

## Wisconsin Department of Natural Resources SWIMS Project Summary

### General Project Information

**Project ID:** NOR\_02\_CMP08

**Name:** NOR\_02\_08 - Chetek River & Chetek Chain of Lakes Diurnal DO and problematic algae bloom monitoring

**Type:** TMDL/303d Projects

**Subtype:** Monitor Listed Waters

**Status:** ACTIVE

**Start Date:** 07/01/2006

**End Date:** 06/30/2008

**Purpose:**

1. conduct diurnal D.O. and temperature monitoring on the Chetek River between Hwy 53 and its confluence with the Red Cedar River to determine the frequency and duration of standards violations below the 3mg/l D.O. standard during late July and August.
2. Collect weekly blue green algae samples on the Chetek River near the campground on the west side of Hwy 53 to document species present as well as density and toxin production if problem blooms merit closer scrutiny July 15th to August 30th.
3. Collect weekly water chemistry samples at least 4 out of the 6 weeks when problem bloom periods occur to assess contributions of suspended solids, B.O.D., Total Phosphorus, Nitrate+Nitrite, Total kjeldahl \0096 N, Ammonia July 15th to August 30th from the Chetek Chain of Lakes to the Chetek River.

**Objective:** It is necessary to properly document the kind and severity of the limiting factors which may be keeping the Chetek River and downstream receiving waters from meeting their full biological potential as required by the clean water act.

These efforts also mesh closely with at least one of the four main goals identified within the Department's Strategic Plan (Goal #2 Sustaining Ecosystems) and also closely meshes with at least 2 of the 4 main goals for the Water Division (Goal #1; To protect the waters of the state that are held in trust for all people of the state through enforcement of the public trust doctrine & Goal #2 to fully implement the Clean Water Act in order insure a water body is meeting its full biological potential including Endangered, Threatened, and Rare species which are often intolerant of pollution and low D.O.).

**Comments:** During peak algae bloom and macrophyte senescence periods on the Chetek Chain of Lakes (July 15th-August 30th) assess what proportion of the total nutrient and sediment loadings to the upper Red Cedar River are coming from land uses in the upper Red Cedar River above the confluence with the Chetek River when compared to those nutrient and sediment loadings or additions coming from the Chetek River during August when peak Algae blooms and macrophyte senescence on the Chetek Chain of Lakes are believed to be a dominant source in the upper Red Cedar River Basin. Also conduct Diurnal D.O. Monitoring in the Chetek River to determine if fishery resources are being threatend by impairments related to excess algae production and macrophyte senescence within the Chetek Chain of Lakes that provides the source water for the Chetek River. We haven't as of yet done any targeted monitoring during this period to document the severity and duration of blooms on the Chetek Chain of Lakes and the presence or absence of toxic bluegreen algae species. This should be added to the project to bolster data that was summarized in Barr Eng 1999 report. These costs should be added into the project if the monitoring committee approves. The public outcry for monitoring to document the severity of the problem is considerable and the local public demands that are being voiced to local staff for an active managment solution that begins to recognize the severity of the problem and begins to pursue active management of all controlable problem sources of nutrients and sediments for the Chetek Chain of Lakes must be recognized and elevated to a higher level to gain adequate support and funding to rectify the impaired status. TMDL seems to be the obvious tool to move this forward.

**Outcome:** Collect weekly water chemistry samples and conduct continuous D.O. monitoring during the period when aquatic plants are senescing within the Chetek Chain of Lakes and nutrients released from tissues begin to drive dangerous blue green algae blooms which can be concentrated in flows over the dam depending upon wind direction. These contributions are likely the dominate limiting factor for the Chetek River and are likely to still exert a strong influence on the Red Cedar River (one of the states best warm water riverine fisheries).

A report will be completed summarizing annual data interpretation and recommended future monitoring and potential management implications to insure the Chetek River is fully meeting its biological potential.

