Watershed Outlet Monitoring Program

East Chaska Creek Station – Site EC 2

Chaska, MN

Summary Report

March – October 2010

Prepared By: Carver County Environmental Services
Prepared For: Lower Minnesota River Watershed District
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CARVER COUNTY

Introduction

The East Chaska EC 2 site, located in Chaska near the intersection of two walking paths behind Brandondale at 715 Creek Trail, has been monitored since 2003. The East Chaska Creek watershed drains 9,868 acres of various types of land uses including residential, agricultural, undeveloped, and park/recreation areas (Appendix A). This data is preliminary and is subject to change until the Metropolitan Council submits the final report for this period.

Flow and Precipitation

Average flow in East Chaska Creek from March to October was 7.87 cubic feet per second (cfs) or 5.09 million gallons per day (mgd) (Table 1). This is higher than the average flow from 2009 (6.02 cfs) even though there was less total precipitation in 2010. The 2010 sampling season was characterized by dry/ drought conditions in May and July in addition with much higher than average precipitation (and thus stream flow) in August and September. A graph describing flow and precipitation results is provided (Figure 1).

Table 1. Average flow and total precipitation at East Chaska Creek EC 2 Station March – October 2010

Period	Average Flow (cfs/mgd)	Precipitation (inches)	*Average Monthly Precipitation, 1997-2010 (inches)
MARCH	70.70 / 45.69	1.18	1.74
APRIL	5.50 / 3.55	3.63	2.93
MAY	3.93 / 2.54	2.75	3.85
JUNE	1.21 / 0.78	4.61	4.26
JULY	0.79 / 0.51	2.37	3.36
AUGUST	11.98 / 7.74	6.55	4.96
SEPTEMBER	10.76 / 6.95	5.22	3.40
OCTOBER	1.42 / 0.92	2.01	2.36
TOTAL	7.87 / 5.09	27.27	26.87

*Average monthly precipitation data obtained from National Weather Service station located near the EC 2 site

