Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

WPLMN Final Progress Report

Watershed Pollutant Load Monitoring Network (WPLMN)

Doc Type: Contracts Final Report

I. Project information

Project title: FY16 RCRCA Watershed 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

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

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

Email address: shawn.wohnoutka@rcrca.com Fax:

Reporting period for Section II Table 1:

Start date: 1/1/2020 *(mm/dd/yyyy)* End date: 12/31/2020 *(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): Redwood, Cottonwood, MN River - Mankato Hydrologic unit code(s): 0702(0006,0007,0008)

Name of eligible laboratory: Minnesota Valley Testing Laboratories (MVTL), Inc. - New Ulm, MN

How many full-time equivalents (FTEs) worked on this project (total project hours/2,088 hours): 1.46

II. Activities completed

Table 1: Workplan activities

Please list activities completed during the reporting period. Include task level detail as appropriate. Please separate activities by calendar year, if applicable. Refer to the instructions for examples. (Insert more rows as needed by hitting the tab key in the last row/column.)

This section includes activities completed in 2020. Previous years' activities can be found on past Interim Progress Reports.

Objective	Description
1 Stream Monitoring Task A	Hach HQ40D handheld meter was purchased 1/29/2020. Supplies were purchased as needed throughout the 2020 calendar year.
1 Stream Monitoring Task B	RCRCA Staff are familiar with the sites. No field training with MPCA or DNR staff was conducted due to Covid-19 restrictions.
1 Stream Monitoring Task C	Collected 127 samples from the 7 monitoring sites and delivered to MVTL for analysis. Field data collected at each site. Ice leaving upstream subwatershed sites by early March. All 7 sites were sampled by 3/15/2020. In reviewing the gage data, Redwood River (N Marshall) appears to be open around 3/1/2020.

	Redwood River (Russell) appears to be losing ice cover around 3/1/2020. First samples at these two sites were taken on 3/5/2020. Redwood River near Redwood Falls was 80%-90% ice-covered on 3/5/2020 with water running over the top of the ice cover. The first sample at the Redwood River near Redwood Falls was collected on 3/9/2020. Cottonwood subwatershed sites appear to be 100% ice-covered on 2/28/2020 as indicated by gage readings. Sleepy Eye Creek had 5%-10% shore ice downstream and an ice jam upstream on 3/3/2020. There was open water with a bit of shore ice downstream on 3/6/2020. The first sample at Sleepy Eye Creek site was collected on 3/6/2020. Cottonwood River near Leavenworth was at 80%-90% ice cover on 3/3/2020 with water moving along the north bank. The Leavenworth site was open and first sample collected on 3/6/2020. Cottonwood River at New Ulm had a channel open throughout most of the winter season and had 50% ice cover on 2/28/2019. Similar ice conditions with higher stage was observed on 3/3/2020; no sample was collected. The river was out of bank with an ice jam present during the 3/6/2020 stop; a sample was able to be collected. The Cottonwood River in New Ulm was ice free and back within its banks on the 3/9/2020 stop. Minnesota River at Morton was 100% ice and snow-covered on 2/28/2020, and 100% ice-covered on 3/2/2020 with water flowing over ice along the banks. The river was still ice-covered with water out of banks and flow along the banks on 3/9/2020. The ice appears to have cleared out on 3/14/2020 and the first sample was collected on 3/15/2020. The 2020 season was impacted by the Governor's "Stay-at-Home" Executive Order and no samples were collected between the end of March and early May. The 2020 season was below average for precipitation and river flow. Subwatershed sites were sampled 14 to 23 times each. Major watershed sites were sampled 19 to 23 times each. One duplicate sample was taken at five of the seven sites during the 2020 season. The equipment blank was not collected.
1 Stream Monitoring Task D	Collected stream transparency, stream conditions and data logger/water level information at each site during the 2020 season. Information was reported using the GoCanvas app.
1 Stream Monitoring Task E	When used, the field meter was calibrated weekly before sampling, monthly during the winter months, and recorded into the calibration log book.
2 Data Mgmt Task A	Reviewed all lab results submitted to EQuIS by MVTL for accuracy.
2 Data Mgmt Task B	Submitted visual observations, collected field meter measurements and water level data from each site via GoCanvas throughout the season.
2 Data Mgmt Task C	Photos and field data were submitted via GoCanvas throughout the season. Field meter calibration logs and field notes were submitted via e-mail on 11/3/2020.
2 Data Mgmt Task D	Completed load calculations for the 2018 calendar year for all seven sites using Flux32 model and verified data with MPCA personnel. Loads for the 2019 calendar year were calculated for three sites and verified for two sites.
2 Data Mgmt Task E	No training conducted in 2020 due to Covid-19 restrictions.
3 Project Oversight Task A	Reviewed all MVTL invoices for accuracy. With a new Master Contract, testing prices charged to the grant were not always consistent with the new contract. Tracked 2020 project expenditures and submitted quarterly invoices to MPCA for reimbursement. Three change orders were executed during this period to direct remaining grant funds to objectives where the funds could be fully utilized.
3 Project Oversight Task B	2019 Interim Report was submitted on 1/14/2020. This final report was drafted by year end with only the last MVTL invoice remaining for inclusion and hydrographs.
3 Project Oversight Task C	The Check-In Meeting was held 1/21/2020 with RCRCA staff and MCPA project managers.
3 Project Oversight Task D	Primary sampler participated in weekly teleconferences with the project manager, other MPCA staff and WPLMN local partners.
3 Project Oversight Task E	No training conducted in 2020 due to Covid-19 restrictions.

1. Please answer the following questions for activities completed in 2020.

a. Were FLUX32 pollutant loads submitted to your MPCA Project Manager?

☒ Yes ☐ No ☐ N/A

Please list the sites and year(s) that loads were calculated:

Three sites were analyzed with FLUX for the 2019 season consisting of: Redwood River in Russell/S000-696/H27043001, Sleepy Eye Creek/S001-919/H29011001, and Cottonwood River at Leavenworth/S001-920/H29022001. Redwood River in Russell has not been verified while the other two sites are verified.The remaining four sites are awaiting USGS flow data.

All seven sites were analyzed with FLUX for the 2018 season. Sites are listed below.

Minnesota River at Morton/S000-145/E28012001, Redwood River outlet/S001-679/E27035001, Redwood River North of Marshall/S001-203/W27043003, Redwood River in Russell/S000-696/H27043001, Sleepy Eye Creek/S001-919/H29011001, Cottonwood River at Leavenworth/S001-920/H29022001, Cottonwood River outlet/S001-918/E29001001

If no, please describe why:

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

☒ Yes ☐ No If no, please describe:

c. 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:

Backup sampler, Kerry Netzke, collected the 6/26/2020 sample at the Redwood River in Russell site.

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

a. When was the Quality Assurance Project Plan executed?

Date (mm/dd/yyyy): 2/25/2016

b. 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:

c. Were Interim Progress Reports submitted?

2016: ☒ Yes ☐ No Submittal date (mm/dd/yyyy): 1/30/2017
If no, please describe why:

2017: ☒ Yes ☐ No Submittal date (mm/dd/yyyy): 1/26/2018
If no, please describe why:

2018: ☒ Yes ☐ No Submittal date (mm/dd/yyyy): 1/23/2019
If no, please describe why:

2019: ☒ Yes ☐ No Submittal date (mm/dd/yyyy): 1/14/2020
If no, please describe why:

3. Please answer the following questions and provide comments to the following questions regarding the overall experience during the contract.

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:

b. Calibrate and use the field meter and equipment? ☒ Yes ☐ No
Comments:
Issues with calibration solutions led to no use of the field meter/probes until late July 2020. Previously, solutions were used for the whole sampling season, but now are only acceptable for calibration for one month. This change in protocol and acquiring the solutions from MPCA in a timely manner were challenging.

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

Comments:

d. Use the FLUX32 model and submit pollutant load data and supporting information? ☒ Yes ☐ No
Comments:

e. Complete and submit invoices? ☒ Yes ☐ No
Comments:

f. Complete the Interim Progress Report? ☒ Yes ☐ No
Comments:

4. Describe in detail any problems, delays, or difficulties that occurred in fulfilling the requirements of the workplan in 2020. How did you resolve these problems?

