



I. Project information

Project title: RCRCA Principal Waters Pollutant Load Monitoring Network Project

Local Partner information:

Organization name: Redwood - Cottonwood Rivers Control Area (RCRCA)

Street address: 1424 East College Drive, Suite 300

City: Marshall State: MN Zip code: 56258

Primary contact name: Kerry Netzke Phone: 507-532-1325

Email address: kerry.netzke@rcrca.com Fax: 800-915-3440

Fiscal contact name: Kerry Netzke Phone: 507-532-1325

Email address: kerry.netzke@rcrca.com Fax: 800-915-3440

Field contact name: Shawn Wahnoutka Phone: 507-532-1325

Email address: shawn.wahnoutka@rcrca.com Fax: 800-915-3440

Reporting period:

Start date: 1/28/2015 End date: 2/29/2016
(mm/dd/yyyy) (mm/dd/yyyy)

Project details:

Basin (check all that apply):

Red River Rainy River Lake Superior Minnesota Lower Mississippi St. Croix Upper Mississippi

Major Watershed(s): Cottonwood and Redwood Hydrologic unit code(s): 07020008, 07020006, 07020007

Name of eligible laboratory: MVTL - New Ulm, MN

How many full-time equivalents (FTEs) worked on this project (total project hours/2,088 hours): 2.19

II. Activities completed

Table 1: Workplan activities

1. Please list activities completed during the reporting period. Include task level detail as appropriate. Please separate activities by calendar year, if applicable.

Objective	Description
1. Stream Monitoring – Task A	January 2015 -- pH 7, pH 10 and NaCl solutions purchased. April 2015 -- new pH electrode and cleaning solution purchased. September 2015 -- amber rotating warning beacons purchased for vehicles. January 2016 -- new pH probe purchased. Supplies and equipment purchased as needed.
1. Stream Monitoring – Task B	Backup sampler (Kerry Netzke) accompanied the primary sampler on 5/4/2015 to get reacquainted with sites and sampling protocol. MPCA PM (Diana Macziewski) accompanied the primary sampler on 7/23/2015. DNR contact was not met in field; emails and calls exchanged regarding DNR equipment.
1. Stream Monitoring – Task C	Collected 208 samples and field data from the seven monitoring sites in 2015. Water flowing over ice at major watershed sites and upstream Cottonwood sites on March 12-15, 2015. Ice leaving subwatershed sites by March 15-17, 2015. All sites open by March 17, 2015. Subwatershed sites were sampled 21 to 30 times each. Major watershed sites sampled 33 to 43 times each. Collected 3 samples and field data from the major watershed sites in January 2016.

1. Stream Monitoring – Task D	Three duplicates taken at each major watershed site; two duplicates taken at each subwatershed site during the 2015 season.
1. Stream Monitoring – Task E	Field meter was calibrated weekly before sampling and was recorded into the log book. Calibration log was submitted to MPCA on 11/3/2015. Ice out occurred on 3/17/2015.
2: Data Management – Task A	Reviewed lab results for accuracy. Entered data in EQUIS format and submitted to MPCA on 10/21/2015.
2: Data Management – Task B	Submitted the collected field data including site inspection sheet, photos, photo log, and stage data from each site; hand delivered to MPCA on 11/4/2015. MVTL submitted lab results to MPCA.
2: Data Management – Task C	Completed load calculations using FLUX32 model and verified data with MPCA personnel. Load calculations were completed for 2013 calendar year for all seven sampling sites and 2014 calendar year for one site.
3: Project Oversight – Task A	Tracked 2015 and January 2016 expenditures and submitted quarterly invoices for reimbursement. Executed Change Order #2 in January 2016 to transfer remaining funds between objectives.
3: Project Oversight – Task B	Submitted the 2014 Interim Report on 1/26/2015; meeting the 02/1/2015 deadline.
3: Project Oversight – Task C	Primary sampler attended several WebEx trainings throughout the year. Refresher Training provided on 3/9/2015; additional training provided on 4/15/2015.
3: Project Oversight – Task D	Primary sampler participated in weekly teleconferences with the project manager and other staff.

2. Please answer the following questions relating to the deliverables for the project.

a. Were any changes made to the Quality Assurance Project Plan during the reporting period?

Yes No Revision date (mm/dd/yyyy): _____

If yes, please summarize:

b. Was an Interim Progress Report submitted?

Yes No Submittal date (mm/dd/yyyy): 1/26/2015

If no, please describe why:

c. If applicable, were FLUX32 pollutant loads submitted to your MPCA Project Manager?

Yes No N/A

Please list the sites and years where loads were calculated:

2013, 2014	Hydstra Site: E27035001	Description: Redwood River nr Redwood Falls, MN
2013	Hydstra Site: H27043001	Description: Redwood River at Russell, CR15
2013	Hydstra Site: E27043002	Description: Redwood River nr Marshall, 300th St
2013	Hydstra Site: E28012001	Description: Minnesota River at Morton, MN
2013	Hydstra Site: E29001001	Description: Cottonwood River nr New Ulm, MN68
2013	Hydstra Site: H29011001	Description: Sleepy Eye Creek nr Cobden, CR8
2013	Hydstra Site: H29022001	Description: Cottonwood River nr Leavenworth, CR8S

If no, please describe why:

d. Were you able to attend a majority of the weekly check-in telephone conferences during the project period?

