

## TOTAL MAXIMUM DAILY LOAD (TMDL) DEVELOPMENT

*For a Biological Impairment Listing*

*Due to Chlorides in*

**Tired Creek**

**Near Cairo, Georgia**

(HUC 03120002)

Ochlockonee River Basin, Georgia



## Summary Page

Georgia's final 2000 Section 303(d) list identified lower Tired Creek as not supporting its designated use as a fishing water because of biological impairment (identified as "biota" on the State's 303(d) List). (See Appendix A.)

The TMDL is the total amount of pollutant that can be assimilated by the receiving water body while achieving water quality standards. It is EPA's best professional judgment that the cause of the impairment in Tired Creek was due to either a past discharge, which has been eliminated, or an undocumented spill. It is most likely that the pollutant of concern in the spill was chlorides. To assure the problem has been rectified and that biological community is continuing to improve and recover, further investigations need to be conducted. Until Tired Creek has recovered and has a healthy biological community, no new discharges of chlorides or other pollutants that will impact the biota should be allowed in the watershed. **The Tired Creek Chlorides TMDL is 1,240 pounds per day for the 7Q10 low flow critical condition and not to exceed an instream concentration of 230 mg/l for all flows greater than the 7Q10 flow.**

In order to track the condition of the macroinvertebrate community in Tired Creek, the EPA or Georgia Environmental Protection Division (GaEPD) will continue to monitor the watershed for the next two years. Macroinvertebrates and chlorides will be sampled in Tired Creek, upstream and downstream of the inflow of Little Tired Creek. Sampling should occur at least twice and be undertaken using the U.S. EPA Region 4, Science and Ecosystem Support Division's Standard Operating Procedure for macroinvertebrate sampling. Sampling results will be compared to least impacted reference streams in the same ecoregion to determine the status of the stream's biological condition.

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Date

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**Table of Contents**

Summary Page .....i

Introduction ..... 1

Problem Definition..... 1

Target Identification..... 1

Background ..... 2

Total Maximum Daily Load (TMDL)..... 2

    TMDL..... 3

Figure 1 – Site Map ..... 4

Figure 2 – Creek Location ..... 5

Appendix A – Biological Assessment..... 6

References:..... 7

## **Introduction**

Section 303(d) of the Clean Water Act (CWA) as Amended by the Water Quality Act of 1987, Public Law 100-4, and the United States Environmental Protection Agency's (USEPA/EPA) Water Quality Planning and Management Regulations [Title 40 of the Code of Federal Regulation (40 CFR), Part 130] require each State to identify those waters within its boundaries not meeting water quality standards applicable to the water's designated uses. Total maximum daily loads (TMDLs) for all pollutants violating or causing violation of applicable water quality standards are established for each identified water. Such loads are established at levels necessary to implement the applicable water quality standards with consideration given to seasonal variations and margins of safety. The TMDL process establishes the allowable loadings of pollutants or other quantifiable parameters for a water body, based on the relationship between pollution sources and in-stream water quality conditions, so that states can establish water-quality based controls to reduce pollution from both point and nonpoint sources and restore and maintain the quality of their water resources (USEPA, 1991).

## **Problem Definition**

Georgia's final 2000 Section 303(d) list identified lower Tired Creek as not supporting its designated use as a fishing water because of biological impairment (biota). (See Appendix A.)

This TMDL is being developed pursuant to the 2000 Georgia 303(d) list and the Consent Decree in the Georgia TMDL lawsuit that requires TMDLs to be developed for all waters on the current 303(d) List according to certain conditions prescribed in the Consent Decree. The cause of the impairment is thought to be a past chlorides spill.

## **Target Identification**

The target is to maintain the biological integrity of the waters of the State and not to exceed the EPA chloride criterion of 230 mg/l. Georgia's Water Quality Standard is established in Georgia's Rules

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and Regulations for Water Quality Control, Chapter 391-3-6, Revised November 23, 1998. Georgia Regulation 391-3-6-.03(2)(a).

## **Background**

The Tired Creek segment that has been identified as impaired is located in Grady County near the City of Cairo. See site and location maps – Figures 1 and 2. Currently, there are no known point sources currently discharging in or upstream of this listed segment; however, there was a previous W.B. Roddenberry Company, Inc. [NPDES permit # GA0001660] facility that did discharge above the impaired segment. This discharge was eliminated in 1997. Three field studies conducted by EPA Region 4 that occurred in April, June and August of 2000, failed to show a definitive cause (pollutant) of the biological impairment. In EPA's best professional judgment, it is assumed that the previous point source discharge or an undocumented spill of chlorides may have caused the impact to the stream biota.

## **Total Maximum Daily Load (TMDL)**

The TMDL is the total amount of pollutant that can be assimilated by the receiving water body while achieving water quality standards. Since the problem is thought to be a past chlorides spill and the source of the problem may already be eliminated, this TMDL will be expressed as a chlorides load and as a monitoring strategy to assure that the waterbody will meet water quality standards.

