Cedar River Watershed District

2011 Water Quality Monitoring Program Summary

Watershed Purpose:

To reduce stream flows and protect and improve water quality in the Watershed.

Facts about the CRWD

- Watershed District was formed in May of 2007.
- All the water drains to a common point– The Cedar River.
- The Cedar River flows into the Iowa River near Columbus Junction, Iowa and then onto the Mississippi River.

What's Inside: 2011 Results of Water Quality Monitoring


Photo by Nate Howard

This report summarizes the water quality monitoring results for the Cedar River and its tributaries. On the following pages you will learn the streams monitored , the science used, and how the streams are assessed for water quality.

Monitoring on the river is important to identify areas that are not meeting state standards and areas where targeted efforts are needed. The gauged sites on Dobbins Creek at County 61 , the Cedar River at County 2, and the Cedar River at County 28 provide a permanent load monitoring network. The other CRWD monitoring efforts have provided the long term picture needed to help evaluate current status and trends. Data from citizen and local monitoring programs is also used to help prioritize waters for follow up sampling and to support assessment decisions.

When streams are assessed and targeted we can apply more precision practices and this opens the door for more funding to areas of the greatest need.

About the Cedar River Watershed District

The Cedar River Watershed District was formed in May of 2007 by the state of Minnesota as a response to a petition by Mower County.

The watershed district is governed by a seven person board of managers appointed by the County Commissioners for 3-year terms. The board directs the District's goals and policies. The district contracts the Mower Soil and Water Conservation District for administrative and technical assistance.

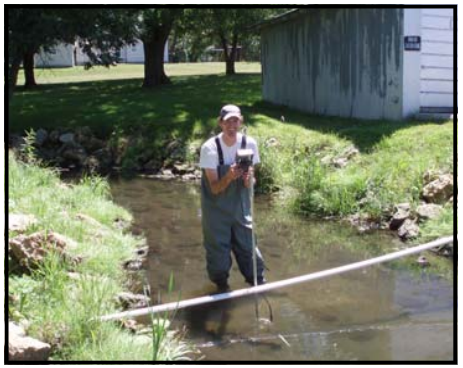
The watershed district covers about 435 square miles in Mower, Steele, Dodge, and Freeborn Counties.

The watershed rules went into effect December 1, 2011 after nearly 2 years of work. CRWD's new rules cover areas related to stormwater, flood plains, water body alterations, erosion control and enforcement. They are intended to fill gaps in existing federal, state and local regulations – not duplicate existing regulations. One objective of the CRWD's watershed management plan consists of rules focused on flood control and rate control that prevent current flood conditions from getting worse.

All watershed districts are required by state law to implement rules to accomplish their purpose.

A complete set of rules is available on the internet at www.cedarriverwd.org.

History of the Cedar River Monitoring Program



1909

(not to scale)

1909
The USGS gauging station was installed near the Cedar River south of Austin on the Mower County 28 Bridge. This has provided a great history of flow data for the Cedar River Watershed.

1932
The East Side Lake dam is installed creating a 40 acre man-made lake.

1992
East Side Lake Study Completed.

2000-2001
Local water quality study on the Cedar River and its tributaries.

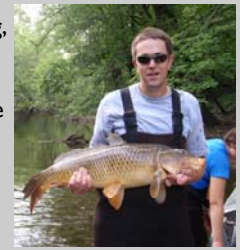
1998
Mercury found in fish tissue leads MPCA to list the Cedar River for aquatic consumption. The first listing on the Cedar River.

2007
CRWD formed

2008-
TMDL process begins for turbidity. Monitoring for flow, stage, and water chemistry. Geomorphology work done on the streams to determine type and erodibility

2008-2010
Stream Water Assessment Grant provides funding for monitoring on 11 sites in the watershed. The sites are monitored for flow, ph, conductivity, TSS, t-tube, nitrate-nitrite, total phosphorous, orhto phosphorous, sulfate, chloride, ammonia

2009
Intensive monitoring, combined efforts of MPCA, DNR, and CRWD. This intense watershed approach is planned for every 10 years.



2010-
CRWD begins monitoring program.

Water Quality: How and Where it is Monitored

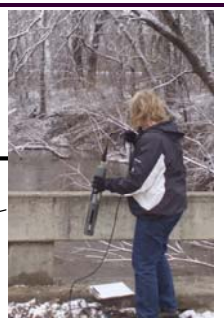
Why Stream Water Quality is Measured?
Stream monitoring data is used to determine the amount of sediment and pollutants being transported. The data is used to determine long term trends, compare watersheds, and track progress towards the CRWD goals.

