

Table 1.CR. Credit River Monitoring Station Information



Station Address: 4975 126th Street, Savage, MN 55378
County: Scott
Major Basin: Minnesota River Basin
Watershed: Credit River
Drainage Area: 51.4 square miles

Station Operator: Metropolitan Council Environmental Services

Metropolitan Council Environmental Services Contact Information:

Contact Person: Tim Pattock or Mike Ahlf
Address: 2400 Childs Road
St. Paul, MN 55106
Phone: 651-602-8084 (Tim) or 651-602-8082 (Mike)
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mike.ahlf@metc.state.mn.us

Watershed District or Watershed Management Organization:

Station Overview: MCES has conducted water quality monitoring of the Credit River since 1989. The monitoring station is located in Savage, Minnesota, 0.9 mile upstream from the river confluence with the Minnesota River. Due to site logistical problems, the monitoring station was moved in 2000, from the former site at Credit River Mile 0.6 to the current location at Mile 0.9. MCES staff maintain the rating curve at this station. There is no rain gage at this station.

2001 Monitoring Year: Snowmelt began during the last week of March 2001. Daily average flows were estimated prior to the ice out date, which occurred on approximately March 20, 2001. The peak daily average flow of 166 cfs, with a stage of 2.39 feet, occurred on April 24, 2001.

Runoff event-based composite sampling began in late March 2001 and continued into early May, as high water conditions persisted throughout this time period. Composite samples were collected again during the mid-May to mid-June period, following three storm events. In mid-June, the last large runoff event of the season produced a peak daily average flow of 125 cfs on June 15. This event also produced the highest total suspended solids (TSS) concentration (346 mg/l) recorded at this station for the entire year.

Thirty-seven samples were collected for water quality analysis during 2001, including 20 composite samples and 17 grab samples. Samples were obtained throughout the year during varying stream flow conditions to most accurately characterize Credit River water quality. The MCES annual water quality monitoring plan includes 12 monthly baseflow (“non-event”) grab samples and approximately 10 to 15 flow-weighted composite samples collected during all runoff events in the open water season (March-November). The 2001 sampling scheme met the goals of the MCES monitoring work plan.

For additional stream monitoring information and monitoring methods regarding this site, see www.metrocouncil.org/environment/RiversLakes.

Figure 1.CR. Credit River Monitoring Station Location and Watershed Characteristics