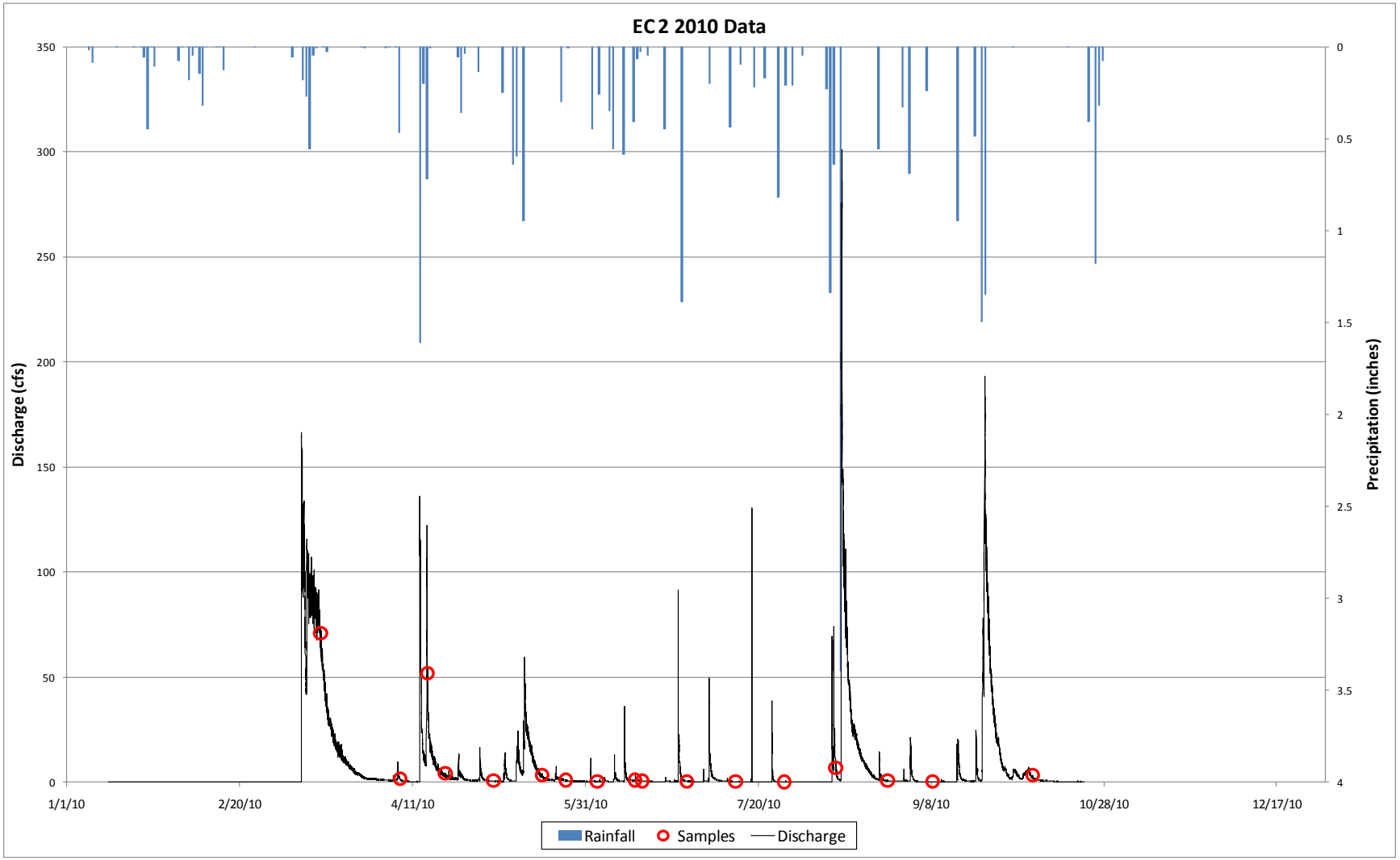


Figure 1. Flow and precipitation at East Chaska Creek EC 2 Station March - October 2010

Water Quality

Six nutrient samples and twelve Escherichia Coli (E.coli) samples were collected at the EC 2 station during the 2010 season. In general, the water quality at EC 2 declined from last year. Four of the nine parameters tested had results that improved upon 2009 results. Nitrate+Nitrite, Total Phosphorus, Suspended Solids, Turbidity and Volatile Solids all declined in water quality from 2009. The most noticeable improvements were in the amount of E.coli in the water decreasing by 21 percent from 2009.

