SOUTH DAKOTA

TOTAL MAXIMUM DAILY LOAD WATERBODY LIST 2002

WITH SUPPORTING DOCUMENTATION

Protecting South Dakota's Tomorrow ... Today

Prepared by the

SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
Steven M. Pirner, Secretary

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
JOE FOSS BUILDING
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PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

December 17, 2002

Dear Interested Party:

The South Dakota Department of Environment and Natural Resources (DENR) is pleased to present our final 2002 EPA-approved 303(d) Waterbody List. As noted in the EPA approval, the department went through an extensive public participation process across the state seeking public input by first requesting water quality data and later in developing the draft list. In addition to public notices, the department made use of the South Dakota DENR website to raise awareness and invite participation. In its approval letter, EPA goes on to say:

> "EPA determined that South Dakota's 2002 list of water quality limited segments (WQLSs) still requiring TMDLs meets the requirements of Section 303(d) of the Clean Water Act ("CWA" or "the Act") and EPA's implementing regulations. Therefore, by this order, EPA hereby APPROVES South Dakota's Section 303(d) list."

With this approved list, the work of completing Total Maximum Daily Loads goes on. As the department moves forward, we will continue to rely on the help of all our partners in each watershed. The department realizes that this work is being done to help improve the water quality of our lakes and streams for you and by you, the people of South Dakota.

If you have comments, questions, suggestions, or just want to talk about this document, please feel free to contact either Leland Baron or Stacy Splittstoesser by e-mail at: leland.baron@state.sd.us or stacy.splittstoesser@state.sd.us . Both can be also reached either at the address above or phone number 1-800-438-3367.

Sincerely,

Steven M. Pirner
Secretary

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DEC - 3 2002

Ref: 8EPR-EP

Steven M. Pirner, Secretary
Department of Environment & Natural Resources
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3181

Re: Clean Water Act Section 303(d)
Total Maximum Daily Load (TMDL) Waterbody List

Dear Mr. Pirner:

Thank you for your submittal of South Dakota's year 2002 Clean Water Act Section 303(d) waterbody list dated September 30, 2002. EPA has conducted a complete review of this waterbody list and supporting documentation and information. Based on this review, EPA has determined that South Dakota's 2002 list of water quality limited segments (WQLSs) still requiring TMDLs meets the requirements of Section 303(d) of the Clean Water Act ("CWA" or "the Act") and EPA's implementing regulations. Therefore, by this order, EPA hereby APPROVES South Dakota's Section 303(d) list. Please see the enclosure for a description of the statutory and regulatory requirements and a summary of EPA's review of South Dakota's compliance with each requirement.

EPA's approval of South Dakota's Section 303(d) list extends to all waterbodies on the list with the exception of those waters that are within Indian Country, as defined in 18 U.S.C. Section 1151. EPA is taking no action to approve or disapprove the State's list with respect to those waters at this time. EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under Section 303(d) for those waters.

The public participation process sponsored by South Dakota DENR included publishing display ads in newspapers across the state requesting public input in developing the draft list and requesting water quality data, official public notices on the list availability, use of the South Dakota DENR website, and a mailing to many entities asking for both comments and additional data or information on waters. We commend the state for its thorough public participation process.

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We wish to inform you that our office has received concurrence from the U.S. Fish and Wildlife Service regarding our biological evaluations of the approval of the State's year 2002 waterbody list. Our biological evaluation that addressed our approval was submitted to the Service in accordance with Section 7 of the Endangered Species Act. In our evaluation, we assessed the effects of our approval on the threatened, endangered, proposed, and candidate species throughout the State. Our conclusion was that our approval of the State's list would not likely have an adverse effect on the species of concern. Any effect of the list approval was seen as either insignificant or beneficial to the species.

Under current regulations, the next Section 303(d) list is required to be submitted on April 1, 2004. We suggest you stay abreast of EPA's pending rulemaking for the TMDL program since there may be a change in the April 2004 date. Although current regulations require lists to be submitted every 2 years, in April of even years, States may submit Section 303(d) lists more frequently as they deem necessary. All additions, deletions and modifications to the list will require EPA approval.

Again, thank you for the efforts related to the good job of developing the §303(d) TMDL waterbody list for the 2002-2004 biennium. If you have questions on any of the above information, feel free to give me, or Bruce Zander (303-312-6846) of my staff, a call.

Sincerely,

Max H. Dodson
Assistant Regional Administrator
Ecosystems Protection and
Remediation

Enclosure

SOUTH DAKOTA
2002
TOTAL MAXIMUM DAILY LOAD
WATERBODIES

The 2002 List Identifying South Dakota Waterbodies for Total Maximum Daily Load Development pursuant to Section 303(d) of the Federal Clean Water Act

Prepared by the
South Dakota Department of
Environment and Natural Resources

Steven M. Pirner, Secretary

Pierre, South Dakota 57501

TABLE OF CONTENTS

Page

TABLE OF CONTENTS iii

LIST OF FIGURES iv

LIST OF TABLES iv

INTRODUCTION AND EXECUTIVE SUMMARY 1

OBJECTIVE 1
OVERVIEW OF TMDLS 1
SUMMARY OF SECTION 303(D) OF THE FEDERAL CLEAN WATER ACT 1
SUMMARY OF SOUTH DAKOTA'S 2002 303(D) TMDL WATERBODY LIST 2
RESOURCE IMPLICATIONS FROM 2002 303(D) LIST 4

LISTING APPROACH AND METHODOLOGIES 6

TYPES OF WATERS LISTED 6
Impaired Waters 6
Waters with Surface Water Discharge-Related Wasteload Allocations 6
Waters Reported by Government Agencies; Members of the General Public; or Academic Institutions 7
MINIMUM DATA REQUIREMENTS 7
STREAM METHODOLOGIES 7
Beneficial Uses 7
Water Quality Standards 8
Surface Water Quality Standards for Metals 9
Sources of Data 9
Data Evaluation 10
LAKE METHODOLOGIES 11
Water Quality Standards Applicable to Lakes 11
Sources of Data 11
Lake Assessment Methodology 12
Trophic State Index 13

PRIORITIZATION OF TMDL WATERS 17

Regulatory Requirements 17
Section 319-Related Waters 17
Surface Water Discharge-Related Waters 17

PUBLIC PARTICIPATION PROCESS 19

PROCESS DESCRIPTION 19
First Public Review/Input Period 19
Second Public Review Period 19

LISTING OF TMDL WATERS 20

DELISTING OF CERTAIN 1998 TMDL WATERS AND OTHER EXCLUSIONS 33

STATUS OF 1998 303(D) LIST 33
DELISTING OF WATERBODIES 34
OTHER WATERS SPECIFICALLY EXCLUDED FROM THE 2002 303(D) LIST 39

2002 OVERALL TMDL DEVELOPMENT SCHEDULE 41

SCHEDULE AND RATIONALE 41

REFERENCES 43

Appendix A – Map of TMDL Waters 45

Appendix B – Public Participation Displays and Response to Public Comments 49

LIST OF FIGURES

Page

FIGURE 1. PROJECTED NUMBER OF TMDLS BY MAJOR RIVER BASIN 2
FIGURE 2. PERCENTAGE AND TYPES OF TMDLS INCLUDED ON THE 2002 303(D) LIST 4
FIGURE 3. SOUTH DAKOTA LEVEL III ECOREGIONS 13
FIGURE 4. COMPARISON OF MEAN TSI IN ALL ECOREGIONS 14
FIGURE 5. STATUS OF TMDLS FROM THE 1998 303(D) LIST 33
FIGURE 6. TMDL DEVELOPMENT SCHEDULE 42
FIGURE 7. 2002 TMDL WATERS MAP 47

LIST OF TABLES

TABLE 1. SUMMARY OF SOUTH DAKOTA TMDLS BY BASIN 3
TABLE 2. TYPES OF TMDLS INCLUDED ON THE 2002 303(D) LIST 4
TABLE 3. SUMMARY OF NUMERIC SURFACE WATER QUALITY STANDARDS 8
TABLE 4. CRITERIA FOR EVALUATING WATER QUALITY DATA (STREAMS) 10
TABLE 5. NARRATIVE WATER QUALITY STANDARDS APPLICABLE TO LAKES 11
TABLE 6. SOUTH DAKOTA PRELIMINARY ECOREGION SUPPORT DETERMINATION RANGE FOR LAKES 15
TABLE 7. TMDL PRIORITIZATION CRITERIA 17
TABLE 8. LISTED 303(D) WATERS 20
TABLE 9. STATUS OF TMDLS FROM THE 1998 303(D) LIST 33
TABLE 10. WATERBODIES FROM 1998 303(D) LIST TO BE DELISTED 35
TABLE 11. WATERS NOT TARGETED FOR TMDL DEVELOPMENT 39

INTRODUCTION AND EXECUTIVE SUMMARY

Objective

The objective of this list is to identify waterbodies within South Dakota which need the development of Total Maximum Daily Loads (TMDLs). Included with this listing are the basis for listings, prioritizations, and schedules for development. Supporting documentation such as methodologies used for listings and public participation procedures are also included.

Overview of TMDLs

Total Maximum Daily Loads are important tools for the management of water quality. The U.S. Environmental Protection Agency (EPA) defines a TMDL as "the sum of the individual waste load allocations for point sources and load allocations for both nonpoint sources and natural background sources established at a level necessary to achieve compliance with applicable surface water quality standards." In simple terms, a TMDL is the amount of pollution a waterbody can receive and still maintain water quality standards. Therefore, the goal of TMDLs is to ensure that waters of the state attain or maintain the beneficial uses established for each waterbody.

Section 303(d) of the federal Clean Water Act (CWA) requires states to develop and submit for approval a list of waters targeted for TMDL development. This is referred to as the 303(d) list. Items that must accompany this list include targeted pollutants, time frames for TMDL development, and priority ranking for completion of TMDLs.

Summary of 40 CFR 130

Chapter 40 of the Code of Federal Regulations (CFR), Part 130, relates to water quality management and planning. This regulation, which is the implementing regulatory language for section 303(d) and other sections of the Clean Water Act, requires states to do the following:

1. Identify waterbodies requiring TMDLs;
2. Set priorities for developing these loads;
3. Submit lists of waterbodies identified to EPA for approval;
4. Establish these loads for waterbodies identified;
5. Implement the TMDLs through discharge permits, Water Quality Management Plans, 319 nonpoint source projects, and other means; and
6. Involve the public, dischargers, agencies, and local governments in the process.

Waters required to be listed are those where pollution control requirements (technology-based permit limits or other prohibitions required by state, local, or federal authorities) are not stringent enough to implement applicable water quality standards.

Specific requirements for content of the lists are as follows:

1. Priority ranking of all listed waters;
2. Pollutants causing or expected to cause violations of water quality standards; and
3. Identification of waters targeted for TMDLs over the next two years.

Additional items required by regulation or guidance include the following:

1. A schedule for the development of TMDLs for <u>all</u> waterbodies on the list;
2. A description of data and methodology used to develop the list;
3. Rationale for any decision not to use readily available data;
4. An identification of waters taken off the most recent list and a reason for de-listing;
5. Any request for "rolling over" certain targeted waters to the next biennium; and
6. A summary of comments received during the public review period.

Each state must "demonstrate good cause" for not listing a waterbody and justify the exclusion of any waterbody. All existing and readily available water quality data must be used to prepare the list. At a minimum, this includes:

1. Waters on the most recent 305(b) report identified as "partially meeting", "not meeting", or "threatened";
2. Waters for which modeling indicates nonattainment of water quality standards;
3. Waters for which water quality problems have been reported by local, state, or federal agencies; the general public; or academic institutions. These organizations should be actively solicited for information; and
4. Waters identified by the state as impaired or threatened in a nonpoint assessment submitted to EPA under section 319 of the federal CWA.

Summary of Section 303(d) of the Federal Clean Water Act

Section 303(d) of the federal CWA (see summary) requires states to identify waters that do not or are not expected to meet applicable water quality standards with technology-based controls alone. The Act also specifies that states must establish a priority ranking for these waters, taking into account the

pollution severity and designated uses of the waters. States must submit to EPA the "waters identified and loads established" for review and approval. The current report fulfills the first part of this requirement: identifying the waters.

Once identification and priority ranking of TMDL waters are complete, states must develop TMDLs at a level necessary to achieve the applicable state water quality standards. The TMDLs must allow for seasonal variations and a margin of safety.

Summary of South Dakota's 2002 303(d) TMDL Waterbody List

Using the methodologies, data, information, and public input described, South Dakota Department of Environment and Natural Resources (DENR) has developed a list of waterbodies for the 2002 303(d) list. This list, contained in subsequent pages of this report, includes waterbody names, pollutants of concern, basis for listing, prioritizations, and other information. A total of 167 different waterbodies or waterbody segments are listed. The waterbodies or waterbody segments, grouped by basin, are summarized in Figure 1 and Table 1.

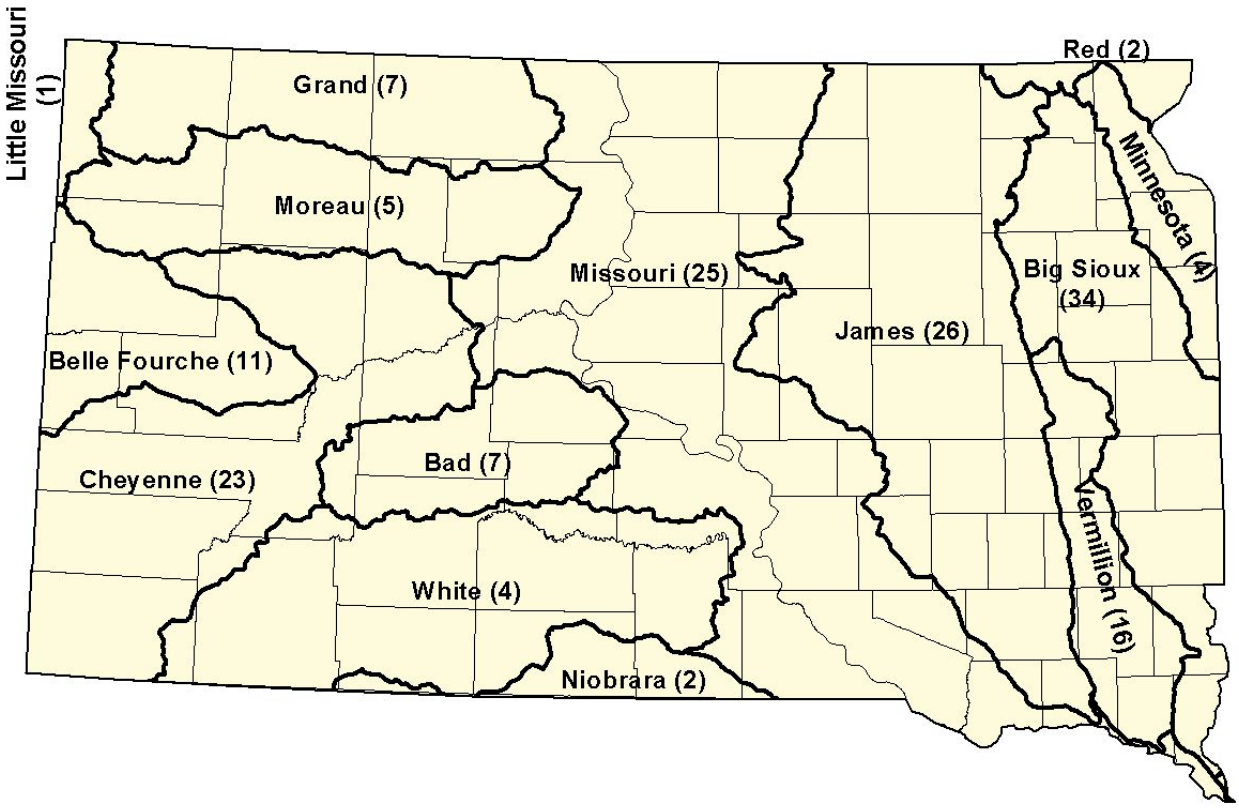

Figure 1. Projected Number of TMDLs by Major River Basin

Table 1. Summary of South Dakota TMDL Waterbodies by Basin

Basin	Projected Number of Waterbodies Needing TMDLs	Pollutants of Concern	Number of Waterbody TMDLs Planned for 2002-2006
Bad River Basin	7	Ammonia, TSI, total dissolved solids, suspended solids	5
Belle Fourche River Basin	11	Ammonia, fecal coliform, conductivity, dissolved solids, dissolved oxygen, metals, temperature, total suspended solids, TSI	10
Big Sioux River Basin	34	Ammonia, fecal coliform, dissolved oxygen, suspended solids, TSI, nitrates	33
Cheyenne River Basin	23	Ammonia, fecal coliform, dissolved oxygen, dissolved solids, conductivity, pH, suspended solids, temperature, TSI	15
Grand River Basin	7	Fecal coliform, TSI, temperature, suspended solids, sodium adsorption ratio	3
James River Basin	26	Ammonia, suspended solids, TSI	21
Little Missouri River Basin	1	Ammonia	1
Minnesota River Basin	4	Ammonia, TSI	4
Missouri River Basin	25	Ammonia, dissolved oxygen, conductivity, dissolved solids, pH, TSI	19
Moreau River Basin	5	Ammonia, suspended solids, sodium adsorption ratio, TSI	1
Niobrara River Basin	2	Suspended solids, TSI	2
Red River Basin	2	TSI	1
Vermillion River Basin	16	Ammonia, fecal coliform, dissolved oxygen, pH, suspended solids, TSI	13
White River Basin	4	Ammonia, fecal coliform, suspended solids	3
Totals	**167**		**131**

