based on most recent data, use is fully supported.
ND-10160004-001-S_00	Elm River from Pheasant Lake downstream to the ND-SD border and Elm Lake	5.27 miles	Aquatic Life	Use impairment due to a non-pollutant (habitat). TMDL completed for this AU by South Dakota as part of the Elm Lake TMDL
ND-10160003-002-L_00	Schlect-Weixel Dam	10.3 acres	Aquatic Life Recreation	Lacks sufficient credible data and/or information to make a use support determination. Available data are greater than 10 years old and due to changes in land use and climate (i.e., increased precipitation), water quality is known to have improved significantly.
ND-10160003-005-L_00	Lehr Dam	9.5 acres	Aquatic Life Recreation	Lacks sufficient credible data and/or information to make a use support determination. Available data are greater than 10 years old and due to changes in land use and climate (i.e., increased precipitation), water quality is known to have improved significantly.
ND-10160004-006-L_00	Kulm-Edgeley Dam	28.7 acres	Recreation	Lacks sufficient credible data and/or information to make a use support determination. Available data are greater than 10 years old and due to changes in land use and climate (i.e., increased precipitation), water quality is known to have improved significantly.

Appendix A.
Estimated Weighted Average Methyl-mercury Concentrations in Fish for Lake Sakakawea

Chinook Salmon			
Size Range (cm)	Average methyl-Hg Concentration (μg/g)[1]	Weighting Factor[2]	Weighted Concentration (μg/g)[3]
< 63	0.173	0.236	0.041
63-72	0.298	0.646	0.192
>73	0.270	0.128	0.035
Weighted Average[4]			0.268

Northern Pike			
Size Range (cm)	Average methyl-Hg Concentration (μg/g)[1]	Weighting Factor[2]	Weighted Concentration (μg/g)[3]
< 58	0.12	0.138	0.017
59-77	0.355	0.454	0.161
78-99	0.479	0.408	0.195
>99	0.895	0	0
Weighted Average[4]			0.373

Sauger			
Size Range (cm)	Average methyl-Hg Concentration (μg/g)[1]	Weighting Factor[2]	Weighted Concentration (μg/g)[3]
< 37	0.17	0.028	0.005
38-47	0.337	0.873	0.294
>47	0.72	0.099	0.071
Weighted Average[4]			0.37

[1] Based on the average methyl-mercury concentration for fish sampled in the size range.

[2] Estimated as the proportion of fish caught and kept by fisherman for that species and waterbody. Based on data obtained from the report entitled "Angler Use and Sport Fishing Catch Survey on Lake Sakakawea, North Dakota - May 1 Through October 24, 2000" prepared by Larry Brooks and Jeff Hendrickson, submitted to North Dakota Game and Fish Department, Project F-2-R-47, Study 3, Number A-1275, Job C.

[3] Calculated by multiplying the average concentration per size range with the weighting factor for the size range.

[4] Calculated as the sum of the weighted concentrations for each size range.

Walleye			
Size Range (cm)	Average methyl-Hg Concentration (μg/g)[1]	Weighting Factor[2]	Weighted Concentration (μg/g)[3]
< 40	0.171	0.216	0.037
40-46	0.196	0.411	0.081
47-50	0.389	0.248	0.096
>50	0.508	0.125	0.064
Weighted Average[4]			0.278

[1] Based on the average methyl-mercury concentration for fish sampled in the size range.

[2] Estimated as the proportion of fish caught and kept by fisherman for that species and waterbody. Based on data obtained from the report entitled "Angler Use and Sport Fishing Catch Survey on Lake Sakakawea, North Dakota - May 1 Through October 24, 2000" prepared by Larry Brooks and Jeff Hendrickson, submitted to North Dakota Game and Fish Department, Project F-2-R-47, Study 3, Number A-1275, Job C.

[3] Calculated by multiplying the average concentration per size range with the weighting factor for the size range.

[4] Calculated as the sum of the weighted concentrations for each size range.

Appendix B.
Estimated Weighted Average Methyl-mercury Concentrations
in Fish for Lake Oahe and the Missouri River

Walleye			
Size Range (cm)	Average methyl-Hg Concentration (μg/g)[1]	Weighting Factor[2]	Weighted Concentration (μg/g)[3]
< 36	0.15	0.218	0.033
36-39	0.152	0.505	0.077
40-51	0.243	0.264	0.064
>51	0.63	0.013	0.008
Weighted Average[4]			0.183

[1] Based on the average methyl-mercury concentration for fish sampled in the size range.