Due to the Governor's Executive Orders, no sampling or work on the project was allowed for 6 weeks in April/May 2020. Fortunately, this grant could be extended to 12/31/2020 and funds could be redirected via change order to complete the grant and begin FLUX load calculations and verifications for the 2019 sampling year with available data.

5. Were there any change orders and/or amendments to the contract and workplan in 2020? If yes, summarize the changes.

☒ Yes ☐ No

Comments:

CO#8: This change order details changes needed in order to continue water sampling for this project through December 2020. 1. Move $9,108.25 from Water Quality Technician to Obj. 1 Laboratory; 2. Move $76.25 from Water Quallty to Obj. 1 Travel; 3. Move $212.88 from Obj. 1 Equipment and Supplies to Office Manager, Total of 6 hours; 4. Move $81.82 from Obj.1 Shipping to Obj. 1 Travel; 5. Move $11.56 from Obj. 1 Training (Lodging) to Obj. 1 Travel; 6. Move $25.03 from Obj. 1 Per Diem to Obj. 1 Travel; and 7. Workplan Changes: Change wording in workplan to reflect work being done in 2020.

CO#9: This change order details changes needed in order for work to continue for this project through December 2020. 1. Move $2,461.80 from Obj. 1 Lab to Water Quality Technician; 2.Move $390.28 from Obj. 1 Mileage to Office Manager; and 3.Move $345.00 from Obj. 1 Mileage to Executive Director; Total: $3,197.08. The FTE was updated in the workplan.

CO#10: This change order details changes needed in order for work to continue for this project through December 2020 and to zero out remaining funds in the budget. 1. Moove $107.93 from Obj. 1 Lab to Executive Director. 2. Move $30/12 from Obj. 1 Lab to Office Manager. 3. Move $81.46 from Obj. 1 Mileage to Office Manager, and 4. Move $80.51 from Obj. 1 Equipment to Office Manager. Total: $300.02.

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

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

The10/2/2019 training in Brainerd was extremely interesting with the State Climatologist's presentation. Although we knew that 2018 and 2019 were very busy for RCRCA with additional rainfall and sampling events, we were not aware that the brunt of the rainfall was occuring in the Redwood and Cottonwood watersheds, especially along the Hwy 14 corridor. Redwood Falls, MN received numerous record-setting precipitation events during this time frame.

III. Budget information

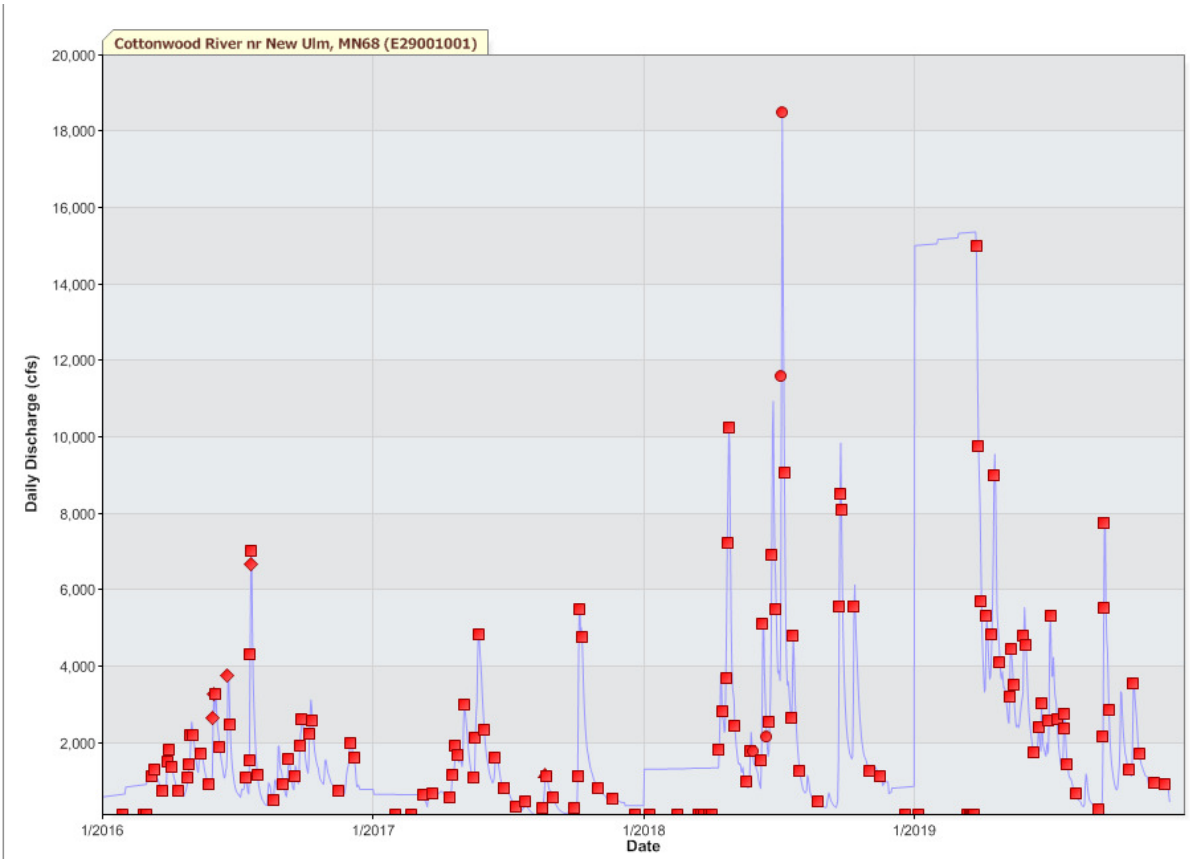
This budget summary is a compilation of the entire contract. Contract execution date: 1/15/2016 Contract End Date: 12/31/2020

