



Grant Project Summary

Contract title: Redwood River Turbidity TMDL Project

Organization (Grantee): REDWOOD-COTTONWOOD RIVERS CONTROL AREA (RCRCA)

Contract start date: MAY 23, 2008 Project end date: JUNE 30, 2011 Report submittal date: 08-01-2011

Grantee contact name: DOUG GOODRICH Title: EXECUTIVE DIRECTOR

Address: 1241 E Bridge Street, Suite B

City: Redwood Falls State: MN Zip: 56283

Phone number: (507) 637-2142 X4 Fax: (507) 637-2134 E-mail: Douglas.goodrich@racgroup.net

Basin (Red, Minnesota, St. Croix, etc.): Minnesota River Basin County:

Project type (check one):

- Clean Water Partnership (CWP) Diagnostic
CWP Implementation
[X] Total Maximum Daily Load (TMDL) Development
319 Implementation
319 Demonstration, Education, Research
TMDL Implementation

Grant Funding

Final grant amount: \$103,052.61 Final total project costs: \$103,052.61

Matching funds: Final cash: N/A Final in-kind: N/A Final Loan: N/A

Contract number: B14319 MPCA project manager: Mark Hanson

Executive Summary of Project (300 words or less)

This summary will help us prepare the Watershed Achievements Report to the Environmental Protection Agency. (Include any specific project history, purpose, and timeline.)

The "Redwood River Turbidity TMDL Project" contract was a total award of \$120,000.00. This contract was awarded to the Redwood-Cottonwood Rivers Control Area (RCRCA) Joint Powers Organization under MN Statute: 471.59 as "Project Sponsor" to complete a Total Maximum Daily Load (TMDL) study on river reaches in the Redwood River watershed that were listed as impaired for excess of the state turbidity standard. Portions of the project were scheduled to begin in 2011 and be completed in 2015. A willing local group, the RCRCA, allowed for an earlier completion of the TMDL. Ranking criteria for scheduling TMDL projects include, but are not limited to: impairment impacts on public health and aquatic life; public value of the impaired water resource; likelihood of completing the TMDL in an expedient manner, including a strong base of existing data and restorability of the water body; technical capability and willingness, locally, to assist with the TMDL; and appropriate sequencing of TMDLs within a watershed or basin. Analysis of the lower reaches of the Redwood River (from Ramsey Creek to the Minnesota River was not included in the watershed evaluation as it was accomplished through other TMDL projects on the Minnesota River Basin. At the time this project contract ended, completed drafts of both the Redwood Turbidity TMDL Report and a combination E. coli Bacteria/Turbidity Implementation Plan were in review and will be available for review, respectively.

Goals (Include three primary goals for this contract.)

- Inventory the sources of turbidity causing materials throughout the Redwood River watershed and specifically in the listed reaches. These sources include agricultural runoff, urban runoff, wastewater treatment facilities, and subsurface sewer treatment systems.

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- 2nd Goal: Determine the loading capacity for turbidity, using a surrogate factor to quantify. Determine the allocations for the load, wasteload, and margin of safety for each impaired reach.
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- 3<sup>rd</sup> Goal: Educate the public about the turbidity impairment and also to involve the public in the process.
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**Results that count** (Include the results from your established goals.)

- 1st Result: The sources of turbidity were nearly exclusively from non point sources, mainly in-stream and drainage mechanics. Wastewater Treatment Facilities and urban runoff were found to be a small percentage of the turbidity sources.
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- 2nd Result: The load duration curve produced a loading capacity for five flow regimes: high, moist, mid, dry, and low, with the highest loading capacity at high flows and the lowest at low flows.
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- 3<sup>rd</sup> Result: Meetings were held for public information with much discussion and explanation of the TMDL process and the responsibilities of the agencies involved. Also, canoe trips and one on one conversation with concerned stakeholders at various venues were used to explain plans and goals of this project.
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**Picture** (Attach at least one picture, do not imbed into this document.)

Description/location:

**RR1\_spring08\_04.jpg:** This picture shows a stretch of the lower Redwood River outside of Redwood Falls, Redwood County.

**Rcrca\_meeting.jpg:** A picture of a group gathered at one of the Turbidity TMDL public meetings in Redwood Falls

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**Acronyms** (Name all project acronyms and their meanings.)

RCRCA – Redwood Cottonwood Rivers Control Area  
SWCD – Soil and Water Conservation District  
MPCA – Minnesota Pollution Control Agency  
CWA – Clean Water Act  
TMDL – Total Maximum Daily Load  
FSA – Farm Service Agency  
NRCS – Natural Resources Conservation Service  
BMP – Best Management Practice  
BWSR – Board of Water and Soil Resources  
STORET – STORage and RETrieval (Database System for Environmental Data)  
CWP – Clean Water Partnership  
MnDNR (DNR) – Minnesota Department of Natural Resources  
MES – Minnesota Extension Service  
SW-ROC – Southwest Research and Outreach Center  
(US)EPA – United States Environmental Protection Agency  
WLA – Waste Load Allocation  
LA – Load Allocation  
MOS – Margin of Safety  
RC – Reserve Capacity  
QAPP – Quality Assurance Project Plan  
CRTAC – Cottonwood River Technical Advisory Committee  
CFU – Coliforming Units

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**Partnerships** (Name all partners and indicate relationship to project)

**Redwood-Cottonwood Rivers Control Area (RCRCA)**

Responsibilities include: overall work plan administration and fiscal management, supervision of project staff and coordination /completion of all individual work plan phases and steps. Staff that will be assisting with this work plan include: The Executive Director, a Watershed Technician, an Engineering Technician, and an Administrative Officer

**Soil and Water Conservation Districts (SWCDs)**

Responsibilities include: Redwood River Clean Water Project Technical Advisory Team Participation

**Counties (Lincoln, Lyon, Murray, Pipestone, Redwood, Yellow Medicine)**

Responsibilities include: Redwood River Clean Water Project Technical Advisory Team Participation.

**Natural Resources Conservation Service (NRCS)**

Responsibilities include: Redwood River Clean Water Project Technical Advisory Team Participation

**Farm Service Agency (FSA)**

Responsibilities include: Redwood River Clean Water Project Technical Advisory Team Participation

**Minnesota Department of Natural Resources (DNR)**

Responsibilities include: Redwood River Clean Water Project Technical Advisory Team Participation

**Minnesota Pollution Control Agency (MPCA)**

Responsibilities include: Redwood River Clean Water Project Technical Advisory Team Participation.

**Board of Water and Soil Resources (BWSR)**

Responsibilities include: Redwood River Clean Water Project Technical Advisory Team Participation.

**Minnesota Extension Service (MES)**

Responsibilities include: Redwood River Clean Water Project Technical Advisory Team Participation.

**Southwest Research and Outreach Center (SW-ROC)**

Responsibilities include: Redwood River Clean Water Project Technical Advisory Team Participation.

**Area II Minnesota River Basin Projects, Inc. (Area II)**

Responsibilities include: Redwood River Clean Water Project Technical Advisory Team Participation.