A total of 171 waterbodies were included on the 1998 303(d) list, compared with 167 waterbodies included on the 2002 list. DENR has completed TMDLs or determined TMDLs to be unnecessary for 77 (45%) waterbodies from the 1998 list. However, DENR increased its ambient stream monitoring network by approximately 30%, in 1999. This additional monitoring identified waters where TMDLs are necessary that were previously unassessed in 1998. Also, changes to federal regulations are expected in late 2002 that move from a 2-year listing cycle to a 4-year listing cycle. Therefore, additional waters where TMDLs are necessary due to the renewal of Surface Water Discharge permits were placed on the 2002 list, to account for the anticipated listing cycle. If EPA does not change the listing cycle, then the next list will be due April 2004.

Table 2 and Figure 2 below show the breakdown of TMDLs by category.

Table 2. Types of TMDLs included on the 2002 303(d) list

TMDL Type	Number and Percentage of Waterbodies needing TMDLs
Lake in need of TMDLs – where a TMDL for a lake and it's watershed is necessary to address impairments of the lake.	64 (38%)
Stream in need of TMDLs – where a TMDL is necessary to address impairments of a segment or segments of a stream, creek, or river.	31 (19%)
Surface Water Discharge-related Permits in need of TMDLs – where a TMDL is necessary due to the renewal of a Surface Water Discharge permit in order to ensure that the effluent limits in the permit continue to protect the water quality of the receiving stream.	73 (43%)
Total:	167

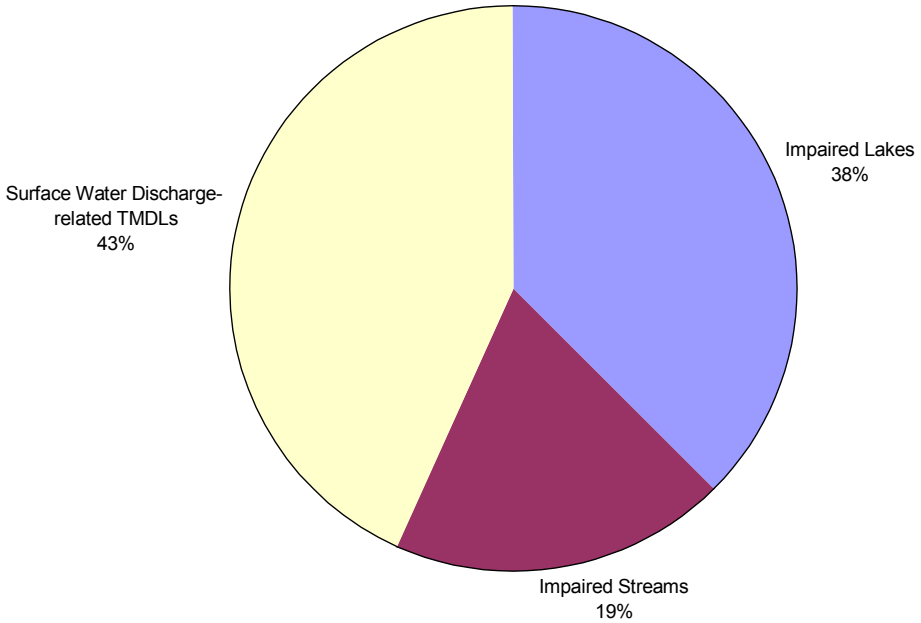

Figure 2. Percentage and Types of Waterbodies needing TMDLs included on the 2002 303(d) list

Resource Implications from 2002 303(d) List

The TMDL issues span a wide range of activities within DENR. Nonpoint source assessments, discharge permitting, water quality monitoring, water quality standards, water rights, feedlot regulations, and other areas are involved in or affect TMDL development and implementation. Because of this fact, TMDLs fit well with other ongoing water quality management activities.

The development and implementation of TMDLs will rely on existing programs, resources, and activities. Effective TMDL development will require close coordination within all DENR water programs. In addition, the development and implementation of effective TMDLs that will result in improving the quality of South Dakota's waters must have the support, input, and coordination of affected government agencies, local groups, and citizens. As such, the TMDL effort will involve the coordination of many diverse groups and diverse interests with the common goal of improving water quality. The time frame to develop TMDLs for each waterbody on this list is 13 years from the time it was originally listed, in accordance with EPA guidelines.

Improvements in water quality may occur before the next list is due. Data assessed at that time may or may not indicate that a waterbody should be removed from the list before a TMDL is developed. In addition, TMDLs may be developed for waters which are not on this list, whether in the next four years or beyond, due to local interest in water quality improvements, new data indicating water quality problems, new Surface Water Discharge permits, or other factors. New methods to better assess nonpoint source data and impairment will be developed over the next several years that will necessitate a different perspective to the existing listing process. Also, as the federal and state TMDL regulations and policies evolve, the 2002 list may no longer reflect the most recent regulatory requirements.

LISTING APPROACH AND METHODOLOGIES

Specific criteria were developed and used to determine which waterbodies should be placed on the 2002 list. These criteria were developed based on section 303(d) of the federal Clean Water Act, EPA guidance, department priorities and objectives, public input, and other important factors. A discussion of the approaches and methodologies used to develop the 2002 list is included below.

Types of Waters Listed

The following information and data sources were used to determine which waterbodies should be included on the list, based on the requirements of section 303(d) of the federal Clean Water Act:

- Waters included in the most recent 305(b) report (the 2002 Water Quality Assessment - Report to Congress) identified as "not supporting" or "partially supporting";
- Waters for which modeling indicates nonattainment of water quality standards;
- Waters for which documented water quality problems have been reported by local, state, or federal agencies; the general public; or academic institutions; and
- Waters that receive discharges from point sources where water quality-based effluent limits are required to maintain surface water quality standards.

Impaired Waters

Waters that are considered impaired for meeting beneficial uses or water quality standards are required to be placed on the 303(d) list. This includes waters which are identified under the "not supporting" or "partially supporting" beneficial use categories in the 2002 305(b) report prepared by DENR. Waters designated as such in the 305(b) report are included in the 2002 303(d) list unless the waterbody has a recent TMDL approved by EPA that addresses the impairments.

Waters with Surface Water Discharge-Related Wasteload Allocations

In December 1993, DENR was delegated authority to administer the National Pollutant Discharge Elimination System. At that time, EPA withheld program authorization within Indian Country. DENR's program is called the Surface Water Discharge Program. Surface Water Discharge permits are used to control discharges of pollutants from point sources. Most Surface Water Discharge permits contain technology-based effluent limits, which are usually attained using the best available technology that is economically achievable. In cases where technology-based limits are not sufficient to protect water quality standards, water quality-based effluent limits are incorporated into permits via wasteload allocations. In many cases, the development and implementation of water quality-based limits includes the development of a TMDL for the receiving water. The portion of the TMDL allocated to the point source discharger is the "wasteload allocation". The portion of the TMDL allocated to upstream background sources is the "load allocation". Most Surface Water Discharge permits are issued for a duration of five years, after which the effluent limits and TMDL are re-evaluated. Although the 303(d) listing cycle is expected to be four years in duration, for the sake of completeness, all TMDLs related to Surface Water Discharge permits are listed in the 2002 303(d) list, not just those expiring between October 1, 2002 and September 31, 2006.

Waters with Surface Water Discharge-related TMDLs fall into the category of waters *"for which dilution calculations or predictive modeling indicate nonattainment of water quality standards."* This

does not mean that the waterbody segment to which any particular Surface Water Discharge permittee discharges is impaired. It simply means that without water quality-based limits, predictive modeling would indicate probable impairment. Most segments for which Surface Water Discharge-related TMDLs are being developed are in fact **not impaired,** because the majority of these TMDLs are already in place, and are merely being updated during this four year time-frame.

Waters Reported by Government Agencies; Members of the General Public; or Academic Institutions

Through DENR's existing water quality programs and public participation, additional waters were considered for inclusion on the 303(d) list. The DENR received comments on specific waterbodies that should be included on the list from organizations and citizens solicited during the public participation period. In cases where water quality problems were reported or DENR had data that showed impairment, but the water was not listed, the basis for such exclusion is given (Table 10.)

Minimum Data Requirements

To ensure that each listing is defensible, the DENR established minimum requirements for the data to be used as a basis for listing. Waters were listed that met all of the following criteria:

- Age of data was five years or less for streams and beaches, and ten years or less for lakes, unless there was adequate justification to use older data;
- Lakes must have been sampled in at least two separate years within the ten-year period;
- Data collected through instantaneous and grab sampling or expressed as a geometric mean met minimum sampling requirements as specified in the South Dakota Surface Water Quality Standards; and
- Data collection and analyses followed established department Quality Assurance/Quality Control (QA/QC) standards as defined in "Standard Operating Procedures for Field Samplers," South Dakota Department of Environment and Natural Resources, January 2000 or met minimum QA/QC as defined by the responsible agency.

Water quality problems reported by other agencies, institutions, and the public had to be accompanied by data which met the above requirements or be confirmed by DENR data.

Stream Methodologies

Beneficial Uses

Beneficial use classifications of surface waters of the state have been established in the Administrative Rules of South Dakota (ARSD) Article 74:51. The classifications designate the minimum water quality at which surface waters are to be maintained and protected. The following are the beneficial use classifications:

(1) Domestic water supply waters;
(2) Coldwater permanent fish life propagation waters;
(3) Coldwater marginal fish life propagation waters;
(4) Warmwater permanent fish life propagation waters;
(5) Warmwater semipermanent fish life propagation waters;

(6) Warmwater marginal fish life propagation waters;
(7) Immersion recreation waters;
(8) Limited contact recreation waters;
(9) Fish and wildlife propagation, recreation, and stock watering waters;
(10) Irrigation waters; and
(11) Commerce and industry waters.

Water Quality Standards

South Dakota's numeric water quality standards are summarized in the table below. These standards have been established for various beneficial uses as defined in the ARSD Article 74:51.

Table 3. Summary of Numeric Surface Water Quality Standards

Parameters [3] (mg/L) except where noted	(1) Domestic water supply	(2) Coldwater permanent fish life propagation	(3) Coldwater marginal fish life propagation	(4) Warmwater permanent fish life propagation	(5) Warmwater semi-permanent fish life propagation	(6) Warmwater marginal fish life propagation	(7) Immersion recreation	(8) Limited contact recreation	(9) Fish and wildlife propagation, recreation, & stock watering	(10) Irrigation	(11) Commerce & industry
Alkalinity ($CaCO_3$)									750[1]/ 1,313[2]		
Barium	1.0										
Chloride	250[1]/ 438[2]	100[1]/175[2]									
Chlorine, total residual		0.019 acute 0.011 chronic	0.019 acute 0.011 chronic	0.019 acute 0.011 chronic	0.019 acute 0.011 chronic	0.019 acute 0.011 chronic					
Coliform, total (per 100 mL)	5,000 (mean); 20,000 (single sample)										
Coliform, fecal (per 100 mL) May 1 - Sept. 30							200 (mean); 400 (single sample)	1,000 (mean); 2,000 (single sample)			
Conductivity (*u*ohms/cm @ 25° C)									4,000[1]/ 7,000[2]	2,500[1]/ 4,375[2]	
Fluoride	4.0										
Hydrogen sulfide, undisassociated		0.002	0.002	0.002	0.002	0.002					
Nitrogen, unionized ammonia as N		0.02[1]/ 1.75X the criterion	0.02[1]/ 1.75X the criterion	0.04[1]/ 1.75X the criterion	0.04[1]/ 1.75X the criterion	0.05[1]/ 1.75X the criterion					
Nitrogen, nitrates as N	10.0								50[1]/ 88[2]		
Oxygen, dissolved		≥ 6.0; ≥ 7.0 (during spawning season)	≥ 5.0	≥ 5.0;	≥ 5.0	≥ 4.0	≥ 5.0	≥ 5.0			
pH (units)	6.5 - 9.0	6.6 - 8.6	6.5 - 8.8	6.5 - 9.0	6.5 - 9.0	6.0 - 9.0			6.0 – 9.5		6.0 - 9.5
Sodium adsorption ratio										10	
Solids, suspended		30[1]/ 53[2]	90[1]/ 158[2]	90[1]/ 158[2]	90[1]/ 158[2]	150[1]/ 263[2]					
Solids, total	1,000[1]/								2,500[1]/		2,000[1]/

Table 3. Summary of Numeric Surface Water Quality Standards

Parameters [3] (mg/L) except where noted	(1) Domestic water supply	(2) Coldwater permanent fish life propagation	(3) Coldwater marginal fish life propagation	(4) Warmwater permanent fish life propagation	(5) Warmwater semi-permanent fish life propagation	(6) Warmwater marginal fish life propagation	(7) Immersion recreation	(8) Limited contact recreation	(9) Fish and wildlife propagation, recreation, & stock watering	(10) Irrigation	(11) Commerce & industry
dissolved	1,750[2]								4,375[2]		3,500[2]
Sulfate	500[1]/ 875[2]										
Temperature (°F)		65	75	80	90	90					
Total petroleum hydrocarbons	≤ 1.0								≤ 10		
Oil and grease									≤ 10		

[1] 30-day average [2] daily maximum [3] water quality standards for toxic pollutants are not included in this summary

Use support for streams was determined by comparing actual water quality data to the applicable numeric surface water quality standards. In evaluating data against the water quality standards, consideration must be made whether to compare to the daily maximum (acute) standard or 30-day average (chronic) standard, where they exist. The water quality standards define a 30-day average as "the arithmetic mean of three consecutive samples taken in separate weeks in a 30-day period." Most of the water quality data was taken at such intervals that a computation of monthly averages was not possible. Therefore, most data was compared to the acute standard, except in cases where the chronic standard is required to be maintained at all times or where no acute standard was applicable.

Surface Water Quality Standards for Metals

South Dakota surface water quality standards for metals are based on the federal EPA criteria documents and EPA recommendations. Consistent with EPA guidance, the water quality standard for most of the metals is based on the measured hardness of the water. As the hardness increases, the toxicity of the metal in the water generally decreases. This is true except for mercury, arsenic, selenium, and hexavalent chromium. For these four metals, there is one criterion that is applicable at all times regardless of the hardness of the water.