It is EPA's best professional judgment that the cause of the impairment was due to either a past chlorides discharge, which has been eliminated, or an undocumented chlorides spill. To assure the problem has been rectified and that biological impairment is no longer an issue, further investigations need to be conducted. If the biota does not recover as expected, a comprehensive watershed study will need to be completed to identify the potential intermittent source(s). Until Tired Creek has recovered and has a healthy biological community, no new discharges of chlorides or other pollutants that will impact the biota, should be allowed

in the watershed.

EPA guidance states, “that once the control measures have been implemented, the impaired waters should be assessed to determine if water quality standards have been obtained or are no longer threatened. The monitoring program used to gather the data for this assessment should be designed on the specific pollution problem or source.” (1991 EPA).

## ***TMDL***

### ***TMDL for Chlorides***

The critical condition for a chloride discharge into Tired Creek is the 7Q10 low flow. Tired Creek 7Q10 flow is 1.0 cubic foot per second (cfs). The allowable maximum daily load for the critical low flow condition is 1,240 pounds per day. The margin of safety is implicit by using the 7Q10 low flow. To address seasonality, this TMDL requires that the 230 mg/l chloride water quality standard for chlorides be maintained at all daily flow conditions greater than the 7Q10, including wet weather flows.

### ***Sampling Proposal for Tired Creek - Grady County GA***

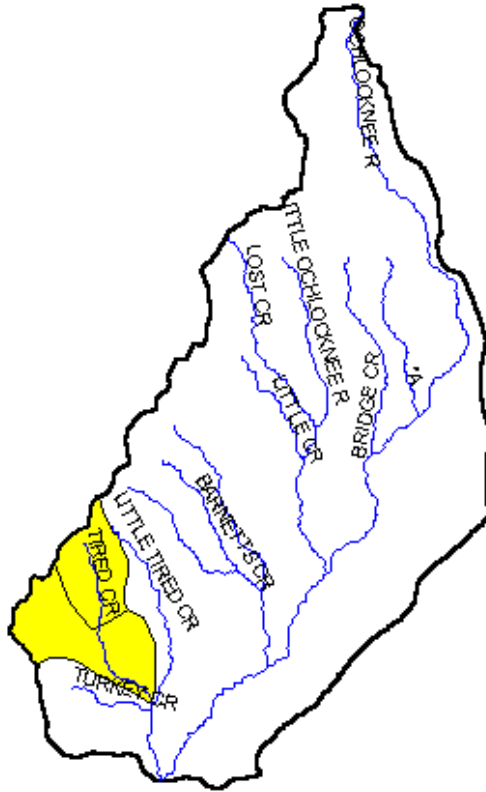
In order to track the condition of the macroinvertebrate community in Tired Creek, the EPA or Georgia Environmental Protection Division (GaEPD) will continue to monitor the watershed for the next two years. Macroinvertebrates will be sampled in Tired Creek, upstream and downstream of the inflow of Little Tired Creek. Sampling should occur at least twice and be undertaken using the U.S. EPA Region 4, Science and Ecosystem Support Division’s Standard Operating Procedure for macroinvertebrate sampling. Sampling results will be compared to least impacted reference streams in the same ecoregion to determine the status of the stream’s biological condition.

If the macroinvertebrate community in Tired Creek does not improve as expected, then EPA or GaEPD will conduct a detailed watershed analysis to determine the unknown cause and source of the problem.

## Figure 1 – Site Map



**Figure 2 – Creek Location**





## Appendix A – Biological Assessment

STREAM: Tired Creek

STATION NUMBER: OCH-08

LOCATION: Stephens/Midway Road

LAT./LONG: N30<sup>0</sup> 45' 50.0 W84<sup>0</sup>13' 48.9"

### MACROINVERTEBRATE INFORMATION:

Date Sampled: 4/11/00

EPT: 3 TOTAL TAXA: 32 NCBI: 5.96

HABITAT SCORE/RATING: 160/89% of reference site score

### COMMENTS:

This stream was originally listed on Georgia's 303(d) list by EPA on December 31, 1996, in response to requirements of the settlement agreement of the Georgia TMDL lawsuit which stated that the stream must be listed unless data was available that showed the stream to support water quality standards. The stream was sampled in 1996 using a screening level assessment of the macroinvertebrate community, which showed the community and habitat to be potentially impaired. The stream was resampled on 4/11/00, using a more intensive sampling method at two locations on the stream. This station was located near the original sampling location. The macroinvertebrate community of the stream showed impacts when compared to a reference stream in the same ecoregion. The habitat conditions of the stream were also evaluated on 4/11/00 using EPA's qualitative habitat assessment method for low gradient streams. The habitat rating compared favorably with the reference stream.

No impairment was indicated at this location for habitat but the macroinvertebrate community appeared to be impacted.

## **References:**

Rules and Regulations for Water Quality Control, Chapter 391-3-6-.03, Water Use Classifications and Water Quality Standards

Sierra Club v. EPA & Hankinson USDC-ND-GA Atlanta Div. #1: 94-CV-2501-MHS

USEPA. Guidance for Water Quality-based Decisions: The TMDL Process. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA/440/4-91-001, April 1991.

USEPA Region 4. Biological Assessment of Tired Creek. April 2000

USEPA Region 4. Tired Creek Water Quality Data Spreadsheets. June 2000