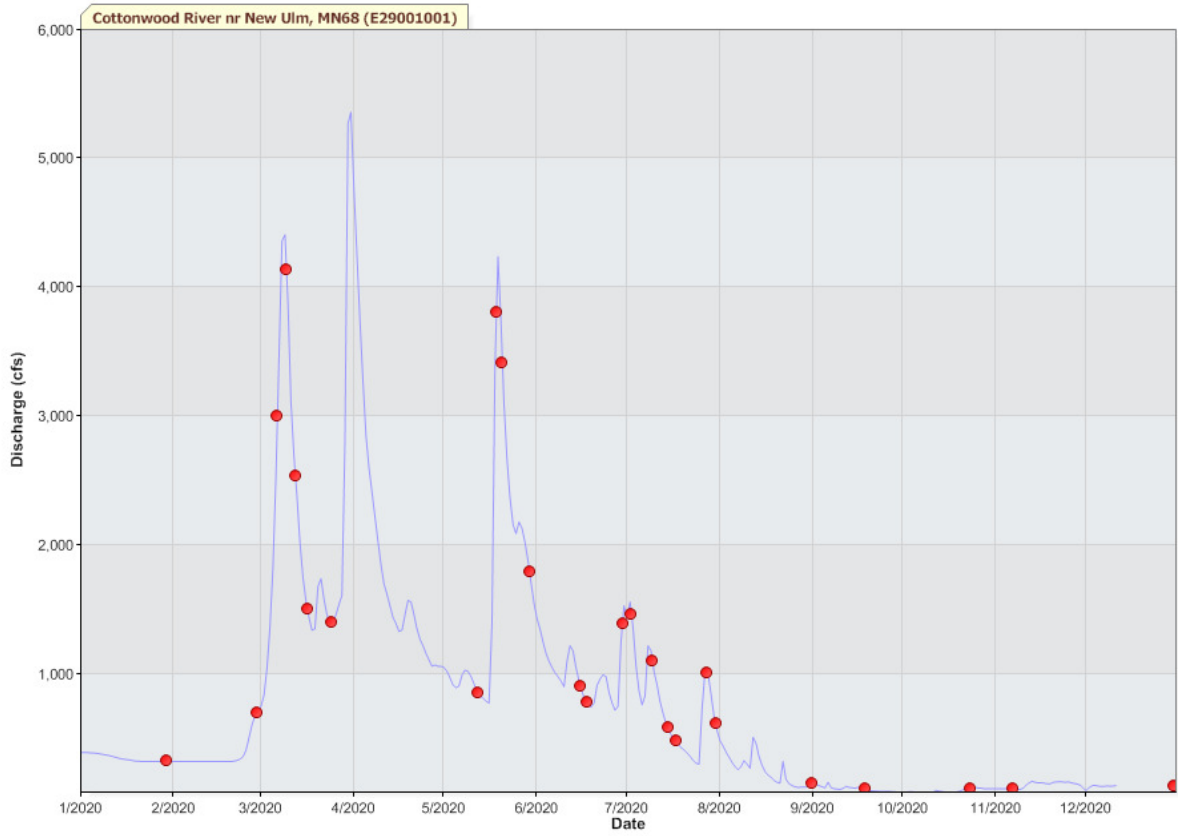
Budget item	Objective 1	Objective 2	Objective 3	Objective 4	Objective 5	Total expended
Objective title:	Stream Monitoring	Data Management & Analysis	Project Oversight			
Personnel: wages and benefits						
Staff #1: No. of hours 2218.50	$ 51,956.05	$ 25,402.66	$ 4,141.20	$	$	**$ 81,500.50**
Staff #2: No. of hours 426.00	$	$	$ 14,916.29	$	$	**$ 14,916.29**
Staff #3: No. of hours 401.25	$ 6,036.15	$ 84.14	$ 17,087.65	$	$	**$ 23,207.93**
Staff #4: No. of hours _____	$	$	$	$	$	**$**
Staff #5: No. of hours _____	$	$	$	$	$	**$**
Staff #6: No. of hours _____	$	$	$	$	$	**$**
Staff #7: No. of hours _____	$	$	$	$	$	**$**
Staff #8: No. of hours _____	$	$	$	$	$	**$**
Staff #9: No. of hours _____	$	$	$	$	$	**$**
Laboratory analyses: No. of samples 986	$ 66,144.86	$	$	$	$	**$ 66,144.86**
Travel reimbursement: No. of miles 29,076	$ 15,797.63	$ 160.50	$	$	$	**$ 15,958.13**
Monitoring supplies and Equipment	$ 8,722.53	$	$	$	$	**$ 8,722.53**
Shipping	$	$	$	$	$	**$**
Lodging	$ 208.44	$	$	$	$	**$ 208.44**
Other *(describe the activity and cost – be specific):*						
Per Diem (Meals)	$ 62.97	$	$ 20.00	$	$	**$ 82.97**
	$	$	$	$	$	**$**
Column total:	**$ 148,929.23**	**$ 25,647.29**	**$ 36,165.13**	**$**	**$**	**$ 210,741.65**

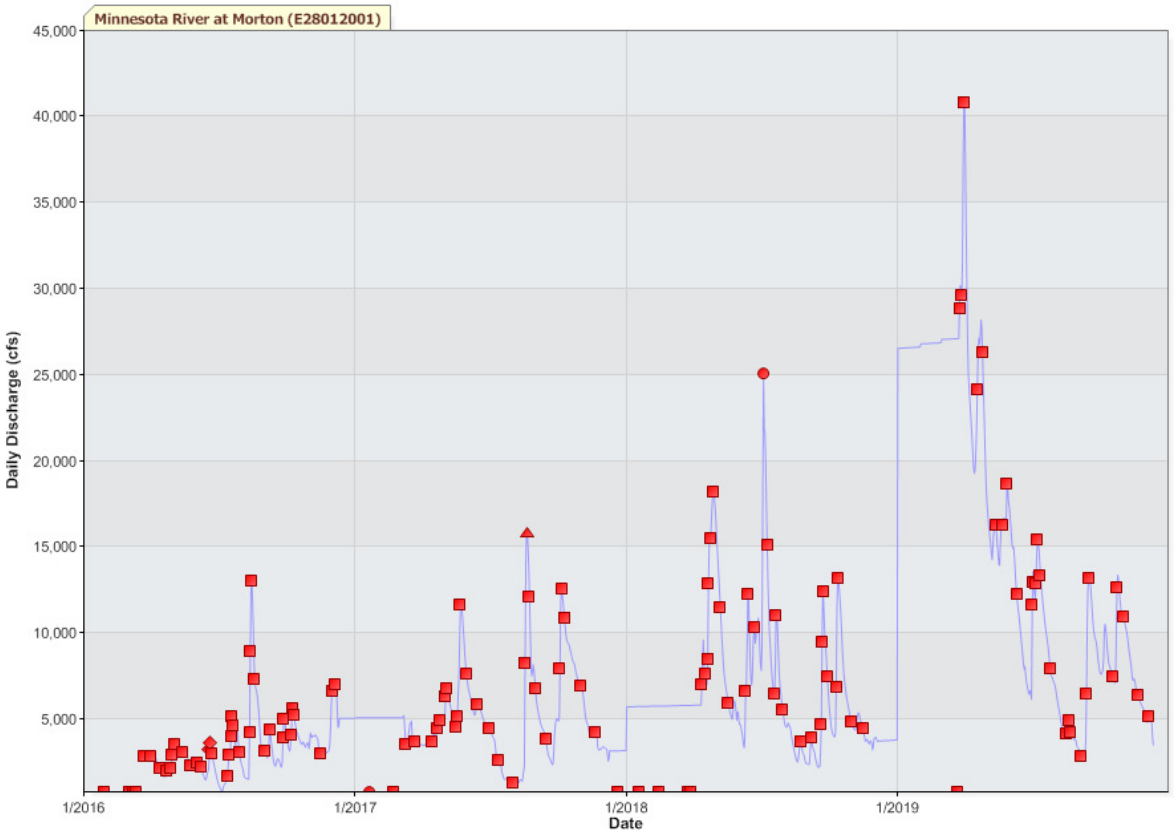
Comments:

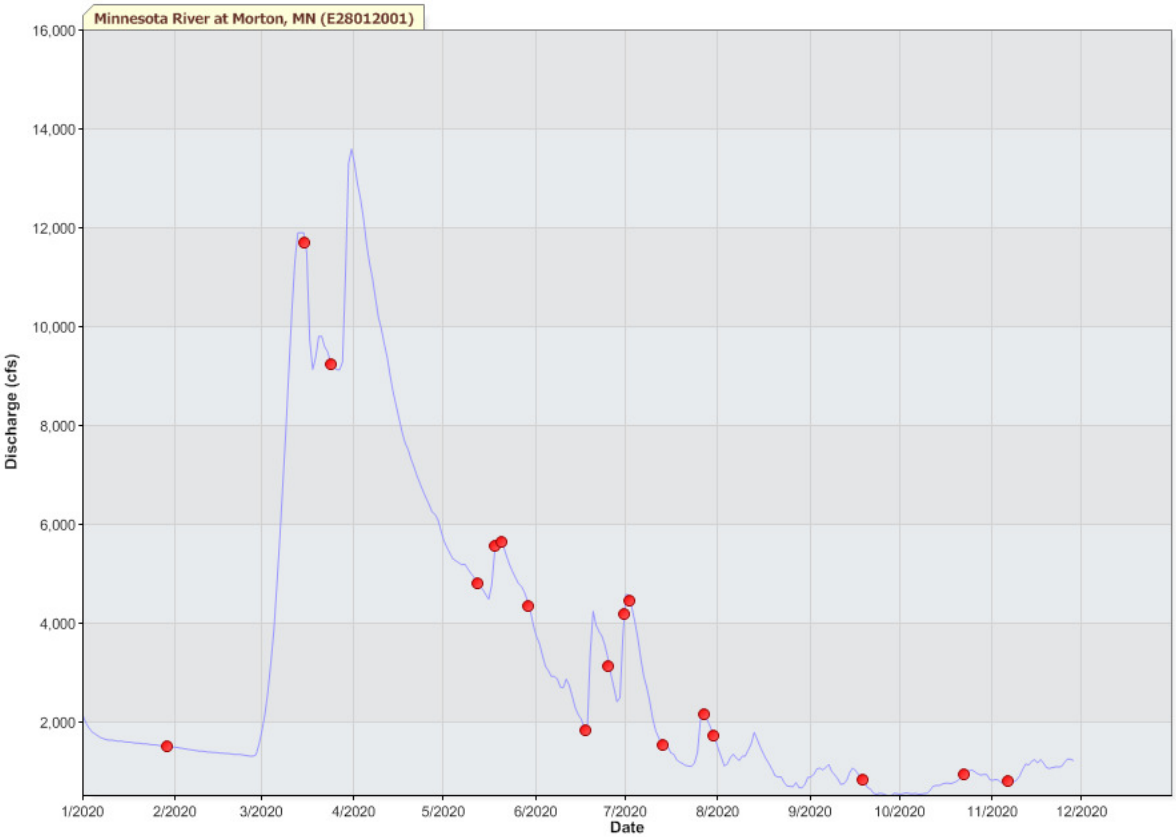
IV. Hydrographs

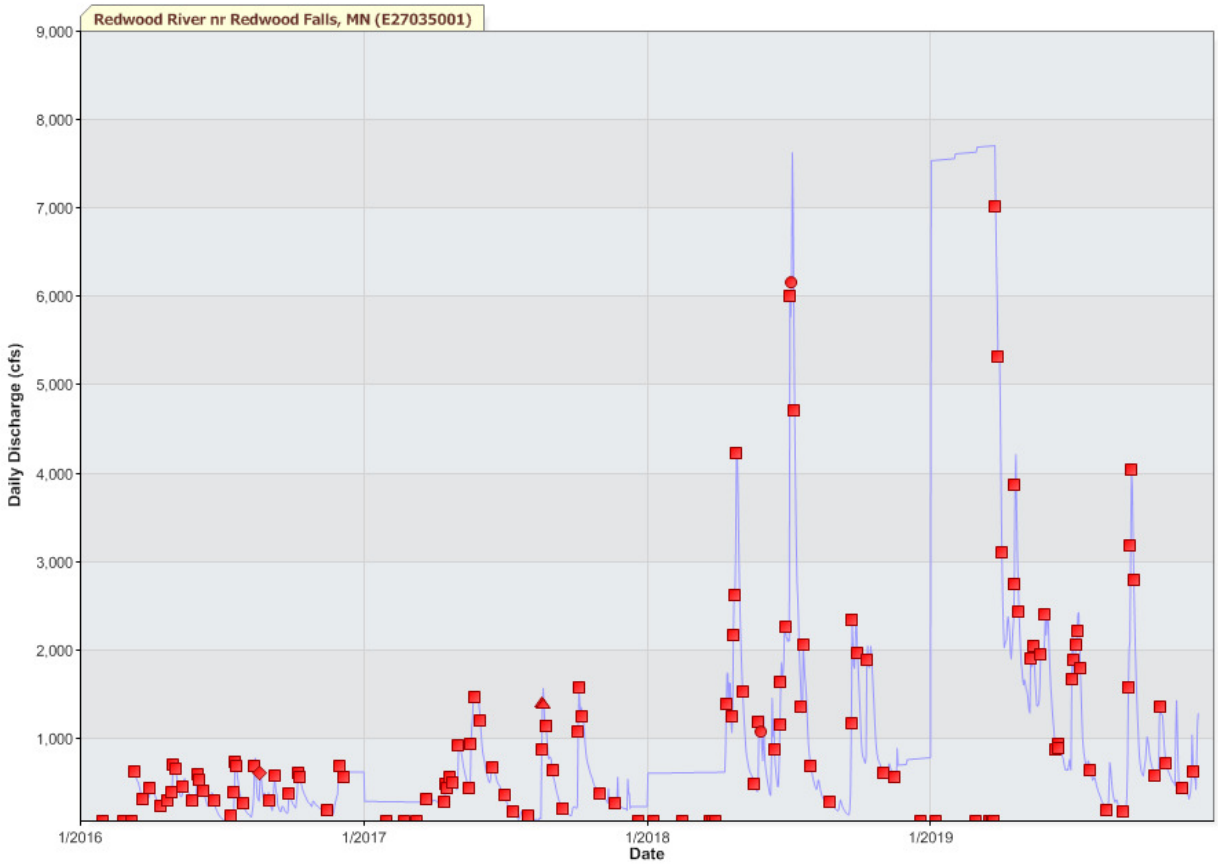
Comments:

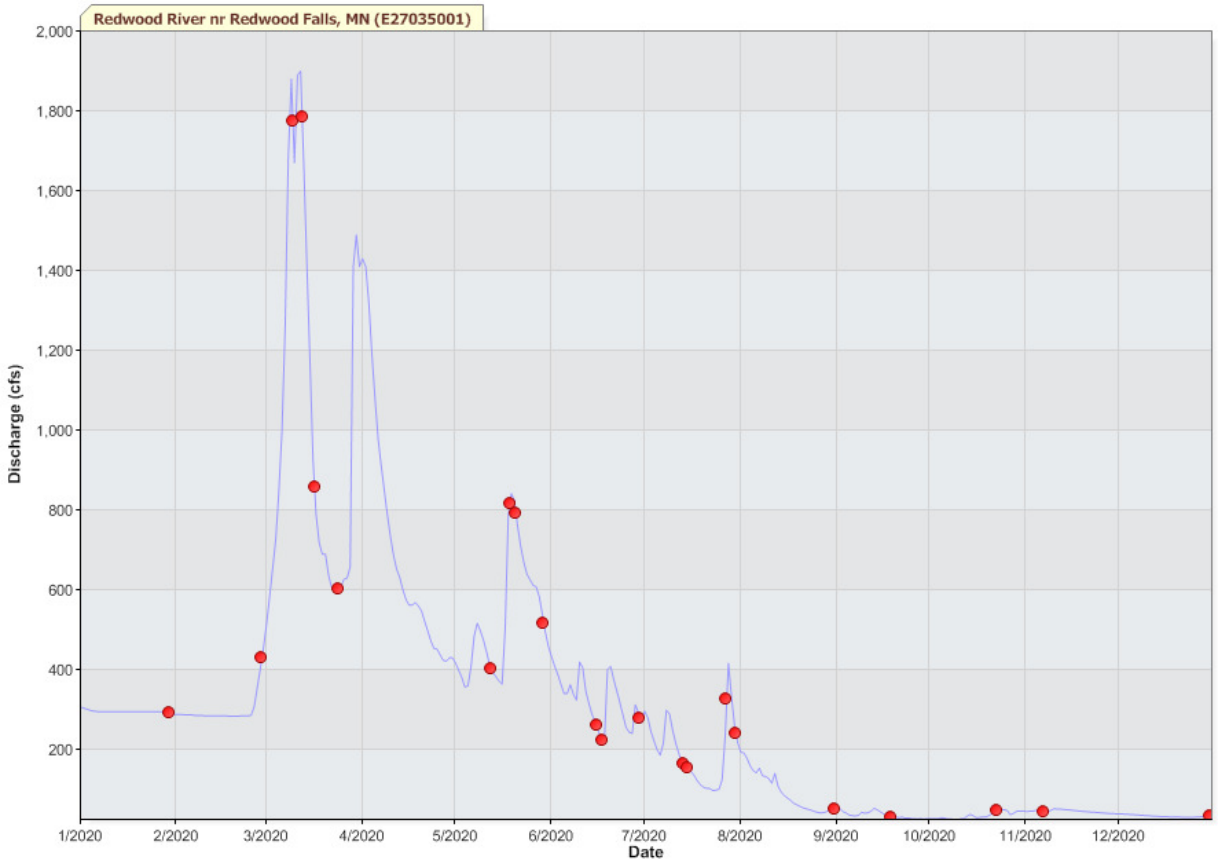


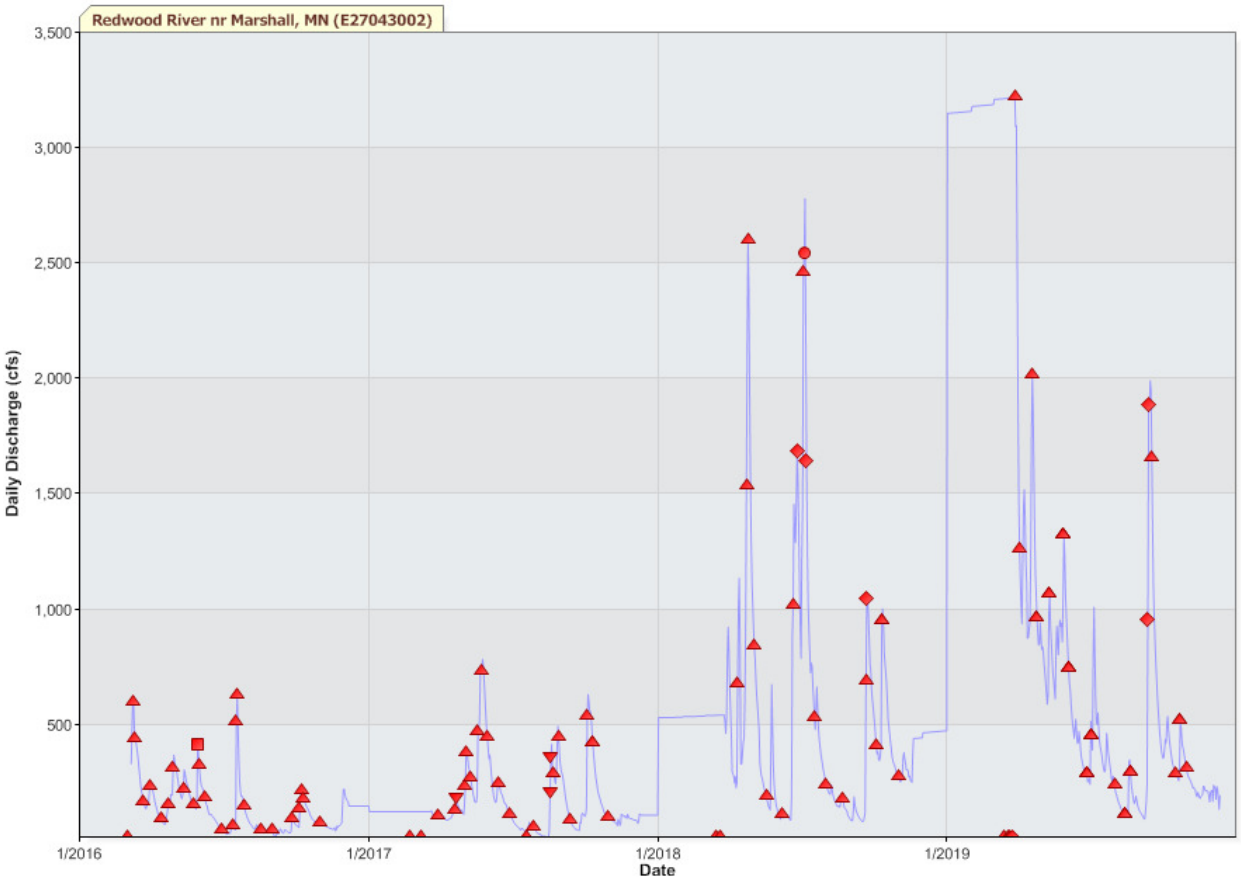


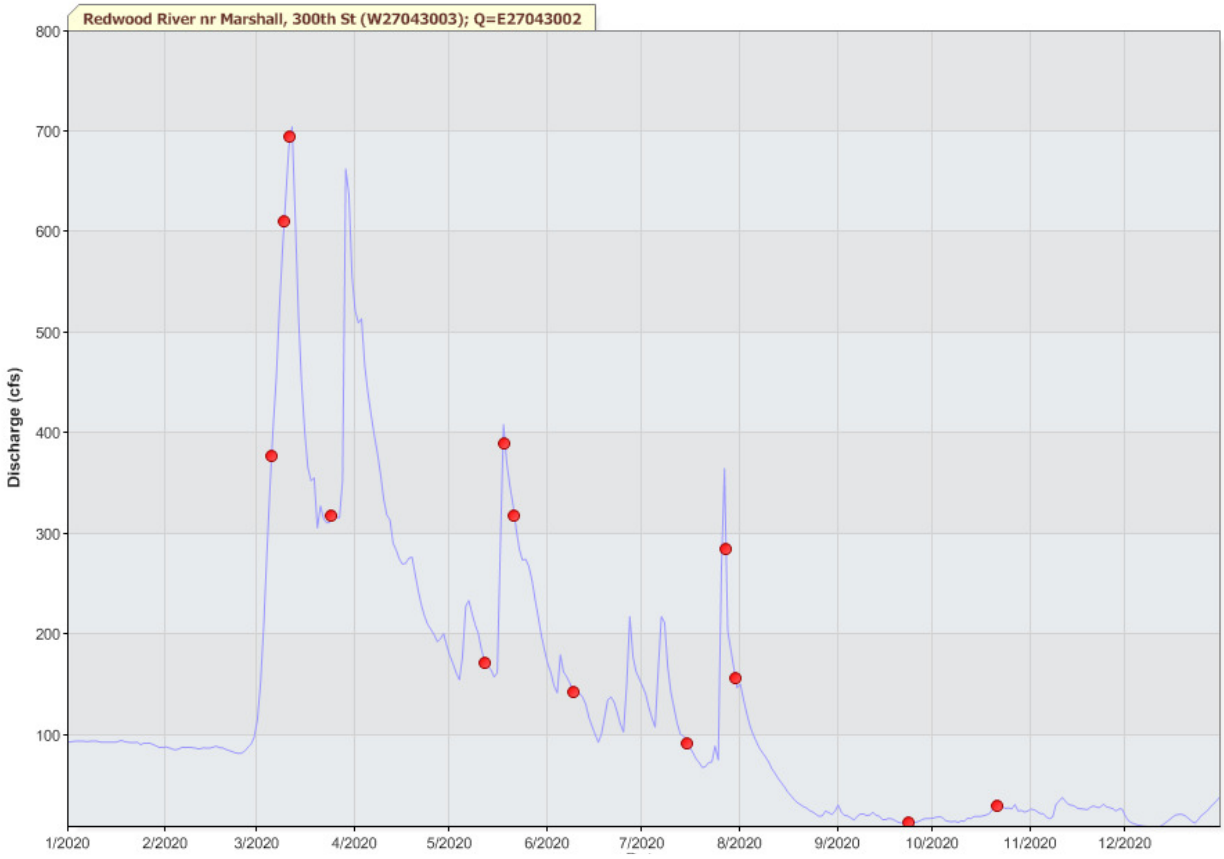

Minnesota River at Morton (E28012001)
Daily Discharge (cfs)
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
1/2016
1/2017
1/2018
1/2019
Date