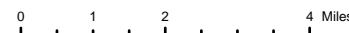
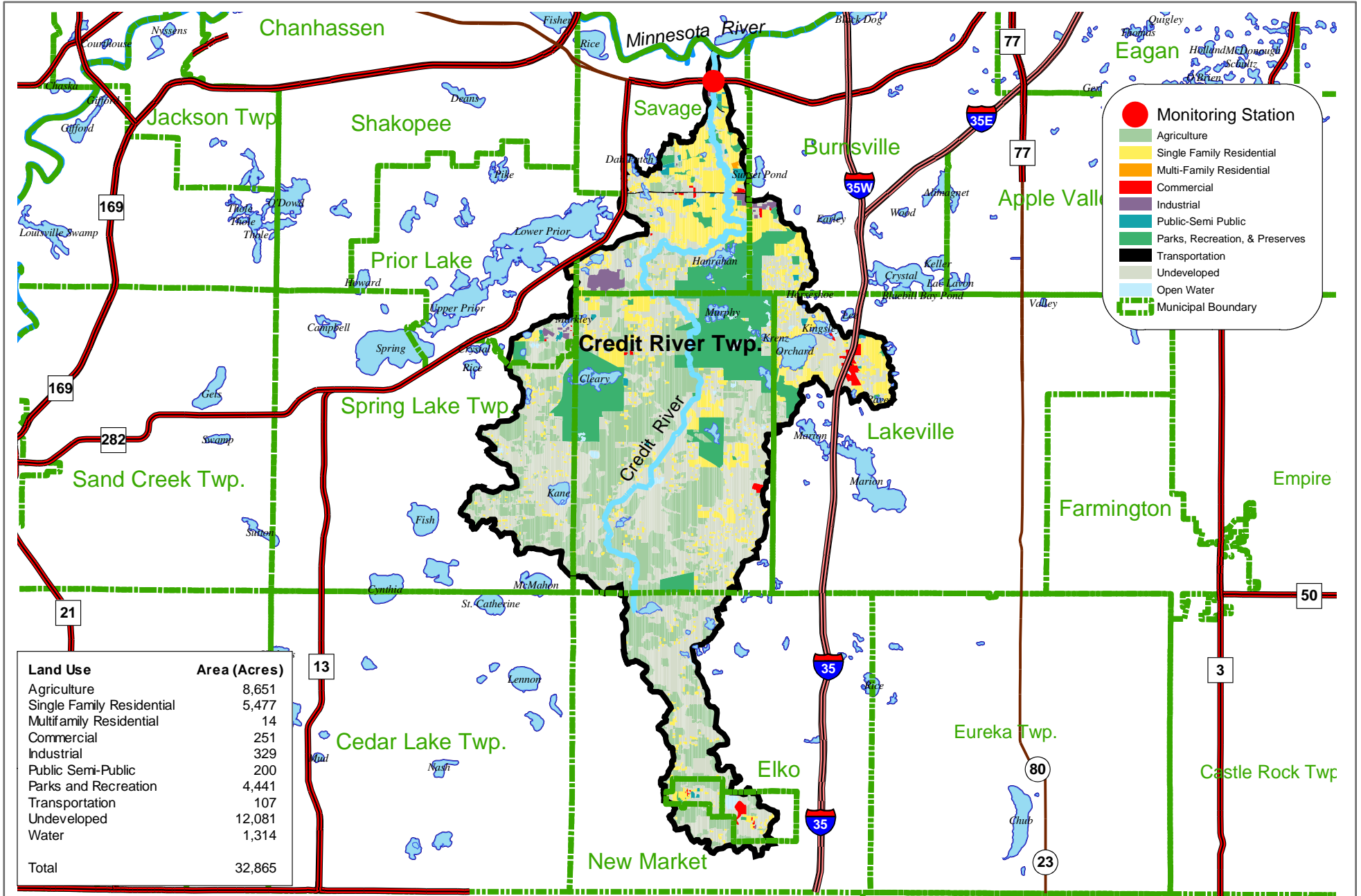