Yes No

If no, please describe:

e. Was a backup sampler used to collect any of the samples?

Yes No

If yes, please describe when, who, if they were trained, and any other details:

Kerry Netzke accompanied the primary sampler on May 4, 2015 to get reacquainted with ssites and sampling protocol. The backup sampler collected the following:

May 20, 2015 -- sampled sites S001-918, S001-920 and S000-145. August 20, 2015 -- sampled sites S001-919, S001-918, S001-203 and S001-920. August 21, 2015 -- sampled sites S001-918 and S000-145.

Table 2: Lab analyte summary

3. Please enter the number of samples collected at each site for each analyte over the reporting period. Refer to the instructions at the end of this report for an example of the completed table. Please describe conditions when either sample count was more or less than what is specified in the workplan. A Microsoft Excel template is also available to complete this table. Please see instructions for more information. (Insert more rows as needed by hitting the tab key in the last row/column.)

Year	Site Type	Stream Name	EQulS ID	TSS	SVS	Turbidity	OP	TP	NOx	TKN	Comments
2015	Major Watershed	Minnesota River	S000-145	34	34	34	34	34	34	34	Largest flow event for 2015 was below the 2014 largest event.
2015	Major Watershed	Cottonwood River	S001-918	43	43	43	43	43	43	43	Multiple large precipitation events. Mid-November event was similar in magnitude to largest 2015 event in June.
2015	Major Watershed	Redwood River	S001-679	33	33	33	33	33	33	33	No major events, but some smaller precipitation events. Peak flow for the year was below average.
2015	Subwatershed	Cottonwood River	S001-920	30	30	30	30	30	30	30	Multiple event-based sampling runs; more than an average year.
2015	Subwatershed	Sleepy Eye Creek	S001-919	21	21	21	21	21	21	21	Below average flow for the year: no major flow events; many low flow samples.
2015	Subwatershed	Redwood River	S000-696	23	23	23	23	23	23	23	Largest flow event for 2015 was below the 2014 largest event.
2015	Subwatershed	Redwood River	S001-203	24	24	24	24	24	24	24	Largest flow event for 2015 was below the 2014 largest event.
2016	Major Watershed	Minnesota River	S000-145	1	1	1	1	1	1	1	Ice thickness of 10 inches +/-.
2016	Major Watershed	Cottonwood River	S001-918	1	1	1	1	1	1	1	Ice coverage of 95%, but a small channel was open to sample.
2016	Major Watershed	Redwood River	S001-679	1	1	1	1	1	1	1	Ice covered at bridge; open spots by riffle 150 feet downstream.

Table 3: QA/QC samples summary

4. Please complete the table below. The table should include actual results for the original and duplicate samples over the project period. The RPD should be calculated. Provide additional information in the comments about site conditions, sampling error, etc., if known. A Microsoft Excel template is also available to complete this table. Please see instructions for more information. (Insert more rows as needed by hitting the tab key in the last row/column.)