[2] Estimated as the proportion of fish caught and kept by fisherman for that species and waterbody. Based on data obtained from the report entitled "Angler Use and Sport Fishing Catch Survey on Lake Sakakawea, North Dakota - April 1 Through October 15, 2000" prepared by Larry Brooks and Jeff Hendrickson, submitted to North Dakota Game and Fish Department, Project F-2-R-47, Study 3, Number A-1275, Job B.

[3] Calculated by multiplying the average concentration per size range with the weighting factor for the size range.

[4] Calculated as the sum of the weighted concentrations for each size range.

Appendix C.
Estimated Weighted Average Methyl-mercury Concentrations in Fish for Devils Lake

Walleye			
Size Range (cm)	Average methyl-Hg Concentration (μg/g)[1]	Weighting Factor[2]	Weighted Concentration (μg/g)[3]
< 34	0.43	0.187	0.081
34-40	0.623	0.462	0.288
41-49	0.608	0.249	0.151
50-60	1.248	0.083	0.104
>60	1.79	0.019	0.034
Weighted Average[4]			0.658

Northern Pike			
Size Range (cm)	Average methyl-Hg Concentration (μg/g)[1]	Weighting Factor[2]	Weighted Concentration (μg/g)[3]
< 58	0.43	0.11	0.047
59-67	0.569	0.439	0.25
68-77	0.659	0.356	0.235
>77	1.153	0.095	0.11
Weighted Average[4]			0.642

[1] Based on the average methyl-mercury concentration for fish sampled in the size range.

[2] Estimated as the proportion of fish caught and kept by fisherman for that species and waterbody. Based on data obtained from the report entitled "Angler Use and Sport Fishing Catch Survey on Lake Sakakawea, North Dakota - May 1 Through October 31, 2001" prepared by Larry Brooks and Randy Hiltner, submitted to North Dakota Game and Fish Department, Project F-2-R-49, Study 3, Number 2, October 2002.

[3] Calculated by multiplying the average concentration per size range with the weighting factor for the size range.

[4] Calculated as the sum of the weighted concentrations for each size range.

Yellow Perch			
Size Range (cm)	Average methyl-Hg Concentration (μg/g)[1]	Weighting Factor[2]	Weighted Concentration (μg/g)[3]
< 21	0.27	0.082	0.022
21-25	0.529	0.539	0.285
26-30	0.437	0.333	0.146
>30	0.62	0.046	0.029
Weighted Average[4]			0.482

White Bass			
Size Range (cm)	Average methyl-Hg Concentration (μg/g)[1]	Weighting Factor[2]	Weighted Concentration (μg/g)[3]
< 28	0.31	0.061	0.02
28-35	0.54	0.338	0.182
36-41	0.933	0.41	0.382
>41	1.31	0.191	0.25
Weighted Average[4]			0.834

[1] Based on the average methyl-mercury concentration for fish sampled in the size range.

[2] Estimated as the proportion of fish caught and kept by fisherman for that species and waterbody. Based on data obtained from the report entitled "Angler Use and Sport Fishing Catch Survey on Lake Sakakawea, North Dakota - May 1 Through October 31, 2001" prepared by Larry Brooks and Randy Hiltner, submitted to North Dakota Game and Fish Department, Project F-2-R-49, Study 3, Number 2, October 2002.

[3] Calculated by multiplying the average concentration per size range with the weighting factor for the size range.

[4] Calculated as the sum of the weighted concentrations for each size range.

Appendix D.
Estimated Weighted Average Methyl-mercury Concentrations in Fish for the Red River of the North

Walleye			
Size Range (cm)	Average methyl-Hg Concentration (μg/g)[1]	Weighting Factor[2]	Weighted Concentration (μg/g)[3]
< 41	0.74	0.484	0.36
41-63	0.885	0.484	0.428
>63	1.598	0.032	0.051
Weighted Average[4]			0.839

Channel Catfish			
Size Range (cm)	Average methyl-Hg Concentration (μg/g)[1]	Weighting Factor[2]	Weighted Concentration (μg/g)[3]
< 38	0.17	0.276	0.046
38-46	0.287	0.141	0.04
47-56	0.381	0.245	0.093
57-68	0.527	0.252	0.133
>68	0.814	0.086	0.07
Weighted Average[4]			0.382

[1] Based on the average methyl-mercury concentration for fish sampled in the size range.

[2] Estimated as the proportion of fish caught and kept by fisherman for that species and waterbody. Based on data obtained from the report entitled "Angler Use and Sport Fishing Catch Survey on Red River, North Dakota - March 15 Through October 31, 2000" prepared by Larry Brooks and Lynn Schlueter, submitted to North Dakota Game and Fish Department, Project F-2-R-48, Study 3, June 2002.