Most of the water quality data for metals collected by the state are from streams located in the northern Black Hills. This area of South Dakota contains a majority of the permitted mining activities and has a very complex geology. Because of these two factors, the DENR has made it a priority to monitor these streams for metal concentrations.

Sources of Data

Data was obtained from the stream-monitoring sites maintained by DENR. A network of 134 water quality monitoring (WQM) sites is being monitored. For a listing and map of WQM sites, see DENR's web page at: **http://www.state.sd.us/denr/DES/Surfacewater/watermonitoring.htm**. Periodic sampling of these sites is performed, with monthly, quarterly, or seasonal frequencies, depending on the site. Different parameters are sampled depending on the beneficial uses assigned to the waterbody and programmatic needs. Evaluation of data from DENR's WQM sites was automated by the use of the STORET database. STORET is a federal database of surface water quality data collected by various state and federal agencies.

Additional information was also received as a result of DENR's request during the public input process on the 2002 303(d) list. This information ranged from general comments regarding specific waterbodies that should be listed, to actual sample results from specific waterbodies.

Data Evaluation

Specific criteria were developed to define how data would be evaluated to determine the status of a waterbody. In reviewing the data, the criteria in Table 4 were used:

Table 4. Criteria for Evaluating Water Quality Data (Streams)

Description	Criteria Used
Number of observations (samples) required to consider data representative of actual conditions	20 samples for any one parameter required at any site over a five-year period. If greater than 25% of samples exceed water quality standards, this threshold was reduced to 10 samples, since impairment is more likely. In addition, the sample threshold was reduced to five samples if 100% of the samples indicated full support for that parameter. In specific instances, fewer than 20 samples were used if the results showed overwhelming evidence of support of nonsupport.
Required percentage of samples exceeding water quality standards in order to be listed	>10% (>25% if less than 20 samples available).
Data age	Data must be less than five years old unless there is justification that data is representative of current conditions. While a data age of two years matches the 305(b) listing cycle, it does not allow for enough samples to accurately portray variability.
Quality Assurance/Quality Control	There must be a consensus that the data meets QA/QC requirements similar to those outlined in DENR protocols. The public was encouraged to submit QA/QC data.

Use support was based the frequency of exceedences of water quality standards for any of the following parameters (if applicable): total suspended solids, total dissolved solids, pH, water temperature, dissolved oxygen, unionized ammonia, fecal coliform (May 1 - September 30), metals, and others. A stream segment with only a slight exceedance (< 10% violations for one or more parameters) is considered fully supporting its assigned beneficial uses. The EPA established the following general criteria in the 1992 305(b) Report Guidelines suitable for determining use support of monitored streams:

Fully supporting	1 - 10% of values violate standards
Partially supporting	11 - 25% of values violate standards
Not supporting	>25% of values violate standards

Use support assessment for fishable use (fish life propagation) primarily involved monitoring levels of the following major parameters: dissolved oxygen, unionized ammonia, water temperature, pH, and suspended solids.

Use support for swimmable uses and limited contact recreation involved monitoring the levels of fecal coliform (May 1 - September 30) and dissolved oxygen.

Lake Methodologies

Water Quality Standards Applicable to Lakes

South Dakota's numeric water quality standards criteria (summarized in Table 3) established for various beneficial uses apply to lakes as well as streams. There are also several narrative water quality standards, Table 5, that were considered as assessment methodologies that were developed for lakes.

Table 5. Narrative Water Quality Standards Applicable to Lakes

74:51:01:05. Materials causing pollutants to form in waters. Wastes discharged into surface waters of the state may not contain a parameter which violates the criterion for the waters' designated beneficial use or impairs the aquatic community as it naturally occurs. Where the interaction of materials in the wastes and the waters causes the existence of such a parameter, the material is considered a pollutant and the discharge of such pollutants may not cause the criterion for this parameter to be violated or cause impairment to the aquatic community.
74:51:01:06. Visible pollutants prohibited. Raw or treated sewage, garbage, rubble, unpermitted fill materials, municipal wastes, industrial wastes, or agricultural wastes which produce floating solids, scum, oil slicks, material discoloration, visible gassing, sludge deposits, sediments, slimes, algal blooms, fungus growths, or other offensive effects may not be discharged or cause to be discharged into surface waters of the state.
74:51:01:08. Taste- and odor- producing materials. Materials which will impart undesirable tastes or undesirable odors to the receiving waters may not be discharged into surface waters of the state in concentrations that impair a beneficial use.
74:51:01:09. Nuisance aquatic life. Materials which produce nuisance aquatic life may not be discharged or caused to be discharged into surface waters of the state in concentrations that impair a beneficial use or create a human health problem.

Sources of Data

Data (ten years old or less) used for the comparison of lakes within ecoregions was compiled from all appropriate data available to DENR. Most of the data came from the DENR's statewide lakes assessment effort, however, data from individual lake studies and the Department of Game, Fish and Parks were also included.

A total of 573 lakes have assigned beneficial uses. South Dakota has developed a strategy to evaluate lake water quality on an ecoregion basis. This ecoregion effort requires the determination of reference lakes within each ecoregion for comparative purposes. To accomplish this, 124 of the 573 lakes have been sampled periodically between 1991 and 2001. The remaining 449 lakes did not meet the following criteria necessary for inclusion:

- A lake must be publicly owned,
- A lake must have public access, and
- A lake must have regional significance,

The 124 lakes are sampled on a schedule that results in each lake being sampled once every four years (i.e. about 31 lakes are sampled per year). In the year a lake is scheduled, it is sampled twice. The methodology used for the sampling is found in the *1995 South Dakota Lakes Assessment Report.* This document can be found on DENR's website at:
http://www.state.sd.us/denr/DFTA/WatershedProtection/WQInfo.htm.

Evaluation of lake data was automated by the use of the STORET database. Additional data was received as a result of DENR's request for water quality data during the public input process. The data was used when it met the minimum data requirements described in Table 4.

Lake Assessment Methodology

DENR modified the lake assessment methodology used to develop the 1998 303(d) list to obtain a more accurate method for determining the need to complete TMDLs. In addition to the lake assessment data, the DENR has a limited database of data for several water quality constituents through annual beach monitoring, and reported fish kills. All three TSI parameters must be included in the data (chlorophyll-*a*, Secchi depth measurements, and total phosphorous).

Waterbodies were also considered for listing if beach closures, fish kills, and fish-consumption advisories were attributable to pollution-related causes. Further, waterbodies were listed through beach closures where there were more than two beach closures per season in a consecutive two-year sampling period based on fecal coliform concentrations. However, if subsequent DNA testing or other investigations determine that there was no pollution source in the watershed (i.e. the source was bathers, or pets) signs will be posted informing the public on the need to use sanitary practices. The waterbody will be considered for delisting.

Support status of lakes and reservoirs was evaluated according to the EPA Level III ecoregions in which they are located (see Figure 3). The methodology applied to arrive at the use-support determinations is found in the DENR report, *Ecoregion Targeting for Impaired Lakes in South Dakota*, May, 2000. This document is on DENR's web site at: **http://www.state.sd.us/denr/DFTA/WatershedProtection/WQInfo.htm.**

Lake Definitions

Carlson's Trophic State Index (TSI)-a measure of eutrophication of a body of water using a combination of measures of water transparency (using Secchi disk depth recordings), Chlorophyll-*a* concentrations, and total phosphorus levels. TSI measures range from a scale 20-100 and from oligotrophic waters through mesotrophic, eutrophic, to hypereutrophic waters. Also referred to as the Mean Trophic State Index.

Eutrophication -The process of enrichment of water bodies by nutrients. Degrees of eutrophication typically range from oligotrophic (maximum transparency, minimum chlorophyll-*a*, minimum phosphorus) through mesotrophic, eutrophic, to hypereutrophic (minimum transparency, maximum chlorophyll-*a*, maximum phosphorus). Eutrophication of a lake normally contributes to its slow evolution into a bog or marsh and ultimately to dry land. Eutrophication may be accelerated by human activities and thereby speed up the aging process. Eutrophic lakes are rich in nutrients and organic materials, therefore, highly productive for plant growth. These lakes are often shallow and seasonally deficient in oxygen.

Hypereutrophic-Pertaining to a body of water characterized by **excessive nutrient concentrations** such as nitrogen and phosphorous and resulting **high productivity**.

Eutrophic-Pertaining to a body of water characterized by **large nutrient concentrations** such as nitrogen and phosphorous and resulting **high productivity**.

Mesotrophic-Pertaining to a body of water characterized by **moderate nutrient concentrations** such as nitrogen and phosphorous and resulting **significant productivity**.

Eutrophic water can be healthful and support a complex web of plant and animal life. However, such waters may be generally undesirable for a drinking water supply due to taste and odor problems and recreation due to poor aesthetics.

Oligotrophic-Pertaining to a body of water characterized by **extremely low nutrient concentrations** such as nitrogen and phosphorous and resulting **very moderate productivity**. Oligotrophic lakes are low in nutrients and consequently poor areas for the development of extensive aquatic floras and faunas. Such lakes are often deep, with sandy bottoms and very limited plant growth, but with high dissolved-oxygen levels. This represents the early stage in the life cycle of a lake.

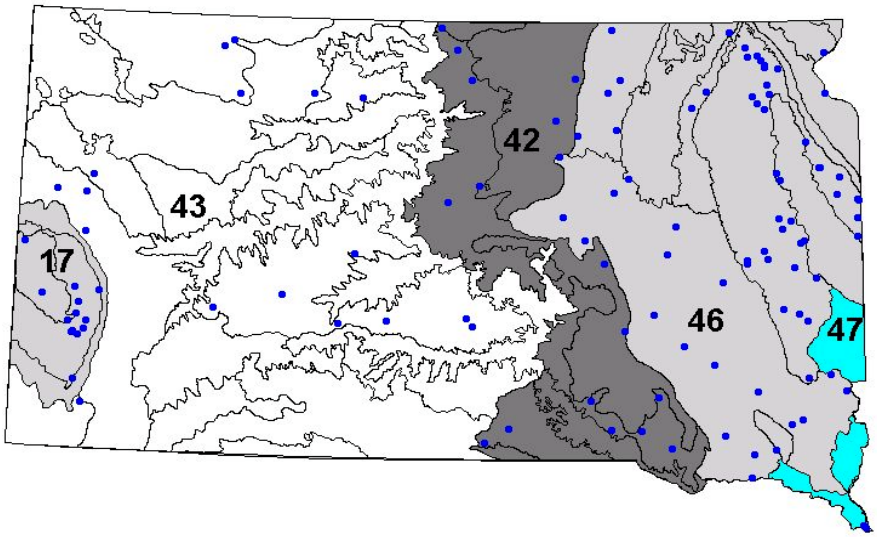

Figure 3. South Dakota Level III Ecoregions

Trophic assessment of state lakes was based on trophic status as determined by averaging Carlson's (1977) Trophic State Indices (TSI) for Secchi depth, total phosphorous and chlorophyll-*a*. A preliminary support determination of assessed lakes was established using TSI ranges for each ecoregion.

Trophic State Index

Carlson's TSI was used as the comparison index. Carlson's TSI relies on three standard parameters: total phosphorus, Secchi depth, and chlorophyll-*a* (Equations 1.1, 1.2 and 1.3), respectively. The concentrations and measurements of these parameters were adjusted to fit an index scale of 0 to 100. Lower TSI values relate to nutrient-poor lakes and higher TSI values indicate nutrient-rich conditions (Carlson, 1977).

Due to spatial and temporal differences in data, criteria was established to decrease variability and ensure data integrity. The following criteria were used:

Time Period: The most recent 10 years of data (where a waterbody has had a restoration project, only data collected since the completion of the restoration project was used).
Depth: Surface or water column composites.
Seasonality: Samples collected between May 15 and September 15.
Data points: Minimum of five Trophic State Index values per lake.

Raw data was applied to Carlson's equations and analyzed. The formulas used are provided below:

$$TSI\ (Total\ Phosphorus) = 10\left(6 - \left(\frac{LN\left(\frac{48}{TP}\right)}{LN2}\right)\right)$$ **Equation 1.1**

$$TSI\ (Secchi\ Disk) = 10\left(6 - \left(\frac{LN\ SD}{LN2}\right)\right)$$ **Equation 1.2**

$$TSI\ (Chlorophyl\ l-a) = 10\left(6 - \frac{2.04 - (0.68(LN\ CHL))}{LN\ 2}\right)$$ **Equation 1.3**

TP = Total Phosphorous in µg/L
SD = Secchi depth in meters
CHL = Chlorophyll-*a* in mg/m^3

The mean TSI was calculated by averaging the TSI values for total phosphorous, Secchi depth, and chlorophyll-*a*. The data was then sorted by ecoregion and ranked by increasing mean TSI. Figure 4 depicts mean TSI values for lakes within ecoregions.

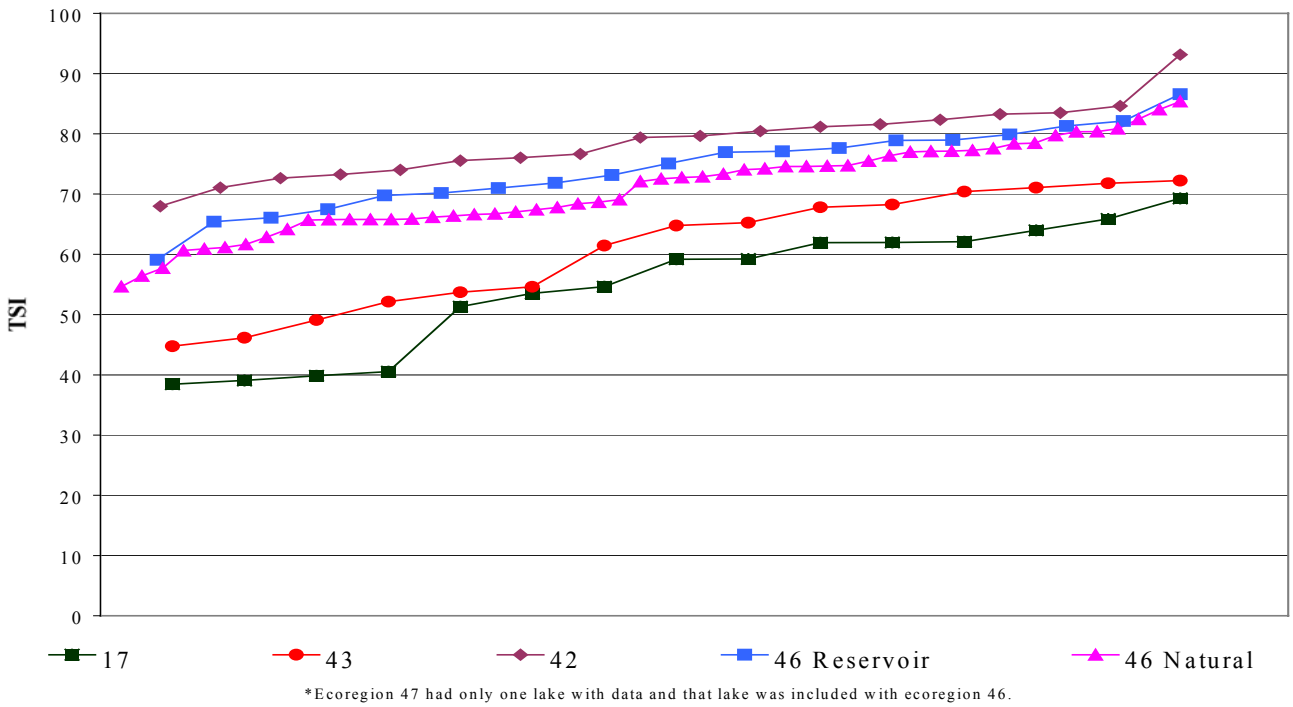

Figure 4. Comparison of Mean TSI in All Ecoregions

Table 6. South Dakota Preliminary Ecoregion Support Determination Range For Lakes.