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<b>I. General Report Information</b>			
1.	Project Title:	<b>Redwood River Watershed (07020006) Turbidity TMDL</b>	
2.	Project Sponsor:	<b>Redwood-Cottonwood Rivers Control Area (RCRCA)</b>	
3.	Project Representative:	<b>Doug Goodrich, Director</b>	
4.	Email Address:	<b>douglas.goodrich@racgroup.net</b>	
5.	Loan Sponsor (if applicable):		
6.	Contract Number:	<b>B14885</b>	Loan Number:
7.	MPCA Project Manager:	<b>Mark Hanson</b>	
8.	Contract Start Date:	<b>May 23, 2008</b>	Contract End Date: <b>June 30, 2011</b>
9.	Best Management Practice (BMP) Name (Refer to BMP List):		
10.	<b>319/Clean Water Partnership (CWP) only</b> - Nonpoint Source (NPS) Category (Refer to NPS Definition of Categories):		
		<b>Primary</b>	<b>Secondary</b>
	<b>Category</b>	<b>1000 (Agriculture)</b>	<b>1100 (Non-Irrigated Crop Production)</b>
			<b>Others</b>
			<b>7100, 7800 (Channelization, Tile Drainage)</b>
11.	<b>319/CWP only</b> - NPS Functional Category (Refer to NPS Definition of Categories):		
		<b>Primary</b>	<b>Secondary</b>
	<b>Category</b>	<b>TMDL Design/Implementation</b>	<b>Technical Assistance</b>
			<b>Others</b>
			<b>Effectiveness Monitoring</b>
12.	Waterbody type (refer to NPS Waterbody Type):		<b>Rivers and Streams</b>
13.	Hydrologic unit code (12 digits):	07020006(0000-9999)	Latitude-longitude: <b>LONG 44 31'25" -LAT 95 10'20"</b>
14.	<b>319/ CWP only:</b> Type of pollutant(s) addressed (refer to NPS Pollutants):		<b>Turbidity, Sediments</b>
15.	Ecoregion (refer to NPS Ecoregion):	<b>4700 (Western Corn Belt Plains)</b>	
16.	Basin name (check all that apply): <b>Redwood River Watershed</b>		
	<input type="checkbox"/> Lake Superior <input type="checkbox"/> Lower Mississippi/Cedar <input type="checkbox"/> Upper Mississippi <input checked="" type="checkbox"/> Minnesota <input type="checkbox"/> Rainy <input type="checkbox"/> Red River <input type="checkbox"/> Des Moines <input type="checkbox"/> Missouri <input type="checkbox"/> St. Croix		
<b>II. Project Description</b>			
1.	Project Description Summary (taken from work plan summary) – Include at least two paragraphs that briefly summarize the project scope, the processes and the events that occurred <b>before</b> this reporting period. <b>Five reaches within the RRW are included on a 303(d) list as impaired with turbidity. Four of them are the focus of this proposed TMDL project. Several stream monitoring stations are already in operation. These stations have been used to collect an extensive amount of turbidity, transparency, TSS and peak streamflow data. Collection of the data from the active stations (baseline investigative monitoring) will be continued. However, staff gages should be installed and repeated streamflow measurements taken at each of the major stream monitoring stations. The collected stream discharge and stage data (also data collected from stations in the neighboring Cottonwood watershed) shall, then, be used to develop rating tables that relate stream stage to discharge. These rating tables will, then, be used in combination with stream stage data in the TMDL calculations.</b> <b>This TMDL project will include several other tasks like: data gap analysis, data review, analysis and summary (carried out with employment of statistical tools and GIS technology), development of TMDL</b>		

	<p>components, development (and refinement of the existing) implementation strategies, project meetings, public outreach, and development of the project report. The project tasks are discussed in the following sections of this proposal.</p> <p>This is a work plan to address the turbidity pollutant stressor. This work plan will follow steps 2 through 8 of the 12 steps TMDL process as well as an implementation plan, required by MPCA. The outcome of the work plan will result in a Turbidity TMDL to be submitted to MPCA for adoption and presented to EPA for review and approval.</p>
2.	<p>Specific Project Goals – Include numeric, quantifiable goals for environmental improvement, the number of Best Management Practices to be installed, pollutant reductions as well as programmatic and social goals.</p> <p>The Redwood River work plan will address the approved 2008 303(d) turbidity impairment listings. TMDL process will be followed, turbidity samples will be collected at the STORET established sites. Source inventories will be conducted using GIS data and NPDES monthly loading and water quality reports . Additional land use data will be collected via GIS sources. Loading results will be reported to the established Redwood River Restoration Project Technical Advisory Team for peer review. Findings will be crafted into a report to the public, followed by an implementation plan, with the help of a committee of local stakeholders.</p>
3.	Methods to achieve goals: See #2

### III. Final Report Information

#### Work Plan Review

Please list and give a brief report on each activity/task identified in your work plan (Attachment A of the 319 Grant Agreement, contract, or work order) or most recently approved work plan amendment. For each task, briefly summarize the activities completed and describe any problems, delays, or difficulties that have occurred in completing the project work. Explain how problems were resolved or list any activities that were not completed:

#### I. WLA and TMDL Matrix Development

In the course of creating a TMDL study, one must first amass a set data inventorying the physical features of the listed waters as well as previous measurements of flow and concentration of pollutants. Available data in the impaired reaches is to be used and ultimately be able to determine how much pollutant a reach can hold, the degree of current impairment and reductions needed to bring the impaired reach into compliance, and to allocate a value of pollutant to the water reach using the TMDL equation ( $TMDL=WLA+LA+MOS+RC$ ). This objective set out to do so through the creation of Source Summary Tables, Load Duration curves, and TMDL Matrices. Portions of this portion of the workload were sub-contracted to the Water Resource Center at Minnesota State University, Mankato.

#### II. Stressor Monitoring

This portion of the contract supported the increased amount of sampling and staff time for bacteria sampling efforts in the Redwood River watershed. The object was to get an updated assessment of the pollutants in the impaired water reaches within the Redwood River watershed. In order to assess or reassess a reach of stream for turbidity, a count of samples exceeding turbidity standards of not less than twenty samples were used. This frequency was accomplished during the short time of this project. The procedures in which these samples were taken conform to methods provided in the Redwood River Watershed QAPP, procedures in which RCRCA is well acquainted. A few sites not included in the work plan were added to the sampling set for assessment to be listed based on methods and decisions from the MPCA.

#### III. Plan Development and Reporting

As part of the work plan for this contract, a draft copy of the Redwood River Turbidity TMDL and a draft of the combination Fecal Coliform/Turbidity Implementation Plan was produced as well as semi-annual progress reports and payment voucher requests for the MPCA. This section of the contract served to fund these activities.

#### IV. Outreach

The outreach portion of the original work plan read as follows:

The TMDL project staff will participate in the two formal project meetings with the MPCA staff and with advisory committee: one after completion of Objective 1, Task 1 (Preliminary Data Review and Compilation, Initial Problem Assessment, Development of SAP and QAPP) and another meeting after completion of Objectives 2 and 3 (Objective 2 - Continuous Conditions Monitoring and Geomorphology; Objective 3 - Laboratory Analysis of the Collected Samples).

In addition to these meetings with MPCA staff and advisory committee, several stakeholder meetings will be held in the watershed, most probably in Redwood Falls, Minnesota. The first of these meetings will be to present the implementation strategies before finalizing the work of Objective 6, Task 1- Development of

Implementation Strategies, and before finalizing the implementation report. The second of these meetings will be to present the draft TMDL report. The purpose of these meetings is to:

- present the project findings to citizens and common interest groups, and demonstrate the use of the model(s) as a tool to assess the potential impact of point and non-point sources of pollution on RRW water quality.
- provide an opportunity for local stakeholders to participate in the decision making process.

