

Rush River Citizen Monitoring Network 2003 Summary

Introduction

The Rush River Citizen Monitoring Network (RRCMN) was formed in the spring of 2003 to gather water quality information and precipitation data through citizen involvement. Volunteers, who live or work in or near the watershed, were recruited to assess the water quality of the Rush River and its tributaries. In 2003, RRAP (Rush River Assessment Project) received data from seven volunteers, whom monitored nine sites. RRAP staff monitored an additional five sites, for a total of fourteen sites.

Citizen monitors collected water clarity data with the use of a transparency tube. Volunteers were asked to take a t-tube reading at their selected site after rain events and once weekly. In addition, each of the citizen volunteers was given a rain gage and asked to record daily precipitation.

Volunteer Recruitment

Recruitment for the RRCMN was accomplished through the RRAP newsletter during the early spring of 2003. RRAP staff met with interested citizens to discuss how to go about monitoring and how to fill out data sheets. During these meetings the volunteer would select a monitoring site. The three primary criteria in the selection of these sites was:

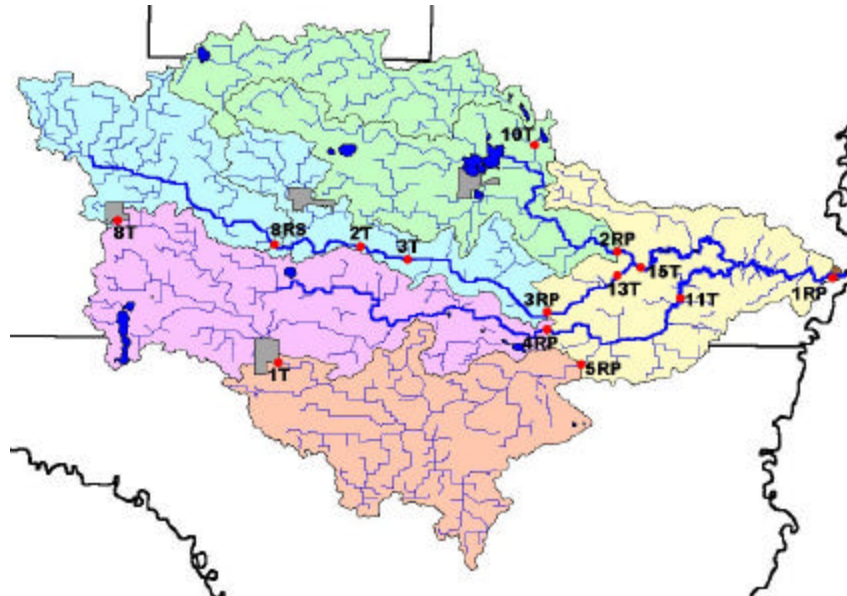
- 1.) Convenient site location (close to volunteers homes or along a road they often traveled).
- 2.) Safe site location.
- 3.) Sites that were beneficial for project analysis (ie. Outlets of minor watersheds, lakes, etc.).

Volunteer Transparency Tube Sites

From April through September 2003 (or when the channel became dry) fourteen sites were monitored in the Rush River Watershed. The sites were located along the following:

- Mainstem Rush River- 2 sites
- North Branch Rush River – 1 site
- Middle Branch Rush River – 5 sites
- South Branch Rush River – 2 sites
- County Ditches – 4 sites

Rush River Transparency Tube Monitoring Sites



2003 Transparency Tube Sites and Monitors

Site ID	Citizen Monitor	County	Water Type	Description
1T	Fox, Al	Nicollet	Ditch	County Ditch 40 at County Road 1, near Lafayette, MN.
2T	Paggenkopf, Randy	Sibley	MBRR	Middle Branch Rush River at County Road 4.
3T	Paggenkopf, Randy	Sibley	MBRR	Middle Branch Rush River at County Road 23.
8T	Ohlemann, Diane	Sibley	Ditch	County Ditch 13, on southside of Gibbon, MN.
8RS	Sloot, Harry	Sibley	MBRR	Middle Branch Rush River at County Road 25.
10T	Ruehling, David	Sibley	Ditch	County Ditch 55, near outlet Beatty Lake.
11T	Pfarr, Jim & Mike	Sibley	SBRR	South Branch Rush River at County Road 18.
13T	Pioske, Kevin	Sibley	MBRR	Middle Branch Rush River at County Road 9.
15T	Pfarr, Jim & Mike	Sibley	Mainstem RR	Mainstem Rush River at 401 st Avenue.
1RP	RRAP Staff	Sibley	Mainstem RR	Mainstem Rush River at State HWY 93.
2RP	RRAP Staff	Sibley	NBRR	North Branch Rush River at County Road 9.
3RP	RRAP Staff	Sibley	MBRR	Middle Branch Rush River at TWP Road 63.
4RP	RRAP Staff	Sibley	SBRR	South Branch Rush River at TWP Road 63.
5RP	RRAP Staff	Sibley	Ditch	Joint County Ditch 1 at Country Road 3.