Ecoregion Support Determination			
	TSI Range		
Ecoregion	Fully Supporting	Partially Supporting	Non Supporting
46N (East River Natural Lakes)	≤ 65.00	≥ 65.01 – ≤ 70.00	≥ 70.01
46R (East River Reservoirs)	≤ 65.00	≥ 65.01 – ≤ 75.00	≥ 75.01
42 (Missouri River)	≤ 65.00	≥ 65.01 – ≤ 75.00	≥ 75.01
43 (West River)	≤ 55.00	≥ 55.01 – ≤ 70.00	≥ 70.01
17 (Black Hills)	≤ 45.00	≥ 45.01 – ≤ 60.00	≥60.01

The preliminary determinations of beneficial use support categories of fully supporting, partially supporting and non-supporting lakes were based mainly on natural breaks in the data. Fully supporting lakes had the lowest mean TSI values, partially and non-supporting lakes had TSI levels that supported nuisance algal blooms that could limit beneficial use. Wetzel (1983) states that a concentration of 0.020 mg/L (TSI 47.37) of total phosphorus can cause nuisance algal blooms. In South Dakota, *Anabaena*, *Aphanizomenon*, *Microcystis* and *Oscillatoria* spp. can be considered nuisance aquatic species. The ARSD, Article 74:51:01:09 states "*Materials which produce nuisance aquatic life may not be discharged or caused to be discharged into surface waters of the state in concentrations that impair a beneficial use or create a human health problem*." The partially supporting and non-supporting lakes receive and retain inlake phosphorus concentrations that may cause nuisance algae blooms or have other sufficient organic matter to impair beneficial uses. Algae can form blooms that limit contact and immersion recreation and deplete oxygen. Reduced oxygen levels can stress fish or cause a fish kill.

Two lakes, Lake Yankton (46R) and East Lake Eureka (42), receive most of their inflow from groundwater unlike other monitored lakes. For this reason they were removed from the ranking and rated solely on their own water quality. Lake Yankton and East Lake Eureka are discussed separately within their respective ecoregions.

As lake stratification is a natural process, depletion of dissolved oxygen concentrations in the hypolimnion, in itself, will not be used as a listing criterion. The hypolimnion is the lower part of a thermally stratified lake according to Wetzel, 2001. During the summer, cooler temperatures and very little mixing or turbulence characterizes it. Dissolved oxygen will be considered as an impairment of water quality beneficial uses only if the biological community is stressed by the lack of oxygen beyond a natural condition. As long as the fish community has sufficient water depth, acceptable temperature, and sufficient oxygen concentration, stratification alone will not be used as a criterion for listing a waterbody.

The DENR will continue to refine and improve South Dakota's listing criteria. The support categories as listed in the current ecoregion strategy do not take into account the age and size of the waterbodies and their watersheds, whether the waterbody is natural or manmade, or the degree to which the lake is used for its various beneficial uses. Therefore, additional parameters will be added to the ecoregion listing criteria that should reflect more realistic water quality expectations of lakes and reservoirs in the state. South Dakota has numerous shallow prairie lakes and older reservoirs. In the case of many of these older reservoirs, it may be less expensive to build a new reservoir than restore the old reservoir

through sediment removal and changes in land use. In many of South Dakota's large shallow lakes, sediment removal is neither feasible nor financially viable.

To develop a more realistic goal, the DENR plans to further refine the current EPA-approved ecoregion-listing strategy. This will include analyzing TSIs in conjunction with parameters such as: watershed-to-lake ratios, fisheries classification, recreational potential, and depth. An extensive analysis will be conducted of these and, if needed, other parameters to see if a refined list would more closely approximate natural conditions and reflect more realistic goals. The new criteria will be implemented during the next listing cycle.

PRIORITIZATION OF TMDL WATERS

Regulatory Requirements

Section 303(d) of the federal CWA requires that *"each state shall establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters."* Little other guidance is offered for states to use in the prioritization process.

A system of prioritization has been developed by DENR based on several factors. Included in these factors are the required elements of *"the severity of the pollution and the uses to be made of such waters."* The methods developed are described below. These criteria are a guide. If a water met any one criteria in a category, that did not necessarily mean the water was prioritized as such, since many waters fit some criteria from all categories.

Table 7. TMDL Prioritization Criteria

Priorities	Applicable Criteria
Priority 1 (High)	• Waters with expiring Surface Water Discharge permits; • Imminent human health problems; • Waters where TMDL development is expected over the next four years; • Waters listed for four or more listing criteria; or • Waters with documented widespread local support for water quality improvement.
Priority 2 (Medium)	• Waters with an increasing trend towards eutrophy or enrichment, with consideration given to the rapidity of the declining water quality; • Waters listed for three listing criteria; • Waters where local support for TMDL development is expected but not documented; or • Water listed for aquatic life impairment.
Priority 3 (Low)	• Waters listed for two or less listing criteria; • Waters with no evident local support for water quality improvements; or • Waters where impairments are believed to be due largely to natural causes.

Section 319-Related Waters

Section 319 TMDL assessments are developed based upon the prioritization criteria listed above. Implementation projects for TMDLs hinge upon whether adequate local support exists.

Surface Water Discharge-Related Waters

By federal law, Surface Water Discharge Permits cannot be issued with a permit life greater than five years. One hundred eighty (180) days prior to permit expiration, a discharger must apply for a renewal of their permit. By rule, permit renewals are prepared and public noticed by DENR in the same manner as in the case of a new application. Surface Water Discharge-related TMDLs are considered a high priority in South Dakota.

The majority of parameters for which Surface Water Discharge-related TMDLs are developed include ammonia and dissolved oxygen. As can be seen from the following proposed 2002 303(d) list, very few streams have impairments for ammonia and dissolved oxygen. The priorities for Surface Water Discharge-related TMDLs are therefore based very little on the severity of waterbody impairment, or the

uses to be made of the waters, but, rather, largely upon federal requirements to renew these discharge permits and the importance of maintaining the past water quality improvements made through the permits.

PUBLIC PARTICIPATION PROCESS

To fulfill the requirements of the federal Clean Water Act, and involve the affected community and stakeholders in the water quality improvement process, a public participation process was implemented. Summarized below are the procedures employed by DENR to involve the public.

Process Description

First Public Review/Input Period
On or around August 1, 2001, an ad was published in 11 statewide daily newspapers and *Indian Country Today*, announcing the DENR was developing the 2002 303(d) list and requesting water quality data that would aid in the identification of waters that should be added, removed, or remain on the list. This announcement was also sent to approximately 70 individuals and organizations.

Second Public Review Period
Data received after the first public review period, and additional data gathered by DENR were reviewed, and a draft list was developed. The draft list was released for a 30-day public review and comment period in late July 2002. The announcement on the availability of the draft list was again published in the 11 daily newspapers and *Indian Country Today*. The draft list was also made available on DENR's web page at: **http://www.state.sd.us/denr/denr.html.** At this time, the draft list was also provided to USEPA Region VIII for review and comment.

Personnel from DENR responded to inquiries and were available to meet with interested groups about the list and listing process. Copies of public participation documents and responses to oral and written comments received during the comment period are included in Appendix B.

LISTING OF TMDL WATERS

This section is the core of the 2002 TMDL list. A listing of each waterbody that will be considered for a TMDL, including the basis for listing, priority, pollutants of concern, and other important information are compiled here. All other sections of this document are in support of this list, either to explain the rationale and decisions made to develop this list or to support its development.

Table 8. Listed 303(d) Waters

Basin Name	Waterbody	Location	Map ID (App. A)	Source of Data for Listing	Beneficial Use	Reason for Listing	TMDL Priority
Bad River Basin	**Streams**						
	Bad River	Stanley County line to mouth	S1	Monitoring Site DENR460850	6-8-9-10	Conductivity Dissolved Solids Suspended solids	2
		Near Ft. Pierre	P1	Discharge permit SD0023582	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Midland	P2	Discharge permit SD0020630	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Philip	P3	Discharge permit SD0020303	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Lakes						
	Freeman Lake	Jackson County	L1	Lake assessment	1-4-7-8-9	TSI=63	3
	Hayes Lake	Stanley County	L2	Lake assessment	5-7-8-9	TSI=68	1
	Waggoner Lake	Haakon County	L3	Lake assessment	1-4-7-8-9	TSI=68	1
Belle Fourche River Basin	**Streams**						
	Bear Butte Creek	Headwaters to Strawberry Creek	S2	Monitoring Site DENR460126	2-8-9-10	Suspended solids	1
	Belle Fourche River	Wyoming border to mouth	S3	Monitoring Sites DENR460130, DENR460681, DENR460880, DENR460676	4-7-8-9-10	Suspended solids	1

Basin Name	Waterbody	Location	Map ID (App. A)	Source of Data for Listing	Beneficial Use	Reason for Listing	TMDL Priority
		Near Nisland	P4	Discharge permit SD0020109	4-7-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Horse Creek	Indian Creek to mouth	S4	Monitoring Site USGS06436760	5-8-9-10	Conductivity [1]	1
	Strawberry Creek	Headwaters to mouth	S5	Monitoring Site DENR460116[2]	3-8-9-10	Cadmium Conductivity Copper Total Dissolved Solids	1
	Whitewood Creek	Gold Run Creek to Spruce Gulch	S6	Monitoring Sites DENR460122, DENR460123	2-7-8-9-10	Fecal Coliform	1
		Spruce Gulch to Sandy Creek	S7	Monitoring Site DENR460685	2-7-8-9-10	Fecal Coliform Suspended solids Temperature	1
		Near Lead-Deadwood Sanitary District	P5	Discharge permit SD0020796	2-7-8-9-10	Renewal of discharge permit with ammonia and dissolved oxygen effluent limits	1
		Near Lead	P6	Discharge permit SD0000043	2-7-8-9-10	Renewal of discharge permit with ammonia and metals effluent limits	1
		Near Whitewood	P7	Discharge permits SD0021466 and SD0026166	3-7-8-9-10	Renewal of discharge permits with ammonia effluent limits	1
	Lakes						
	Iron Creek Lake	Lawrence County	L4	Lake assessment	1-2-7-8-9	TSI=50	3
Big Sioux River Basin	**Streams**						
	Beaver Creek	Near Valley Springs	P8	Discharge permit SD0020923	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Big Sioux River	SE of Ortley to Lake Kampeska	S8	Monitoring Site DENR46BSA1	5-8-9-10	Dissolved Oxygen	1

[1] Horse Creek was listed for total dissolved solids on South Dakota's 1998 303(d) list. This was an error, as the creek is impaired for conductivity rather than total dissolved solids.

[2] For Strawberry Creek, data older than January 2000 was not included, as activities related to the Gilt Edge Superfund cleanup have improved water quality since that time.

Basin Name	Waterbody	Location	Map ID (App. A)	Source of Data for Listing	Beneficial Use	Reason for Listing	TMDL Priority
		Willow Creek to Stray Horse Creek	S9	Monitoring Site DENR460740	1-5-8-9-10	Nitrates	1
		Near Volga to below Baltic	S10	Monitoring Sites DENR460662, DENR460702, DENR46BS18, DENR460703	1-5-7-8-9-10	Suspended solids Fecal Coliform[1]	1
		Skunk Creek to mouth	S11	Monitoring Sites DENR460664, DENR46BS29, DENR460117, DENR460831, DENR460665, DENR460666, DENR460667, DENR460832	5-7-8-9-10	Fecal Coliform Suspended solids [1]	1
		Near Baltic	P9	Discharge permit SD0022284	1-5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Brookings	P10	Discharge permit SD0023388	1-5-8-9-10	Renewal of discharge permit with ammonia and dissolved oxygen effluent limits	1
		Near Canton	P11	Discharge permit SD0022489	5-7-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Dell Rapids	P12	Discharge permit SD0022101	1-5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Egan	P13	Discharge permit SD0022462	1-5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Estelline	P14	Discharge permit SD0022144	1-5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1

[1] Monitoring data shows that some part of the waterbody segment is impaired for all of the listed parameters, although some segments of the waterbody may not be impaired for every parameter listed.

Basin Name	Waterbody	Location	Map ID (App. A)	Source of Data for Listing	Beneficial Use	Reason for Listing	TMDL Priority
		Near Flandreau	P15	Discharge permit SD0021831	1-5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Sioux Falls and Brandon	P16	Discharge permits SD0000078, SD0022128, and SD0022535	5-7-8-9-10	Renewal of discharge permit with ammonia and dissolved oxygen effluent limits	1
		Near Trent	P17	Discharge permit SD0020265	1-5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Watertown	P18	Discharge permits SD0027324 and SD0023370	1-5-8-9-10	Renewal of discharge permit with ammonia and dissolved oxygen effluent limits	1
		Near Volga	P19	Discharge permit SD0021920	1-5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	E. Brule Creek	Near Alcester	P20	Discharge permit SD0021695	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Hidewood Creek	Near Clear Lake	P21	Discharge permit SD0020699	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Medary Creek	Near Aurora	P22	Discharge permit SD0021661	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Six Mile Creek	Near White	P23	Discharge permit SD0021636	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Skunk Creek	Near Chester	P24	Discharge permit SD0020338	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Hartford	P25	Discharge permit SD0021750	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Spring Creek	Near Elkton	P26	Discharge permit SD0020788	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Lakes						

Basin Name	Waterbody	Location	Map ID (App. A)	Source of Data for Listing	Beneficial Use	Reason for Listing	TMDL Priority
	Lake Albert	Kingsbury County	L5	Lake assessment	6-7-8-9	TSI=77	1
	Lake Campbell	Brookings County	L6	Lake assessment	6-7-8-9	TSI=78	1
	Covell Lake	Minnehaha County	L7	Lake assessment	6-7-8-9	TSI=72	3
	East Oakwood Lake	Brookings County	L8	Lake assessment	6-7-8-9	TSI=71	1
	Nine Mile Lake	Marshall County	L9	Lake assessment	5-7-8-9	TSI=64	1
	Lake Norden	Hamlin County	L10	Lake assessment	6-7-8-9	TSI=72	1
	South Buffalo Lake	Marshall County	L11	Lake assessment	5-7-8-9	TSI=62	1
	School Lake	Deuel County	L12	Lake assessment	6-7-8-9	TSI=75	1
	South Red Iron Lake	Marshall County	L13	Lake assessment	4-7-8-9	TSI=59	1
	Lake St. John	Hamlin County	L14	Lake assessment	6-7-8-9	TSI=77	1
	West Oakwood Lake	Brookings County	L15	Lake assessment	6-7-8-9	TSI=76	1
Cheyenne River Basin	**Streams**						
	Battle Creek	Near Horsethief Lake to SD Hwy 79	S12	Monitoring Sites DENR460103, DENR460905	2-8-9-10	pH Temperature	2
		Near Hermosa	P27	Discharge permit SD0022349	2-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Keystone	P28	Discharge permit SD0024007	2-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Box Elder Creek	USFS-Box Elder CCC	P29	Discharge permit SD0020834	2-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Cheyenne River	Beaver Creek to Angostura Reservoir	S13	Monitoring Site DENR460875	5-8-9-10	Conductivity Dissolved Solids Suspended solids	3
		Angostura Reservoir to mouth	S14	Monitoring Site DENR460132, DENR460865, DENR468860, DENR460133	5-7-8-9-10	Suspended solids Fecal Coliform [1]	3

[1] Monitoring data shows that some part of the waterbody segment is impaired for all of the listed parameters, although some segments of the waterbody may not be impaired for every parameter listed.