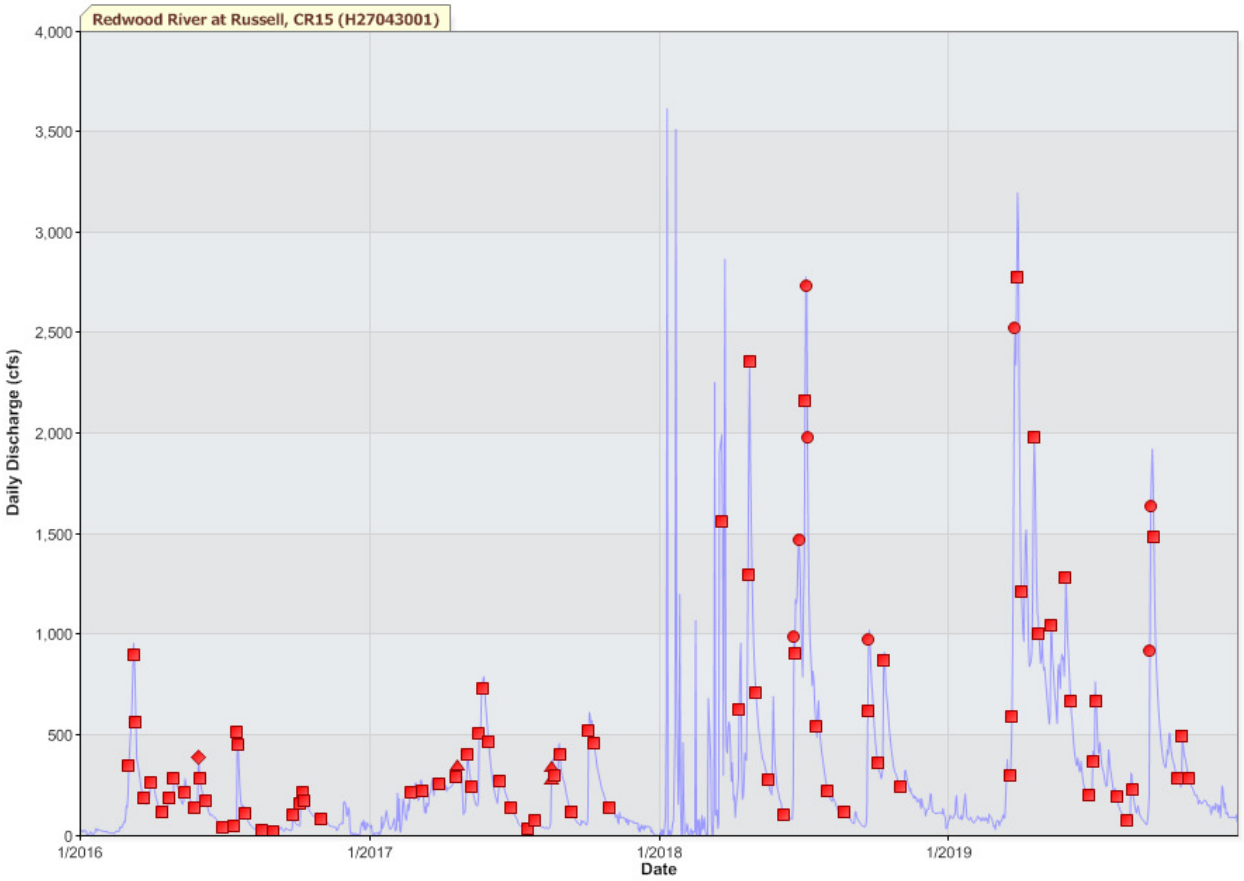

Minnesota River at Morton, MN (E28012001)
Discharge (cfs)
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
1/2020
2/2020
3/2020
4/2020
5/2020
6/2020
7/2020
8/2020
9/2020
10/2020
11/2020
12/2020
Date

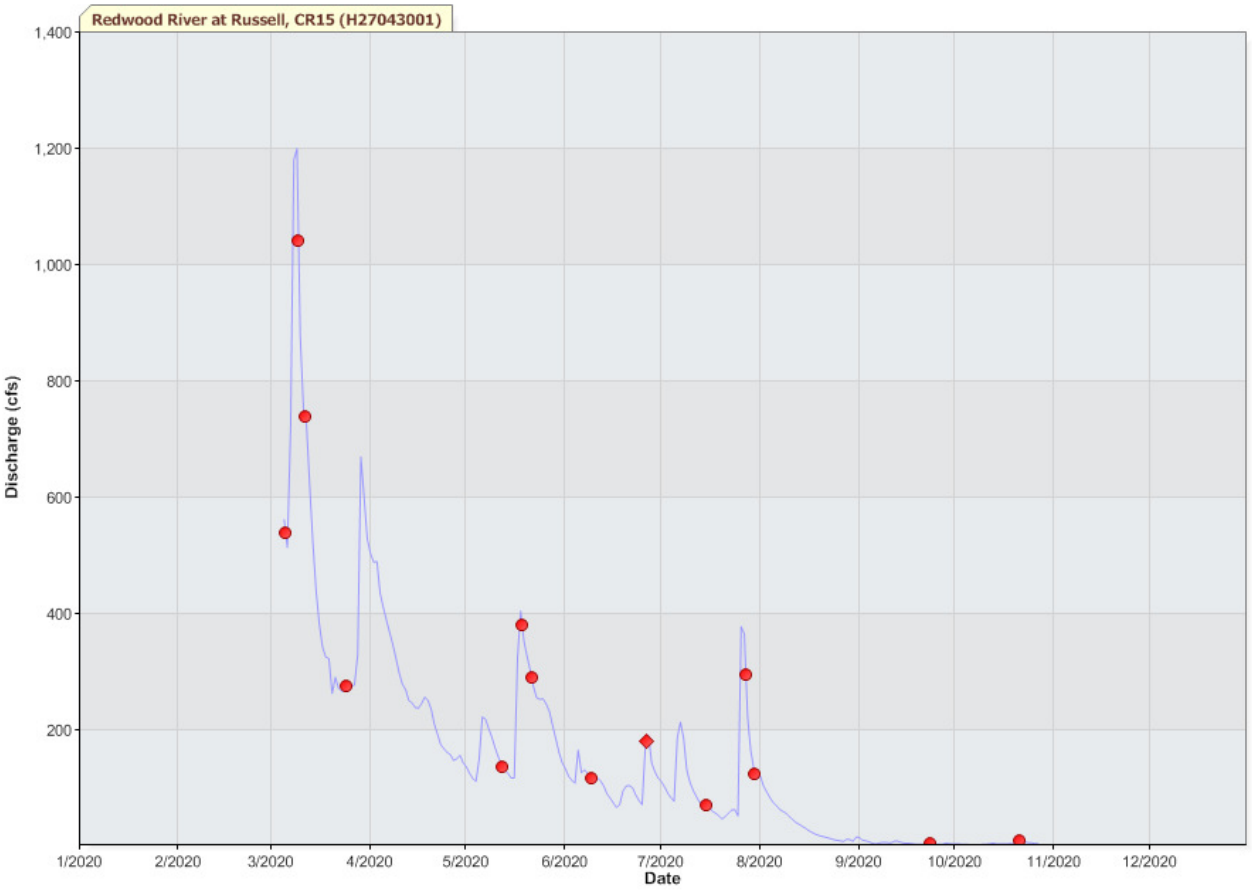

Redwood River nr Redwood Falls, MN (E27035001)
Daily Discharge (cfs)
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
1/2016
1/2017
1/2018
1/2019
Date