**Study Design:**

**QA Measures:**

### People

Name	Role	Status	Start Date	End Date	Organization	Comments
CAHOW, JAMES M	COORDINATOR	INACTIVE	11/18/2006		Wisconsin DNR	

### Project Statuses

Date	Reported By	Status	Comments
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## Wisconsin Department of Natural Resources SWIMS Project Summary

### Actions

Action	Detailed Description	Start	End Date	Status
Monitor Water Quality or Sediment	1. conduct diurnal D.O. and temperature monitoring on the Chetek River between Hwy 53 and its confluence with the Red Cedar River to determine the frequency and duration of standards violations below the 3mg/l D.O. standard during late July and August. 2. Collect weekly blue green algae samples on the Chetek River near the campground on the west side of Hwy 53 to document species present as well as density and toxin production if problem blooms merit closer scrutiny July 15th to August 30th. 3. Collect weekly water chemistry samples at least 4 out of the 6 weeks when problem bloom periods occur to assess contributions of suspended solids, B.O.D., Total Phosphorus, Nitrate+Nitrite, Total kjeldahl \0096 N, Ammonia July 15th to August 30th from the Chetek Chain of Lakes to the Chetek River.	07/01/2006	06/30/2008	COMPLETE

Details:	Parameter	Value/Amount	Units	Comments
	Temperature			
	Total Nitrogen			
	Total Phosphorus			
	Total Suspended Solids			

### Monitoring Stations

Station ID	Name	Comments
10014942	Chetek Lake Chain_General Lake Station	
10014638	Chetek River At 4 1/2 Avenue	
10030258	Chetek River below CHT SS Crossing	
10018520	Mud Lake -- Access at S Side Of Lake Off 10 1/8	
10030188	Pokegama Lake at CTH D Boardwalk	
10018435	Tenmile Lake -- Access	

### Assessment Units

WBIC	Segment	Local Name	Official Name
2089000	1	Chetek River	Chetek River
2089500	1	Tenmile Lake	Tenmile Lake
2094000	1	Chetek Lake	Lake Chetek
2094300	1	Pokegama Lake	Pokegama Lake
2094600	1	Mud (Ojaski) Lake	Mud Lake

### Lab Account Codes

Account Code	Description	Start Date	End Date
WT089	SPECIAL PROJECTS	07/01/2007	06/30/2008

### Forms

Form Code	Form Name
CONTINUOUS	Continuous Data Upload
INORGANIC	Inorganic Lab - Field Data

## Wisconsin Department of Natural Resources SWIMS Project Summary

### Methods

Method Code	Description
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### Fieldwork Events

Start Date	Status	Field ID	Station ID	Station Name
08/08/2007 18:00	COMPLETE	MUD-3	10018520	Mud Lake -- Access at S Side Of Lake Off 10 1/8
08/08/2007 18:00	COMPLETE	MUD-3	10018520	Mud Lake -- Access at S Side Of Lake Off 10 1/8
08/08/2007 18:00	COMPLETE	MUD-3	10018520	Mud Lake -- Access at S Side Of Lake Off 10 1/8
08/08/2007 18:30	COMPLETE	PO-4	10030188	Pokegama Lake at CTH D Boardwalk
08/08/2007 18:30	COMPLETE	PO-4	10030188	Pokegama Lake at CTH D Boardwalk
08/08/2007 18:30	COMPLETE	PO-4	10030188	Pokegama Lake at CTH D Boardwalk
08/08/2007 19:00	COMPLETE	TENL-5	10018435	Tenmile Lake -- Access
08/08/2007 19:15	COMPLETE	CHR-6	10030258	Chetek River below CHT SS Crossing
08/08/2007 19:30	COMPLETE	CHL-2	10014942	Chetek Lake Chain_General Lake Station
06/09/2008 15:30	COMPLETE	CH-1	10014638	Chetek River At 4 1/2 Avenue

### Documents

Title	Description	Author	Published	Comments
CHETEK CHAIN OF LAKES, 2006 IMPAIRED WATERS DOCUMENT	Data Documentation 2006 Impaired Waters Documentation	Cahow, Jim	04/10/2006	
CHETEK LAKE HYDROLOGIC BUDGET, PHOSPHORUS BUDGET, AND REPORT	Lakes Planning Report	Grant Recipient	06/30/1999	
CHETEK RIVER 2006 IMPAIRED WATERS DOCUMENT	Data Documentation 2006 Impaired Waters Documentation	Cahow, Jim	05/13/2006	
CHETEK RIVER FY07 MONITORING PROPOSAL	CHETEK RIVER FY07 MONITORING PROPOSAL	Cahow, Jim	07/01/2006	
CHETEK RIVER AND CHAIN O LAKES FY08 PROPOSAL	Monitoring Proposal	Cahow, Jim	06/18/2007	

### Budget

Combined Budgets:  
 Combined SLOH:  
 Combined Total:

### Funding

Organization	Source	Type	Amount	Start Date	End Date
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