The project staff will also organize and carry out at least one educational session in the field for interested citizens, to demonstrate the project field activities and discuss the project progress and findings.

The public meetings and educational activities will be summarized in the draft TMDL report. The meeting summaries will include compilation of comments received from the public.

A meeting was held to kick-off public acknowledgement of the Turbidity TMDL in both Lamberton and Marshall in August, 2009. The report planning committee including the MSU-Mankato Water Resource Center Staff met in Mankato to plan modeling efforts for the TMDL. Another public meeting was held in Redwood Falls in November, 2010 where the technical project team was selected and three subsequent technical meetings with stakeholders as part of the committee convened to craft the draft TMDL report and make recommendations for the implementation plans. Further meetings on a more one on one dialogue in private have been offered to members for further consideration. Also, additional public meetings were scrapped and the project was submitted to the MPCA for public notice and approval. Explanation of RCRCA's efforts on this TMDL was also conveyed, with presentation, at the group's canoe events and golf outings. These outreach activities had not originally been part of the work plan but served to inform the public well.

## SECTION II - Grant Results

*For TMDL Development Projects describe the work products of the contract, such as a written TMDL or technical report, data files, maps, and any other attachments that were produced by the project.*

### 1. Products:

As described in the original work plan, this contract requires the formulation of a draft version of a TMDL report. As part of the development of this report, many spreadsheets, tables, and maps were created. The appendices of this Report show some examples of these products. Turbidity sampling done in the Cottonwood River Watershed was reported for inclusion into EPA's STORET data system this data set is included in this Report in Appendix A.

### 2. Public outreach and education:

Educational events including our annual canoe trips and annual meetings in December served to make people aware of our efforts in the watershed in terms of the Redwood Turbidity TMDL Report as well as updating people on the progress of the project. Public participation is mandated in the development of TMDLs. Four meetings, which brought the public as well as technicians and multiple agency members, were held to discuss the findings and issues of the TMDL report. The general public turnout was much poorer than expected. Most attendees at the informational meetings who weren't of a local, state, or federal agency represented agricultural organizations and were there to express concerns that really couldn't be addressed in the scope of our project. Concerns directly related to the explanations presented in RCRCA's presentations were easily explained and usually understood easily by those who queried. By the fourth meeting, only a handful of participants remained and represented growers groups and other corporate interests. The public meetings were abandoned for a more one on one dialogue in private. Technical meetings with representatives from a variety of fields and the public eye were held and changes were made to the TMDL report following suggestions expressed at each meeting. Many handouts were prepared which consisted of portions of the draft report for review and advisory activities. A handout was created and participants were asked to select BMP types that would be best fit in a given flow zone/set of flow zones as described by flow duration curves. Only one of these sheets was ever returned.

### 3. Long-term results:

The very nature of this contract is to inventory, calculate, and document the degree of environmental problems in the watershed in terms of turbidity and to quantify reductions needed to bring the impaired reaches to a level of compliance. This is the study that provides information in which future actions and implementation plans can draw from to solve problems. The implementation plan that is to follow up this contract will serve to make recommendations of land-use changes to reach goals set in the TMDL Report. Alliances and cooperation with many groups have been in place as a result of projects and efforts in the past. There is no reason to believe this will change anytime soon. RCRCA has a long standing place in southwestern Minnesota in the realm of environmental diagnostics and implementation. Groups and government agencies in the two watersheds served by RCRCA have been complimentary to the group and vice-versa. This Report provides a better understanding of which areas in the watershed have a greater need for mitigation of turbidity sources in order to ensure that implementation efforts in the watershed are doing the most to work toward overall compliance. Activities beyond the scope of this contract will most likely occur in the form of implementation type projects as prescribed in the attendant Implementation

	<b>Plan.</b>
4.	Have all monitoring stations been established in STORET? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5.	Is the data being routinely submitted for storage into STORET? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Last submittal date: 12/31/10
6.	Is the data being annually entered into E-Link? <input type="checkbox"/> Yes <input type="checkbox"/> No Date last entered: N/A

**SECTION III - Final Expenditures**

CWP: Provide a copy of the Expenditure Report with cumulative expenditures and this period's expenditures budget balances by work plan program element. The format for the Semi-Annual Expenditure Report is available on the Web at: <http://www.pca.state.mn.us/publications/wq-cwp7-09.xls>.

Expenditure Reports attached

CWP, 319, and TMDL - Complete the table below:

Total Grant Amount:	120,000.00
Total Match Amount (if applicable)	N/A
<b>Total Project Amount:</b>	<b>120,000.00</b>
Cumulative Grant Expenditures through this period:	103,052.61
Cumulative Match Expenditures through this period:	N/A
<b>Total Cumulative Expenditures through this period:</b>	<b>103,052.61</b>
Date form completed:	<b>8-01-2011</b>

Please submit to: Your project manager: **MARK HANSON**

**TMDL DEVELOPMENT PROJECT TITLE: Redwood River Turbidity TMDL Project**

WORK PLAN BUDGET/EXPENDITURE: 05/28/08 - 06/30/11

Work Plan Task or Objective	unit cost (salary per hour, mileage, etc.)	unit type	# units	Original Project Budget	Project Expenditures	Project Balance
<b>Objective 1: Data Aquisition and Development</b>						\$0.00
<b>Task 1: Preliminary Data Review and Compilation, Initial Problem Assessment &amp; Development of SAP and QAPP</b>						\$0.00
Minnesota State University, Mankato Water Resources Center	\$28.57	hours	273	\$7,800.01	\$7,800.01	\$0.00
Expenses are Minnesota River Board in-kind on behalf of RCRCA member counties						\$0.00
RCRCA	\$32.00	hours	425	\$13,586.97	\$13,586.97	\$0.00
<b>Total Objective 1</b>				<b>\$21,386.98</b>	<b>\$21,386.98</b>	<b>\$0.00</b>
<b>Objective 2: Continuous Conditions Monitoring and Geomorphology</b>						\$0.00
<b>Task 1: Collection of Current Conditions Data</b>						\$0.00
RCRCA	\$20.00	hours	1199	\$23,980.00	\$13,929.26	\$10,050.74
<b>Total Objective 2</b>				<b>\$23,980.00</b>	<b>\$13,929.26</b>	<b>\$10,050.74</b>
<b>Objective 3: Laboratory Analysis</b>						\$0.00
<b>Task 1: Laboratory Analysis</b>						\$0.00
RCRCA						\$0.00
TSS samples 14 months April-October for years 08 and 09 (.275)	\$8.80	samples	126	\$1,108.80	\$796.78	\$312.02
TSVS samples 14 months April-October for years 08 and 09 (.450)	\$14.40	samples	126	\$1,814.40	\$1,303.83	\$510.57
Turbidity samples 14 months April-October for years 08 and 09 (.275)	\$8.80	samples	126	\$1,108.80	\$796.78	\$312.02
<b>Total Objective 3</b>				<b>\$4,032.00</b>	<b>\$2,897.39</b>	<b>\$1,134.61</b>
<b>Objective 4: Current and Historical Monitoring Evaluation</b>						\$0.00
<b>Task 1: Data Evaluation</b>						\$0.00
Minnesota State University, Mankato Water Resources Center	\$28.58	hours	328	\$9,375.00	\$9,375.00	\$0.00
Expenses are Minnesota River Board in-kind on behalf of RCRCA member counties						\$0.00
RCRCA	\$20.00	hours	633	\$12,660.00	\$12,526.46	\$133.54