[3] Calculated by multiplying the average concentration per size range with the weighting factor for the size range.

[4] Calculated as the sum of the weighted concentrations for each size range.

Appendix E.
Public Notice Statement Requesting Public Comment on the
State of North Dakota's Draft 2002 Section 303(d) List

PUBLIC NOTICE STATEMENT

Notice of submittal to the U.S. Environmental Protection Agency (EPA) and a request for public comment on the State of North Dakota's draft 2002 Section 303(d) List of Waters Needing Total Maximum Daily Loads (TMDLs).

1. Summary

Section 303(d) of the Clean Water Act (CWA) and its accompanying regulations (CFR Part 130 Section 7) requires each state to identify waterbodies (i.e., lakes, reservoirs, rivers, streams, and wetlands) which are considered water quality limited and 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.

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 were required to submit a revised list of waters needing TMDLs. This list has become known as the "TMDL list" or "Section 303(d) list." The state of North Dakota last submitted its TMDL list to EPA in April 1998. Due to changes in federal regulations affecting TMDLs which were promulgated in July 2000 and the subsequent repeal of those regulations in August 2001, the state of North Dakota has not updated is Section 303(d) TMDL since that time. Therefore the 2002 Section 303(d) list includes a list of waterbodies not meeting water quality standards and which need TMDLs, and a list of waterbodies which have been removed from the list submitted in 1998.

Following an opportunity for public comment, the state must submit its list to the EPA Regional Administrator. The EPA Regional Administrator then has 30 days to either approved or disapprove the state listings. The purpose of this notice is to solicit public comment prior to formally submitting the list to the EPA Regional Administrator.

2. Public Comments

Persons wishing to comment on the State's draft 2002 Section 303(d) List of Waters Needing TMDLs may do so, in writing, within thirty (30) days of the date of this public notice. Comments must be received within this 30-day period to ensure consideration in the EPA approval or disapproval decision. All comments should include the name, address, and telephone number of the person submitting comments, and a statement of the relevant facts upon which they are based. All comments should be submitted to the attention of the Section 303(d) TMDL Coordinator, North Dakota Department of Health, Division of Water Quality, 1200 Missouri Avenue, Bismarck, ND 58506-5520. The 2002 Section 303(d) TMDL list may be reviewed at the above address during normal business hours or by accessing it through the Department's web address (http://www.health.state.nd.us). Copies may also be requested by writing to the Department at the above address or by calling 701.328.5210.

Public Notice Number ND-2002-040

Appendix F.
Response to Comments Received from the US EPA on the
State of North Dakota's Draft 2002 Section 303(d) List

EPA Comments on North Dakota's Draft 2002 303(d) List

December 23, 2002

Thank you for the opportunity to comment on North Dakota's draft 2002 303(d) list of waters needing TMDLs. The state's list reflects a culmination of a lot of hard work that went into putting it together, and we find it to be well drafted. However, we have a several concerns that need to be addressed before the list is submitted to us for final review and approval. We would like the opportunity to discuss the state's response to our comments and the comments from others received during the public comment period, prior to the final list submission.

1. **Fish Tissue / mercury impaired waters:** We are concerned that NDDH did not include any waters on the 2002 303(d) list due to mercury impairment. At a minimum, we need more detail on how the state used the fish tissue information to make listing decisions, and the rationale for not listing waters based on this information. We consider the fish tissue data that has been collected to be "existing and readily available water quality related data and information" as described in the assessment methodology on page 3 of the draft list. We have previously provided the method to covert the mercury criterion to a fish tissue criterion. The fish tissue numbers could be used to determine whether the use is impaired, recognizing that fish consumption is a bona fide use protected by state water quality standards (see beneficial use discussion on page 6 of the draft list). The fish tissue / mercury data evaluation should also be part of the *Lake and Reservoir Assessment Methodology* discussion on pages 14-15 of the draft list.

   The state has the option of deferring the mercury TMDLs to EPA if the state feels that the sources of loading are beyond their control. We ask NDDH to consider listing those waters with fish tissue data that shows that the use is being impaired.

   State Response: Fish consumption use has been assessed. Lake Sakakawea, Devils Lake and the Red River of the North have been added to the impaired waters list due to methyl-mercury contamination. Language has been added to Section 2.0, Assessment Methodology, describing the credible data requirements and the assessment methodology for assessing the fish consumption use.

2. **Beneficial Uses Not Assessed:** The draft list (page 6) mentions that agriculture and industrial uses were not assessed, and goes on to say that they are presumed to be fully supporting. We recognize and accept that all waters have not been assessed, however we disagree that NDDH can or should conclude that agriculture and industrial use waters are meeting the fully supporting designation without credible data and information. We suggest that "...presumed to be fully supporting," be deleted from this sentence.

