

Numeric Target(s)

Submittal describes applicable water quality standards, including beneficial uses, applicable numeric and/or narrative criteria. If the TMDL is based on a target other than a numeric water quality criterion, then a numeric expression, site specific if possible, was developed from a narrative criterion and a description of the process used to derive the target is included in the submittal.

In Phase I, the numeric target is a Carlson TSI score for total phosphorus of 70, which is equivalent to an in-lake concentration of 100 ug/L. The target is related to the narrative water quality standards using the Carlson TSI index.

Link Between Numeric Target(s) and Pollutant(s) of concern

An explanation and analytical basis for expressing the TMDL through surrogate measures (e.g., parameters such as percent fines and turbidity for sediment impairments, or chlorophyll-a and phosphorus loadings for excess algae) is provided, if applicable. For each identified pollutant, the submittal describes analytical basis for conclusions, allocations and margin of safety that do not exceed the load capacity.

The numeric target is for phosphorus. Excess phosphorus causes excessive algae growth, which causes high turbidity, which is the impairment for this water body. Phosphorus is a surrogate measure for the listed impairment. The analytical basis for the numeric target is the Eutromod Lake Response model.

Source Analysis

Important assumptions made in developing the TMDL, such as assumed distribution of land use in the watershed, population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources, are described. Point, non point and background sources of pollutants of concern are described, including magnitude and location of the sources. Submittal demonstrates all significant sources have been considered.

The TMDL document identifies three phosphorus sources, discharge from Lake Minnewashta, drainage from the watershed directly into the lake, and re-suspension of bottom deposits. All significant sources have been considered.

Allocation

Submittal identifies appropriate wasteload allocations for point, and load allocations for nonpoint sources. If no point sources are present the wasteload allocation is zero. If no nonpoint sources are present, the load allocation is zero.

The allocations are equivalent to a 50% reduction in the current total phosphorus loading.

WLA Comment

The WLA is established as zero.

LA Comment

The TMDL establishes the LA as 8000 pounds per year of total phosphorus, allocated among three non-point sources. 3000 pounds per year allocation is established for inflow from Lake Minnewashta, 2600 pounds per year allocation is established for direct discharge from the watershed into the lake, and, 2400 pounds per year allocation is

established for recycling phosphorus from re-suspended bottom deposits.

Margin of Safety

Submittal describes explicit and/or implicit margin of safety for each pollutant. If the MOS is implicit, the conservative assumptions in the analysis for the MOS are described. If the MOS is explicit, the loadings set aside for the MOS are identified and a rationale for selecting the value for the MOS is provided.

The MOS for Phase I is implicit, using conservative assumptions in the modeling, such as, assuming that all the phosphorus will be expressed as algae. The MOS for Phase II will be developed when the biological indices used to assess aquatic life are developed.

Seasonal Variation and Critical Conditions

Submittal describes the method for accounting for seasonal variation and critical conditions in the TMDL(s).

Seasonal variation and critical conditions were considered. Phosphorus is accumulated in the lake, and the allocation is established for the entire year.

Public Participation

Submittal describes public notice and public comment opportunity, and explains how the public comments were considered in the final TMDL(s).

Public meetings were held in Des Moines on January 14, 2002, and February 4, 2001 in Arnolds Park, IA. An initial public notice period was held from December 6, 2002 to December 14, 2002, and later extended to December 31, 2002. This TMDL was available to the public on the IDNR Internet site and copies of the draft TMDL were distributed to stakeholders and local interests. An additional public meeting was held on January 21, 2003. The comments were incorporated into the final TMDL.

Monitoring Plan for TMDL(s) Under Phased Approach

The TMDL identifies the monitoring plan that describes the additional data to be collected to determine if the load reductions required by the TMDL lead to attainment of WQS, and a schedule for considering revisions to the TMDL(s) (where phased approach is used).

The Lower Gar Lake monitoring and evaluation plan includes: (1) Monitoring as part of the Iowa Lakes Survey. In-lake water will be monitored three times per year for 2000 - 2005. (2) A biological assessment to determine aquatic life status. (3) Watershed modeling to assess the effectiveness of the implementation measures. (4) Flow measurements from the Minnewashta Lake discharge.

Reasonable assurance

Reasonable assurance only applies when reduction in nonpoint source loading is required to meet the prescribed waste load allocations.

Reasonable assurance is not required for this TMDL, because LA reductions are not required to meet the WLA.