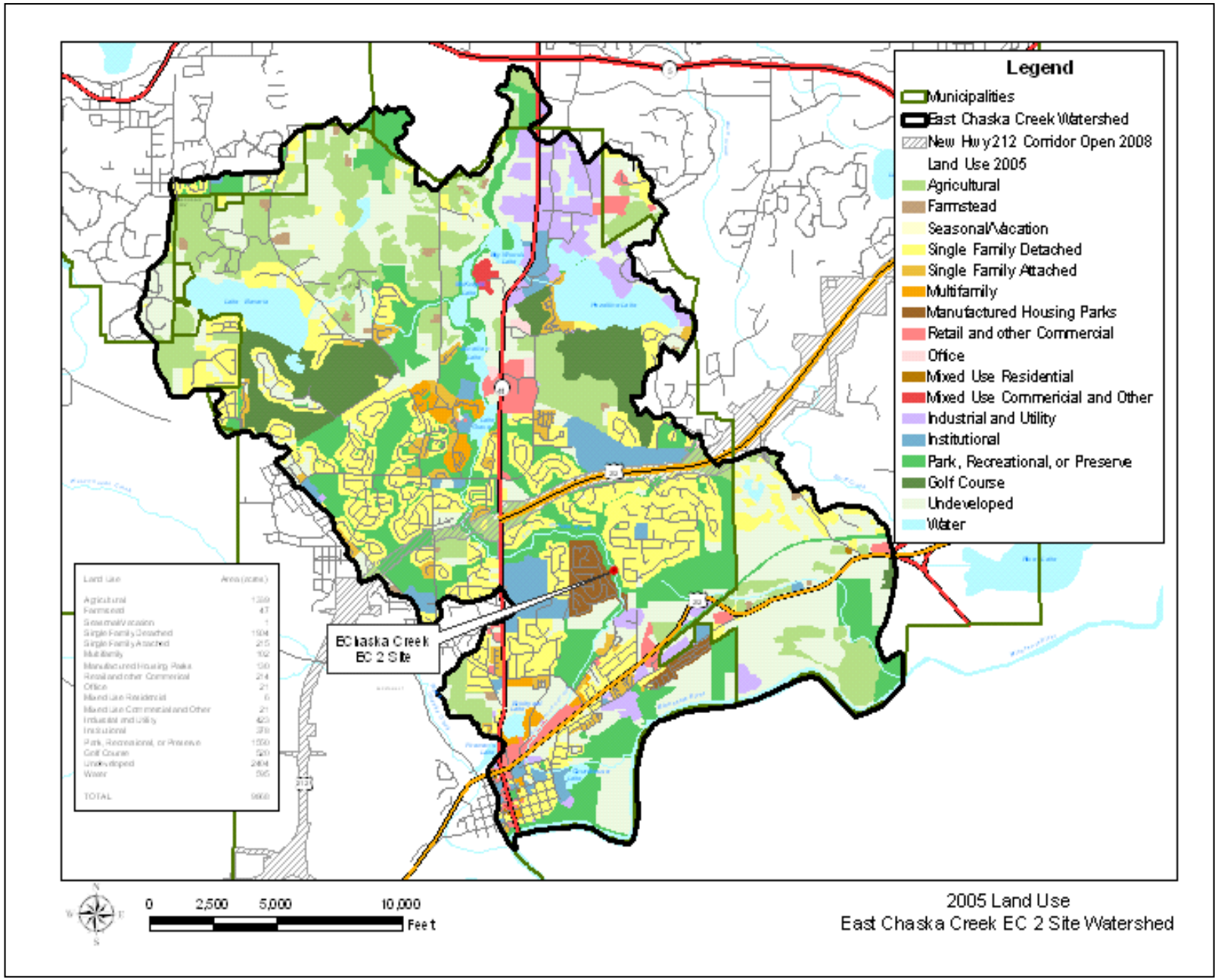
When compared to other streams in the North Central Hardwood Forest ecoregion, the results for EC 2 are less encouraging. While the average concentrations of total Phosphorus and suspended solids fell with in the range of the ecoregion mean, the average concentrations of Nitrate+Nitrite and the average turbidity exceeded it (see Table 2). Another concern at EC 2 is the concentration of E. coli. Even though the average concentration of E. coli decreased by 21 percent from 287 MPN/ 100 mL in 2009 to 226 MPN/ 100 mL in 2010, it is still high when compared to the state standard. Additional information about phosphorus and E. coli loading, statistical analyses, and biomonitoring data can be found in Appendix B. Appendix B contains the draft pages of the 2010 Carver County Water quality report that can be accessed through the Carver County website (http://www.co.carver.mn.us/departments/LWS/wqmp.asp) as a report that can be downloaded or through an interactive GIS water quality mapping program.

Table 2. Average concentrations at East Chaska Creek EC 2 Station March – October 2010.

Parameter	2010 Ave. Concentration	Notes
Alkalinity	176 mg/ L $CaCO_3$	
Chemical Oxygen Demand	37 mg/ L	
Cadmium	N/A	Not tested at this site
Chloride	N/A	Not tested at this site
Chlorophyll-a	N/A	Not tested at this site
Chromium	N/A	Not tested at this site
Conductivity	N/A	Not tested at this site
Copper	N/A	Not tested at this site
Escherichia Coli	225.9 MPN/ 100 mL	Standard is 126/ 1260*
Hardness	N/A	Not tested at this site
Lead	N/A	Not tested at this site
Nickel	N/A	Not tested at this site
Nitrogen Ammonia	130 µg/ L	
Nitrate + Nitrite	453 µg/ L	Ecoregion mean (40-260 ug/L)
Phosphorus, Total	0.142 mg/L	Ecoregion mean (0.060-0.160 mg/L)
Suspended Solids	33 mg/ L	Ecoregion mean (4.8 - 16 mg/L)
Turbidity	19 NTRU	Ecoregion mean (3-8.5 NTU)
Volatile Solids	6 mg/ L	
Zinc	N/A	Not tested at this site

*As stated in MN Rules Chapter 7050.0222, E. coli shall not exceed 126 organisms per 100 mL as a geometric mean of not less than five samples, nor shall more than ten percent of all samples taken during any calendar month individually exceed 1,260 organisms per 100 mL

Appendix A



2005 Land Use data source provide by Metropolitan Council Environmental Services