Stream Name	Date		TSS	RPD	SVS	RPD	Turbidity	RPD	DOP	RPD	TP	RPD	NOX	RPD	TKN	RPD
Minnesota River (S000-145)	5/28/15	Sample	107.0	0.9	19.0	5.4	56.0	1.8	0.051	39.4	0.231	5.3	4.0	0.8	1.60	0.0
		QA/QC	106.0		18.0		57.0		0.076		0.219		4.0		1.60	
Minnesota River (S000-145)	8/24/15	Sample	158.0	5.9	23.0	4.4	95.0	7.7	0.152	14.8	0.321	2.8	2.0	0.0	1.80	11.8
		QA/QC	149.0		22.0		88.0		0.131		0.312		2.0		1.60	
Minnesota River (S000-145)	11/16/15	Sample	12.0	0.0	5.0	0.0	7.4	14.5	0.054	20.4	0.114	0.9	0.6	3.3	0.50	57.1
		QA/QC	12.0		5.0		6.4		0.044		0.115		0.6		0.90	
Cottonwood River (S001-918)	7/15/15	Sample	102.0	6.1	18.0	5.7	62.0	0.0	0.061	1.6	0.184	9.7	8.9	0.5	1.60	6.5
		QA/QC	96.0		17.0		62.0		0.062		0.167		8.8		1.50	
Cottonwood River (S001-918)	8/19/15	Sample	83.0	1.2	14.0	19.4	45.0	8.5	0.007	13.3	0.127	1.6	0.5	3.8	1.10	8.7
		QA/QC	82.0		17.0		49.0		0.008		0.129		0.5		1.20	
Cottonwood River (S001-918)	11/12/15	Sample	140.0	5.6	25.0	3.9	110.0	0.0	0.078	23.7	0.301	0.0	8.1	2.2	1.80	5.4
		QA/QC	148.0		26.0		110.0		0.099		0.301		8.3		1.90	
Sleepy Eye Creek (S001-919)	10/16/15	Sample	5.0	50.0	2.0	40.0	2.2	8.7	0.043	4.8	0.061	1.7	0.1	0.0	0.20	66.7
		QA/QC	3.0		3.0		2.4		0.041		0.060		0.1		0.40	
Sleepy Eye Creek (S001-919)	10/30/15	Sample	4.0	28.6	2.0	40.0	3.3	40.0	0.020	0.0	0.032	6.1	1.7	0.6	0.70	33.3
		QA/QC	3.0		3.0		2.2		0.020		0.034		1.7		0.50	
Cottonwood River (S001-920)	7/8/15	Sample	238.0	1.7	40.0	2.5	130.0	0.0	0.083	4.9	0.357	3.8	9.1	1.3	2.70	16.0
		QA/QC	242.0		39.0		130.0		0.079		0.371		9.0		2.30	
Cottonwood River (S001-920)	9/4/15	Sample	116.0	18.9	23.0	19.0	54.0	11.8	0.030	10.5	0.205	2.9	2.1	0.0	1.80	0.0
		QA/QC	96.0		19.0		48.0		0.027		0.211		2.1		1.80	
Redwood River (S001-679)	6/29/15	Sample	209.0	1.9	33.0	0.0	120.0	8.0	0.189	14.7	0.483	4.4	5.3	0.6	1.90	0.0
		QA/QC	205.0		33.0		130.0		0.219		0.462		5.4		1.90	
Redwood River (S001-679)	9/4/15	Sample	109.0	1.9	20.0	4.9	66.0	4.4	0.299	33.1	0.533	0.6	2.7	1.1	1.50	6.9
		QA/QC	107.0		21.0		69.0		0.214		0.536		2.7		1.40	
Redwood River (S001-679)	11/16/15	Sample	18.0	5.7	6.0	0.0	11.0	8.7	0.408	37.3	0.830	1.2	3.8	0.5	0.90	20.0
		QA/QC	17.0		6.0		12.0		0.595		0.840		3.8		1.10	
Redwood River (S001-203)	7/28/15	Sample	182.0	1.7	27.0	0.0	110.0	0.0	0.193	8.6	0.482	0.4	4.0	2.5	2.10	4.7
		QA/QC	179.0		27.0		110.0		0.177		0.484		3.9		2.20	
Redwood River (S001-203)	9/30/15	Sample	5.0	33.3	4.0	0.0	4.7	15.7	0.940	13.6	1.440	0.7	5.4	0.9	1.10	8.7
		QA/QC	7.0		4.0		5.5		0.820		1.450		5.5		1.20	
Redwood River (S000-696)	6/22/15	Sample	1130.0	1.8	148.0	2.7	540.0	1.8	0.082	20.8	0.854	4.5	7.2	0.6	5.20	1.9
		QA/QC	1150.0		152.0		550.0		0.101		0.893		7.1		5.30	
Redwood River (S000-696)	8/28/15	Sample	88.0	2.3	18.0	5.7	57.0	1.7	0.103	3.8	0.258	1.2	3.5	0.0	1.80	11.8
		QA/QC	86.0		17.0		58.0		0.107		0.261		3.5		1.60	

Comments:

10 of the 12 duplicate results highlighted above for high RPD are very low value results, a situation where a close value on the scale creates a flagged RPD. For example: TSVS at S001-919, twice flagged for over RPD. Result values were 2 and 3 which could not be any closer unless they were the same value, however results are over the RPD.

The two flagged for RPD that are of note are the DOP results at S001-679. The 11/16/2015 sample was during low flow and was taken with a bucket. Nothing unusual noted for the 9/4/2015 samples; unsure of the reason for high RPD.

5. Please answer the following questions and provide comments.

Were you comfortable with your level of training and current ability to:

- a. Collect stream samples over the entire range of the hydrograph? Yes No

Comments:

Due to the large area covered and variable timing for peak flows, we have done our best to cover the whole range of flows at each sample location. Every event was not able to be fully captured at each sampling location.

- b. Calibrate and use the field meter and equipment? Yes No

Comments:

No issues were encountered.

- c. Enter data and information into the MPCA templates and logs? Yes No

Comments:

MPCA staff is very helpful in answering questions and providing guidance for this task.

- d. Use the FLUX32 model and submit pollutant load data and supporting information? Yes No

Comments:

FLUX32 was used for computing the pollutant load data for all sampling sites for the 2013 calendar year. Verification process with MPCA staff was very helpful.

- e. Complete and submit invoices? Yes No

Comments:

No issues were encountered.

- f. Complete the Interim Progress Report? Yes No

Comments:

Interim Report was submitted on 1/26/2015. Revised report was approved on 2/11/2015.

6. Describe in detail any problems, delays, or difficulties that occurred in fulfilling the requirements of the workplan. How did you resolve these problems?

No major problems in 2015. An uneven distribution of precipitation occurred within the two major watersheds. Cottonwood watershed, subwatershed site S001-918 had very low flows for the whole year while the other subwatershed site, S001-920, had higher than normal flows late season. A total of 51 samples between the two sites (21 & 30 respectively) were collected.

7. Were there any change orders and/or amendments to the contract and workplan? If yes, summarize the changes.

- Yes No

Comments:

January 12, 2016 -- Change Order #2 was executed.

#1 -- Staff hours and travel were adjusted by moving:

\$158.44 from Obj.2: Travel to Obj.1: Personnel; \$6.86 from Obj.2: Travel, \$44.92 from Obj.2: Training, and \$1.14 from Obj.3: Personnel to Obj.1: Travel; \$55.81 from Obj.1: Monitoring Supplies, \$385.53 from Obj.3: Personnel, and \$430.40 from Obj.1: Laboratory to Obj.2: Personnel

\$6.86 from Obj.2: Travel, \$44.92 from Obj.2: Training, and \$1.14 from Obj.3: Personnel to Obj.1: Travel

#2 -- Submittal date of the Final Progress Report extended to June 30, 2016 along with the final reimbursement request

#3 -- Correction to Obj.3: Staff changing \$6,030.50 to \$6,030.15. Column totals were correct with no adjustment.