Basin Name	Waterbody	Location	Map ID (App. A)	Source of Data for Listing	Beneficial Use	Reason for Listing	TMDL Priority
		Near Edgemont	P30	Discharge permit SD0023701	5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	French Creek	Near Blue Bell	P31	Discharge permit SD0024228	3-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Grace Coolidge Creek	Headwaters to Battle Creek	S15	Monitoring Site DENR460650	2-8-9-10	Temperature	1
	Lafferty Gulch	Near Keystone	P32	Discharge permit SD0021610	2-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Rapid Creek	Lower Rapid City to mouth	S16	Monitoring Sites DENR460110, DENR460692, DENR460910	5-7-8-9-10	Fecal Coliform Suspended solids [1]	1
		Near Rapid City	P33	Discharge permit SD0023574	5-7-8-9-10	Renewal of discharge permit with ammonia and dissolved oxygen effluent limits	1
	Rapid Creek, N Fork	Above mouth	S17	BH Nat'l Forest Data	2-8-9-10	Temperature	1
	Willow Creek	Near Sylvan Lake	P34	Discharge permit SD0024279	3-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Lakes						
	Bismark Lake	Custer County	L16	Lake assessment	3-7-8-9	TSI=59 pH	3
	Center Lake	Custer County	L17	Lake assessment	2-7-8-9	TSI=60 pH	1
	Horsethief Lake	Pennington County	L18	Lake assessment	2-7-8-9	TSI=59 pH	3
	Lakota Lake	Custer County	L19	Lake assessment	3-7-8-9	TSI=59 pH	3
	Legion Lake	Custer County	L20	Lake assessment	3-7-8-9	TSI=58	1
	New Wall Lake	Pennington County	L21	Lake assessment	4-7-8-9	TSI=68	3
	Sheridan Lake	Pennington County	L22	Lake assessment	2-7-8-9	TSI=51	1
	Stockade Lake	Custer County	L23	Lake assessment	3-7-8-9	TSI=61	3

Basin Name	Waterbody	Location	Map ID (App. A)	Source of Data for Listing	Beneficial Use	Reason for Listing	TMDL Priority
	Sylvan Lake	Custer County	L24	Lake assessment	2-7-8-9	TSI=63	1
Grand River Basin	**Streams**						
	Grand River	Shadehill Reservoir to Corson County line	S18	Monitoring Site DENR460640	3-8-9-10	pH Suspended solids Temperature	1
		Bullhead to mouth	S19	Monitoring Site DENR460945	4-8-9-10	Fecal Coliform Suspended solids	3
	Grand River, N Fork	ND border to Shadehill Reservoir	S20	Monitoring Site DENR460677	6-8-9-10	Sodium adsorption ratio	1
	Grand River, S Fork	Skull Creek to Shadehill Reservoir	S21	Monitoring Site DENR460678	5-8-9-10	Sodium adsorption ratio Suspended solids	1
	Lakes						
	Flat Creek Lake	Perkins County	L25	Lake assessment	5-7-8-9	TSI=69	3
	Lake Isabel	Dewey County	L26	Lake assessment	1-4-7-8-9	TSI=66	3
	Shadehill Reservoir	Perkins County	L27	Lake assessment	4-7-8-9-10	Sodium adsorption ratio	3
James River Basin	**Streams**						
	Dawson Creek	Near Scotland	P35	Discharge permit SD0022853	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	James River	Sand Creek to mouth	S22	Monitoring Sites DENR460737, DENR460707, DENR460761	5-8-9-10	Suspended solids	3
		Near Ashton	P36	Discharge permit SD0022276	5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Columbia	P37	Discharge permit SD0022926	5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Frankfort	P38	Discharge permit SD0020869	5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Huron	P39	Discharge permit SD0023434	5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Mitchell	P40	Discharge permit SD0023361	5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1

Basin Name	Waterbody	Location	Map ID (App. A)	Source of Data for Listing	Beneficial Use	Reason for Listing	TMDL Priority
		Near Menno	P41	Discharge permit SD0020087	5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Jim Creek	Near Artesian	P42	Discharge permit SD0021733	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Maple River	Near Frederick	P43	Discharge permit SD0022152	1-5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Moccasin Creek	Near Aberdeen	P44	Discharge permit SD0020702	9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Warner Sanitary District	P45	Discharge permit SD0020389	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Snake Creek	Near Mina Lake	P46	Discharge permit SD0026344	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Snake Creek, S Fork	Near Faulkton	P47	Discharge permit SD0021971	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Wolf Creek	Near Bridgewater	P48	Discharge permit SD0021512	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Emery	P49	Discharge permit SD0021741	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Lakes						
	Amsden Dam	Day County	L28	Lake assessment	3-7-8-9	TSI=72	3
	Beaver Lake	Yankton County	L29	Lake assessment	6-7-8-9	TSI=82	3
	Bierman Dam	Spink County	L30	Lake assessment	3-7-8-9	TSI=68	3
	Lake Carthage	Miner County	L31	Lake assessment	4-7-8-9	TSI=72	3
	Cresbard Lake	Faulk County	L32	Lake Assessment	5-7-8-9	TSI	1
	Lake Hanson	Hanson County	L33	Lake assessment	5-7-8-9	TSI=65	1
	Richmond Lake	Brown County	L34	Lake assessment	4-7-8-9	TSI=69	1
	Rosette Lake	Edmunds County	L35	Lake assessment	6-7-8-9	TSI=80	1
	Twin Lakes	Sanborn County	L36	Lake assessment	5-7-8-9	TSI=67	1
	Wilmarth Lake	Aurora County	L37	Lake assessment	4-7-8-9	TSI=71	1

Basin Name	Waterbody	Location	Map ID (App. A)	Source of Data for Listing	Beneficial Use	Reason for Listing	TMDL Priority
Little Missouri River Basin	**Streams**						
	Little Missouri River	Near Camp Crook	P50	Discharge permit SD0024759	5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
Minnesota River Basin	**Streams**						
	Whetstone River	Near Big Stone City	P51	Discharge permit SD0023663	5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Whetstone River, S Fork	Near Milbank	P52	Discharge permit SD0020371	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Lakes						
	Lake Alice	Deuel County	L38	Lake assessment	6-7-8-9	TSI=65	1
	Fish Lake	Deuel County	L39	Lake assessment	6-7-8-9	TSI=74	1
Missouri River Basin	**Streams**						
	Choteau Creek	Near Wagner	P53	Discharge permit SD0020184	5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Dry Choteau Creek	Near Avon	P54	Discharge permit SD0022730	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Medicine Creek	US Hwy 83 to Tribal boundary	S131	Monitoring Site DENR460141	6-8-9-10	Conductivity Dissolved Solids	1
		Near Kennebec	P55	Discharge permit SD0022861	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Presho	P56	Discharge permit SD0020117	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Okobojo Creek	Near Agar	P57	Discharge permit SD0022241	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Platte Creek	Near Platte	P58	Discharge permit SD0020354	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1

Basin Name	Waterbody	Location	Map ID (App. A)	Source of Data for Listing	Beneficial Use	Reason for Listing	TMDL Priority
	Ponca Creek	Near Gregory	P59	Discharge permit SD0022179	5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Spring Creek	US Hwy 83 to mouth	S24	Monitoring Site DENR460155	5-8-9-10	Dissolved Oxygen	3
		Near Herreid	P60	Discharge permit SD0022900	5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Swan Creek	Near Akaska	P61	Discharge permit SD0022250	5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Lakes						
	Academy Lake	Charles Mix County	L40	Lake assessment	4-7-8-9	TSI=81	1
	Lake Andes	Charles Mix County	L41	Lake assessment	6-7-8-9	TSI=92	1
	Brakke Dam	Lyman County	L42	Lake assessment	4-7-8-9	TSI=68	1
	Burke Lake	Gregory County	L43	Lake assessment	5-7-8-9	TSI=77	1
	Cottonwood Lake	Sully County	L44	Lake assessment	5-7-8-9	TSI=74	3
	Corsica Lake	Douglas County	L45	Lake assessment	5-7-8-9	TSI=80	1
	Dante Lake	Charles Mix County	L46	Lake assessment	4-7-8-9	TSI=69	1
	Fate Dam	Lyman County	L47	Lake assessment	4-7-8-9	TSI=64	1
	Geddes Lake	Charles Mix County	L48	Lake assessment	5-7-8-9	TSI=81	1
	Platte Lake	Charles Mix County	L49	Lake assessment	6-7-8-9	TSI=79	1
	Lake Pocasse	Campbell County	L50	Lake assessment	4-7-8-9	TSI=86	3
	Roosevelt Lake	Tripp County	L51	Lake assessment	4-7-8-9	TSI=69	3
	Sully Dam	Tripp County	L52	Lake assessment	5-7-8-9	TSI (Based on 1998 listing)	3
	Sully Lake	Sully County	L53	Lake assessment	6-7-8-9	TSI=78 pH	3
Moreau River Basin	**Streams**						
	Moreau River	Headwaters to near Iron Lightning	S25	Monitoring Site DENR460039	5-8-9-10	Suspended solids	3
		Green Grass to mouth	S26	Monitoring Site DENR460935	5-8-9-10	Sodium adsorption ratio Suspended solids	3
	Thunder Butte Creek	Near Bison	P62	Discharge permit SD0022411	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Lakes						

Basin Name	Waterbody	Location	Map ID (App. A)	Source of Data for Listing	Beneficial Use	Reason for Listing	TMDL Priority
	Coal Springs Reservoir	Perkins County	L54	Lake assessment	4-7-8-9	TSI=67	3
	Dewberry Dam	Dewey County	L55	Lake assessment	4-7-8-9	TSI=81	3
Niobrara River Basin	**Streams**						
	Keya Paha River	Keyapaha to Nebraska border	S27	Monitoring Site DENR460815	1-5-8-9-10	Suspended solids	1
	Lakes						
	Rahn Lake	Tripp County	L56	Lake assessment	4-7-8-9	TSI=73	1
Red River Basin	**Lakes**						
	Lake Traverse	Roberts County	L57	Lake assessment	4-7-8-9-10	TSI=72	3
	White Lake	Marshall County	L58	Lake assessment	1-4-7-8-9	TSI=74	1

Vermillion River Basin	Streams						
	Turkey Ridge Creek	Near Viborg	P63	Discharge permit SD0020541	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	Vermillion River	Turkey Ridge Creek to mouth	S28	Monitoring Sites DENR460755, DENR460745	5-8-9-10	Suspended solids Fecal coliform [1]	1
		Near Centerville	P64	Discharge permit SD0022527	5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Chancellor	P65	Discharge permit SD0023639	5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Hurley	P66	Discharge permit SD0021997	5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Vermillion	P67	Discharge permit SD0020061	5-8-9-10	Renewal of discharge permit with ammonia and dissolved oxygen effluent limits	1
	Vermillion River, E Fork	McCook/Lake County line to Little Vermillion River	S29	Monitoring Site DENR460150	6-8-9-10	Suspended solids	3
	Vermillion River, W Fork	Near Canistota	P68	Discharge permit SD0022497	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Marion	P69	Discharge permit SD0020311	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Parker	P70	Discharge permit SD0020940	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near Salem	P71	Discharge permit SD0020966	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1

[1] Monitoring data shows that some part of the waterbody segment is impaired for all of the listed parameters, although some segments of the waterbody may not be impaired for every parameter listed.

	Lakes						
	East Vermillion Lake	McCook County	L59	Lake assessment	4-7-8-9	TSI=69 pH	3
	Lake Preston	Kingsbury County	L60	Lake assessment	9	TSI=83	1
	Silver Lake	Hutchinson County	L61	Lake assessment	6-7-8-9	TSI=78	3
	Lake Thompson	Kingsbury County	L62	Lake assessment	4-7-8-9	TSI=78	1
	Whitewood Lake	Kingsbury County	L63	Lake assessment	6-7-8-9	TSI=80	1
White River Basin	**Streams**						
	Little White River	Todd County line to mouth	S30	Monitoring Site DENR460840	5-8-9-10	Suspended solids	1
		Near Interior	P72	Discharge permit SD0021857	5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
		Near White River	P73	Discharge permit SD0022063	5-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	White River	Nebraska border to mouth	S31	Monitoring Site DENR460842, DENR460835, DENR460152, DENR460825	5-8-9-10	Suspended solids Fecal Coliform [1]	3

[1] Monitoring data shows that some part of the waterbody segment is impaired for all of the listed parameters, although some segments of the waterbody may not be impaired for every parameter listed.

DELISTING OF CERTAIN 1998 TMDL WATERS AND OTHER EXCLUSIONS

Status of 1998 303(d) List

South Dakota's 1998 list contained 171 different waterbodies or waterbody segments for TMDL development. Since the 1998 list was submitted to EPA, DENR has completed TMDLs or determined TMDLs to be unnecessary for 77 of the listed waterbodies. At the time the 1998 list was developed, the federal Clean Water Act required 303(d) lists to be revised every two years. In 2000, federal regulations were promulgated that allowed the subsequent list to be submitted no later than October 1, 2002. Due to this regulation change, additional TMDLs were completed between 2000 and 2002 that were not identified on the 1998 303(d) list as needing TMDLs. Including TMDLs developed in this additional two-year period, a total of 91 TMDLs have been completed or determined to be unnecessary by DENR since April 1, 1998. Table 9 and Figure 5 below show the status of waters included in the 1998 303(d) list.

Table 9. Status of TMDLs from the 1998 303(d) list

TMDL Status	Number and Percentage of TMDLs
Completed or determined to be unnecessary	Completed - Nonpoint Source Project Underway - 18 (11%) Completed - Surface Water Discharge Permit Issued - 32 (19%) Completed - Not Yet Implemented - 2 (1%) TMDL Determined to be Unnecessary – 25 (15%) **77 (45%)**
In progress	**58 (34%)**
Planned	**36 (21%)**
Total:	**171**

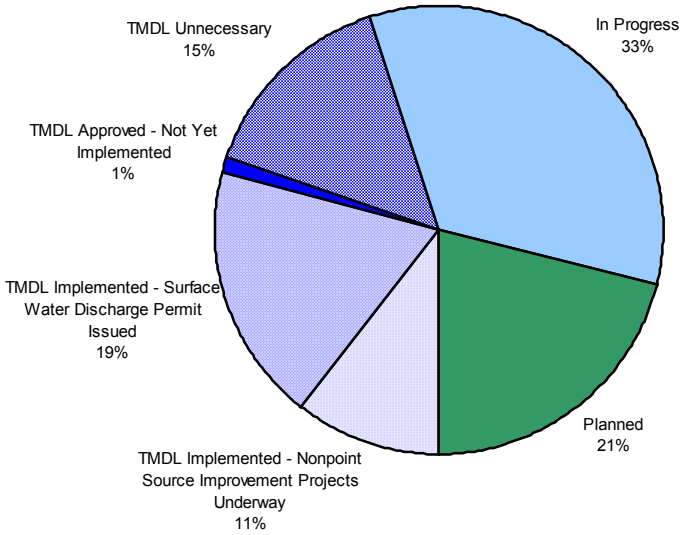

Figure 5. Status of TMDLs from the 1998 303(d) list

Delisting of Waterbodies

A table of delisted waters (Table 10 below) was developed using the following criteria:

- EPA-approved TMDL(s) in place for all pollutants of concern;
- Water quality standards now being met because:
  - New monitoring data show attainment; or
  - New-modeling results show no potential for exceedence of standards.
- Water was listed in error;
- Additional state effluent controls address water quality problems;
- Reservoirs have been breached and are no longer a viable waterbody; or
- Data assessment methodologies have been modified.

