

Table 1.SA. Sand Creek Monitoring Station Information



Station Address: 102 Creek Lane South, Jordan, MN 55352
County: Scott
Major Basin: Minnesota River Basin
Watershed: Sand Creek
Drainage Area: 254.8 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
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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 Sand Creek since 1989. The monitoring station is located in Jordan, Minnesota, 8.2 miles upstream from the creek confluence with the Minnesota River. MCES staff maintain the rating curve at this station. There is no rain gage at this station. During the 1989-1990 period, MCES also operated a second monitoring station on Sand Creek in Louisville Swamp, near the creek confluence with the Minnesota River (Mile 1.6).

2001 Monitoring Year: Snowmelt began during the first week of April 2001. Daily average flows were estimated prior to the ice out date, which occurred on approximately April 1, 2001. The peak daily average flow of 1,808 cfs, with a stage of 7.22 feet, occurred on April 8, 2001.

Runoff event-based composite sampling began in early April 2001 and continued into mid-May, as high water conditions persisted throughout most of this time period. The highest total suspended solids (TSS) concentration for the entire year (690 mg/l) was measured on April 4 during the spring snowmelt. Composite samples were collected again during runoff events in late May and mid-June.

Thirty-two samples were collected for water chemistry analysis during 2001, including 16 composite samples and 16 grab samples. Samples were obtained throughout the year during varying stream flow conditions to most accurately characterize Sand Creek 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.