NBRR – North Branch Rush River

MBRR – Middle Branch Rush River

SBRR – South Branch Rush River

2003 Transparency Tube Network Results

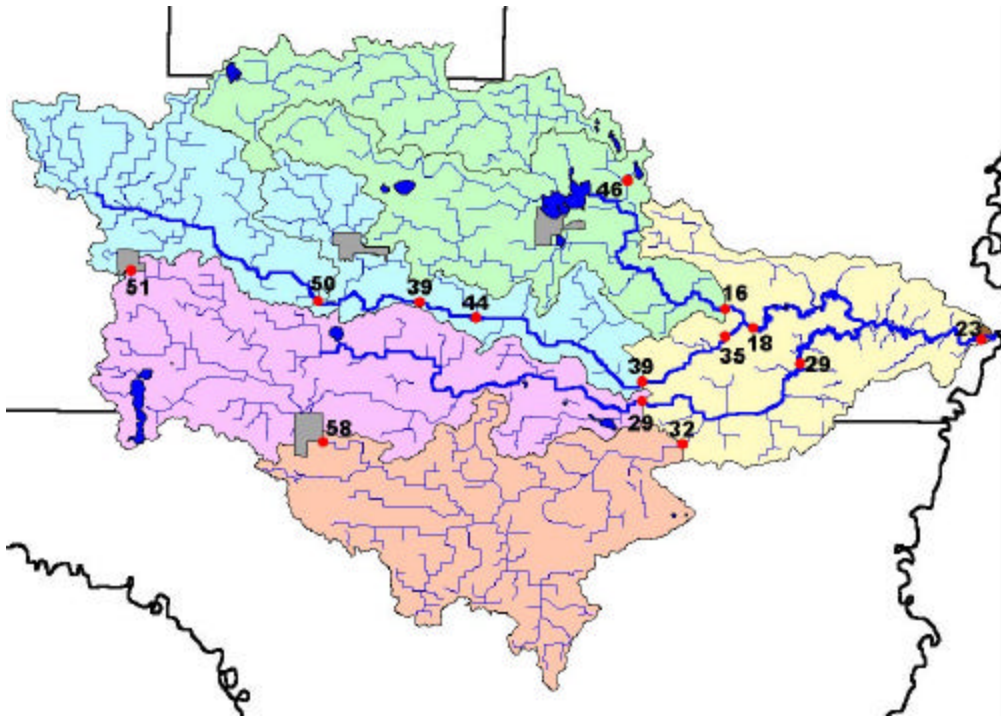
Transparency and precipitation monitoring was requested for April through September 2003. The frequency of sampling varied greatly from site to site. Some volunteers were only able to sample a portion of the monitoring season. Due to variations in monitoring, it is difficult to compare transparency from one site to the next. However, the average transparency at each monitoring site did appear to make sense when compared with RRAP water quality monitoring. In general, monitoring sites in the western portion of the watershed had higher transparency readings. The higher readings are attributed to the flatter landscape of western 2/3rds of the watershed. The eastern portion of the watershed had lower transparency readings. These lower transparency tube readings were in the steeply sloped portion of the watershed, where more soil erosion is occurring.

