



## EPA Region 7 TMDL Review

<i>TMDL ID</i>	94	<i>Water Body ID</i>	IA 05-NOD-00485-L
<i>Water Body Name</i>	Orient Lake		
<i>Pollutant</i>	Siltation		
<i>Tributary</i>	Unnamed intermittent streams		
<i>State</i>	IA	<i>HUC</i>	10240010030
<i>Basin</i>	Southern Iowa River		
<i>Submittal Date</i>	8/1/2001		
<i>Approved</i>	Yes		

### Submittal Letter

*State submittal letter indicates final TMDL(s) for specific pollutant(s)/ water(s) were adopted by the state, and submitted to EPA for approval under section 303(d) of the Clean Water Act.*

EPA received Iowa's submittal letter dated July 27, 2001 on August 1, 2001.

### Water Quality Standards Attainment

*The water body's loading capacity for the applicable pollutant is identified and the rationale for the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources is described. TMDL and associated allocations are set at levels adequate to result in attainment of applicable water quality standards.*

The water body is impaired for aquatic life use due to siltation. Iowa does not have a numeric WQS for siltation. The state's narrative standard states, the physical and chemical characteristics of the water body should not be altered by excessive sediment to cause reductions in aquatic habitat, spawning, reproduction and development, or sport fishing. The load capacity is 1,112 tons/year or sediment. This was determined by USDA SCS erosion rates, NRCS sediment delivery procedure, and gully erosion. A second endpoint was selected based on the fish assemblage quality for the water body. This is a phased TMDL.

**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.*

There are two numeric targets for this TMDL. First, the sediment delivery endpoint will be 1,112 tons/year. This endpoint will reduce the average rate of sediment deposition in the lake. This endpoint is based on the determination of the "T" value for the watershed. The "T" value represents the amount of sediment that can be eroded by wind or water that will not effect crop production. The second endpoint is a targeted fish assemblage in Orient Lake. The biological assessment of the lake will include growth, size, structure, body condition, relative abundance and species. Orient Lake will be considered impaired until the aquatic life endpoint is achieved.

**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 rationale behind the desired endpoint and corresponding load allocations is a qualitative assessment that decreases in TSS loads and deposition will result in a long-term improvement in the aquatic community.

**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.*

Source inventory and assessment includes descriptions of land use and the potential for non-point source pollutants, and, discusses any point sources. All significant sources have been discussed and considered. Sheet and rill erosion are believed to be the sources of sediment to the lake from the watershed.

**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.*

Allocations were made based on sedimentation rate calculation based on NRCS methods.

**WLA Comment**

The WLA is zero. There are no point sources of sediment in the watershed.

**LA Comment**

Since the WLA is zero, the LA is equal to the load capacity of 1,112 tons/year.

### **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 is implicit based on dual endpoints. The use of aquatic life endpoints will ensure the attainment of water quality standards for the aquatic life use.

### **Seasonal Variation and Critical Conditions**

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

Sediment loading and transport varies substantially from year to year. It is necessary to determine impairment based on multiple years of data. The allocations were made as an average annual load.

### **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 January 17, 2001 in Des Moines, February 1, 2001 and June 11, 2001 in Orient.

### **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).*

Biological monitoring will be conducted in accordance with Iowa's Statewide Biological Sampling Plan.

### **Reasonable assurance**

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

Reasonable assurances are not required in the TMDL because there are no point sources contributing to the impairment in the watershed.

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