Table 10. Waterbodies From 1998 303(d) List to be Delisted

Basin Name	Waterbody	Location	Parameter	Information to Support De-Listing	EPA Approved
Bad River Basin	Bad River	Headwaters to Stanley County line	Accumulated sediment	EPA Approved TMDL	02/07/01
		Midland (SD-0020630)	Ammonia	EPA Approved TMDL	11/09/98
		Philip (SD-0020303)	Ammonia	EPA Approved TMDL	09/25/98
	Freeman Lake	Jackson County	Nitrates, Selenium	EPA Approved TMDL	02/7/01
	Murdo Dam	Jones County	TSI, Trend	New information indicates full support	N/A
Belle Fourche River Basin	Bear Butte Creek	Headwaters to Lawrence County line	Cadmium, Copper, Zinc	New information indicates full support	N/A
	Redwater River	Spearfish (SD-0020044)	Ammonia	New modeling information indicates no TMDL required in order to maintain water quality standards	N/A
	Cleopatra Creek, Spearfish Creek	LAC (SD-0026883)	Metals	New modeling information indicates no TMDL required in order to maintain water quality standards	N/A
	Whitewood Creek	Above Gold Run Creek	pH	New information indicates full support	N/A
		Homestake Mining Co. (SD-0000043)	Ammonia, metals	EPA Approved TMDL	03/23/99
		Ridley Block Co. (SD-0026166) Whitewood (SD-0021466)	Ammonia	EPA Approved TMDL	11/20/01
	Whitewood Creek and Deadwood Creek	Homestake Mining Co. (SD-0025933)	Metals	New modeling information indicates no TMDL required in order to maintain water quality standards	N/A
	Strawberry Creek	Headwaters to mouth	TSS, Lead, pH, Zinc	New information indicates full support	N/A
Big Sioux River Basin	Beaver Creek	Valley Springs (SD-0020923)	Ammonia	EPA Approved TMDL	09/25/98
	Big Sioux River	Brookings (SD-0023388)	Ammonia, Dissolved Oxygen	EPA Approved TMDL	06/28/99
		Canton (SD-0022489)	Ammonia	EPA Approved TMDL	08/19/99
		Dell Rapids (SD-0022101)	Ammonia	EPA Approved TMDL	02/07/01
		Egan (SD-0022462)	Ammonia	EPA Approved TMDL	11/20/01

Basin Name	Waterbody	Location	Parameter	Information to Support De-Listing	EPA Approved
		Brandon (SD-0022535) John Morrell (SD-0022128) Sioux Falls (SD-0026981)	Ammonia, Dissolved Oxygen	EPA Approved TMDL	03/03/00
		Trent (SD-0020265)	Ammonia	EPA Approved TMDL	09/25/98
		Volga (SD-0021920)	Ammonia	EPA Approved TMDL	03/10/99
	Split Rock Creek	Corson Village Sanitary District (SD-0022217)	Ammonia	New modeling information indicates no TMDL required in order to maintain water quality standards	N/A
	W. Pipestone Creek	USGS – EROS Data Center (SD-0000299)	Metals, cyanide	EPA Approved TMDL	03/10/99
	Lake Alvin	Lincoln County	TSI, Trend, Fecal Coliform	EPA Approved TMDL	11/9/01
	Blue Dog Lake	Day County	TSI, Trend, Fecal Coliform	EPA Approved TMDL	02/7/01
	Brant Lake	Lake County	TSI	EPA Approved TMDL	04/12/99
	Bullhead Lake	Deuel County	TSI, Trend	New information indicates full support	N/A
	Clear Lake	Deuel County	TSI, Trend	EPA Approved TMDL	02/7/01
	Lake Herman	Lake County	TSI	EPA Approved TMDL	N/A
	Lake Madison	Lake County	TSI, Trend, Fish Kill	EPA Approved TMDL	04/12/99
	Minnewasta Lake	Day County	TSI, Trend	New information indicates full support	N/A
Cheyenne River Basin	Battle Creek	Keystone (SD-0024007)	Ammonia	EPA Approved TMDL	09/25/98
		Near Hayward	Ammonia	New information indicates full support	N/A
	Black Hawk Creek	Black Hawk Homeowners District (SD-0025551)	Ammonia	TMDL determined to be unnecessary due to pending elimination of point source discharge	N/A
	Box Elder Creek	USFS-Box Elder CCC (SD-0020834)	Ammonia	EPA Approved TMDL	09/25/98
		Near New Underwood	TSS	New WQM Data indicates full support	N/A
	Cheyenne River	Near Edgemont	Fecal coliform	New information indicates full support	N/A
	Elk Creek	Elk Creek Village	Ammonia	Anticipated development and point source discharge did not occur	N/A

Basin Name	Waterbody	Location	Parameter	Information to Support De-Listing	EPA Approved
	Fall River	Evans Plunge, Inc. (SD-0024767)	Chlorine	New modeling information indicates no TMDL required in order to maintain water quality standards	N/A
	French Creek	SDGF&P - Blue Bell (SD-0024228)	Ammonia	EPA Approved TMDL	09/25/98
	Lakota Lake	Custer County	Fecal coliform	New information indicates full support	N/A
	Rapid Creek	Rapid City (SD-0023574)	Ammonia, Dissolved Oxygen	EPA Approved TMDL	01/11/01
	Spring Creek	Near Sheridan Lake	Fecal Coliform	New information indicates full support	N/A
James River Basin	Dawson Creek	Scotland (SD-0022853)	Ammonia	EPA Approved TMDL	01/26/00
	James River	Columbia (SD-0022926)	Ammonia	EPA Approved TMDL	05/25/00
		Frankfort (SD-0020869)	Ammonia	EPA Approved TMDL	03/10/99
		Mitchell (SD-0023361)	Ammonia	EPA Approved TMDL	01/11/00
		Brown County	Dissolved Oxygen	New information indicates full support	N/A
		North of Yankton	TSS	New information indicates full support	N/A
	Jim Creek	Artesian (SD-0021733)	Ammonia	EPA Approved TMDL	11/20/01
	Maple River	Frederick (SD-0022152)	Ammonia	EPA Approved TMDL	03/19/01
	Wolf Creek	Bridgewater (SD-0021512)	Ammonia	EPA Approved TMDL	09/25/98
		Emery (SD-0021741)	Ammonia	EPA Approved TMDL	02/29/00
	Cottonwood Lake	Spink County	TSI, Trend, pH	EPA Approved TMDL	11/9/01
	Elm Lake	Brown County	TSI, Trend	EPA Approved TMDL	04/12/99
	Jones	Hand County	TSI, Trend	TMDL submission to EPA expected prior to October 1, 2002	N/A
	Lake Byron	Beadle County	TSI, Trend	EPA Approved TMDL	04/12/99
	Lake Faulkton	Faulk County	TSI	EPA Approved TMDL	04/12/99
	Lake Henry	Bon Homme County	TSI, Trend	Dam was breached October, 1994 - Listed in error	N/A
	Lake Louise	Hand County	TSI, Trend, Fecal Coliform, Accumulated sediment	EPA Approved TMDL	11/09/01
	Lake Mitchell	Davidson County	TSI	EPA Approved TMDL	04/22/97
	Loyalton Dam	Edmunds County	TSI	TMDL submission to EPA expected prior to October 1, 2002	N/A

Basin Name	Waterbody	Location	Parameter	Information to Support De-Listing	EPA Approved
	Mina Lake	Edmunds County	TSI, Trend	TMDL submission to EPA expected prior to October 1, 2002	N/A
	Pierpont Lake	Day County	TSI	New information indicates full support	N/A
	Ravine Lake	Beadle County	TSI, Trend, Fecal Coliform	EPA Approved TMDL	04/12/99
	Redfield Lake	Spink County	TSI	EPA Approved TMDL	04/12/99
	Richmond Lake	Brown County	Fecal coliform	New information indicates full support	N/A
	Rosehill Lake	Hand County	TSI, Trend	TMDL submission to EPA expected prior to October 1, 2002	N/A
	Wylie Pond	Brown County	Fecal Coliform	New information indicates full support	N/A
Minnesota River Basin	Whetstone River, S Fork	Milbank (SD-0020371)	Ammonia	EPA Approved TMDL	11/09/98
	Lake Cochrane	Deuel County	Fecal Coliform	New information indicates full support	N/A
	Lake Hendricks	Brookings County	TSI, Trend	EPA Approved TMDL	04/12/99
	Lake Oliver	Deuel County	TSI	EPA Approved TMDL	11/09/01
	Punished Woman Lake	Codington County	TSI, Trend	EPA Approved TMDL	02/07/01
Missouri River Basin	Missouri River	Elk Point (SD-0022080)	Ammonia	EPA Approved TMDL	06/30/00
	Platte Creek	Platte (SD-0020354)	Ammonia	EPA Approved TMDL	03/10/99
	East Lake Eureka	McPherson County	TSI Fecal Coliform	New information indicates full support	N/A
	Lake Hiddenwood	Walworth County	TSI, Trend	EPA Approved TMDL	04/12/99
	Lake Sharpe	Hughes County	Accumulated sediment	EPA Approved TMDL	02/7/01
Moreau River	Moreau River	Near Whitehorse	Fecal coliform	New information indicates full support	N/A
	Thunder Butte Creek	Bison (SD-0022411)	Ammonia	EPA Approved TMDL	09/25/98
Vermillion River Basin	Camp Creek	Chancellor (SD-0023639)	Ammonia	EPA Approved TMDL	03/10/99
	Vermillion River	Near Vermillion	Fecal Coliform	New information indicates full support	N/A
	Vermillion River, W Fork	Parker (SD-0020940)	Ammonia	EPA Approved TMDL	01/7/99
	Marindahl Lake	Yankton County	TSI Trend	New information indicates full support	N/A

Basin Name	Waterbody	Location	Parameter	Information to Support De-Listing	EPA Approved
	East Vermillion Lake	McCook County	Fecal Coliform	New information indicates full support	N/A
	Swan Lake	Turner County	TSI, Trend	EPA Approved TMDL	04/12/99
White River Basin	Little White River	White River (SD-0022063)	Ammonia	EPA Approved TMDL	05/7/02

Other Waters Specifically Excluded from the 2002 303(d) List

The following table is a list of waters for which DENR has limited data or information and chose not to target the waterbody for TMDL development at this time. Waters identified as having water quality problems by local, state, or federal agencies, the general public or academic institutions that do not have documented monitoring data to support the alleged impairment status, are included in the table. Included with each waterbody is the basis for each decision not to list the water.

Table 11. Waters Not Targeted for TMDL Development

Basin	Waterbody	Location	Source suggesting listing	Parameter(s)	Basis for exclusion from 2002 list
Belle Fourche River Basin	Spearfish Creek	Annie Creek to McKinley Gulch	DENR46MN33	pH	Data indicates that pH is exceeded in more than 10% of samples. However, the average exceedence is less than 0.1 pH unit above the WQS. Due to the slight magnitude of exceedences, and the likelihood that violations are due to natural conditions of limestone outcrops and creek beds, these waterbodies are not being targeted for TMDL development, as was explained and approved in SD's 1998 303(d) list.
		McKinley Gulch to Squaw Creek	DENR46MN34	pH	
		Fish Hatchery Gulch to Higgens Gulch	DENR460900	pH	
	Cleopatra Creek	Confluence with East Branch Cleopatra Creek to mouth	DENR46MN39	pH	
	Whitewood Creek	Sandy Creek to I-90	DENR460684	pH	

Basin	Waterbody	Location	Source suggesting listing	Parameter(s)	Basis for exclusion from 2002 list
Big Sioux River Basin	Lake Kampeska	Codington County	Beach Closures	Fecal Coliform	A TMDL has been developed and approved for Lake Kampeska. Though the TMDL did not specifically address fecal coliform, the current implementation of the TMDL is expected to have a positive affect on this parameter. In addition, monitoring for fecal coliform was conducted during the development of the TMDL. Few changes to the TMDL or implementation plan would likely have been made if this additional impairment had been exhibited at the time of TMDL development. Therefore, DENR is choosing not to list Lake Kampeska. If, after the TMDL is fully implemented, this or other parameters continue to show impairments, Lake Kampeska may be relisted.
James River Basin	Firesteel Creek	West Fork Firesteel Creek to mouth	DENR460137	Conductivity Total Dissolved Solids Temperature	A TMDL has been developed and approved for Lake Mitchell which includes the Firesteel Creek watershed. Though the TMDL did not specifically address conductivity, TDS, and temperature, the current implementation of the TMDL is expected to have a positive affect on these parameters. In addition, monitoring for these additional parameters was conducted during the development of the TMDL. Few changes to the TMDL or implementation plan would likely have been made if these additional impairments had been exhibited at the time of TMDL development. Therefore, DENR is choosing not to list Firesteel Creek. If, after the TMDL is fully implemented, these or other parameters continue to show impairments, Firesteel Creek may be relisted.

2002 OVERALL TMDL DEVELOPMENT SCHEDULE

Recent EPA guidance directs states to submit a long-range development schedule for all waters listed on the 2002 303(d) list. Adherence to this schedule is based on the commitment and availability of resources necessary to carry out the mandates and is as follows:

Schedule and Rationale

South Dakota has an extremely effective 319 program by strongly emphasizing a grassroots method towards project development and local voluntary involvement with cost-share incentives. The DENR has not implemented 319 activities for waters where there has not been clear local support. As such, waters that may have been impaired from various nonpoint sources but were not of concern to the local community were not pursued. However, waters that are impaired are being targeted for TMDL assessments regardless of the degree of local support.

Nonpoint source pollution issues work best at the grassroots level where water quality assessments are completed upon request of the local watershed residents. The DENR staff assists local efforts through technical and financial support. The water quality assessments have evolved to a level where a completed assessment project is technically sufficient to develop a TMDL.

The 2002 list includes all waters that have data to support nonpoint source pollution impairment. Although successful types of projects have been developed over the last several years, the method of prioritizing 319 activities has changed. The use of the listing approach and methodologies will direct the DENR's activities and resources to the highest waterbody priorities. It will also affect when and how local project sponsors receive grant funds for watershed assessments and implementation projects.

The majority of TMDL assessments currently underway will be completed within the next five years. Experience has shown that once an assessment is completed, an implementation project to improve water quality can last five to six years. During this time, the DENR will evaluate the project and adjust existing resource commitments and priorities as needed. The overall goal will remain to implement all TMDLs, but local sponsors must be available for development implementation to occur. The DENR identifies watershed partnerships as the best method to obtain the TMDL commitments that the 303(d) list necessitates. As a result, DENR will aggressively pursue the watershed partnerships to gain the necessary accomplishments.

Watershed partnerships composed of local individuals, interest groups, and local, state, and federal government agencies are vital in the development and implementation of TMDLs. It is an effort and responsibility that extends far beyond the scope of DENR. Partnerships and cooperation will ensure that South Dakotans remain in the forefront of water quality protection and conservation efforts over our state's water resources. The more all interests join together in this common goal of responsible water quality management, the more independence this state will have in the decisions that affect the lives of people in South Dakota.

The following figure summarizes the overall TMDL development schedule for waters on the 2002 list. This schedule represents a 13-year time frame, which is allowable under EPA guidance.