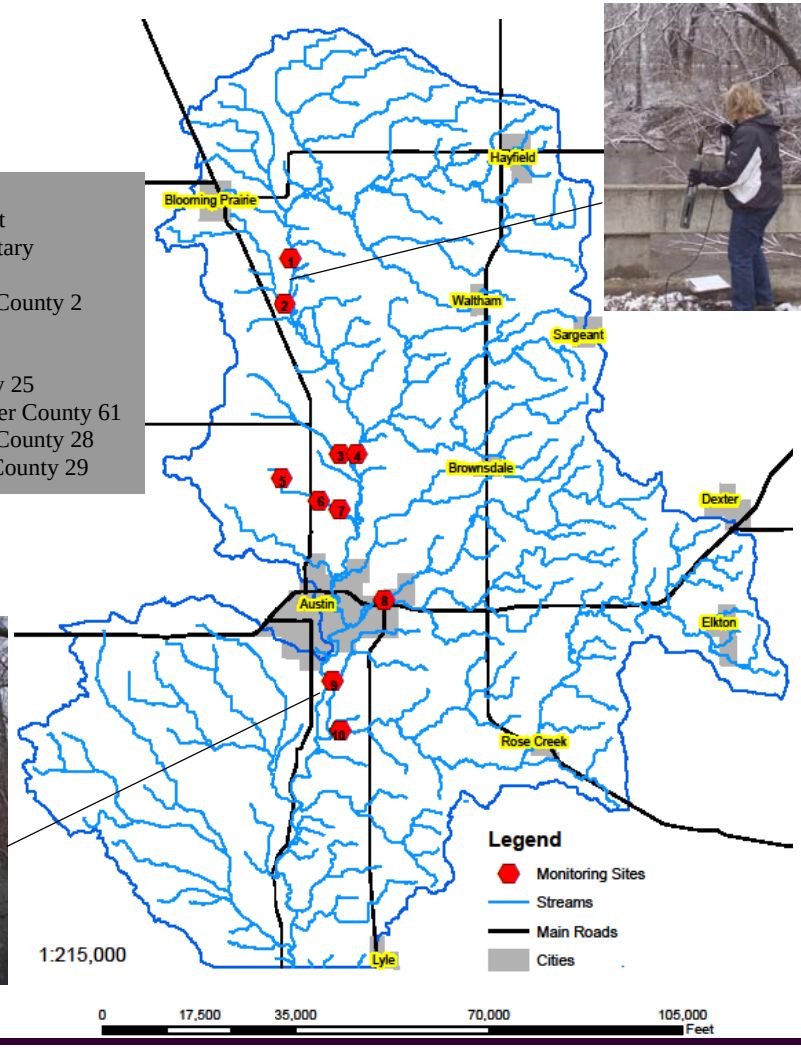
How Stream Water Quality is Measured?
Sites are sampled using a handheld YSI that takes readings for pH, conductivity, dissolved oxygen and turbidity. A t-tube is use to take a t-tube sample. Grab samples are collected and sent to a lab for nitrate-nitrite, total suspended solids, TKN, ortho phosphorous, and total phosphorous. Continuous stage and flow is collected at some sites as well.

Flow
Flow is measured continuously at 3 sites (Dobbins Creek, Cedar at Co. 28, and Cedar at Co.2) by the DNR and USGS. Flow data is used to calculate load and run-off data from the watersheds.

Dissolved Oxygen
Dissolved oxygen is a basic requirement for a healthy aquatic environment. Even with low flows the Cedar River and its tributaries dissolved oxygen levels rarely go below the 5 mg/L standard and that occurs in a dammed up or stagnant water situation.

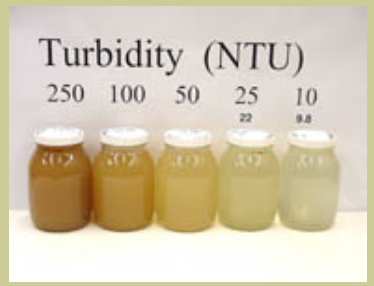
Monitoring Sites
1. Cedar River at 335th St
2. Blooming Prairie Tributary
3. Lansing Tributary
4. Cedar River at Mower County 2
5. JD #5 at 262nd St
6. JD #5 at 255th St
7. JD #5 at Mower County 25
8. Dobbins Creek at Mower County 61
9. Cedar River at Mower County 28
10. Rose Creek at Mower County 29





Phosphorous
Phosphorous is a nutrient that often stimulates plant growth. In the watershed high flows means higher sediment load and higher phosphorous carried by that load. This however is not the case below the waste water treatment plants where low flows don't dilute the effluent as much causing high phosphorous levels.