										\$0.00		
	<b>Total Objective 4</b>								\$22,035.00	\$21,901.46	\$133.54	
<b>Objective 5: TMDL Development</b>												
	<b>Task 1: Develop TMDL Components</b>										\$0.00	
	Minnesota State University, Mankato Water Resources Center	\$28.57	hours	328		\$9,375.00		\$9,375.00			\$0.00	
	Expenses are Minnesota River Board in-kind on behalf of RCRC member counties										\$0.00	
	RCRCA	\$20.00	hours	582		\$11,640.00		\$9,980.61			\$1,659.39	
											\$0.00	
	<b>Total Objective 5</b>								\$21,015.00	\$19,355.61	\$1,659.39	
<b>Objective 6: TMDL Implementation Recommendations</b>												
	<b>Task 1: Develop Implementation Strategies</b>										\$0.00	
	Minnesota State University, Mankato Water Resources Center	\$28.57	hours	40		\$1,150.00		\$1,150.00			\$0.00	
	Expenses are Minnesota River Board in-kind on behalf of RCRC member counties										\$0.00	
	RCRCA	\$32.00	hours	245		\$7,840.00		\$5,500.08			\$2,339.92	
											\$0.00	
	<b>Total Objective 6</b>								\$8,990.00	\$6,650.08	\$2,339.92	
<b>Objective 7: Technical Advisory and Stakeholder Involvement</b>												
	<b>Task 1: Project Meetings, Public Outreach</b>										\$0.00	
	Minnesota State University, Mankato Water Resources Center	\$28.57	hours	40		\$1,150.00		\$1,149.99			\$0.01	
	Expenses are Minnesota River Board in-kind on behalf of RCRC member counties										\$0.00	
	RCRCA	\$32.00	hours	160		\$5,120.00		\$5,120.00			\$0.00	
	Expenses: Meeting room rental&supplies, publishing					\$1,726.00		\$1,726.01			-\$0.01	
											\$0.00	
	<b>Total Objective 7</b>								\$7,996.00	\$7,996.00	\$0.00	
<b>Objective 8: Semi-Annual Reporting and Final TMDL Report</b>												
	<b>Task 1: Report Development</b>										\$0.00	
	Minnesota State University, Mankato Water Resources Center	\$28.57	hours	40		\$1,150.00		\$1,150.00			\$0.00	
	Expenses are Minnesota River Board in-kind on behalf of RCRC member counties										\$0.00	
	RCRCA	\$32.00	hours	150		\$4,800.00		\$3,886.38			\$913.62	
											\$0.00	
	<b>Total Task 8</b>								\$5,950.00	\$5,036.38	\$913.62	
<b>Objective 9: TMDL Implementation Plan</b>												
	<b>Task 1: Develop and Publish Final TMDL Implementation Plan</b>										\$0.00	
	RCRCA	\$20.00	hours	160		\$3,200.00		\$3,200.00			\$0.00	
	Expenses: Meeting room rental&supplies, publishing					\$1,415.02		\$699.45			\$715.57	
											\$0.00	
	<b>Total Task 9</b>								\$4,615.02	\$3,899.45	\$715.57	
<b>ITEMIZED PROGRAM TASK BUDGET</b>									<b>Total Objective 1</b>	<b>\$21,386.98</b>	<b>\$21,386.98</b>	<b>\$0.00</b>

	<b>Total Objective 2</b>	<b>\$23,980.00</b>	<b>\$13,929.26</b>	<b>\$10,050.74</b>
	<b>Total Objective 3</b>	<b>\$4,032.00</b>	<b>\$2,897.39</b>	<b>\$1,134.61</b>
	<b>Total Objective 4</b>	<b>\$22,035.00</b>	<b>\$21,901.46</b>	<b>\$133.54</b>
	<b>Total Objective 5</b>	<b>\$21,015.00</b>	<b>\$19,355.61</b>	<b>\$1,659.39</b>
	<b>Total Objective 6</b>	<b>\$8,990.00</b>	<b>\$6,650.08</b>	<b>\$2,339.92</b>
	<b>Total Objective 7</b>	<b>\$7,996.00</b>	<b>\$7,996.00</b>	<b>\$0.00</b>
	<b>Total Objective 8</b>	<b>\$5,950.00</b>	<b>\$5,036.38</b>	<b>\$913.62</b>
	<b>Total Objective 9</b>	<b>\$4,615.02</b>	<b>\$3,899.45</b>	<b>\$715.57</b>
<b>Project Grand Total</b>		<b>\$120,000.00</b>	<b>\$103,052.61</b>	<b>\$16,947.39</b>

<b>Minnesota State University, Mankato Water Resources Center</b>
<b>RCRCA DIR</b>
<b>RCRCA TECH</b>

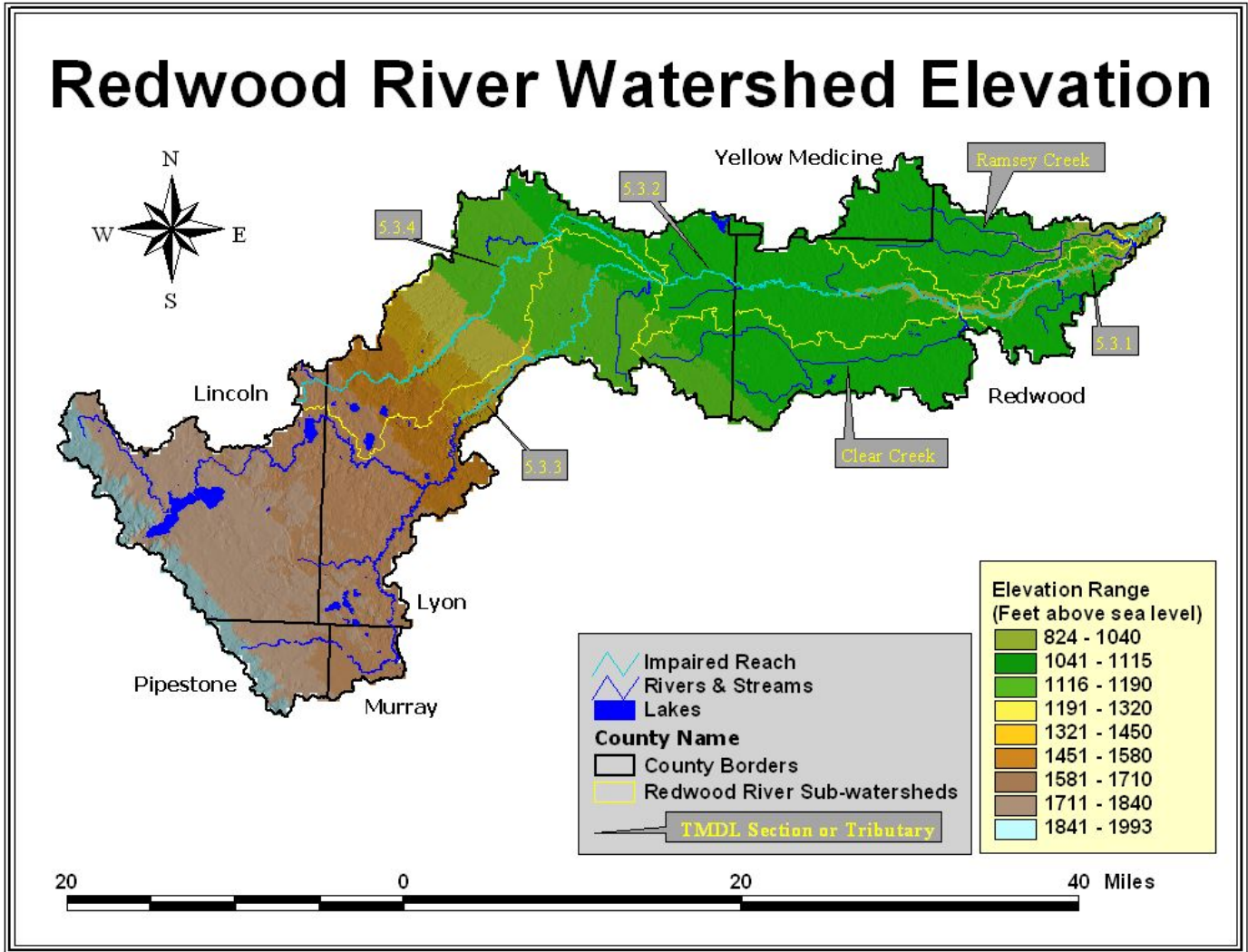
hours	1049.875	\$30,000.01	\$30,000.00	\$0.01
hours	979.59	\$31,346.97	\$28,093.43	\$3,253.54
hours	2574.00	\$51,480.00	\$39,636.33	\$11,843.67