#4 -- Adjusted lab rate of \$104.06 to \$104.90; added 2016 IRS mileage rate (\$0.54/mile).

8. If there are unspent funds, please list the Objective and Task and explain the reason for the unspent funds:

N/A. All funds were expended.

9. Please provide any constructive feedback regarding the WPLMN (training, forms, program directives, etc.):

Great project managers who are quick to respond and very good communicators. Good training options and ample resources are available if questions arise.

III. Budget information

Budget item	Objective 1	Objective 2	Objective 3	Objective 4	Objective 5	Total expended
Objective title:	Stream Monitoring	Data Management and Analysis	Reporting, Invoicing & Oversight			
Personnel: wages and benefits						
Staff #1: No. of hours <u>2937</u>	\$ 35,631.35	\$ 34,203.93	\$ 10,767.86	\$	\$	\$ 70,799.68
Staff #2: No. of hours <u>1141</u>	\$	\$	\$ 24,440.96	\$	\$	\$ 24,962.17
Staff #3: No. of hours <u>499</u>	\$ 3653.44	\$ 1,685.10	\$ 11,456.50	\$	\$	\$ 26,083.00
Laboratory analyses: No. of stream samples <u>606</u>	\$ 58,127.00	\$	\$	\$	\$	\$ 58,127.00
Travel reimbursement: No. of miles <u>19,124</u>	\$ 10,620.62	\$ 67.80	\$	\$	\$	\$ 10,688.42
Equipment	\$	\$	\$	\$	\$	\$
Monitoring supplies	\$ 4,374.19	\$	\$	\$	\$	\$ 4,374.19
Shipping	\$	\$	\$	\$	\$	\$
Training and materials	\$	\$ 9.08	\$	\$	\$	\$ 9.08
Other (describe the activity and cost – be specific):						
	\$	\$	\$	\$	\$	\$
	\$	\$	\$	\$	\$	\$
Column total:	\$112,406.60	\$35,965.91	\$46,665.32	\$ 0.00	\$ 0.00	\$195,043.54

Comments:

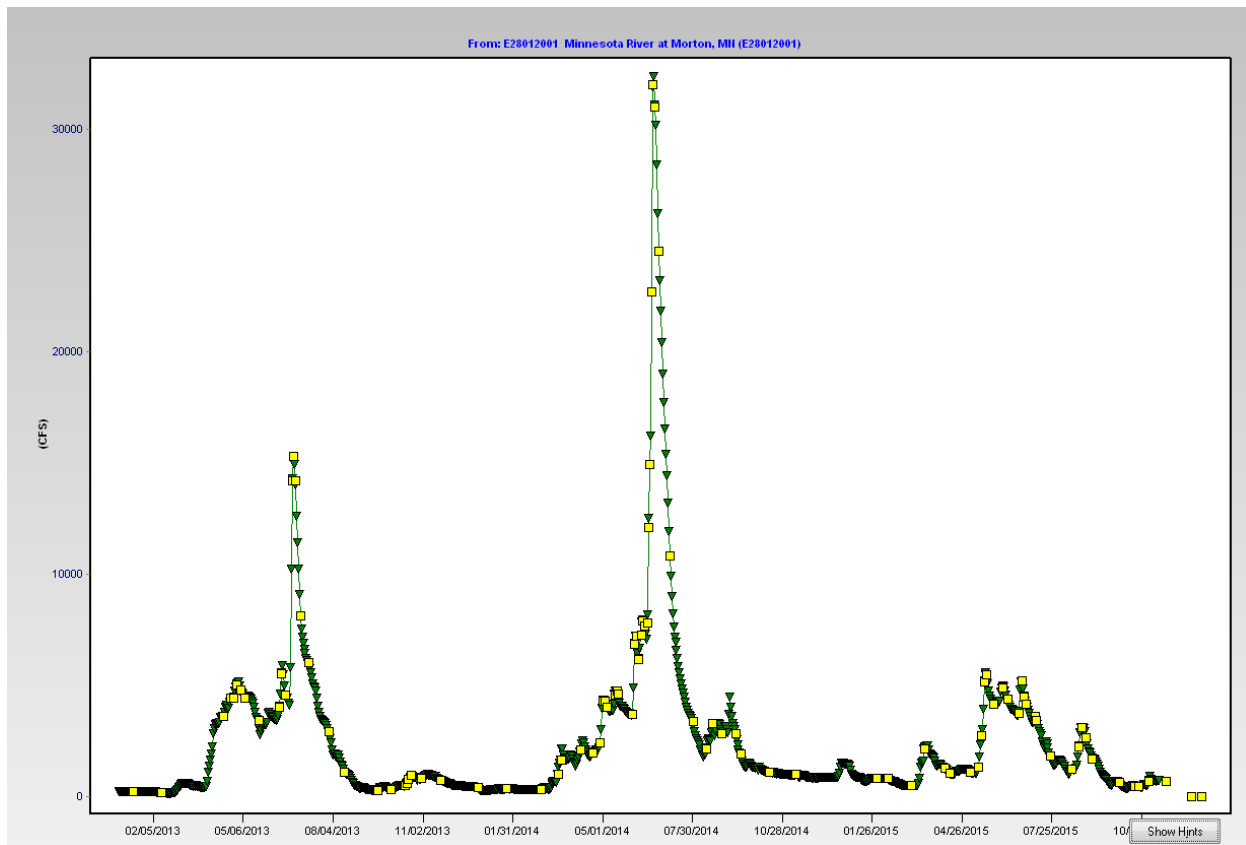
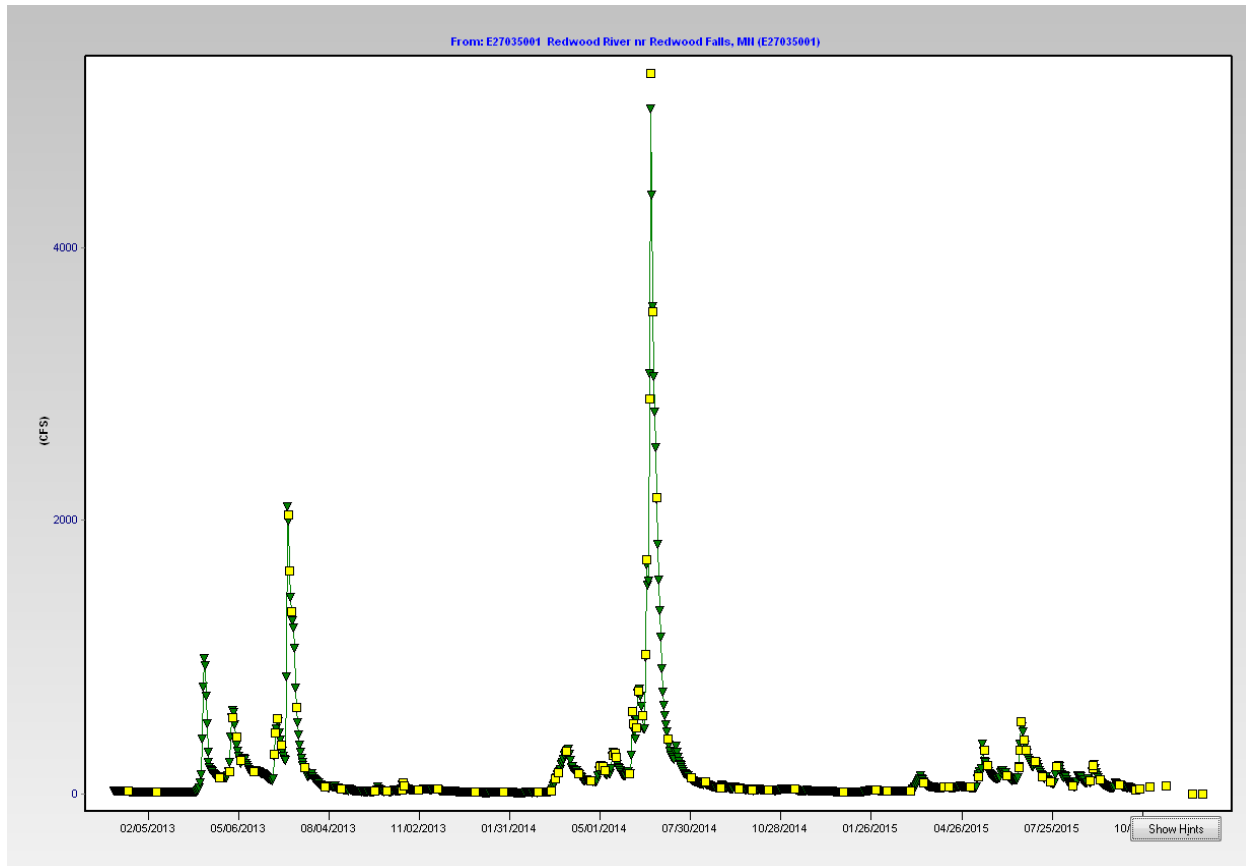
Total Staff Hours: 4,577.09