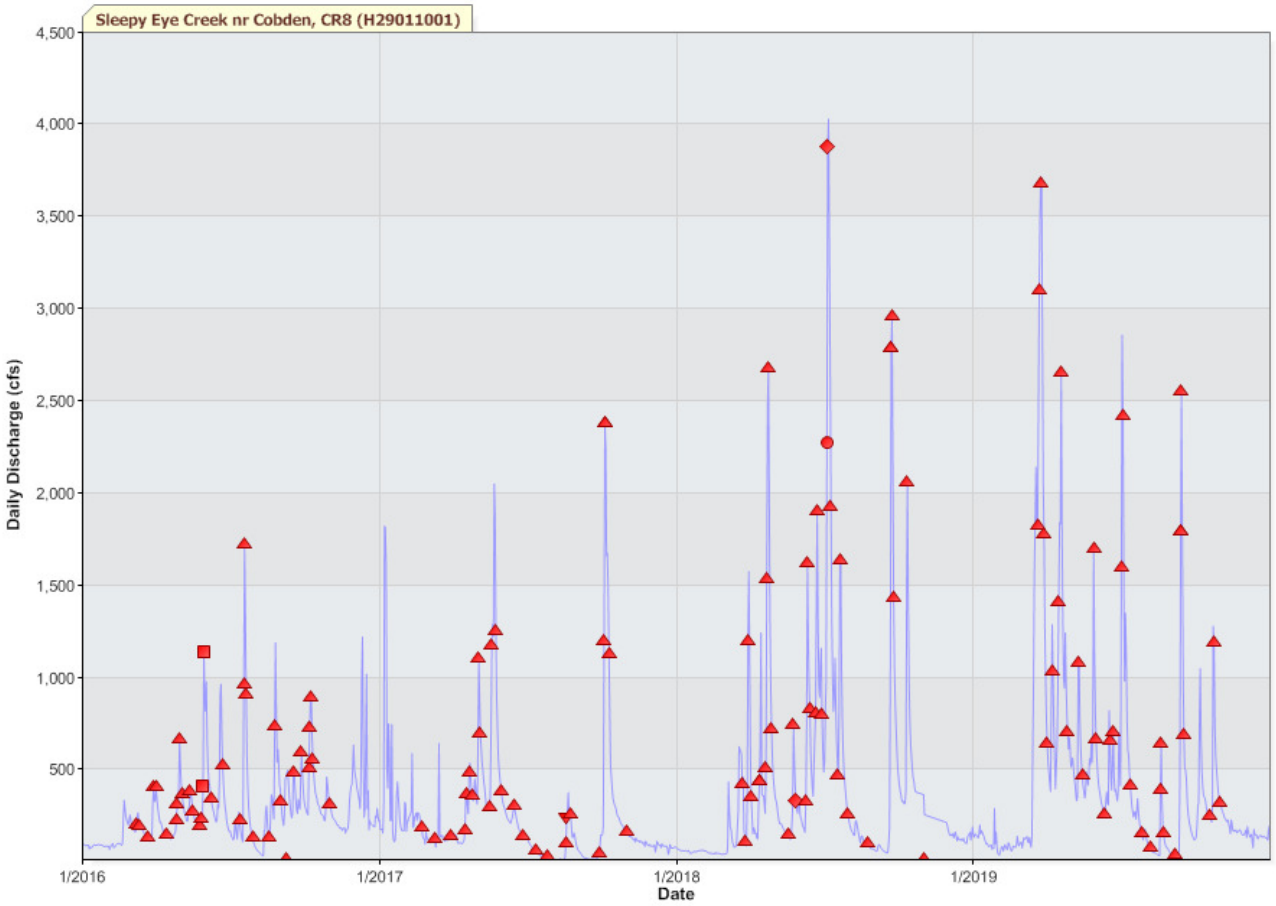

Redwood River nr Redwood Falls, MN (E27035001)
Discharge (cfs)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
1/2020
2/2020
3/2020
4/2020
5/2020
6/2020
7/2020
8/2020
9/2020
10/2020
11/2020
12/2020
Date

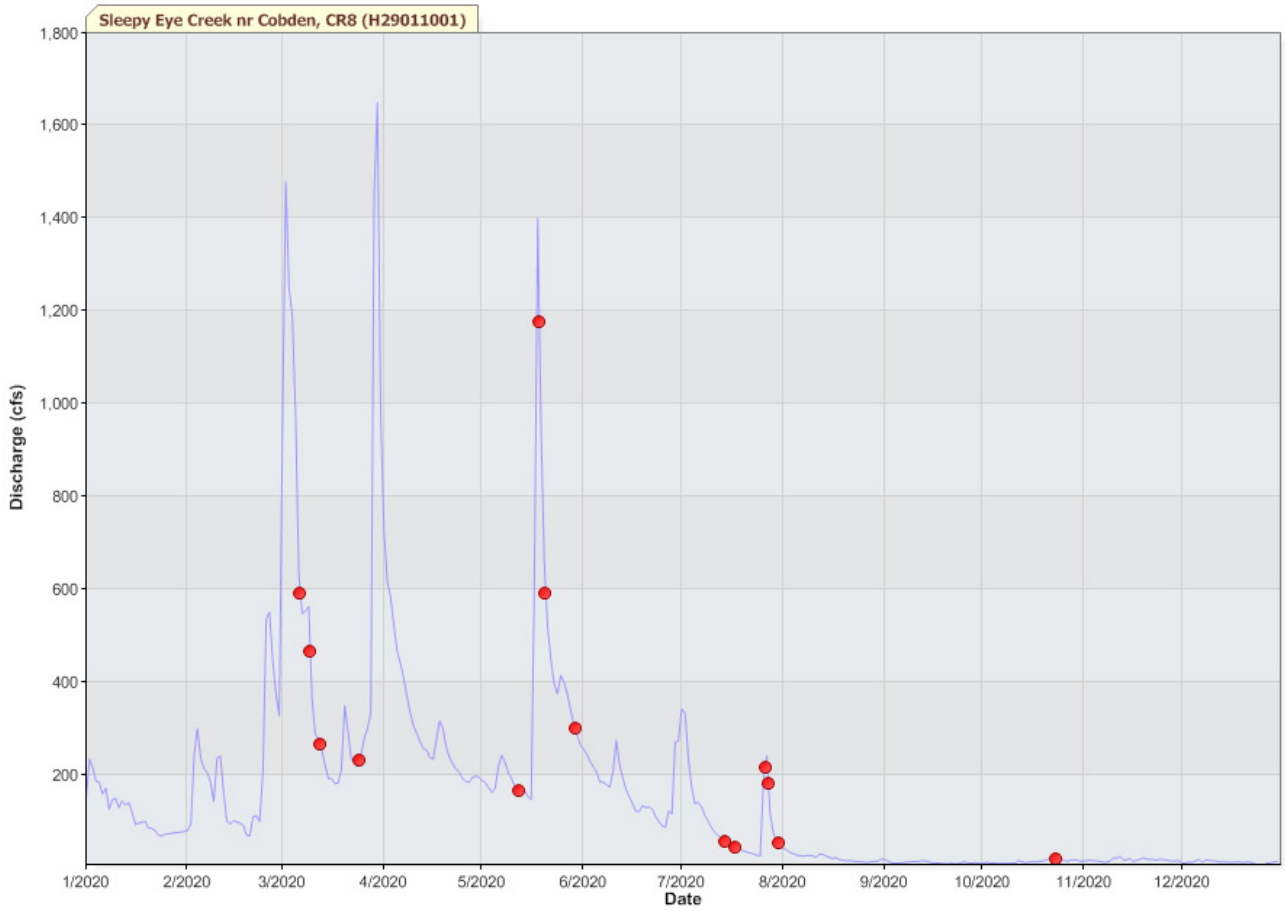

Redwood River nr Marshall, MN (E27043002)
Daily Discharge (cfs)
3,500
3,000
2,500
2,000
1,500
1,000
500
1/2016
1/2017
1/2018
1/2019
Date

