

Watershed Outlet Monitoring Program

East Chaska Creek Station – EC 3 Site
Chaska, MN

Summary Report April – October 2010



Prepared By: Carver County Environmental Services
Prepared For: Lower Minnesota River Watershed District
December 2010



Introduction

The East Chaska Creek EC 3 site, located near the Carver County Courthouse on the old channel of East Chaska Creek, 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 EC 3 was 4.13 cubic feet per second (cfs) or 2.67 million gallons per day (mgd) (Table 1). This was considerably higher than the average flow of 2.25 cfs in 2009. 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 3 Station April – October 2010

Period	Average Flow (cfs/mgd)	Precipitation (inches)	*Average Monthly Precipitation, 1997-2010 (inches)
APRIL	1.79 / 1.16	3.63	2.93
MAY	7.31 / 4.72	2.75	3.85
JUNE	1.89 / 1.22	4.61	4.26
JULY	0.32 / 0.21	2.37	3.36
AUGUST	9.19 / 5.94	6.55	4.96
SEPTEMBER	5.38 / 3.48	5.22	3.40
OCTOBER	2.65 / 1.71	2.01	2.36
TOTAL	4.13 / 2.67	26.09	25.13

*Average monthly precipitation data obtained from the National Weather service station located near the EC 3 site.

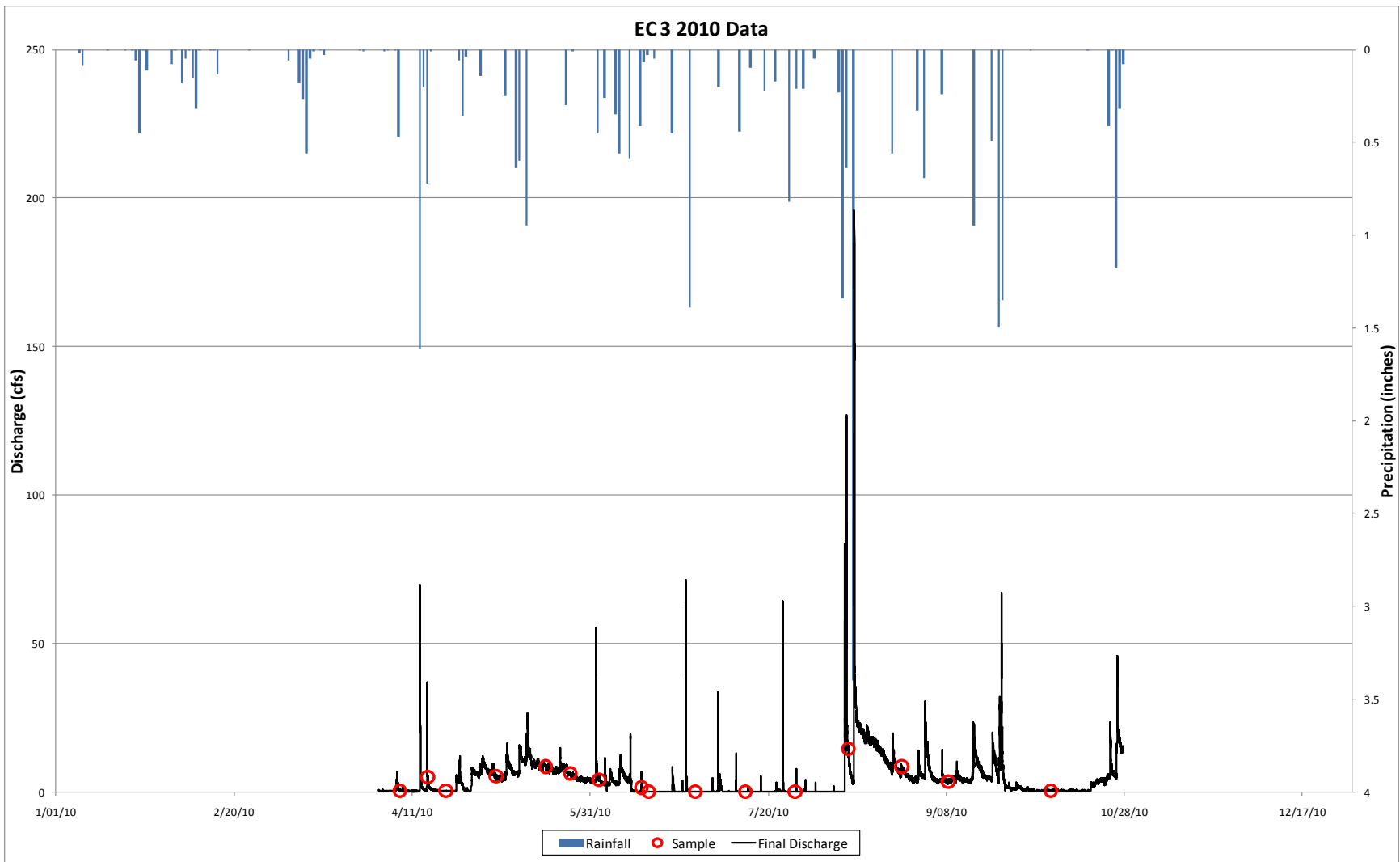


Figure 1. Flow and precipitation at East Chaska Creek EC 3 Station April - October 2010

Water Quality

Six nutrient samples and twelve Escherichia Coli (E.coli) samples were collected at the EC 3 Station during the 2010 season. Overall, water quality was poor with most parameters falling above the ecoregion mean. The concentration of E. coli declined from 727 MPN/ 100 mL in 2009 to 428 MPN/100 mL in 2010 and the concentration of Nitrate+Nitrite increased from 212 µg/L in 2009 to 1042 µg/L in 2010.