Total Hourly	4,603.47	\$112,826.98	\$97,729.76	\$15,097.22
Samples		\$4,032.00	\$2,897.39	\$1,134.61
Meeting Facilitation & Expenses		\$3,141.02	\$2,425.46	\$715.56
Total		\$120,000.00	\$103,052.61	\$16,947.39

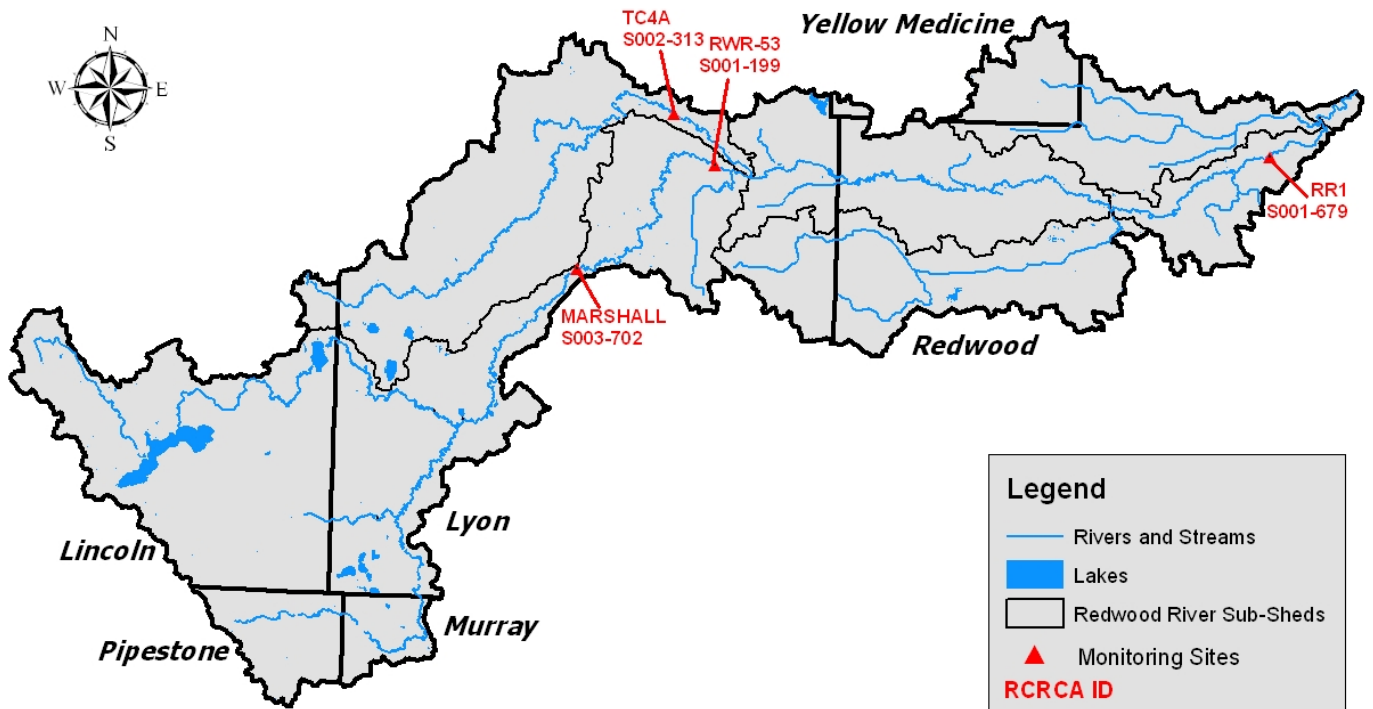
## Appendices

- Appendix A. Examples of Maps Created for the Redwood River Watershed TMDL Report
- Appendix B. Examples of Figures Created for the Redwood River Watershed TMDL Report
- Appendix C. Examples of Meeting Materials
- Appendix D. Examples of Outreach and Educational Materials