Staff 1: 2,936.76 hours

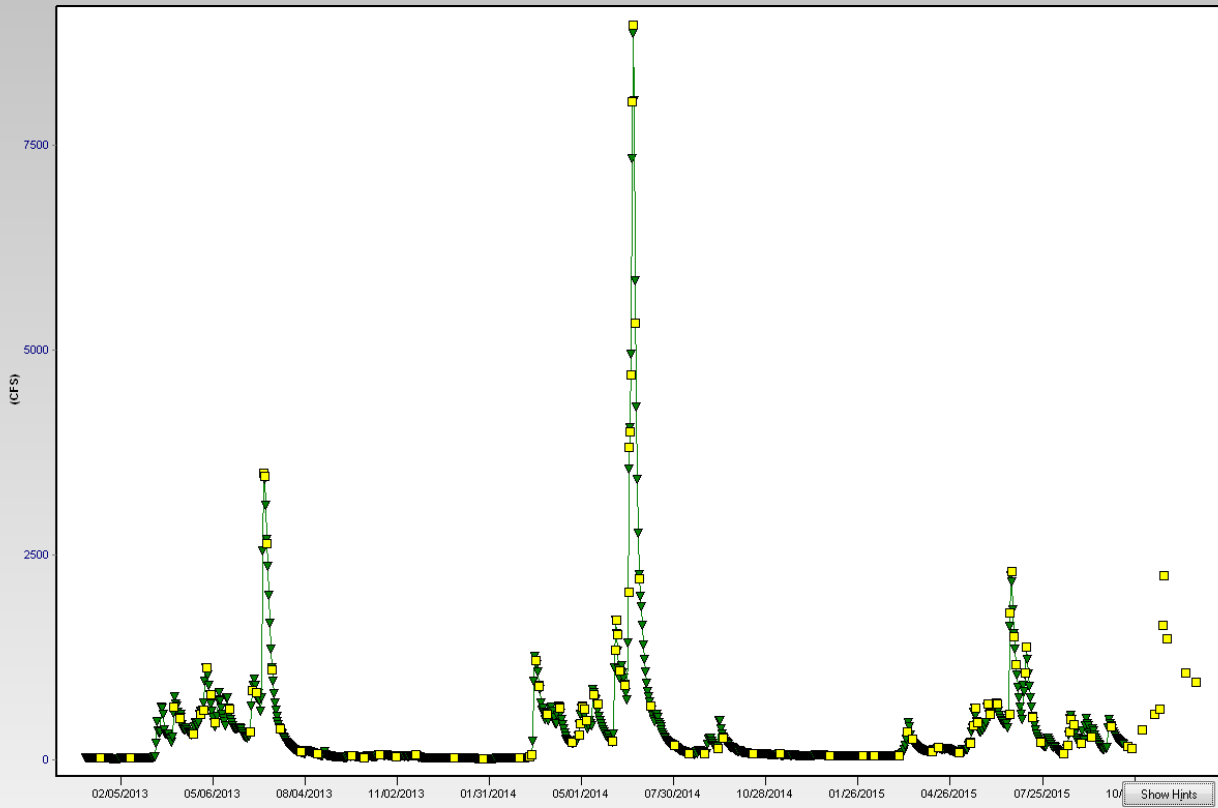
Staff 2: 1,141.45 hours

Staff 3: 498.88 hours

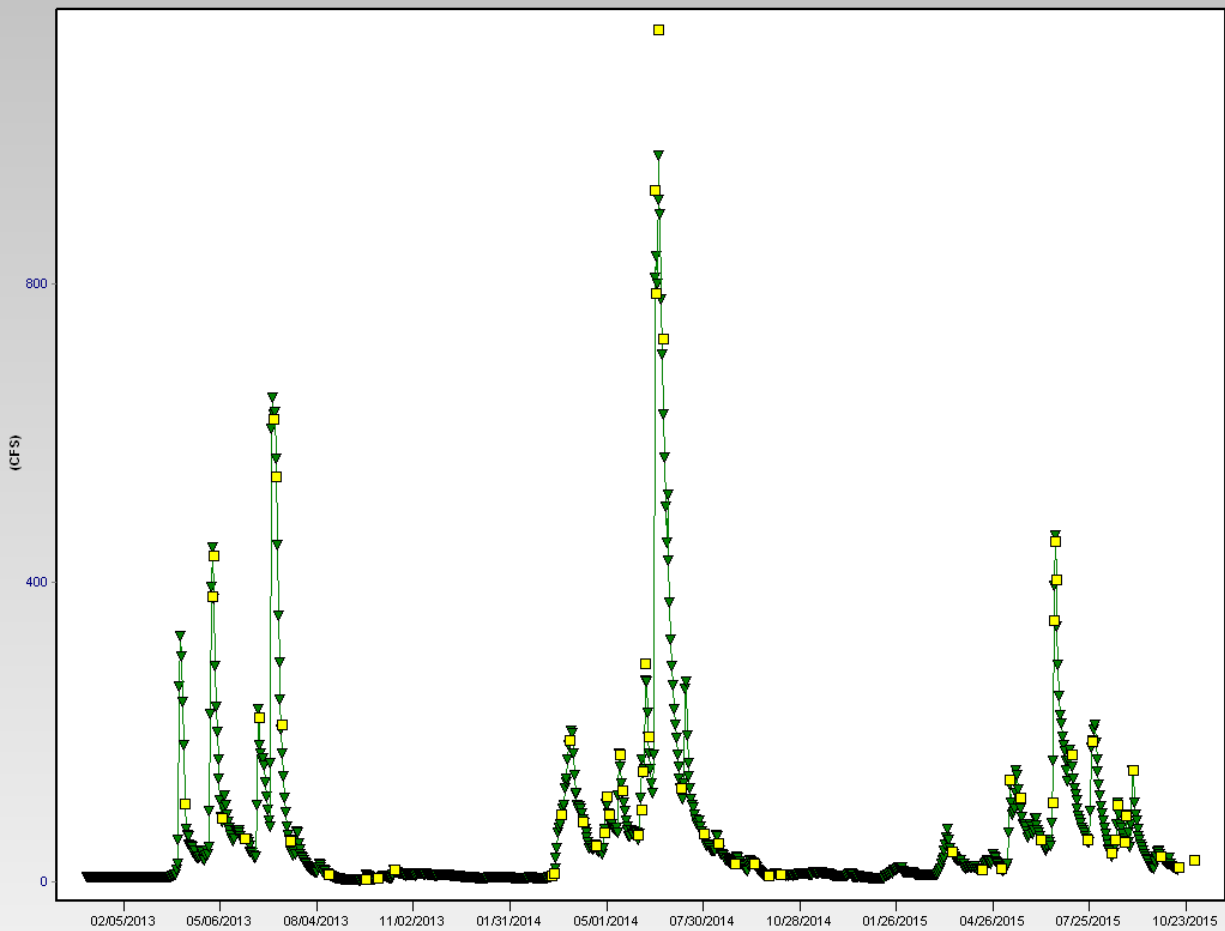
