

Table 1.UBE. Upper Bevens Creek Monitoring Station Information



Station Address: 7312 Maplewood Road, Cologne, MN 55322
County: Carver
Major Basin: Minnesota River Basin
Watershed: Bevens Creek
Drainage Area: 90.2 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 Upper Bevens Creek since 1992. The monitoring station is located in Cologne, Minnesota, 5.0 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.

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 22, 2001. The peak daily average flow of 824 cfs, with a stage of 5.76 feet, occurred on April 24, 2001. No measurable stream flow existed at the monitoring station from late August through late November.

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 (566 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.

Twenty-four samples were collected for water chemistry analysis during 2001, including 17 composite samples and 7 grab samples. With the exception of the late August to late November period when the stream was dry, samples were obtained throughout the year during varying stream flow conditions to most accurately characterize Upper Bevens 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.

Figure 2.UBE. Upper Bevens Creek 2001 Hydrograph with Sampling Information

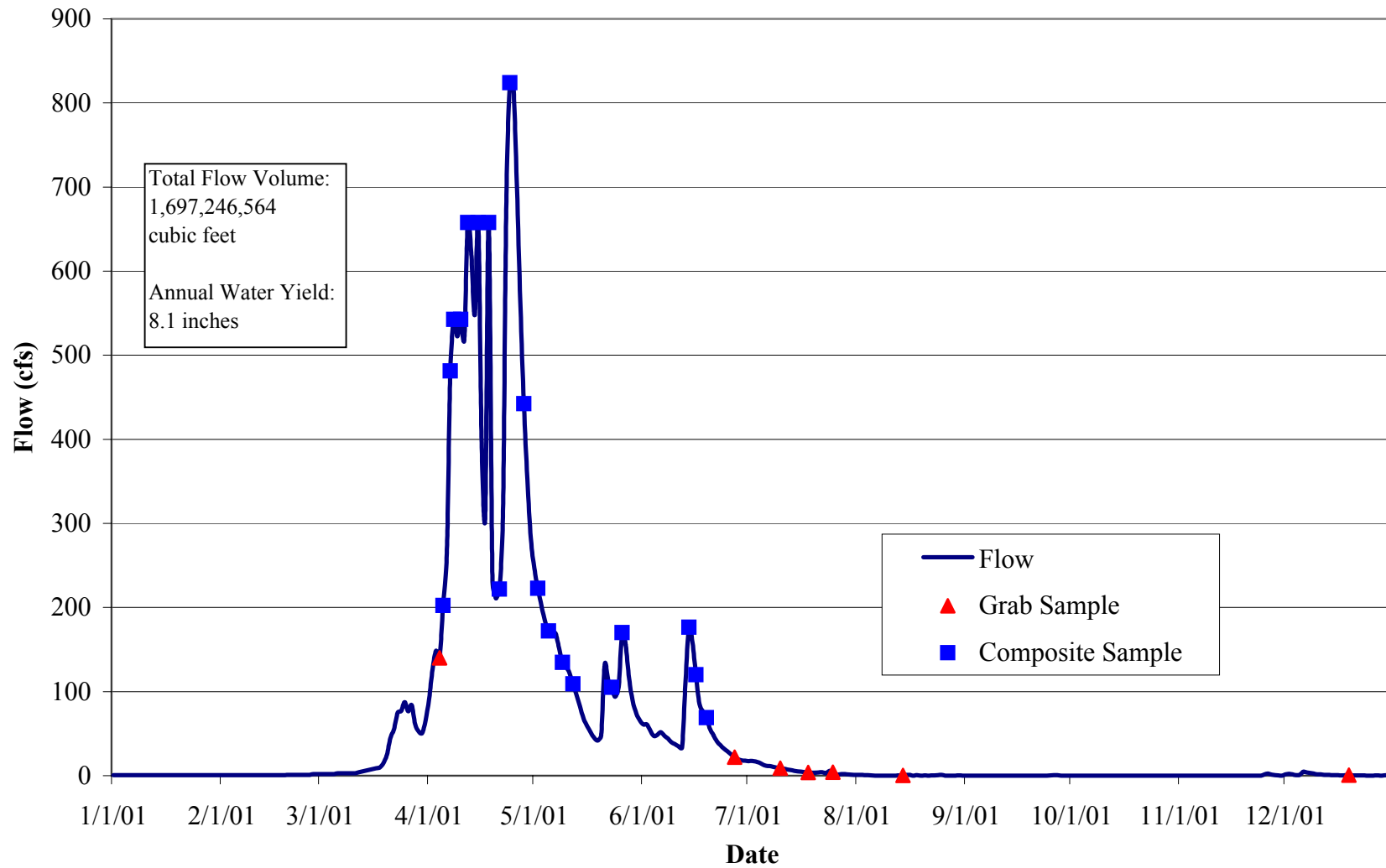


Table 2.UBE. Upper Bevens Creek 2001 Water Chemistry Information

Variable	N	Mean	Median	Minimum	Maximum	25%	75%	STD
Chloride, mg/L	27	37	31	16	153	24	36	27
Hardness, mg/L	1	302*	na	na	na	na	na	na
Cadmium, ug/L	1	0.1*	na	na	na	na	na	na
Chromium, ug/L	1	0.5*	na	na	na	na	na	na
Copper, ug/L	1	2.5*	na	na	na	na	na	na
Lead, ug/L	1	0.5*	na	na	na	na	na	na
Nickel, ug/L	1	4.0*	na	na	na	na	na	na
Zinc, ug/L	1	3.0*	na	na	na	na	na	na
Nitrogen, Total Kjeldahl, mg/L	26	2.40	2.40	1.10	4.20	1.80	2.90	0.80
Nitrogen, Total Nitrate, mg/L	27	11.48	13.60	0.05	18.30	6.30	17.18	6.18