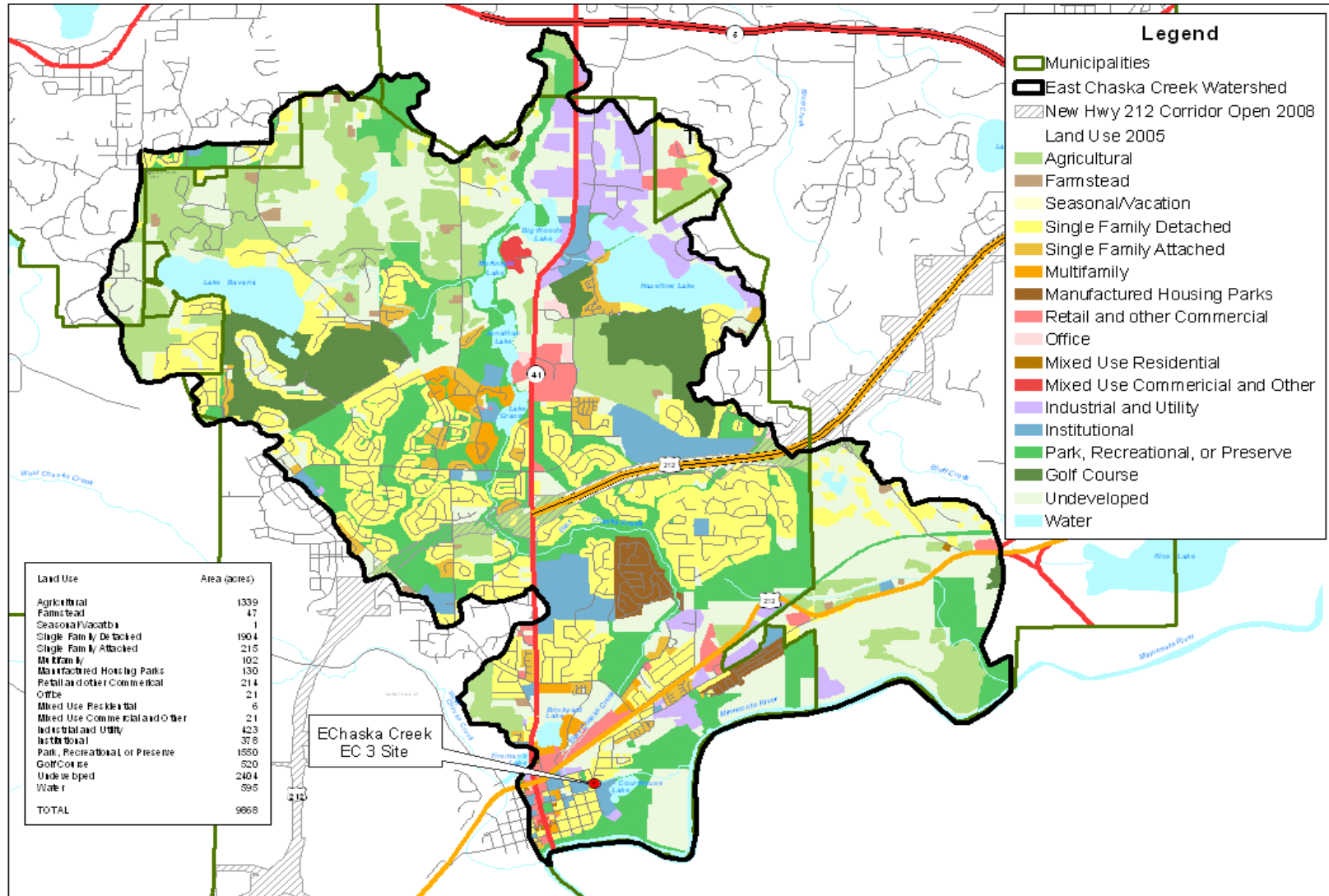
It should be noted that the majority of parameters were above the North Central Hardwood ecoregion means (see Table 2). The exception to this is Total Phosphorus concentrations, which are within the ecoregion mean. Additional information about phosphorus and E. coli loading and some statistical analyses 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 3 Station April – October 2010.

Parameter	2010 Ave. Concentration	Notes
Alkalinity	203 mg/L CaCO ₃	
Chemical Oxygen Demand	30 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	428.1	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	103 µg/L	
Nitrate + Nitrite	1045 µg/L	Ecoregion mean (40-260 ug/L)
Phosphorus, Total	0.101 mg/L	Ecoregion mean (0.060-0.160 mg/L)
Suspended Solids	23 mg/L	Ecoregion mean (4.8 - 16 mg/L)
Turbidity	18 NTRU	Ecoregion mean (3-8.5 NTU)
Volatile Solids	5 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
East Chaska Creek EC 3 Site Watershed

2005 Land Use data source provided by Metropolitan Council Environmental Services.