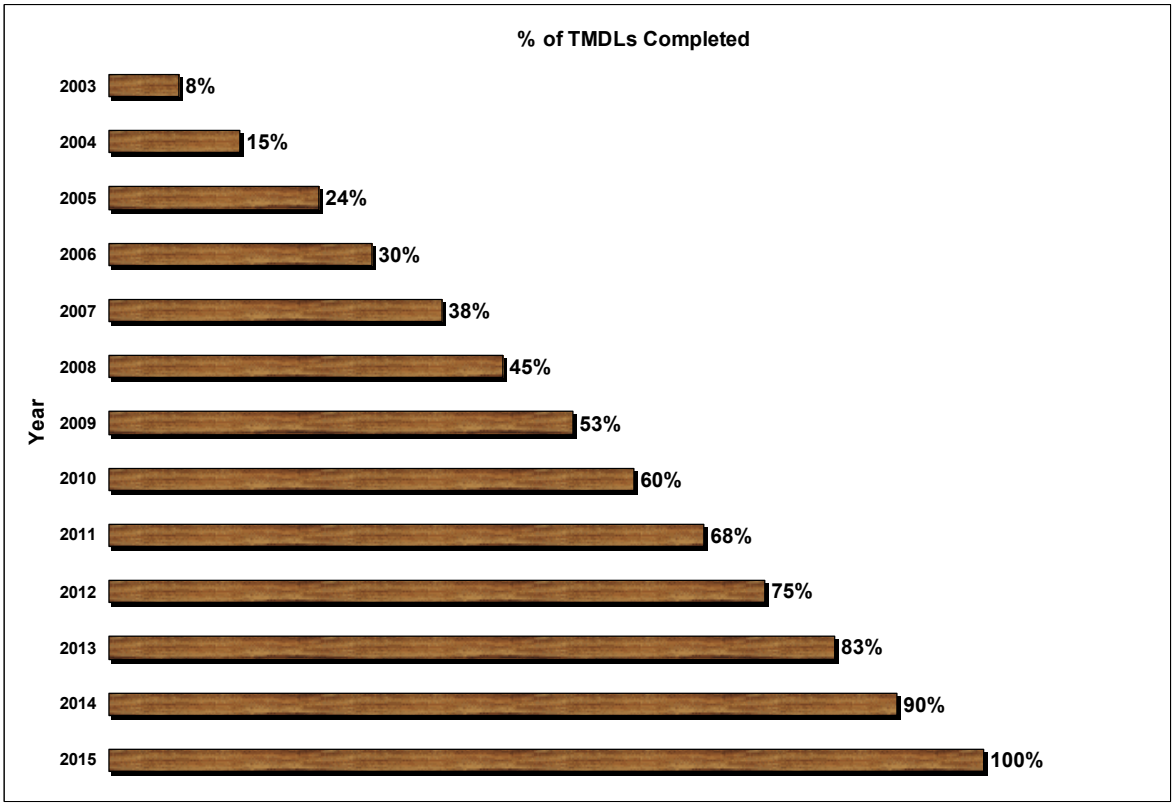

Figure 6. TMDL Development Schedule

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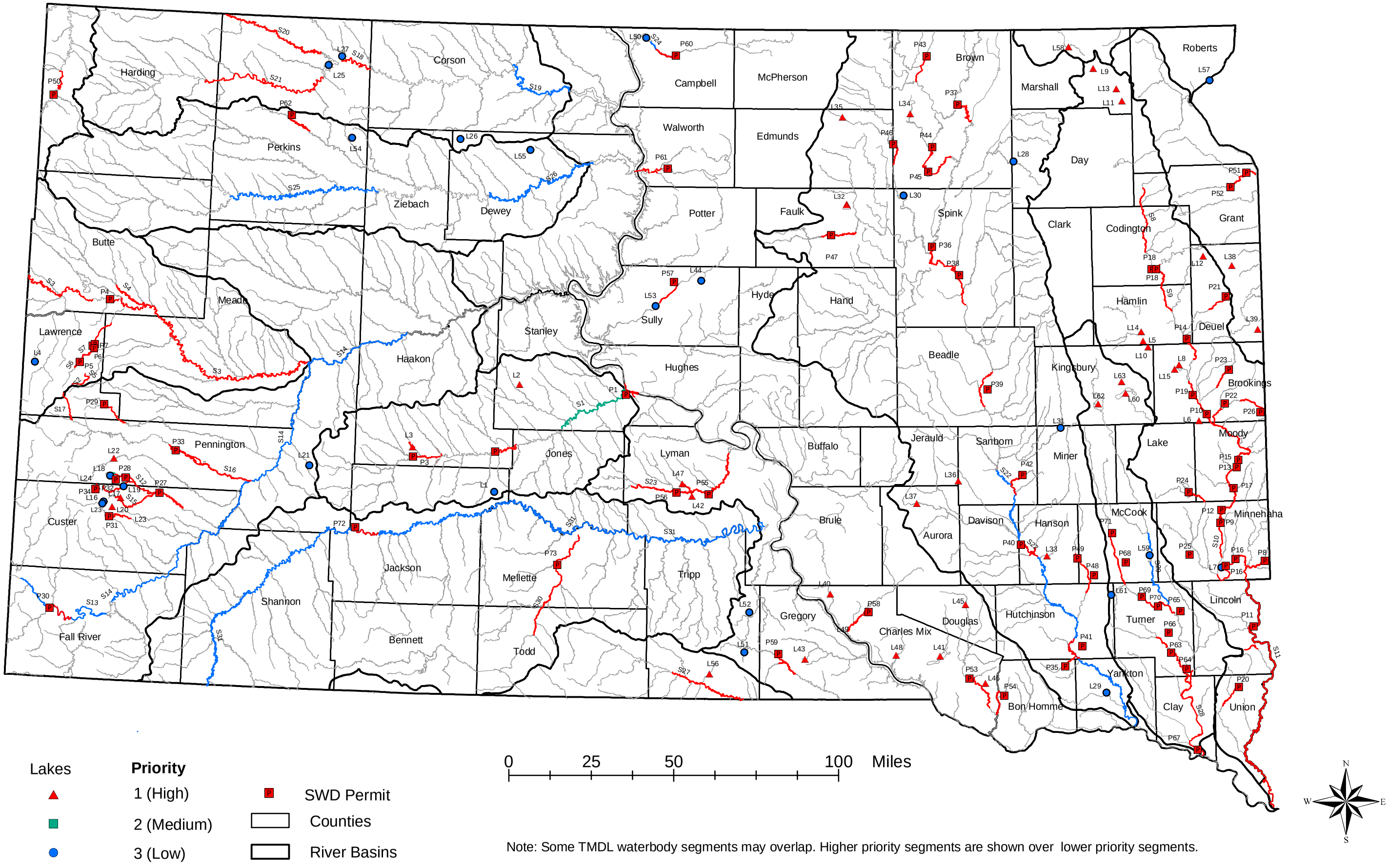
Appendix A – Map of TMDL Waters

TMDL map will be available only with final 303(d) list.

South Dakota 2002 TMDL Waters



Note: Some TMDL waterbody segments may overlap. Higher priority segments are shown over lower priority segments.

Appendix B – Public Participation Displays and Response to Public Comments

Display Ad published in 11 daily newspapers and *Indian Country Today* around August 1, 2001

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

REQUEST FOR PUBLIC INPUT REGARDING
SOUTH DAKOTA WATERBODIES

The South Dakota Department of Environment and Natural Resources is updating its list of waters that need Total Maximum Daily Loads developed pursuant to Section 303(d) of the federal Clean Water Act.

Total Maximum Daily Loads calculate the amount of pollution a waterbody can receive and still meet water quality standards and support assigned beneficial uses. Once loads are determined, local, state and federal activities can be directed toward improving the quality of the waterbody.

The department must submit the updated list to the U.S. Environmental Protection Agency by April 1, 2002.

The department is requesting the public's input in developing the list. If you have water quality data that will aid in the identification of waters that should be added, removed, or remain on the list, please contact the department. Questions, comments, and available water quality data should be submitted to either Lonnie Steinke or Joan Bortnem at the address listed below. Information will be received by the department until close of business August 31, 2001. Additional information regarding Total Maximum Daily Loads, and South Dakota's most recent 303(d) list, are available at the department's website at www.state.sd.us/denr.

Address:
SD Department of Environment and Natural Resources
Joe Foss Building
523 E. Capitol Avenue
Pierre SD 57501

Telephone:
(605) 773-3151
Email:
DENRINTERNET@state.sd.us
Lonnie.Steinke@state.sd.us
Joan.Bortnem@state.sd.us

Steven M. Pirner
Secretary

Letter sent to approximately 217 academic institutions, agencies, tribes, and individuals

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

July 26, 2001

«FNAME_LC» «LNAME_LC»
«TITLE_LC»
«OFFICE1_LC»
«ADDRESS_LC»
«CITY_LC», «STATE» «ZIP»

Re: 303(d) request for water quality data

Dear «Salutation» «LNAME_LC»:

It is time for the department to begin preparation of the 2002 303(d) waterbody list. This list is required by the federal Clean Water Act. The list identifies waterbodies that are targeted for the development of Total Maximum Daily Loads. Total Maximum Daily Loads calculate the amount of pollution a waterbody can receive and still meet water quality standards and support assigned beneficial uses. Once loads are determined, local, state and federal activities can be directed toward improving the quality of the waterbody.

To develop an accurate, defensible, and comprehensive list, the department is soliciting water quality data or other information you may have to help us determine the quality of South Dakota's waters. Chemical, physical, or biological data will be considered. Data that represent the condition of a specific waterbody will be used to update the list. Data less than five years old is of the greatest value. Please provide any quality assurance/quality control measures that were used in collecting the data you submit. Specific water quality reports that explain and interpret the data are also requested.

We need to have this information for the 2002 list by August 31, 2001. Information regarding Total Maximum Daily Loads and South Dakota's most recent 303(d) list are available at the department's web site at http://www.state.sd.us/denr . If you have questions or water quality data for our list, contact either Lonnie Steinke or Joan Bortnem at (605) 773-3151, or email them at lonnie.steinke@state.sd.us and joan.bortnem@state.sd.us . Thank you for your help.

Sincerely,

Steven M. Pirner

Secretary

Display Ad published in 11 daily newspapers and *Indian Country Today* and sent to over 200 academic institutions, agencies, tribes, wastewater dischargers, and individuals around July 23, 2002

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

NOTICE OF THE 2002 SOUTH DAKOTA 303(d) WATERBODY LIST AND OPPORTUNITY FOR COMMENT

The Department of Environment and Natural Resources (DENR) is announcing the availability of the draft 2002 South Dakota 303(d) Waterbody List and the opportunity for public comment on the draft list.

The 303(d) waterbody list describes South Dakota waters that will be targeted for total maximum daily load development. This list must be submitted to the U.S. Environmental Protection Agency on or before October 1, 2002. A "total maximum daily load," or "TMDL" for short, is a determination of the amount of pollution a waterbody can receive and still maintain water quality standards. Total maximum daily loads, when implemented, can affect effluent limits in surface water discharge permits, municipal storm water controls, agricultural practices, and other pollutant sources.

The 2002 list contains the following information:

1. A priority ranking of all listed waters taking into account severity of pollution and the uses of the waters;
2. Pollutants causing or expected to cause violations of the applicable water quality standards;
3. Identification of waters targeted for TMDL development; and
4. Identification of waters included on the 1998 list but not listed on the 2002 list.

The department is providing a public participation process in which the members of the general public, affected organizations, and other interested parties can review and comment on the content of the draft 2002 303(d) list. A copy of the draft 2002 303(d) waterbody list is available on DENR's web site at:
http://www.state.sd.us/denr/DFTA/WatershedProtection/WQInfo.htm.

Copies of the draft may also be obtained from Leland Baron by writing to the address below, emailing Leland Baron at Leland.Baron@state.sd.us**, or by calling 1-800-438-3367.**

Any person desiring to comment on the list should submit comments to the address below. Persons are encouraged to comment electronically by sending the comments to Leland Baron at the email address in the above paragraph. The department must receive the comments by August 23, 2002.

At the conclusion of the public comment period, the department will prepare a written response to each comment received and post the response to the department web site or, if requested, by written response to each person who provided comments or requested a copy of the department's response.

The Secretary will finalize the draft 2002 303(d) waterbody list after consideration of the comments received during the public participation process. The final list will also be available on the department's web site and will be sent to anyone who requests a copy of the final list.

Department of Environment and Natural Resources
Water Resources Assistance Program
523 East Capitol Avenue – Joe Foss Building
Pierre, South Dakota 57501-3181

Steven M. Pirner
Secretary

Memo sent to approximately 217 academic institutions, agencies, tribes, and individuals On August 26, 2002

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE SOUTH DAKOTA 57501-3181

MEMO TO: Interested TMDL Parties

FROM: David Templeton, Director
Division of Financial and Technical Assistance

SUBJECT: Comments on the Draft 2002 South Dakota Total Maximum Daily Load Water Body List

The South Dakota electronic mail system was out of service for several days during the week of August 19-23, 2002. If you commented on the draft "2002 303(d) South Dakota Total Maximum Daily Load Water Body List" electronically there is a good chance that we did not receive your comments. To ensure that we obtain all comments, we are extending the comment period on the draft 2002 303(d) until the close of business on Tuesday, September 3, 2002. Comments can be sent electronically to Leland Baron at Leland.Baron@state.sd.us or, written comments can be submitted to:

Leland Baron
Department of Environment and Natural Resources
523 East Capitol Avenue – Joe Foss Building
Pierre, South Dakota 57501-3181

The draft list is available on the department's web site at:

http://www.state.sd.us/denr/DFTA/WatershedProtection/WQInfo.htm

Summary of Public Comments
Received on South Dakota's
Draft 2002
Total Maximum Daily Load
Waterbody List
and
DENR's Response to Comments

July 23, 2002
through
September 3, 2002

Comment: Bruce Zander and Vern Berry, US Environmental Protection Agency, Denver, CO. Mr. Zander and Mr. Berry had the following comments:

Thank-you for the opportunity to comment on South Dakota's Draft 2002 TMDL Waterbody List. We have reviewed the draft list and have several comments below. Please note that we would like to review with you the public comments received, and DENR's proposed response to them, prior to the final list package being sent to us for approval. This review will be to ensure that DENR and EPA agree on the changes to the list before its submitted as "final."

1. Page 3, Table 1: According to Table 1, there are a total of 168 TMDLs required for waters on the 2002 list. In the narrative on page 3, it indicates there are 168 waters on the 2002 list. For most waterbodies, more than one pollutant is included as the reason for listing. EPA counts the number of TMDLs using all the combinations of the pollutants within a waterbody. Therefore, one stream segment with three different pollutants as the cause of listing, would be counted as three separate TMDLs. Therefore, to reconcile Table 1 with the text, we recommend changing the column heading for the second column to read something like: "Projected Number of Waterbodies Needing TMDLs" or "Projected Number of Waterbodies Where TMDLs are Needed" and "Number of Waterbodies Where TMDLs are Planned for 2002-2006" for the fourth column heading (unless the fourth column is, indeed, the number of TMDLs rather than waterbodies).

   Response to Comment*: DENR agrees with EPA's comment, and the suggested changes were incorporated.*

2. Page 3, Text: The discussion of the 1998 303(d) list should also include the progress that DENR has made in meeting the commitments made in the 1998 TMDL development schedule (in percentage). We calculate that DENR is meeting the 45% (77 completed or unnecessary waterbodies divided by 171 total waterbodies) of TMDLs completed as projected for 2002 in the 1998 schedule.

   Response to Comment*: DENR agrees with EPA's comment, and the suggested changes were incorporated.*

3. Page 3 and throughout the document: DENR's 2002 list is based on a four year listing cycle. This is documented in various parts of the text, in the Table 1 projected (i.e., targeted) waters for TMDL development (i.e., 2002-2006), and in the list itself. EPA's current TMDL regulations require States to submit 303(d) lists on a 2-year cycle and identify TMDLs targeted for that

period. Although it is likely that EPA will be changing the TMDL regulations to reflect a 4 year listing cycle, the change has not occurred. We don't recommend changing anything in the text, but do recommend adding something to the introduction or preface. In particular, we recommend including a statement that says the 4-year cycle will be in effect once EPA modifies its regulations. If EPA does not make that change, then the list cycle will still be two years with the next list due April 2004.

***Response to Comment**: DENR agrees with EPA's comment, and the suggested changes were incorporated.*

4. Page 4, Table 2: Similar to comment number 1 above where it discusses the discrepency between the number of TMDLs vs. the number of waterbodies, we suggest in place of "Number and Percentage of TMDLs" (Table 2 and Figure 2), "Number and Percentage of Waterbodies Needing TMDLs" be used. We also suggest that the following labels be used in the "TMDL Type" column - "Lakes in need of TMDLs", " Stream segments in need of TMDLs", and "Surface Water Discharge Permits in need of TMDLs."

   ***Response to Comment**: DENR agrees with EPA's comment, and the suggested changes were incorporated.*

5. Page 5, First Paragraph, last sentence: The time frame to develop TMDLs should be 13 years "from the time it was initially listed." Please add this caveat to the sentence. Also, we disagree with the last sentence on the page that the list "...is merely a tool to guide DENR..in efforts towards improving or maintaining water quality in South Dakota." We suggest that this sentence either be 1) expanded to include the other functions and purposes of the list, including legal/regulatory; or 2) deleted.