2003 Transparency Tube Results

Site	Water Type	Citizen Monitor	N	Mean	Min	Max	N>60	Rainfall Events	T-Tube Collection Season
1T	Ditch	Fox, Al	13	58	34	>60	12	4	4/7/03 – 6/24/03
2T	MBRR	Paggenkopf, Randy	5	39	34	42	0	1	4/1/03 – 4/28/03
3T	MBRR	Paggenkopf, Randy	5	44	43	45	0	1	4/1/03 – 4/28/03
8T	Ditch	Ohlemann, Diane	6	51	7	>60	5	3	4/21/03 – 7/6/03
8RS	MBRR	Sloot, Harry	13	50	18	60	8	6	3/30/03 – 8/5/03
10T	Ditch	Ruehling, David	9	46	30	>60	3	4	4/1/03 – 7/30/03
11T	SBRR	Pfarr, Jim & Mike	18	29	10	51	0	6	4/2/03 – 9/7/03
13T	MBRR	Pioske, Kevin	27	35	3.5	>60	2	7	5/8/03 – 9/18/03
15T	Mainstem RR	Pfarr, Jim & Mike	20	18	10	42	0	7	4/2/03 – 9/7/03
1RP	Mainstem RR	RRAP Staff	11	23	1.5	>60	2	7	5/12/03 – 8/21/03
2RP	NBRR	RRAP Staff	11	16	8	>60	1	7	5/12/03 – 8/21/03
3RP	MBRR	RRAP Staff	11	39	4	>60	3	7	5/12/03 – 8/21/03
4RP	SBRR	RRAP Staff	11	29	9	>60	1	7	5/12/03 – 8/21/03
5RP	Ditch	RRAP Staff	11	32	6	>60	2	7	5/12/03 – 8/21/03

The north branch of the Rush River had the lowest average transparency of all sites. These low transparency numbers were recorded during both low and high flows. It is suspected that the source of the low transparency is Lake Titlow, which provides the majority of flow to the north branch of the Rush River.

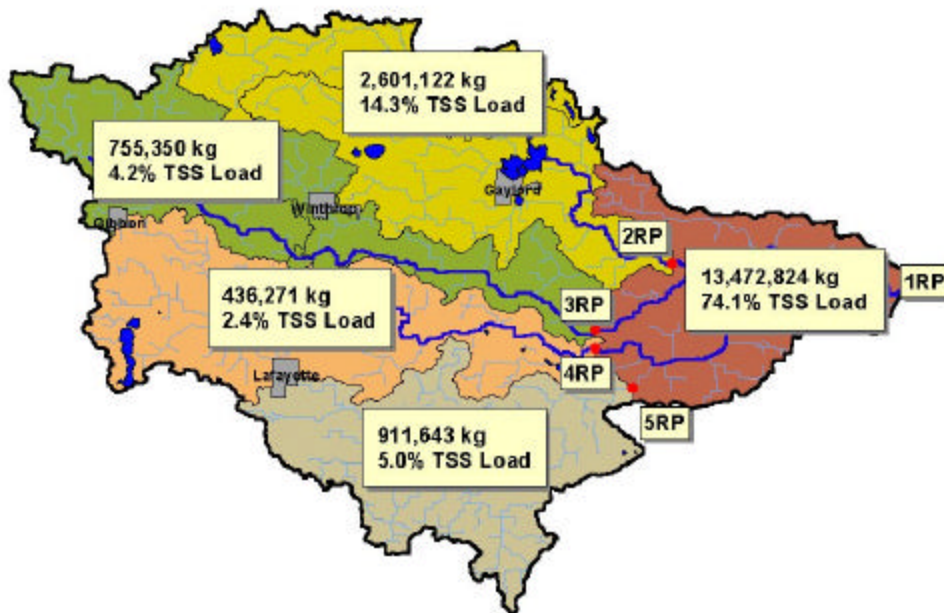
Average Transparency of All Samples Collected at Each Site



Comparison to other Water Quality Monitoring

The following map presents the total amount of “Total Suspended Solids” that each area of the Rush River Watershed contributed to the total amount at the outlet of the river. TSS is the amount of solid material, mostly sediment, in a water sample. Based on RRAP testing, the area near the outlet of Rush River Watershed contributed 74% of the entire TSS load in 2003. **The vast majority of sediment loading occurs during a few high intensity storms.** . Note, 73% of the monitoring year TSS load occurred from May 16th to May 26th.

TSS Sampled Load (April 1st, 2003 – September 30th, 2003)



- 3.) Overall, 2003 was a low flow year, ranking 11th lowest of the past 30 years. May was the only month with above average precipitation and flows.
- 4.) In general, the average transparency in the Rush River and its tributaries decreases from west to east.
- 5.) The majority of sediment loading in the Rush River occurs during the few largest storms. This is usually in April or May (before crop canopy). Obtaining transparency readings during these events is very important.
- 6.) During base flows (not after storms), most monitoring sites in the Rush River Watershed have high transparency. However, during and after high intensity storms, all monitoring sites had low transparency.
- 7.) This is the first year of the volunteer monitoring network in Rush River Watershed. Hopefully, more volunteers can be added, particularly in the northern and southern portions of the watershed. It is also hoped that current volunteers will continue to monitor in 2004 and 2005. Expansion of the citizen monitoring network will help further assess the water quality of Rush River and its tributaries.