Phosphorus, Total, mg/L	26	0.67	0.64	0.25	1.80	0.37	0.87	0.37
Phosphorus, Total Dissolved, mg/L	27	0.50	0.45	0.18	1.70	0.29	0.64	0.31
Solids, Total Suspended, mg/L	27	119	65	1	566	26	158	136
Solids, Volatile Suspended, mg/L	27	14	8	1	58	4	18	14
Turbidity, NTU	27	30	18	2	100	7	44	28

*Actual Value

na: Data are insufficient to calculate these statistics.

Table 3.UBE. Upper Bevens 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	8,520	295	36	161
Phosphorus, Total	34.59	1.20	0.15	0.65
Phosphorus, Total Dissolved	23.68	0.82	0.10	0.45
Nitrogen, Total Nitrate	747.33	25.89	3.20	14.16

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

Table 4.UBE. Upper Bevens Creek 2001 Macroinvertebrate Monitoring Results and Metrics

Monitoring Date 05/30/2001

Class	Order	Family	Common Name	Life Stage	Organism Count
Crustacea	Amphipoda		Scuds		12
Insecta	Coleoptera	Curculionidae	Water Weevils	Larvae	1
Insecta	Diptera	Chironomidae	Midges	Larvae	4
Insecta	Diptera	Simuliidae	Black Flies	Larvae	6
Insecta	Ephemeroptera	Baetidae	Small Minnow Mayflies	Larvae	51
Insecta	Ephemeroptera	Caenidae	Small Squaregills	Larvae	8
Insecta	Ephemeroptera	Heptageniidae	Flatheaded Mayflies	Larvae	13
Insecta	Hemiptera	Pleidae	Pygmy Backswimmer	Adult	5
Insecta	Plecoptera	Perlidae	Comon Stoneflies	Larvae	2
Insecta	Trichoptera	Limnephilidae	Northern Case Makers	Larvae	1

Macroinvertebrate Taxa Metrics

Total Taxa	10
EPT Taxa	5
% EPT Taxa	50
Diptera Taxa	2
% Diptera Taxa	20
Mean Tolerance Value	4.50

Macroinvertebrate Organism Metrics

Total Organisms	103
EPT Individuals	75
% EPT Individuals	73
Diptera Individuals	10
% Diptera Individuals	10
Chironomidae Individuals	4
% Chironomidae Individuals	4

Water Quality

Degree of Organic Pollution

Hilsenhoff Biotic Index	4.39	Good	Some organic pollution
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