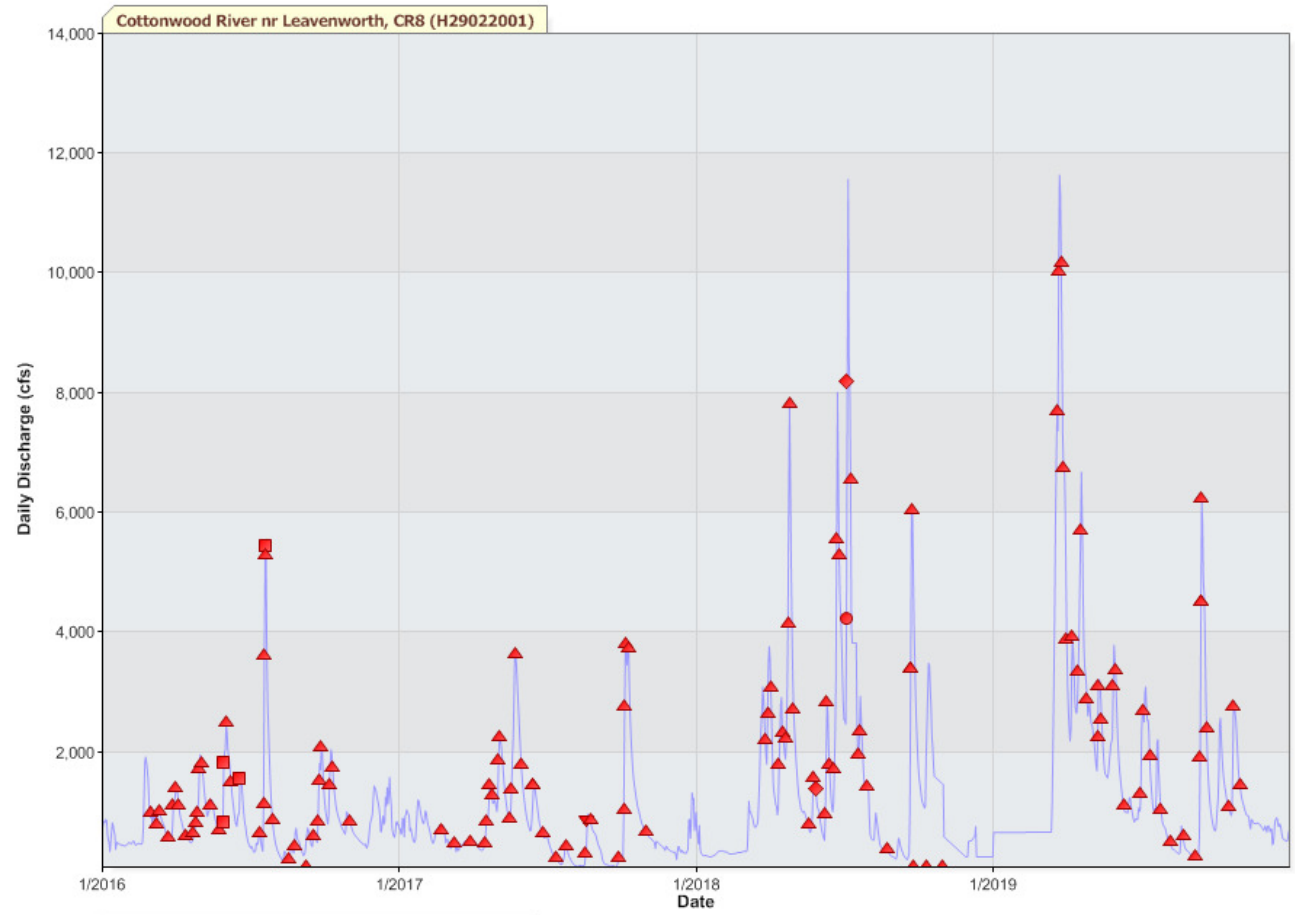

Redwood River nr Marshall, 300th St (W27043003); Q=E27043002
Discharge (cfs)
800
700
600
500
400
300
200
100
1/2020
2/2020
3/2020
4/2020
5/2020
6/2020
7/2020
8/2020
9/2020
10/2020
11/2020
12/2020

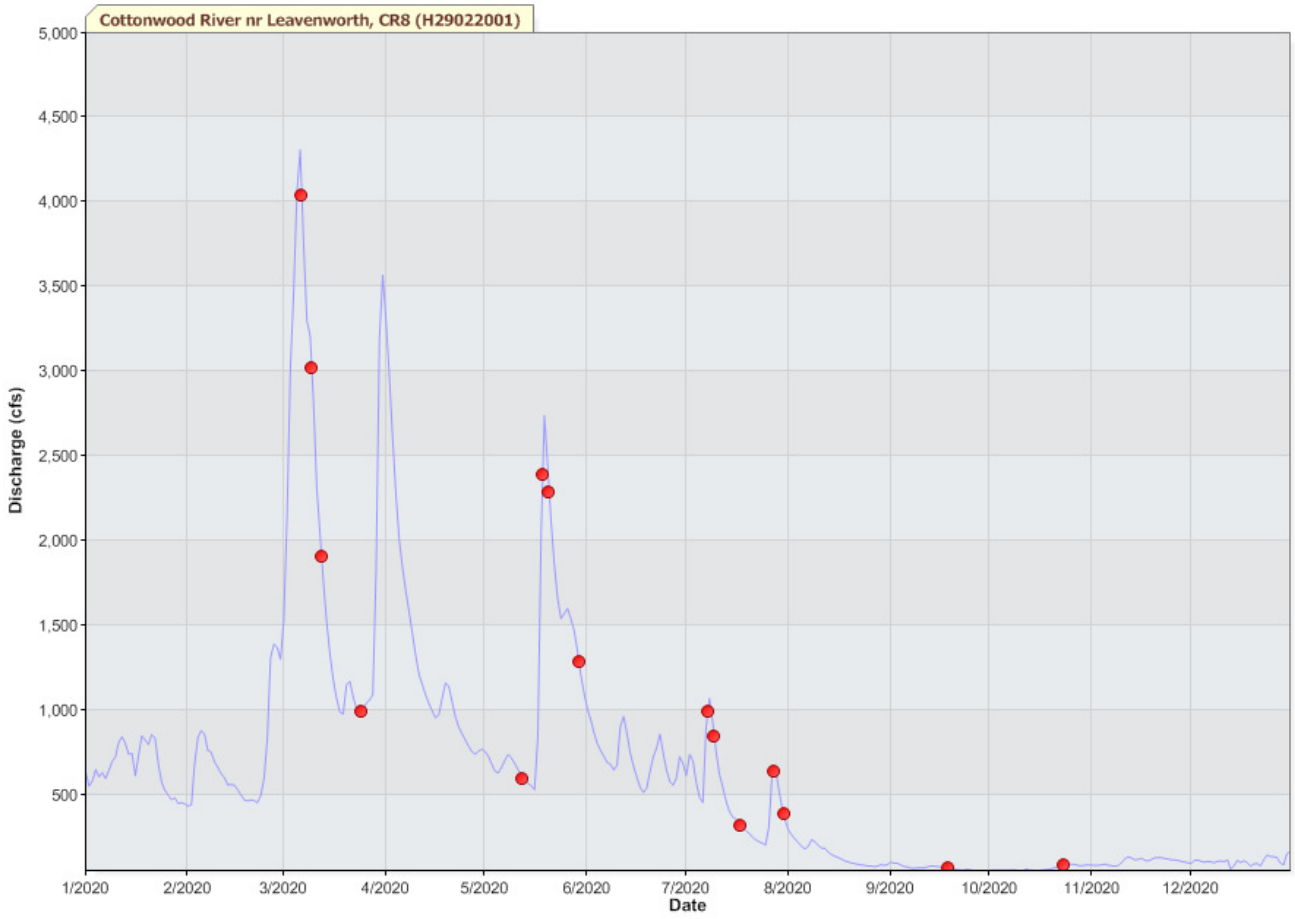

Redwood River at Russell, CR15 (H27043001)
Daily Discharge (cfs)
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
1/2016
1/2017
1/2018
1/2019
Date


Redwood River at Russell, CR15 (H27043001)
Discharge (cfs)
1,400
1,200
1,000
800
600
400
200
1/2020
2/2020
3/2020
4/2020
5/2020
6/2020
7/2020
8/2020
9/2020
10/2020
11/2020
12/2020
Date


Sleepy Eye Creek nr Cobden, CR8 (H29011001)
Daily Discharge (cfs)
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
1/2016
1/2017
1/2018
1/2019
Date


Sleepy Eye Creek nr Cobden, CR8 (H29011001)
Discharge (cfs)
1,800
1,600
1,400
1,200
1,000
800
600
400
200
1/2020
2/2020
3/2020
4/2020
5/2020
6/2020
7/2020
8/2020
9/2020
10/2020
11/2020
12/2020
Date


Cottonwood River nr Leavenworth, CR8 (H29022001)
Daily Discharge (cfs)
14,000
12,000
10,000
8,000
6,000
4,000
2,000
1/2016
1/2017
1/2018
1/2019
Date


Cottonwood River nr Leavenworth, CR8 (H29022001)
Discharge (cfs)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
1/2020
2/2020
3/2020
4/2020
5/2020
6/2020
7/2020
8/2020
9/2020
10/2020
11/2020
12/2020
Date