Nitrogen
Nitrogen is a basic plant nutrient. Nitrogen can cause issues with drinking water and the hypoxia zone in the Gulf of Mexico. In general we see a rise in the nitrate-nitrite levels after the peak flows.



Turbidity, T-tube and TSS
All are forms of determining stream clarity. The standards do have some correlation 25 NTU (turbidity), 20cm (t-tube) and 60 mg/L (TSS) are near equal and target threshold standards. Several stretches are listed as impaired for turbidity and there is a correlation with flow.

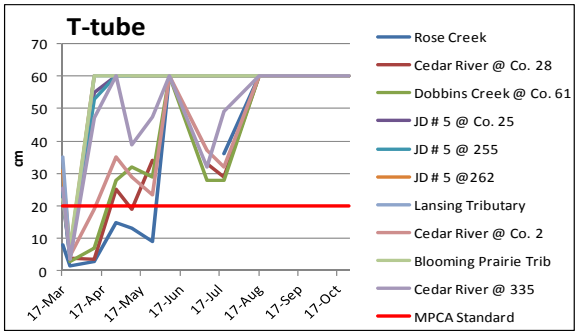
Water Quality Monitoring Results

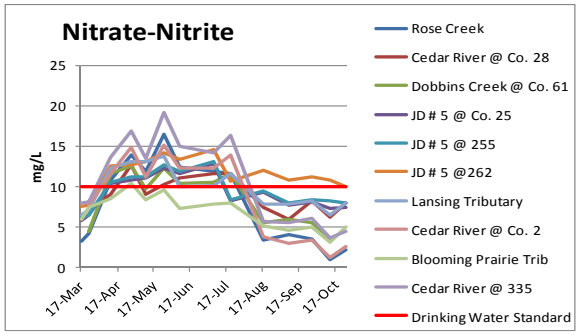
Stream Monitoring Summary
The adjacent figures summarize the 2011 monitoring results for a few of the parameters measured at the sites.

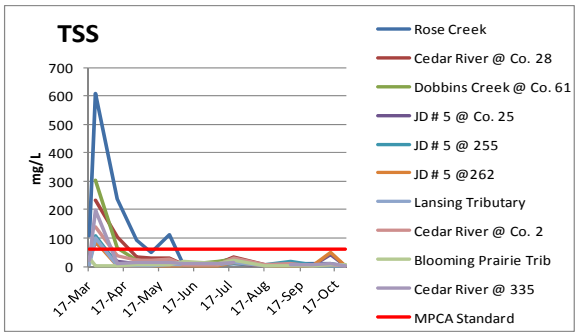
TSS
Overall 10 percent of the samples exceeded 60 mg/L. Compared to past monitoring efforts four of the eight sites had the highest average this year. We had a wetter spring and that showed with high TSS this spring. Rose Creek had the highest average and in past, years, it was typically one of the lowest.

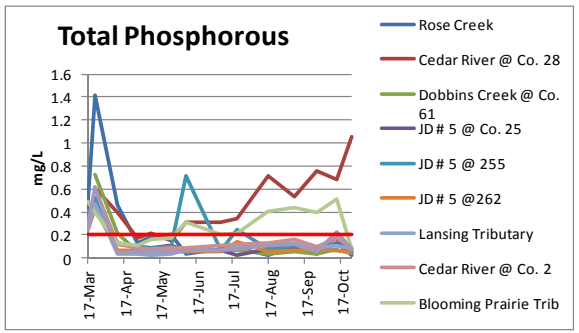
T-tube
Overall about 14 percent of the samples fell below the 20 cm estimated state standard. Most of the sites were similar to past monitoring efforts. Rose Creek and Cedar River at Co. 28 took large decreases from the monitoring done from 2008-2010.

