# TOTAL MAXIMUM DAILY LOAD EVALUATION

**For**

## WYLIE POND

## WYLIE POND WATERSHED

## (HUC 10160003)

## BROWN COUNTY, SOUTH DAKOTA

## SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

## FEBRUARY, 2002

# Wylie Pond Total Maximum Daily Load

| | |
|---|---|
| ***Waterbody Type:*** | Lake (Pond) (Impounded) |
| ***303(d) Listing Parameter:*** | Fecal Coliform |
| ***Designated Uses:*** | Recreation, Warmwater Marginal Fish Life Propagation |
| ***Size of Waterbody:*** | 10 acres |
| ***Size of Watershed:*** | Approximately five acres |
| ***Water Quality Standards:*** | Narrative and Numeric |
| ***Indicators:*** | Fecal counts |
| ***Analytical Approach:*** | AGNPS |
| ***Location:*** | HUC Code: 10160009 |
| ***Goal:*** | Delist 2002 |
| ***Target:*** | Delist 2002 |

## Objective:

The intent of this summary is to clearly identify the components of the TMDL submittal to support adequate public participation and facilitate the US Environmental Protection Agency (EPA) review and approval. The TMDL was developed in accordance with Section 303(d) of the federal Clean Water Act and guidance developed by EPA.

## Introduction

Wylie Pond is a 10-acre man-made bowl-shaped pond located in Brown County, South Dakota. The 1998 South Dakota 303(d) Waterbody List (page 22) identified Wylie Pond for TMDL development for fecal coliform bacteria.

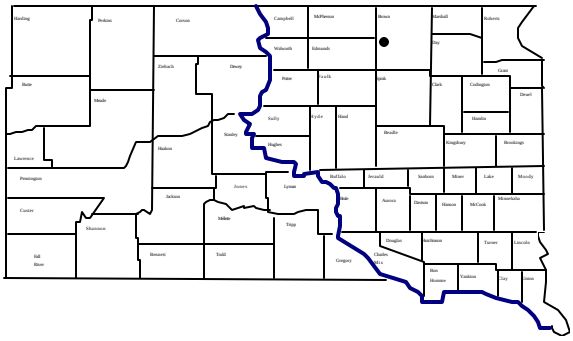

**Figure 11. Watershed Location in South Dakota**

The city of Aberdeen created the lake, which has an average depth of 4 feet, its deepest depth being 8 feet, and holds about 32-acre feet of water. The entire lake is approximately 10-acres in size and the watershed is approximately five acres. There is no natural outlet for Wylie Pond.

## Problem Identification

The Wylie Pond Watershed is very small and little to no nutrient, sediment, and fecal coliform loadings are deposited into the pond from run-off. The assessment study did not find impairment to Wylie Pond caused by the watershed. Rather, fecal coliform bacteria become present when swimmers using the pond in the summer months don't use the public restrooms.

## Description of Applicable Water Quality Standards & Numeric Water Quality Targets

Wylie Pond has been assigned certain beneficial uses by the state of South Dakota Surface Water Quality Standards regulations. Along with these assigned uses are narrative and numeric criteria that define the desired water quality of the lake. These criteria must be

maintained for the lake to satisfy its assigned beneficial uses, which are listed below:

*Wylie Pond:*

(6) Warmwater marginal fish life propagation;
(7) Immersion recreation water;
(8) Limited contact recreation water;
(9) Fish and wildlife propagation, and recreation and stock watering.

Wylie Pond has been assigned beneficial uses by the state of South Dakota Surface Water Quality Standards regulations. Along with these assigned uses are narrative and numeric criteria that define the desired water quality of the lake. These criteria must be maintained for the lake to satisfy its assigned beneficial uses, which are listed below:

South Dakota's Surface Water Quality Standard for immersion recreation is <400-colonies/100 mL for any one sample or a geometric mean of <200 colonies per 100 mL for a minimum of five samples collected during separate 24-hour periods in a 30-day period. They may not exceed the geometric mean value in more than 20 percent of the samples in any 30-day period (Chapter 74:51:01:50). The South Dakota Water Quality for Public Beaches program requires <1,000-colonies/100 mL for any one sample, <300-colonies/100 mL for two consecutive samples or <200-colonies/100 mL for three consecutive samples (Chapter 74:04:08:07).

Individual parameters, including the lake's Trophic State Index (TSI) (Carlson, 1977) value, determine the support of beneficial uses and compliance with standards. An occasional "hit" of fecal coliform in water samples from the pond during summer months is an indicator that the fecal coliform problem is not in the watershed. The problem comes from swimmers not using the restroom or pets defecating near the water. Wylie Pond is identified in the 1998 South Dakota 303(d) Waterbody List but not listed in "Ecoregion Targeting for Impaired Lakes in South Dakota." If Wylie Pond were listed, it would be fully supporting for TSI.