Examples of Maps Created During the Project



# Water Monitoring Sites in the Redwood River Watershed

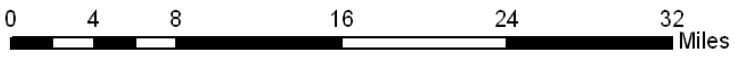


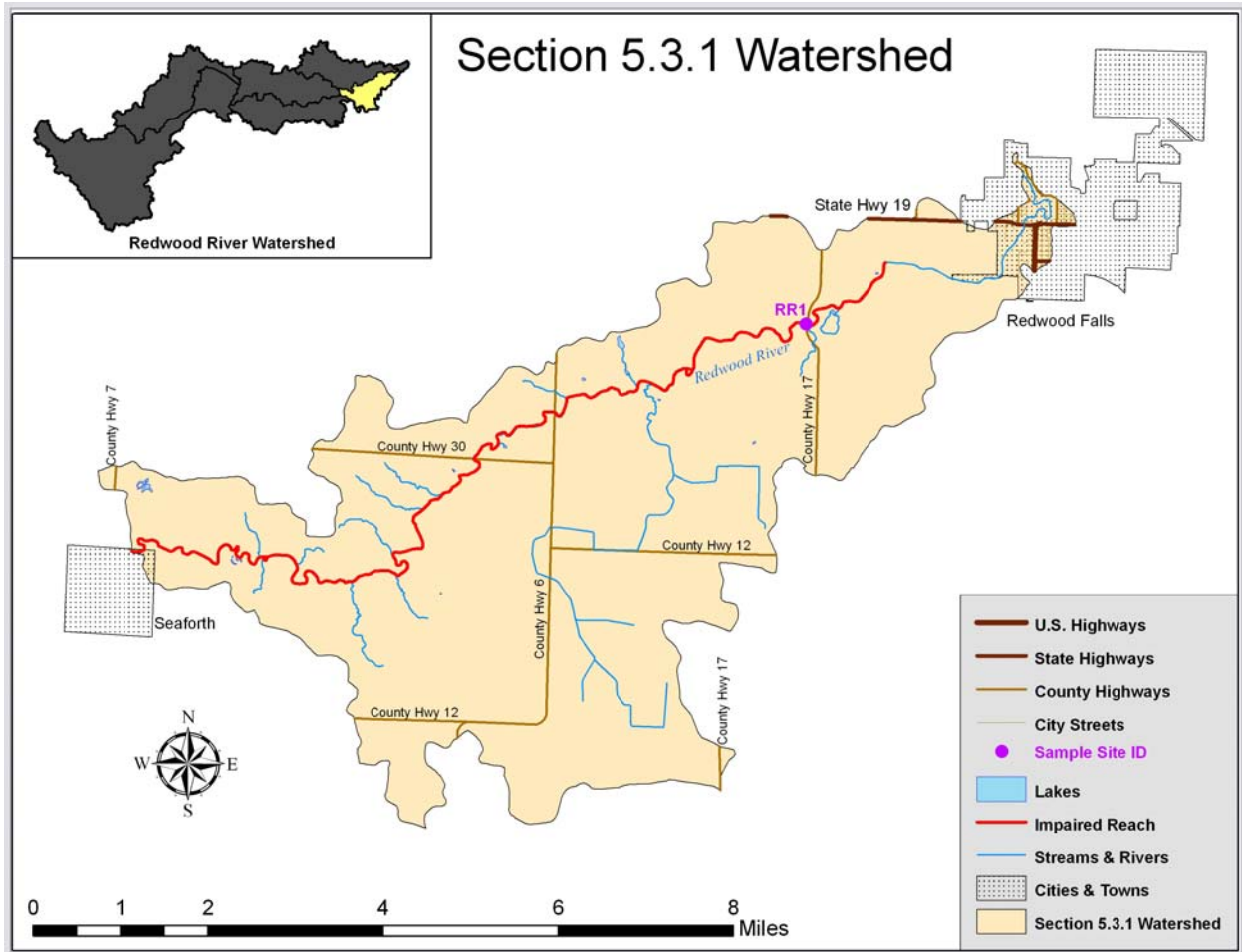
### Legend

- Rivers and Streams
- Lakes
- Redwood River Sub-Sheds
- Monitoring Sites
- RCRCA ID**
- Store ID**
- County Borders
- County**

Produced for: Redwood Cottonwood Rivers Control Area (RCRCA)  
 Prepared by: Redwood Cottonwood Rivers Control Area (RCRCA)  
 Author: Shawn Wohmouka  
 Date: December 8, 2009  
 Data Source: MN DNR, MRBDC and RCRCA  
 Data for this map was prepared and composed using ESRI ArcMap 9.3  
 Projection: NAD83, UTM Zone 15

The data contained herein is compiled from various sources and scales.  
 RCRCA makes every effort to verify the source and pedigree of the data for geometric compatibility.  
 The information provided on this map is for general use and planning purposes only.  
 Conclusions drawn from this map, or information contained herein, are the responsibility of the user.  
 Neither RCRCA nor any contributing data providers take responsibility for other uses of this information.





## Examples of Figures Created During the Project

**Table 5.3.1D: Daily TSS Loading Capacities and Allocations – Redwood River, Clear Creek to Redwood Lake (AUID: 07020006-509)**

Redwood River - Clear Creek to Lake Redwood	Flow Zone				
	High	Moist	Mid	Dry	Low
Total Daily Loading Capacity	<b>193.9</b>	<b>43.3</b>	<b>13.5</b>	<b>4.5</b>	<b>0.9</b>
	TSS - Tons/day				
<b>Waste Load Allocation</b>					
Permitted Wastewater Treatment Facilities	1.72	1.72	1.72	1.72	0.00*
Communities Subject to MS4 NPDES Requirements	3.95	0.88	0.28	0.09	0.02
Industrial/Construction Stormwater (NPDES)	0.23	0.05	0.02	0.01	0.01
<b>Waste Load Allocation Total</b>	<b>5.91</b>	<b>2.66</b>	<b>2.02</b>	<b>1.83</b>	<b>0.03</b>
<b>Margin of Safety</b>	<b>19.39</b>	<b>4.33</b>	<b>1.35</b>	<b>0.45</b>	<b>0.09</b>
<b>Load Allocation</b>	<b>168.57</b>	<b>36.29</b>	<b>10.15</b>	<b>2.23</b>	<b>0.78</b>

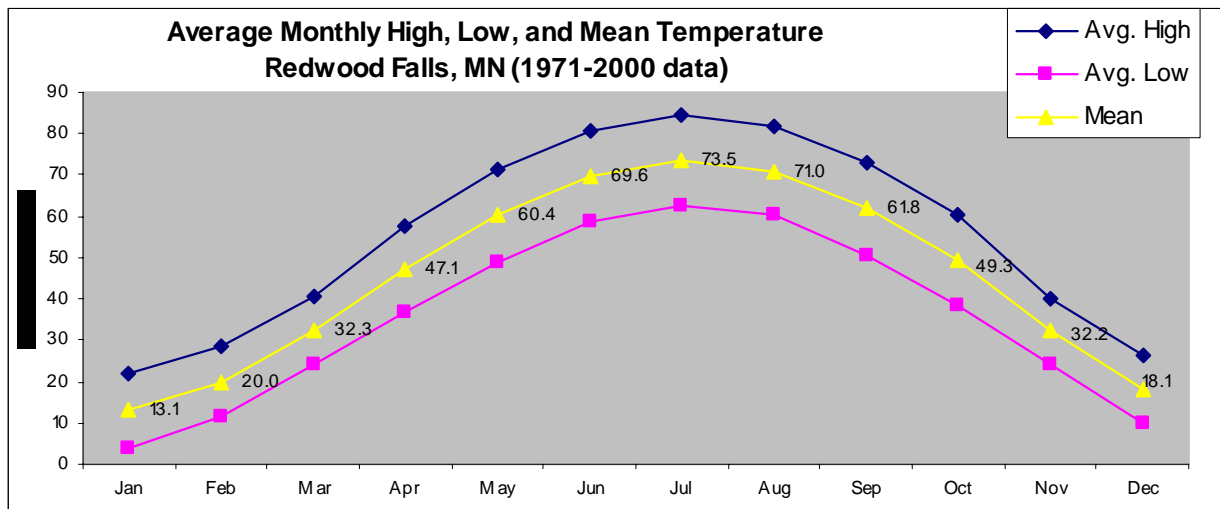
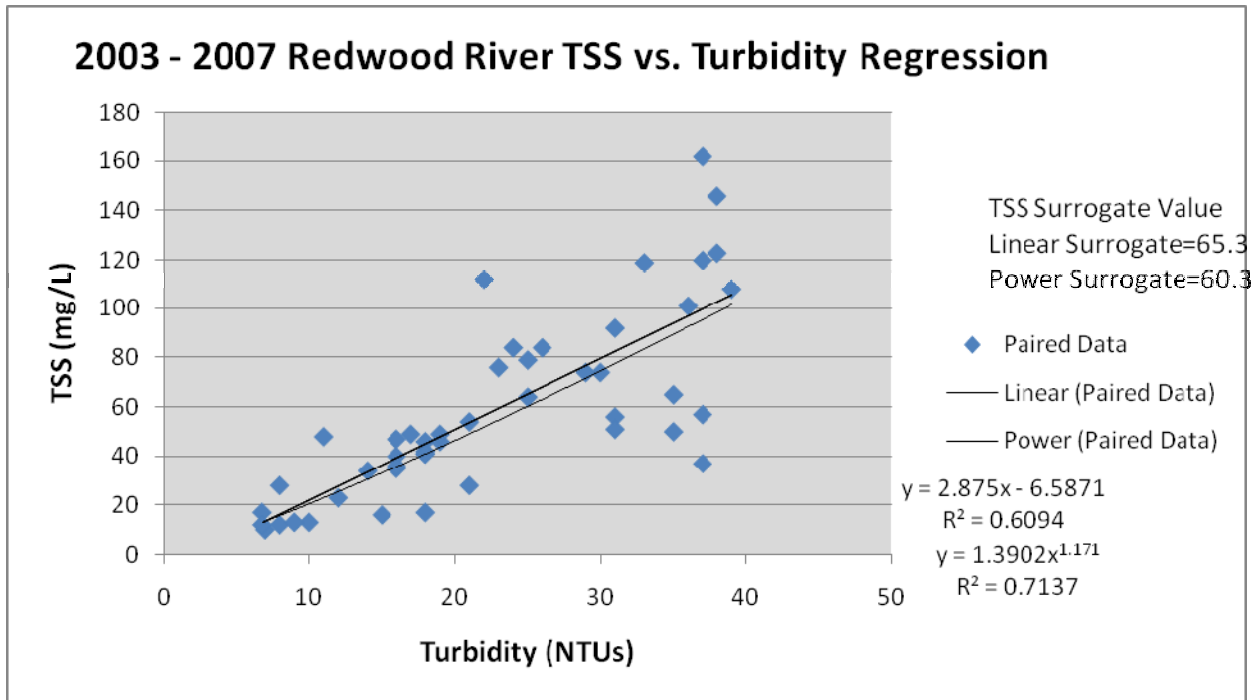
\*-WWTF Discharges are limited to specific timeframes (April 1 through June 15 and September 15 through December 15) and are also permitted only to discharge below the water quality standards. Under low flow conditions, WWTP have been determined to not be a major source of loading.