IV. Hydrographs

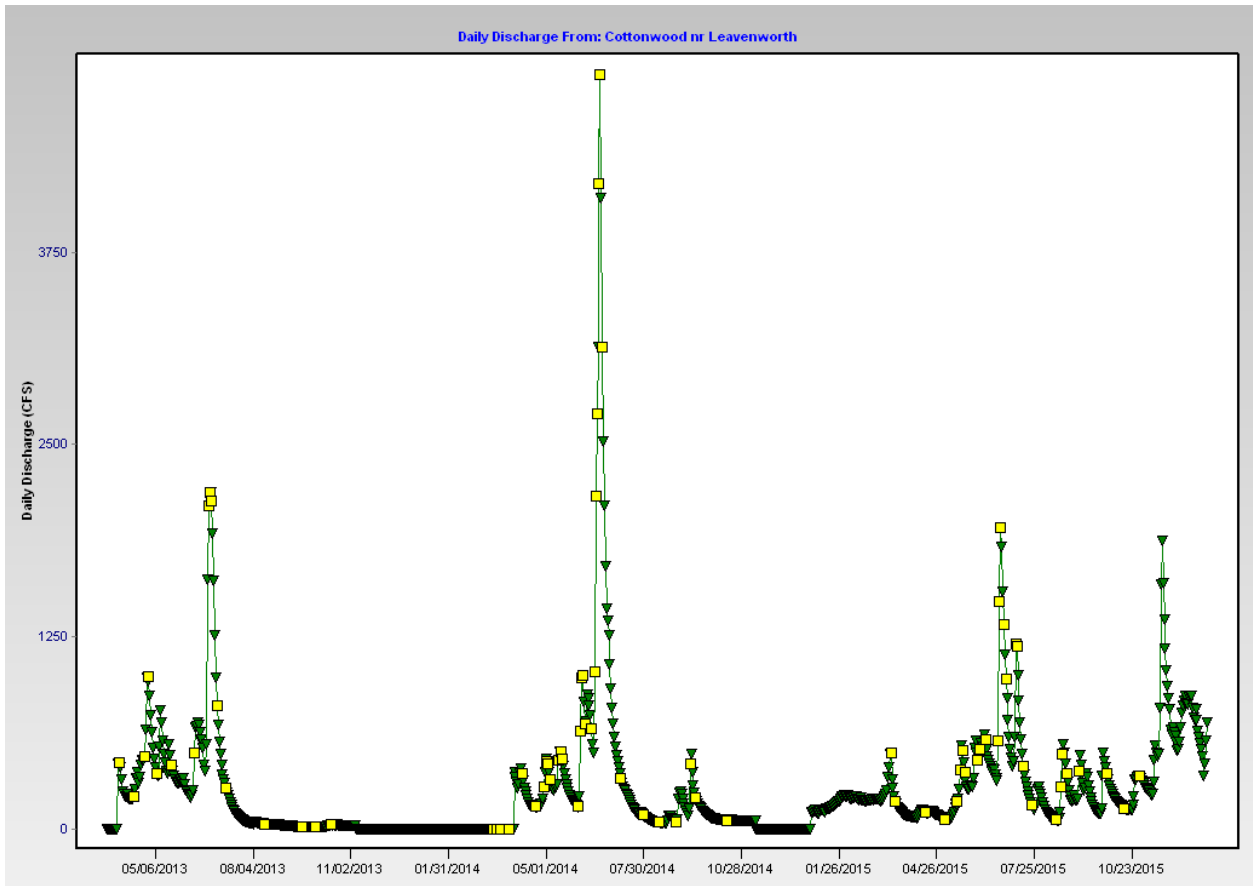


From: E29001001 Cottonwood River nr New Ulm, MN (E29001001)