Figure1.SA. Sand Creek Monitoring Station Location and Watershed

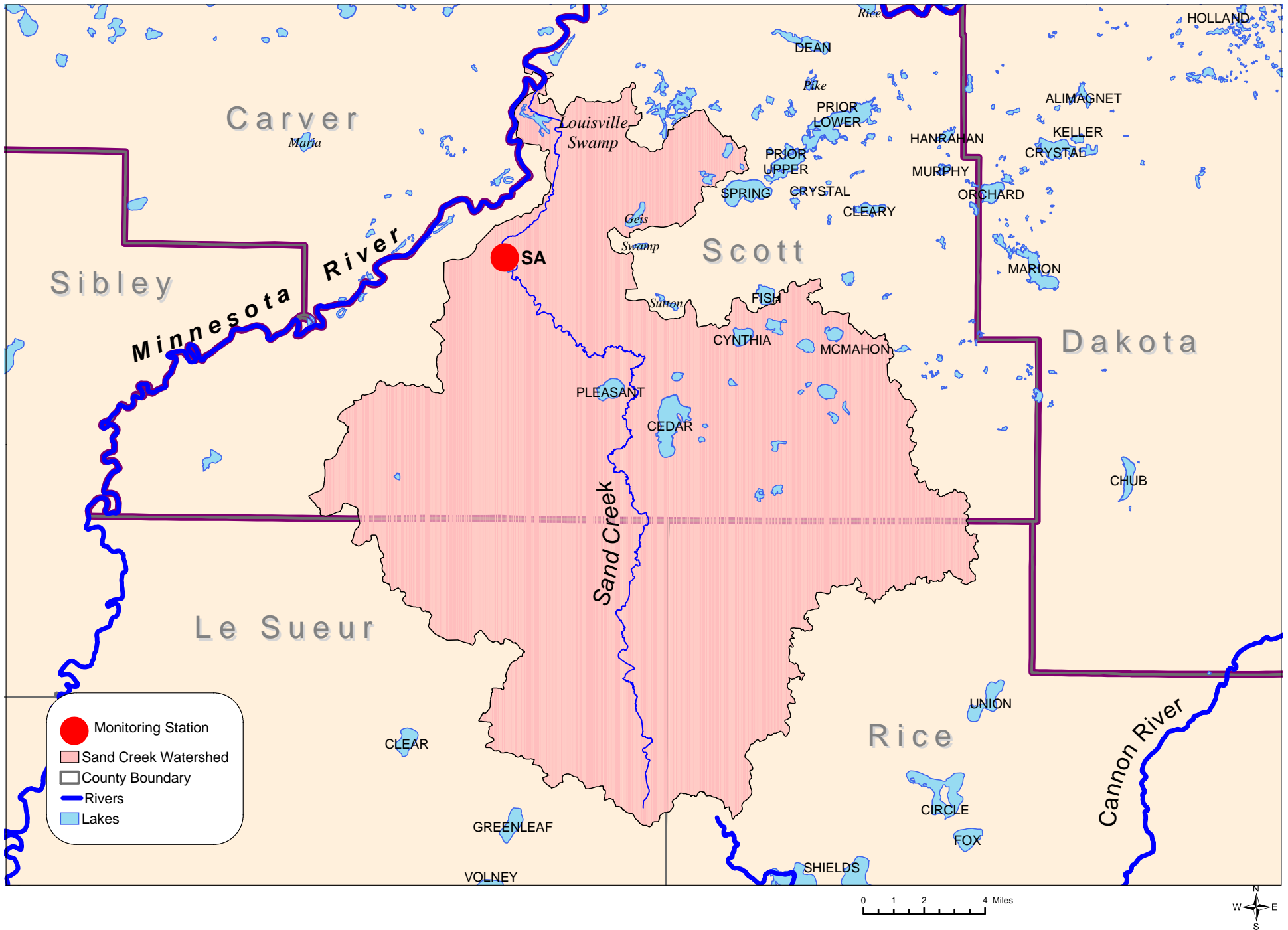


Figure 2.SA. Sand Creek 2001 Hydrograph with Sampling Information

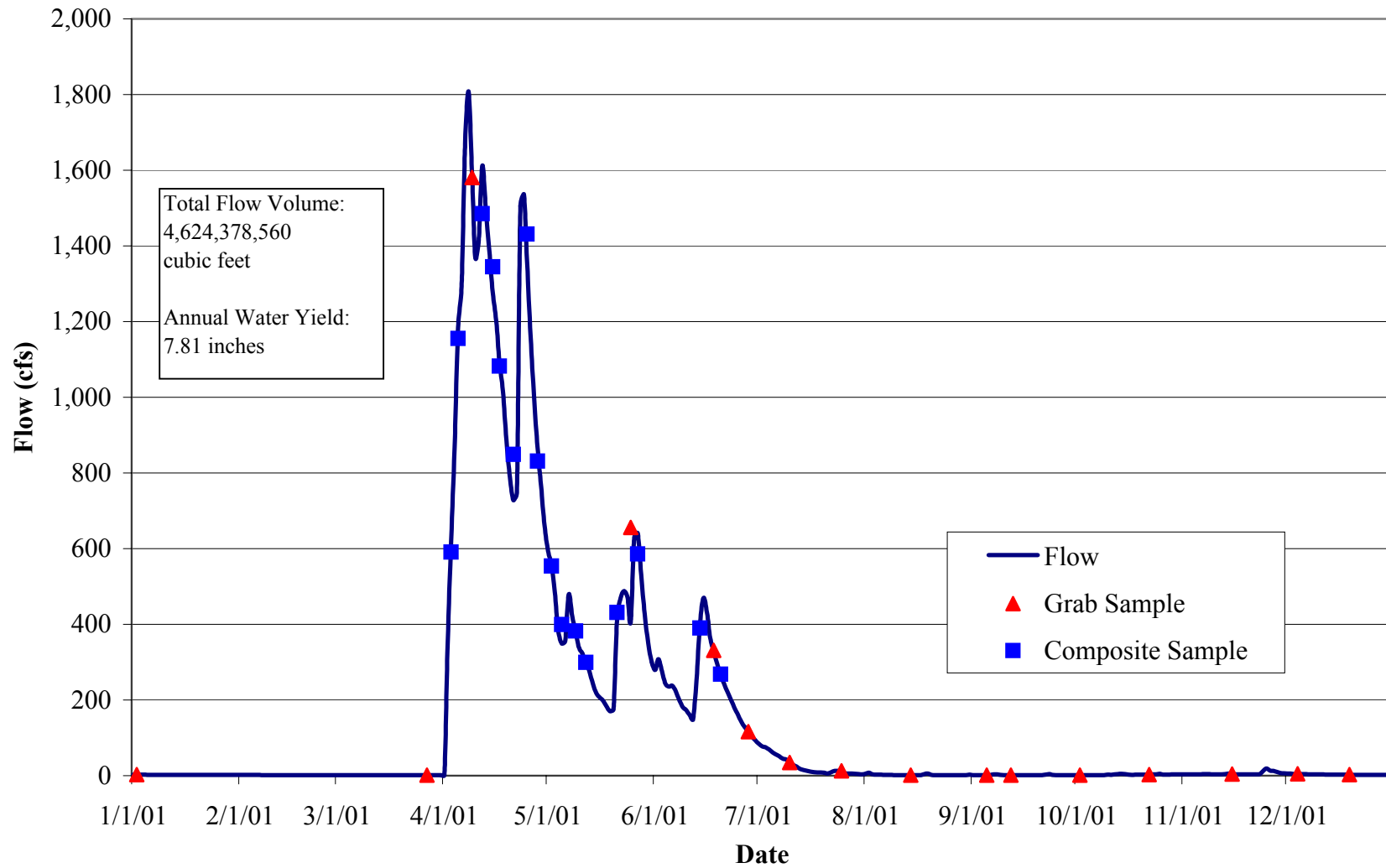


Table 2.SA. Sand Creek 2001 Water Chemistry Information

Variable	N	Mean	Median	Minimum	Maximum	25%	75%	STD
Chloride, mg/L	32	57	25	16	183	21	101	52
Hardness, mg/L	4	343	na	304	442	na	na	na
Cadmium, ug/L	5	0.1	na	0.1	0.3	na	na	na
Chromium, ug/L	5	0.7	na	0.5	1.7	na	na	na
Copper, ug/L	5	3.4	na	2.2	5.1	na	na	na
Lead, ug/L	5	0.7	na	0.5	1.6	na	na	na
Nickel, ug/L	5	4.9	na	3.7	6.0	na	na	na
Zinc, ug/L	5	5.0	na	2.0	11.0	na	na	na
Nitrogen, Total Kjeldahl, mg/L	31	1.50	1.60	0.30	4.40	0.90	2.20	0.80
Nitrogen, Total Nitrate, mg/L	32	4.82	3.99	0.07	14.60	1.80	7.25	3.67
Phosphorus, Total, mg/L	31	0.37	0.32	0.08	1.00	0.24	0.44	0.20
Phosphorus, Total Dissolved, mg/L	32	0.24	0.21	0.06	0.62	0.14	0.30	0.13
Solids, Total Suspended, mg/L	32	92	38	2	690	5	116	144
Solids, Volatile Suspended, mg/L	32	11	8	1	50	2	16	12
Turbidity, NTU	32	21	14	1	120	2	26	27

na: Data are insufficient to calculate these statistics.

Table 3.SA. Sand Creek 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	24,718	303	39	171
Phosphorus, Total	55.94	0.69	0.09	0.39