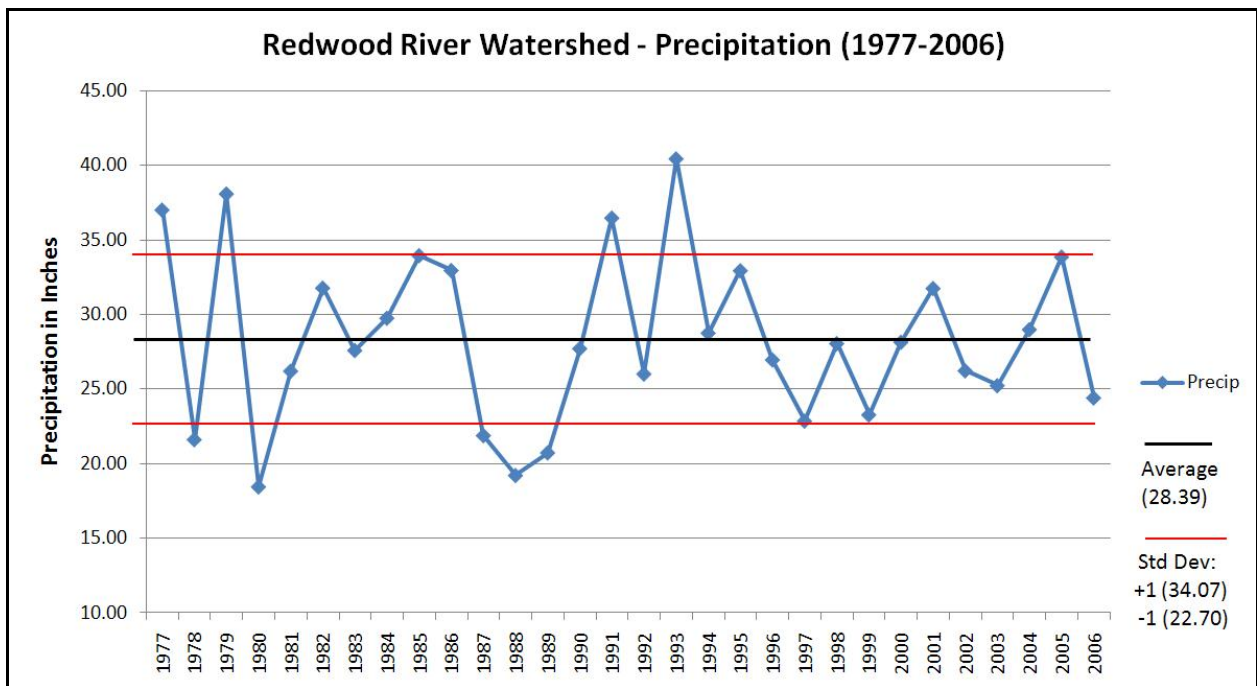
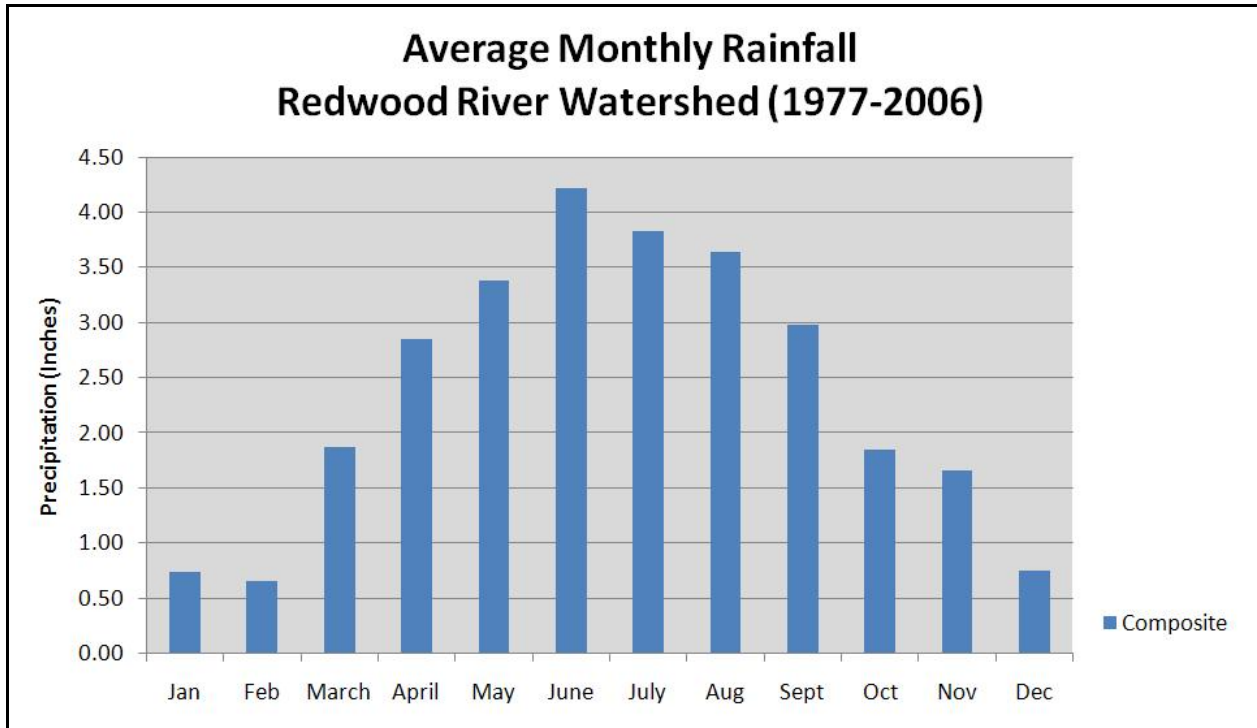
**Table 5.3.1E: Daily TSS Loading Reductions – Redwood River, Clear Creek to Redwood Lake (AUID: 07020006-509)**