Figure 2.CR. Credit River 2001 Hydrograph with Sampling Information

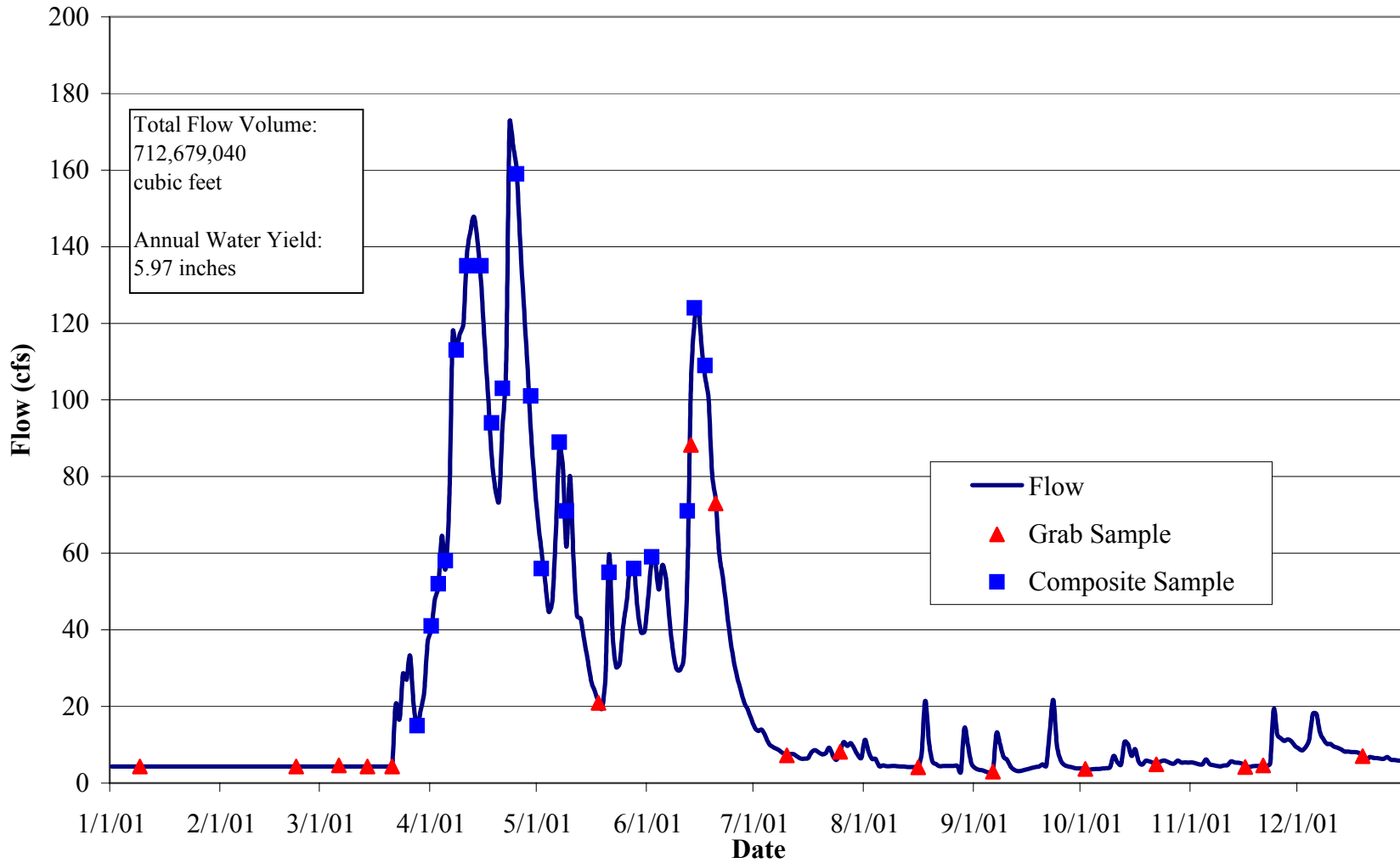


Table 2.CR. Credit River 2001 Water Chemistry Information

Variable	N	Mean	Median	Minimum	Maximum	25%	75%	STD
Chloride, mg/L	37	47	42	23	147	34	47	26
Hardness, mg/L	9	290	305	152	388	244	356	73
Cadmium, ug/L	9	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Chromium, ug/L	9	1.2	0.5	0.5	4.7	0.5	1.8	1.4
Copper, ug/L	9	2.9	3.3	1.1	5.6	1.6	4.3	1.6
Lead, ug/L	9	0.9	0.5	0.5	3.3	0.5	1.3	0.9
Nickel, ug/L	9	3.3	3.1	2.5	6.0	2.8	3.4	1.0
Zinc, ug/L	9	6.0	4.0	1.0	18.0	1.0	12.0	6.0
Nitrogen, Total Kjeldahl, mg/L	35	1.00	1.00	0.20	2.40	0.30	1.50	0.60
Nitrogen, Total Nitrate, mg/L	37	1.76	0.92	0.23	13.50	0.67	2.07	2.35
Phosphorus, Total, mg/L	35	0.17	0.16	0.01	0.48	0.06	0.27	0.13
Phosphorus, Total Dissolved, mg/L	36	0.11	0.07	0.02	0.52	0.05	0.17	0.10
Solids, Total Suspended, mg/L	37	49	25	2	346	3	66	69
Solids, Volatile Suspended, mg/L	37	8	5	1	36	2	11	8
Turbidity, NTU	37	11	6	1	50	2	16	12

Table 3.CR. Credit River 2001 Annual Loading Information* for Suspended Solids and Nutrients

Variable	Annual Load (tons)	Annual Yield (lbs/acre)	Annual Normalized Yield (lbs/acre/in of water)	Flow Weighted Mean Concentration (mg/L)
Solids, Total Suspended	1,297	79	13	58
Phosphorus, Total	4.88	0.30	0.05	0.22
Phosphorus, Total Dissolved	2.49	0.15	0.03	0.11
Nitrogen, Total Nitrate	36.51	2.22	0.37	1.64

* 2001 Annual Loading Information is provisional and may be subject to minor revisions.