Wylie Pond Watershed

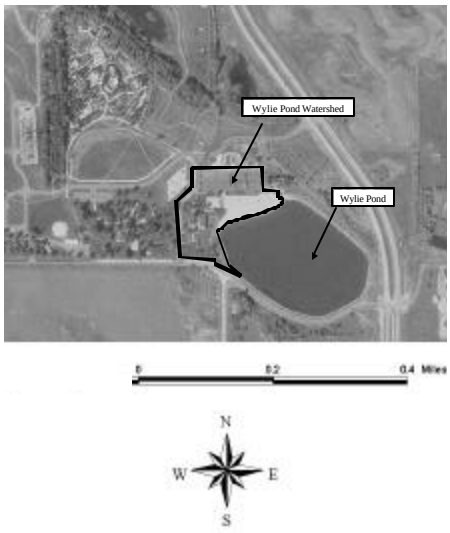


**Figure 12. Wylie Pond Watershed**

## Pollutant Assessment

Point Sources

There are no point sources of pollutants of concern in this watershed.

Nonpoint Sources/ Background Sources

Other then human and pet sources, another possible source of fecal coliform in the watershed could be wildlife. However, wildlife probably contributes to a very small amount and would not warrant beach closure.

Fecal coliform data from the assessment and from beach samples indicated that 3% of the beach samples have resulted in beach closures, each of which occurred during 1996 (1), 1997 (2), 1998 (1), and 2000 (1). These closures do not represent a constant recurring problem and do not impair the beneficial uses of the lake.

No TMDL goals will be developed for fecal coliform and it is recommended Wylie Pond be de-listed in the next 303d report.

**Linkage Analysis**

Water quality data was collected from two in-lake sites at Wylie Pond. Samples collected at each site were taken according to South Dakota's EPA-approved Standard Operating Procedures for Field Samplers. Water samples were sent to the State Health Laboratory in Pierre for analysis. Quality Assurance/Quality Control samples were collected on approximately 15% of the samples. The South Dakota's EPA-approved Non-Point Source Quality Assurance/ Quality Control Plan requires 10% QA/QC sample sets. Details concerning water sampling techniques, analysis, and quality control are addressed on pages 24 through 25 of the assessment final report.

In addition to water quality monitoring, fecal coliform data was gathered from the Drinking Water Program, SDDENR, for a more in-depth look of fecal numbers in the past five years collected from beach sampling.

**TMDL and Allocations**

TMDL

Of the 20 individual samples collected during the assessment study, only two samples contained a detectable level of fecal coliform bacteria, which was 10 colonies/100 mL.

Other samples taken at the public swimming beach did detect somewhat higher levels of fecal coliform bacteria than the assessment monitoring samples, but none of the samples met the program criteria for impairment (beach closure). See Appendix C of the final assessment report for sample data.

As a result of the assessment monitoring, it is recommended that no TMDL be developed as fecal coliform loads to the lake do not occur. Wylie Pond will be de-listed for fecal coliform in 2002.

Wasteload Allocations (WLAs)

There are no point sources of pollutants of concern in this watershed. Therefore, the "wasteload allocation" component of this TMDL is considered a zero value. The TMDL is considered wholly included within the "load allocation" component.

Load Allocations (LAs)

No allocations have been determined as inlake fecal coliform. Impairment was not documented during the water quality assessment. Possible sources include natural sources (wildlife), pets, and recreational users. A public information and education program will be initiated to help prevent bacterial contamination.

Seasonal Variation

Different seasons of the year can yield differences in water quality due to changes in precipitation and agricultural practices. To determine seasonal differences, Wylie Pond samples were collected in spring (March-May),

summer (June-August), fall (September-November), and winter (December-February) months.

Margin of Safety

As a TMDL goal and endpoint have not been developed, a margin of safety is not necessary. However, routine fecal coliform sampling will continue through established programs to monitor beneficial use as this is a highly used recreational lake. Also, implementation of an information and education program for the public will help assure that future contamination is less likely to occur.

Critical Conditions

Potential impairment from fecal coliform bacteria occurs during the recreational season of May 15 - September 15.

## Follow-Up Monitoring

Wylie Pond will remain on the beach monitoring program through DENR's Drinking Water Program. These monitoring efforts will give long term tracking of fecal coliform concentrations.

Once the implementation of the proposed recommendations is completed, post-implementation monitoring will be necessary to assure that the TMDL has been reached and improvements in beneficial uses occur.

## Public Participation

Efforts taken to gain public education, review, and comment during development of the TMDL involved:

1. South Brown County Conservation District Board Meetings.
2. Articles in newspapers.
3. Individual contact with landowners in the area.

The findings from these public meetings and comments have been taken into consideration in development of the Wylie Pond TMDL.

## Implementation Plan

The South Dakota DENR is working with the South Brown County Conservation District and the city of Aberdeen to initiate an implementation project beginning in the spring of 2003. It is expected that a local sponsor will request project assistance during the fall 2002 EPA Section 319 funding round.