   ***Response to Comment**: DENR agrees with EPA's comment, and the suggested changes were addressed.*

6. Page 10, Table 4, Data Evaluation: 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 SD list the waterbody? We suggest that DENR consider adding a similar criteria.

   ***Response to Comment**: DENR had already used a similar methodology to what EPA suggests in the comment regarding sampling that did not meet the required numbers, but showed overwhelming evidence of impairment. Therefore, DENR has clarified its methodology on page10 by adding the following language: "In specific instances, fewer than 20 samples were used if the results showed overwhelming evidence of support or nonsupport".*

7. Page 12, Lake Assessment Methodology, second paragraph: If a waterbody is listed based on coliform concentrations it shouldn't matter whether the source is cows, dogs or people. We recommend that the last sentence of the paragraph be changed to read: "The waterbody may be considered for delisting."

   ***Response to Comment**: DENR agrees with EPA's comment, and the changes were made to the referenced language to clarify DENR's intent.*

8. Page 39, Table 11, Firesteel Creek: It may be reasonable to expect that conductivity, TDS and temperature will be positively affected when the TMDL is implemented. However, another approach would be to keep the waterbody on the list as a low priority until further monitoring indicate that these parameters meet standards.

   Response to Comment*: DENR has chosen not to list Firesteel Creek, with the following justification (added to Table 11): "In addition, monitoring for these additional parameters was conducted during the development of the TMDL. No significant changes to the TMDL or implementation plan would have been made if these additional parameters where known to be impaired at the time of TMDL development. Therefore, DENR is choosing not to list Firesteel Creek. If, after the TMDL is fully implemented, these or other parameters continue to show impairments, Firesteel Creek will be relisted."*

9. Table 10, Waters to be Delisted, James River Basin, Cresbard Lake: We didn't receive the TMDL for Cresbard Lake with the latest batch of NPS TMDLs for review (i.e., Jones, Rosehill, and Mina Lakes and Loyalton Dam). Please let (Vern Berry) know if you plan on sending it to us in the near future. If not, it should be removed from Table 10 and added to Table 8, Listed Waters.

   Response to Comment*: Submittal of the Cresbard Lake TMDL was expected prior to October 1, 2002. However, the TMDL is not yet completed. Therefore, Cresbard Lake was removed from Table 10, and added to Table 8: Listed 303(d) Waters.*

Comment: The South Dakota Department of Game, Fish, and Parks had the following comments:

Fisheries staff from across the state have reviewed the list and agree with waters listed for 2002. All waters on the list seemed to be there for justifiable reasons and we could think of none that should be added. Prioritization of the TMDL work seems appropriate and conforms with the thinking of our staff. Game, Fish, and Parks staff support using the Trophic State Index as it relates to this process. The use of regional TSI criteria makes logical sense to us and we feel it is very useful to the process. We support the idea of using biological criteria for developing water quality standards. You are encouraged to see a set of criteria that can be used to help the process. This approach seems logical and appropriate and is one easily supported by GFP staff. Thank you for the opportunity to comment on the 303(d) list for 2002. Although we did not provide any specific recommendations for waters to be included, we are aware of the process and feel it is serving its intended purpose. As the TMDL work is accomplished and the plans are implemented, keep our fisheries staff in mind. We see these opportunities to partner and share data, expertise, funding, and implementation of strategies as a way to improve water quality and fisheries habitat. To us the end product is happy anglers

Response to Comment*: DENR appreciates SD Game, Fish, and Park's positive comments.*

Comment: Robert W. Drown, Tatanka RC&D, Bison, SD. Mr. Drown had the following comments:

1. The list appears to be well done and based on good science and common sense.

   Response to Comment*: DENR appreciates Mr. Drown's positive comment.*

2. What is the status of the DENR's authority to administer the National Pollutant Discharge Elimination System within the Cheyenne River Sioux Tribe Reservation and Standing Rock Sioux Tribe Reservation boundaries?

***Response to Comment**: When EPA delegated the authority to administer the National Pollutant Discharge Elimination System to DENR in 1993, authorization on tribal lands was withheld. DENR and EPA are continuing to resolve the details of this matter, specifically defining what lands are considered tribal lands. To date, EPA has retained authority to administer the NPDES program within the Cheyenne River Sioux and Standing Rock Sioux Reservations.*

3. What types of projects demonstration, assessment or implementation or otherwise would DENR consider for the Little Missouri River, near Camp Crook; Grand River, from Shadehill Reservoir to Corson County line; Grand River, North Fork, ND Border to Shadehill Reservoir; Grand River, South Fork, Skull Creek to Shadehill Reservoir; Grand River, Bullhead to mouth and Moreau River, Thunder Butte Creek near Bison?

   ***Response to Comment**: The Little Missouri watershed does not have any impaired waterbodies listed. The listing near Camp Crook relates to the renewal of Camp Crook's wastewater discharge permit. Because there are no impaired waterbodies listed, we do not plan on any water quality improvement projects in the watershed in the foreseeable future.*

   The DENR has completed a TMDL assessment for the South Fork of the Grand River and the Grand River below Shadehill to the Corson County line. The assessment concluded the impairments from pH and suspended solids were due to the native soils in the watershed and were not related to human activities. A watershed implementation project would not significantly affect the water quality due to the natural conditions in this watershed. The temperature and pH violations for Shadehill Reservoir to Corson County line can be attributed to an improper beneficial use classification (Coldwater marginal fish life propagation waters) and complicating factors related to the reservoir discharge. Therefore, we are considering a Water Quality Standards change for these parameters.

   The North Fork of the Grand River is most likely also impaired because of the existing soils in the watershed. However, DENR will need more documentation, which will likely be obtained through additional water quality sampling. If natural conditions are proven to be the cause of impairment, no implementation work will be conducted in this watershed either.

   The reach of the Grand River from Bullhead to its mouth will need a TMDL assessment conducted. A contract with the local conservation district or a federal agency (Natural Resources Conservation Service or the Bureau of Reclamation) to complete the TMDL assessment may be necessary.

   The listing of Thunder Butte Creek near Bison is related to the renewal of Bison's wastewater discharge permit. Therefore, a nonpoint source TMDL assessment will not be conducted on this segment.

Comment: Leslie L. Labahn, Randall Resource Conservation & Development (RC&D) Association, Inc., had the following comments:

1. Ponca Creek needs TMDL assessment due to Nebraska communities of Spencer, Bristow, Lynch, and Verdel directly impacted by quantity and quality of Ponca Creek water flows. Ponca Creek is believed to contribute a significant amount of sediment to the Missouri River not far upstream of Lewis & Clark Lake. Lewis & Clark Lake is (the) focus of growing public concern due to sedimentation and threat of tremendous loss in economic and social benefits. Two major rural

water systems use Lewis & Clark Lake as source, as does the communities of Springfield and Running Water. Assessment should be joint effort between South Dakota and Nebraska. Gregory County conservation District considers Ponca Creek a high priority and completed a survey of the 2000 plus landowners on conservation needs about five years ago. Lower Niobrara Natural Resources District includes all of Ponca Creek WS (watershed) in Nebraska a "High Priority Environmental Quality Incentive Program" area.

Response to Comment: *The 303(d) / TMDL process addresses only water quality. Water quantity is an issue only as it affects water quality. The DENR does not have water quality data to show that this waterbody should be listed. Nebraska, which has the terminus of Ponca Creek, shows Ponca Creek as unimpaired. Because these waterbodies are not listed as impaired, the DENR does not plan on any water quality improvement projects in the watershed in the foreseeable future. However, the DENR will work with other groups and entities that are willing to coordinate and help fund waterbody assessments outside of the 303(d) listing process. We would be pleased to discuss this further with the Randall Resource Conservation and Development District.*

2. All major tributaries emptying into Lake Francis Case and Lewis & Clark Lake need watershed assessments of TMDL type. Bon Homme, Charles Mix, Douglas Co., Gregory Co., and Brule-Buffalo Conservation Districts over the past 10-15 years have conducted landowner conservation needs surveys and worked on increasing priority for conservation program efforts in these smaller watersheds.

   The concern is sediment and other pollutants delivery to major public use areas and domestic water supply sites. Rural water systems using these 2 lakes: Randall Community Water, Aurora-Brule, Bon Homme-Yankton, and Cedar-Knox (Nebraska). About 90% of the citizens in Randall RC&D Area depend on these 2 lakes for drinking water!

   Most of the small tributaries empty at or very near major public use areas. We note SD DENR is monitoring water quality at the public water system plants only. We understand the only water being monitored coming into Lake Francis Case is on the White River and at Big Bend Dam. For Lewis & Clark Lake, we understand, the only monitoring in South Dakota is on Choteau Creek and at Ft. Randall Dam.

   Randall RC&D agrees with our Conservation Districts that assessments need to be conducted on the small tributaries to these lakes to determine where sources of sediment and other pollutants are. This becomes more critical because more and more people utilize the benefits of these 2 lakes, and almost 50 years of usable life has past. Each year the importance of extending the usable life of Lake Francis Case and Lewis & Clark Lake becomes more important to this area, to South Dakota and to the northern Great Plains region.

   Response to Comments*: The DENR notes the information and the district's concerns. We share the district's concerns for the effective life and usability of the Missouri River reservoirs. There are currently no standards for sediment loading into the Missouri River reservoirs. All reservoirs trap sediments and have a defined usable life unless sediment removal techniques are employed. In most cases the usable life of a reservoir can be extended through watershed controls on erosion and sediment delivery. For example, watershed practices funded through the 319 Nonpoint Source Control and Farm Bill programs have reduced sediment delivery from the Bad River to Lake Sharpe by over 40%.*

The US Army Corps of Engineers has primary responsibility for management of the Missouri River reservoirs including sediment issues. Many other agencies, including DENR, also have an interest in the management issues. The department would like to see a comprehensive sediment management plan developed and implemented for the Missouri River reservoirs. Since the department os not the primary management agency for the reservoirs, the department is not in a position to unilaterally develop such a plan. We would be interested in working with the RC&Ds, Corps of Engineers, and other groups in developing a sediment management plan which would address watershed and in reservoir assessments, , watershed erosion control, and in reservoir sediment management. Perhaps the Randall RC&D could assist in facilitating the development of such plan

Comment: Gary Herman, President, Lower James Resource & Conservation District Council, 1820 North Kimball, Suite 4, Mitchell, SD 57301 had the following comments:

The Lower James RC&D Council keeps abreast and is involved in a variety of activities related to the TMDL area and water quality. We appreciate and compliment DENR on the work they are doing to meet the requirements related to TMDL's. We have overall support for the way the TMDL effort is being managed and implemented.

Our comment is related to an area where we have local knowledge and have been involved significantly the last three years. The Lewis and Clark Reservoir, in a study completed by the Corps of Engineers in 2001 "Niobrara and Missouri Rivers, South Dakota and Nebraska, Sediment Strategies" has a life of 133 more years before the sediment delta is past the Lewis and Clark Recreation Area. This is the latest estimate of the Reservoir's life with the previous life span estimate by the Corps of Engineers of 75 years or around 2075. Our current effort for Lewis and Clark Reservoir is to determine exactly where the sediment is coming from (source type and source locations) and this hopefully will be determined through watershed assessments. Our effort will focus on South Dakota contributing tributaries (20%) of the watershed and support and encouragement to Nebraska (80% of the drainage area).

We note that water quality sampling stations on the Missouri are at the dam powerhouses such as Gavins Point. The COE estimated 4,235,00 CY of annual sediment loading to the Missouri from Ft. Randall Dam to Gavins Point Dam and available aerial photos show the continued movement of the visual sediment delta deeper in Lewis and Clark Lake. We would hope that South Dakota can assess these Lewis and Clark Lake tributary watersheds and determine the source of sediments and exactly how much sedimentation can be reduced through BMP applications.

The Lower James RC&D Council ask that DENR consider the Lewis and Clark Lake Sedimentation issue when developing TMDL priority waters.

***Response to Comments**: The department notes the information and concerns and appreciates the compliment for the effort DENR made to produce this list.*

The department will be assessing a number of major Missouri River tributaries in your area, including the White River, the Keya Paha River, the Vermillion River, and the James River in the next four to five years.. In addition, the Department has assessed the South Central Lakes, and currently has an implementation project in the Lake Mitchell/Firesteel Creek watershed.

To get additional information that could be used for use in a TMDL listing, the department solicited water quality monitoring data and information collected by other groups and agencies. If the data met the quality assurance and quality control criteria, it was used in the listing process. In

addition to information that DENR collects, the department also solicited water quality monitoring data and information collected by other groups and agencies. As discussed in our response to the comments from the Randall RC&D, the department is willing to discuss the options available to complete an assessment of these watersheds with willing local sponsors.

Comment: Karl D. Burke, Manager, Homestake Mining Company, Lead, SD. Mr. Burke had the following comments:

Homestake Mining Company would like to comment on the recently released Draft 2002 South Dakota 303(d) Waterbody List, specifically addressing the listing of Whitewood Creek Near Lead in Table 8, page 21 of your document. We would like the State to clarify that Whitewood Creek Near Lead is included in the 303(d) Waterbody List solely because Homestake Mining will be renewing South Dakota Discharge Permit SD0000043, and that Whitewood Creek Near Lead is not an "impaired waterbody" for ammonia and metals. Monitoring data from both the State and Homestake Mining confirms Whitewood Creek near Lead to be in full compliance with State ammonia and metals water quality standards as well as the conditions specified in South Dakota Discharge Permit SD0000043.

***Response to Comment**: DENR agrees with Homestake's comment. The section of the list titled "LISTING APPROACH AND METHODOLOGIES" describes this aspect of listing in detail, and explains that Surface Water Discharge-related TMDLs are typically not impaired, but are listed since a TMDL will be completed to maintain the waterbody's unimpaired status.*

Comment: Gary Beach, Administrator, Wyoming Department of Environmental Quality, Water Quality Division, Cheyenne, Wyoming. Mr. Beach had the following comments:

The Department of Environmental Quality, State of Wyoming has reviewed your 303d List and find(s) that two streams that cross from Wyoming into South Dakota have been proposed for listing. Both streams; the Belle Fourche River and the Cheyenne River, are listed exceeding your suspended sediment standard. In addition, the Cheyenne River and tributary Beaver Creek are also listed for conductivity and dissolved solids.

In Wyoming we have the Belle Fourche listed for fecal coliform impairment. The Cheyenne River and its tributaries are listed as fully supporting its designated uses.

Based on a review of expected activities in these drainages, we see no conflict with your listings and any uses we would permit in them. In the future, if some activity did occur that required permitting or added to the suspended sediment impairment we would coordinate with your state and resolve the issue.

***Response to Comment**: DENR appreciates Wyoming's review of the draft list, and is committed to working with the Wyoming Department of Environmental Quality on any TMDLs that may affect stakeholders from both Wyoming and South Dakota.*

Correction: During the Public Notice Period, DENR discovered the following typographical errors:

Table 8: *Listed 303(d) Waters* on Page 21 of the draft list and Table 11*: Waters not Targeted for TMDL Development* on Page 39 of the draft list both list Whitewood Creek for pH, from Sandy Creek to I-90. DENR's intent was to not list this waterbody for TMDL development. It was inadvertently included in both tables. For the final list, it was removed from Table 8.

Table 8: *Listed 303(d) Waters* listed Whitewood Lake for both the Big Sioux and the Vermillion River Basins. Whitewood Lake is located within the Vermillion River Basin and has been deleted from the Big Sioux River Basin on Page 24. This correction has caused Table 1 on Page 3 to also be incorrect. The Projected Number of Waterbodies Needing TMDLs changed from 168 to 167 and the Number of Waterbody TMDLs planned for 2002-2006 changed from 132 to 131.

Page 23 had an incorrect Discharge permit number listed for the waterbody located near Sioux Falls and Brandon. The incorrect number, SD0026981 has been changed to SD0022535.