Phosphorus, Total Dissolved	28.28	0.35	0.04	0.20
Nitrogen, Total Nitrate	1,040.98	12.77	1.63	7.20

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

Table 4.SA. Sand Creek 2001 Macroinvertebrate Monitoring Results and Metrics

Monitoring Date 05/30/01

Class	Order	Family	Common Name	Life Stage	Organism Count
Crustacea	Amphipoda		Scuds		1
Insecta	Coleoptera	Dryopidae	Longtoed Water Beetles		1
Insecta	Coleoptera	Elmidae	Riffle Beetles		2
Insecta	Diptera	Chironomidae	Midges	Larvae	8
Insecta	Diptera	Simuliidae	Black Flies	Larvae	2
Insecta	Ephemeroptera	Baetidae	Small Minnow Mayflies	Larvae	48
Insecta	Ephemeroptera	Caenidae	Small Squaregills	Larvae	2
Insecta	Ephemeroptera	Heptageniidae	Flatheaded Mayflies	Larvae	3
Insecta	Ephemeroptera	Leptophlebiidae	Pronggills	Larvae	8
Insecta	Hemiptera	Pleidae	Pygmy Backswimmer	Adult	3
Insecta	Trichoptera	Limnephilidae	Northern Case Makers	Larvae	1
Insecta	Trichoptera	Phryganeidae	Giant Case Makers	Larvae	2

Macroinvertebrate Taxa Metrics

Total Taxa	12
EPT Taxa	6
% EPT Taxa	50
Diptera Taxa	2
% Diptera Taxa	17
Mean Tolerance Value	4.56

Macroinvertebrate Organism Metrics

Total Organisms	81
EPT Individuals	64
% EPT Individuals	79
Diptera Individuals	10
% Diptera Individuals	12
Chironomidae Individuals	8
% Chironomidae Individuals	10