   State Response: Agreed, language deleted.

3. **Sufficient and Credible Data Requirements:** Many states will list a waterbody if the available data (even if the number of samples are less than the threshold) represents "overwhelming evidence" of impairment. For example, if 4 or 5 samples exist, but all of them greatly exceed the standard. What if only 5 samples exist, but 100% of them exceed the standard - would ND list the waterbody? We suggest that NDDH consider adding an overwhelming evidence criteria for small data sets to their "Credible Data Requirements."

   State Response: Agreed, the following language has been added to bullet four in Section 2.3. "In some cases there may be overwhelming evidence to list a waterbody as impaired even though there may less than 10 samples collected within a five year period. For example, if only four or five chemical samples were collected within a five year period and all of them exceeded the water quality standard, then the water body would be listed as impaired based on this 'overwhelming evidence.'"

4. **River and Stream Assessment Methodology:** The draft list description of use support for aquatic life (page 11) includes exceedances for DO and toxic pollutants. However, there isn't any mention of the other common conventional pollutants: pH and temperature. We suggest that this section be modified to include these two parameters in the discussion.

   State Response: Agreed, pH and temperature added to Section 2.4.1, Aquatic Life.

5. **Prioritization of Listed Waters:** We agree with NDDH's list of six factors to consider in assigning waterbody priorities for TMDL development. However, the discussion goes on to say that all waterbodies where TMDLs are expected to begin development within the next two years are priority 1, and all others are priority 2. As currently explained, the link between the six factors and the priority assignments seems to be missing. We recommend that a sentence be added to the second paragraph of this section that explains this link. We suggest something similar to: "After consideration of the six priority factors above, the state developed a list of priority 1 waterbodies for which we expect to begin TMDL development within the next two years." If there are additional factors that the state considers in assigning waterbody priorities (e.g., known local support for water quality improvement, or state assessments have been completed), they should be added to the list of factors considered.

   State Response: Agreed, additional language has been added to Section 3.0, Prioritization of TMDL Lists. A third tier has also been added to address TMDL development problems associated with methyl-mercury contaminated waterbodies.

6. **Lostwood National Wildlife Refuge:** The draft list (page 16) mentions that the wetlands within the Lostwood National Wildlife Refuge and Wilderness area are considered "threatened" by NDDH. We are unclear on the context of the term "threatened" (i.e., 305(b) vs 303(d)), but its use seems to indicate that these wetlands should be included on the 303(d) list. If NDDH doesn't intend to list the waters at this time, perhaps the term "vulnerable" would be more appropriate.

   State Response: Agreed, threatened changed to vulnerable.

7. **Delisting TMDL Waters:** We need more detail on the rationale for de-listing each of the waters in Tables 7-9. We are particularly interested in the reasoning for delisting those waters which NDDH has determined "lacks sufficient credible data and/or information to make a use support determination." If additional information already exists for each of the waters proposed to be de-listed for this reason, please send it to us for review (i.e., send us a water-by-water explanation, if available). If water-by-water explanation is not currently available, then provide a general explanation of the reasons why the majority of waters in this category are being de-listed (e.g., age of data exceeded the 5/10 year cutoff for streams/lakes and newer data hasn't been collected to take its place), and provide any more specific information on waters that don't fall into the majority general explanation.

   State Response: Agreed, additional detail has been added to the justification for de-listing where necessary.

8. **2002 TMDL Development Schedule:** We are concerned with the state's lack of progress in developing TMDLs on the 1998 list. The discussion of the 2002 TMDL development schedule should include the progress that NDDH has made in meeting the commitments made in the 1998 TMDL development schedule. The discussion should include a brief summary of the programmatic changes that have been made to ensure that the state will meet its 2002 commitments.

   State Response: Additional language has been added to Section 7.0, 2002 TMDL Development Schedule and Rationale describing programmatic changes which have occurred that have resulted in increased TMDL development capacity in the state.

9. **Minor Corrections:** We noticed the following minor errors that should be corrected: 1) Part 1.0 Background, page 1, first paragraph "...load allocations, wasteload allocations, or total maximum daily loads." should be "...and total maximum daily loads."; 2) Part 2.4.2 Recreation, page 13, Not Supporting classification, "Criteria 2 is not meet..." should be "...is not met..."; 3) Part 2.5.1 Aquatic Life and Recreation, page 14, "...hypereutrophic lakes do not fully a..." should be "...do not fully support a..."

   State Response: Changes made.