Redwood River - Clear Creek to Lake Redwood	Flow Zone				
	High	Moist	Mid	Dry	Low
Total Loading Capacity*	193.9	43.3	13.5	4.5	0.9
90 <sup>th</sup> Percentile Loading*	2116.9	259.8	17.6	6.1	N/A**
Reduction in TSS*	1923.0	216.5	4.1	1.6	N/A**
% Reduction	90.8%	83.3%	23.3%	26.2%	0.0%

\*All values in tons/day of TSS

\*\*Insufficient data to determine loading and reductions





# MEETING NOTICE

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## **Redwood & Cottonwood River Turbidity TMDL Report Technical Committee**

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### **AGENDA**

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Cottonwood and Redwood River Turbidity TMDL Draft  
Redwood and Cottonwood River Technical Advisory Committee

Located: *License Exam Room, Redwood County Government Center, 403 S. Mill St. (US 71),*  
Redwood Falls, MN

Date: February 23, 2011  
Time: 10 a.m.

1. Welcome-
2. Introductions- Approve Agenda
3. Why are we here - The Technical Committee Responsibilities
4. Info - Ground Rules
5. Info - Overview of Report Requirements
6. Info - Present Summary - Draft of TMDL Sections 1-5
7. Info - Technical Advice for Draft of TMDL Sections 1-5
8. Action – Approve Draft of TMDL Sections 1-5 as written
9. Info - Future Plans – Looking toward Implementation Plan
10. Info - What's next - February and March Calendars
11. Adjourn

### **RCRCA Turbidity TMDL Technical Committee Meeting – February, 23 2011**

The meeting was called to order at 10:10 am at the Redwood County Government Center .

Persons present were: Bob VanMoer, Glen Graff, Greg Bartz, Dan Schmitz, Ron Madsen, Matt Drewitz, Lucas Youngsma and Scott Bohling Technical Committee and Douglas Goodrich & Shawn Wohnoutka – RCRCA staff.

A motion was made by Bob VanMoer, seconded by Scott Bohling to approve agenda. A voice vote was taken, motion passed.

A motion was made by Matt Drewitz, seconded by Dan Schmitz that the technical committee meetings must have a quorum to conduct business. A voice vote was taken, motion passed.

Feedback to draft report:

- 1) Inquire into alternative data sets or more up-to-date data sets for: Land use, Climate, Precipitation and Flow data. RCRCA will pursue this and report back on options at the next meeting.
- 2) Synchronize the data sets to the same time frame.
- 3) P18, Change “suspended sediment” to “suspended solids”
- 4) P23, Breakout sampling data to “storm event” and “base flow” samples
- 5) Add Hydrographs with sampling data plotted.
- 6) Dan Schmitz had a question regarding a future sampling regime to delist; what is the plan (storm samples will usually violate standard, base flows often don't)
- 7) Matt Drewitz would like to see priority areas determined and more “concrete” or quantitative numbers for application in the Implementation phase to the TMDL
- 8) Waste Load Allocation (WLA) will be updated to include all dischargers, even if given a 0 WLA (Feedlots, ADM, etc.)
- 9) Lucas Youngsma suggests we include more description regarding the differences between “Failing” and ITPH in relation to SSTS.

A motion was made by Dan Schmitz, seconded by Glen Graff to accept, pending suggested revisions and updates, the draft of the first four sections, with the option for further review/revision if necessary. A voice vote was taken, motion passed.

The next meeting will be on March 16, 2011, the place and time to be determined.

Meeting adjourned at 1 pm.

## Turbidity Ballot

**Please circle the implementation strategy you believe would have the biggest improvement on the Turbidity impairment on the Redwood River?**

- **Feedlot Runoff Reduction**
  
- **Manure Management Planning**
  
- **Pasture Management**
  
- **Vegetative Practices**
  
- **Structural Practices**
  
- **Other (Please list) \_\_\_\_\_**

**Direct Action Items for the Strategy Chosen**

Ground Rules for Conducting Meeting – (Adopted from Redwood SWCD)

**Ground Rules for Board Members:**

Try to attend all board meetings

If unable to attend a board meeting, notify office

Meetings start on time.

Everyone participates; no one dominates

Listen carefully to others

Help keep the discussion on track

Ask questions if you are uncertain of the meaning of someone else's comments.

Try to understand the views of those with whom you disagree

Do not hold side conversations

Decisions will be made in the meeting

After the meeting accurately represent the decisions made by the group

Excuse yourself from discussion and decisions when an item affects you personally

Take your own breaks, as there will be no group break time.

No phone calls during the meeting, (Unless emergency) - Please turn off the cell phone.

Robert Rules of Order are used to conduct business meetings.

# Let's go Canoeing!

Trips subject to weather and/or water level cancellation or postponement.



## Cottonwood River - Tuesday, June 16 10 - 10:30 AM

(We'll meet south of Essig at the Cottonwood River canoe access on County Road 11 and canoe into Flandrau State Park, New Ulm.)

## Redwood River - Thursday, June 18 10 - 10:30 AM

(We'll meet at Perk's Park on the shores of Lake Redwood in Redwood Falls and take a shuttle bus to County Road 6, where the Redwood River crosses CR 6 and canoe back to our vehicles at Lake Redwood.)

**See Maps on website for more information**

Please bring your own canoe, paddles & life vest, if possible.  
A limited number of canoes are available, call to reserve one today!  
It is recommended that you bring ***sunscreen, bug repellent, drinking water, snacks*** for the trip down and ***dry clothes*** for the end of the trip.

We will provide a snack and beverages prior to start of the trip as well as a light meal and refreshments at the end of the canoe trip. We may stop during the trip down for a quick break/snack. A bus ride back to your vehicle will be provided at the conclusion of the Cottonwood River trip. A bus ride to the starting point will be provided at the beginning of the Redwood River trip

***\*\*No one will be allowed to canoe without an approved flotation device.\*\****

***\*\*A release waiver must be signed before you will be allowed to canoe\*\****

**Please register by June 12th  
Call RCRCA at 507-637-2142, ext. 4**



Sponsored by:  
Redwood-Cottonwood Rivers  
Control Area (RCRCA)  
1241 East Bridge Street,  
Redwood Falls, MN 56283  
E-mail: [rcrca2day@yahoo.com](mailto:rcrca2day@yahoo.com)

**Web site:  
[www.rcrca.com](http://www.rcrca.com)**

## **Cottonwood and Redwood River Canoe Trips - June 16 & 18, 2009**

Do you have a day off? Would you like a good reason to take one?? Come out and join us for a day on the river. RCRCA is hosting it's annual canoe trip down the Redwood and Cottonwood Rivers. Bring your spouse, your kids, your parents, your friends or come and meet some new ones.

RCRCA will provide snacks and refreshments. Bring your canoe or kayak if you have one. We have a limited number of canoes available for free usage, so call & reserve now!

**Tuesday, June 16<sup>th</sup>**

Cottonwood River Canoe Trip

**Thursday, June 18<sup>th</sup>**

Redwood River Canoe Trip

For more information, or to sign up for a canoe trip contact Shawn with RCRCA at:

Phone: 507-637-2142 Ext. 4

E-mail: rcrca2day@yahoo.com

Website: www.rcrca.com