Table 4.1.CR. Credit River 2001 Macroinvertebrate Monitoring Results and Metrics

Monitoring Date 05/18/01

Class	Order	Family	Common Name	Life Stage	Organism Count
Crustacea	Amphipoda		Scuds		6
Insecta	Coleoptera	Elmidae	Riffle Beetles	Larvae	7
Insecta	Diptera	Chironomidae	Midges	Larvae	10
Insecta	Diptera	Tipulidae	Crane Flies	Larvae	2
Insecta	Ephemeroptera	Baetidae	Small Minnow Mayflies	Larvae	172
Insecta	Odonata	Aeshnidae	Darners	Larvae	1
Insecta	Odonata	Calopterygidae	Broadwinged Damselflies	Larvae	1
Insecta	Plecoptera	Perlidae	Comon Stoneflies	Larvae	1
Insecta	Plecoptera	Perlodidae	Perlodidae	Larvae	15
Insecta	Trichoptera	Hydropsychidae	Common Netspinners	Larvae	56
Insecta	Trichoptera	Limnephilidae	Northern Case Makers	Larvae	1

Macroinvertebrate Taxa Metrics

Total Taxa	11
EPT Taxa	5
% EPT Taxa	45
Diptera Taxa	2
% Diptera Taxa	18
Mean Tolerance Value	3.64

Macroinvertebrate Organism Metrics

Total Organisms	272
EPT Individuals	245
% EPT Individuals	90
Diptera Individuals	12
% Diptera Individuals	4
Chironomidae Individuals	10
% Chironomidae Individuals	4

Water Quality

Degree of Organic Pollution

Hilsenhoff Biotic Index	3.94	Very Good	Possible slight organic pollution
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Table 4.2.CR. Credit River 2001 Macroinvertebrate Monitoring Results and Metrics

Monitoring Date 10/09/01

Class	Order	Family	Common Name	Life Stage	Organism Count
Insecta	Coleoptera	Elmidae	Riffle Beetles	Adult	2
Insecta	Coleoptera	Elmidae	Riffle Beetles	Larvae	35
Insecta	Diptera	Athericidae	Watersnipe Flies	Larvae	18
Insecta	Diptera	Chironomidae	Midges	Larvae	3
Insecta	Diptera	Simuliidae	Black Flies	Larvae	5
Insecta	Diptera	Tipulidae	Crane Flies	Larvae	3
Insecta	Ephemeroptera	Baetidae	Small Minnow Mayflies	Larvae	122
Insecta	Ephemeroptera	Heptageniidae	Flatheaded Mayflies	Larvae	2
Insecta	Plecoptera	Taeniopterygidae	Taeniopterygid Broadbacks	Larvae	11
Insecta	Trichoptera	Brachycentridae	Humpless Case Makers	Larvae	1
Insecta	Trichoptera	Hydropsychidae	Common Netspinners	Larvae	108

Macroinvertebrate Taxa Metrics

Total Taxa	10
EPT Taxa	5
% EPT Taxa	50
Diptera Taxa	4
% Diptera Taxa	40
Mean Tolerance Value	4.00

Macroinvertebrate Organism Metrics

Total Organisms	310
EPT Individuals	244
% EPT Individuals	79
Diptera Individuals	29
% Diptera Individuals	9
Chironomidae Individuals	3
% Chironomidae Individuals	1

Water Quality

Degree of Organic Pollution

Hilsenhoff Biotic Index	4.04	Very Good	Possible slight organic pollution
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