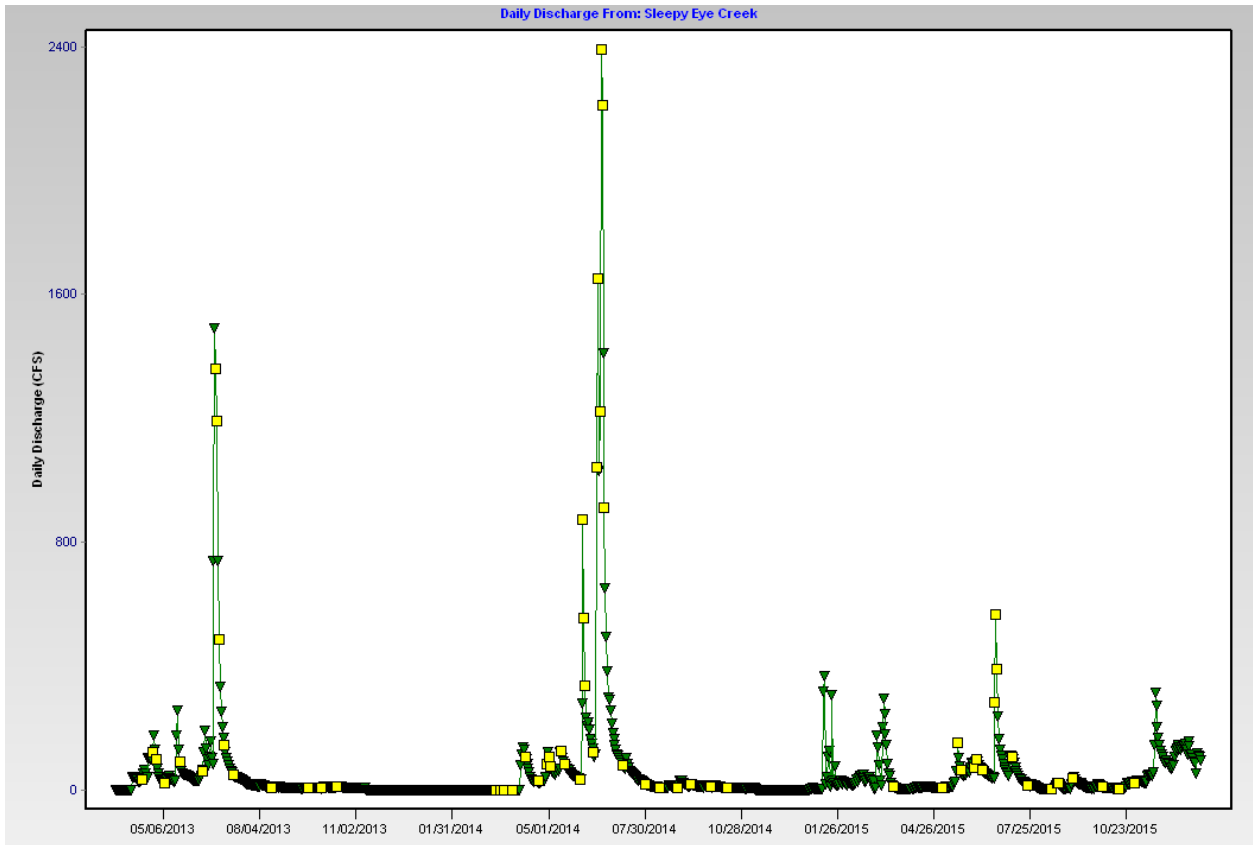


From: E27043002 Redwood River nr Marshall, MN (E27043002)

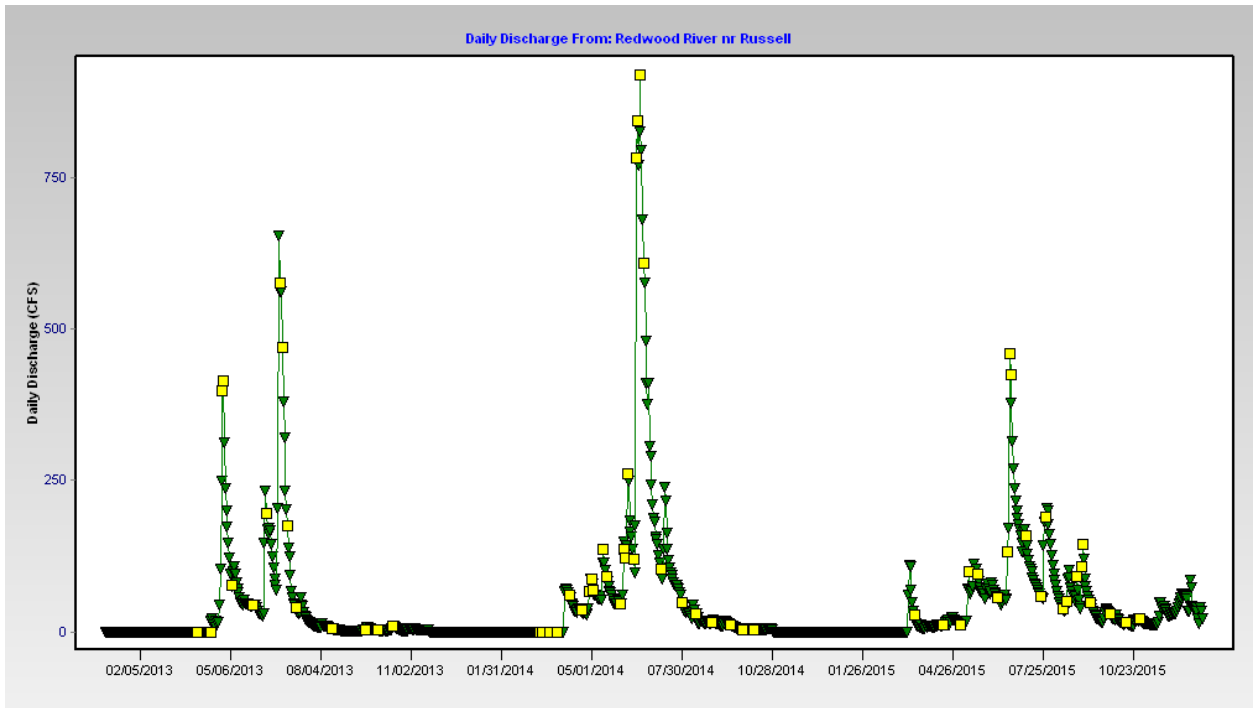




*2015 flow data is provisional.



*2015 flow data is provisional.



*2015 flow data is provisional.