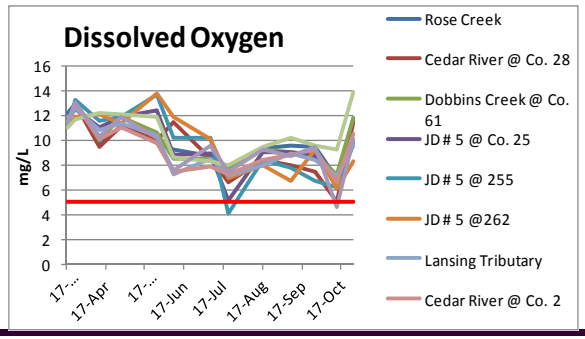
Dissolve Oxygen
Averages were higher this year. Similar to years past, there was about 1% that falls below the 5mg/L, the level that starts to effect fish and other aquatic life. We expected lower dissolved oxygen levels with the low water levels later in the monitoring season.

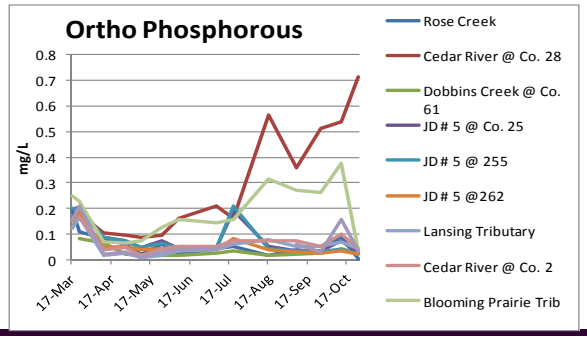


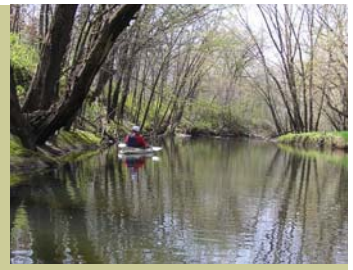












Nitrate – Nitrite
In the previous 3 years, N-N levels exceeded 10 mg/L in about 20 percent of the samples, this year was 45 percent. That is a little skewed, because this year we took samples from 2 new sites that were high in Nitrogen. In five of the eight sites where monitoring was done in the past 4 years, the 2011 average was the highest for N-N.

Total Phosphorous
Overall, averages showed a reduction from the years past. Rose Creek was the exception, with a large increase this year. This might correlate with the increase in total suspended solids that was seen at this site. When compared to the past monitoring averages, two of the eight sites showed the highest average and one of the eight sites had its lowest sample year. About 27 percent of the samples were above the .200 mg/L standard up from 23 percent last year.

Ortho Phosphorous Overall averages have remained fairly constant over the sampling years.

Volunteers

Adopt-A-River Summary

With water quality as one of its priorities, the CRWD in the fall of 2010 started an initiative to create a cleanup program for the Cedar River in Mower County by using the DNR's Adopt-A-River program. Mower County, at the time, did not have anyone participating in Adopt-A-River.

The CRWD sought a river-cleanup effort because the Cedar River is Mower County's most-significant natural water resource and offers a rich history as well as a beautiful corridor for recreation.

Volunteers have signed up to clean nine Adopt-A-River routes created by the CRWD, running from south of Blooming Prairie down to the Riverbend Campground area, just north of the Iowa border. Individuals or groups that have "adopted" routes include: Rotaract; Wayde Bishop; Craig Anderson; Pheasants Forever; Barb Wright family; CRWD staff; Howie Crawford and Jon Erichson; the Mike Hull group; and the Todd and Judy Mullenbach family.

The common stuff that the groups removed were bottles, cans, plastic bags, tires, and car/bike/tractor parts. Some of the larger items that could not be removed were bathtubs, more tires, a car, and metal culverts.

In following the DNR's "Adopt-A-River" program, those who volunteer for a river section are expected to do an annual cleanup for at least two years in a row. DNR has a two-year commitment to allow enough time for the volunteers to see a change due to their efforts.

DNR assistance through the "Adopt-A-River" program includes a free cleanup and organizing kit, bags, gloves and other logistical support. CRWD staff also helped with some of the cleanup plans.

We greatly appreciate the willingness of the Adopt-A-River volunteers to get involved with removing trash from the Cedar River. All of this hard work and effort will make a big difference.

CRWD Board of Managers

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Mike Merten, *Vice Chairman*
Mike Jones, *Treasurer*
Kevin Kiser, *Secretary*
Steve Kraushaar, *Manager*
Jim Gebhardt, *Manager*
Harlen Peck, *Manager*

Mower SWCD staff Assisting the Watershed District

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Justin Hanson,
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Cody Fox,
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