Alabama Department of Environmental Management

Ecological Reference Reach

Rivers and Streams Monitoring Program

2007 Monitoring Summary

Fourmile Creek at Bibb County Road 10 NW of Brierfield (33.07702/-86.97035)

BACKGROUND

In 2007, the Alabama Department of Environmental Management (ADEM) monitored Mayberry Creek as a "best attainable" condition reference watershed for comparison with streams throughout the Southern Limestone/Dolomite Valleys and Low Rolling Hills (67f) ecoregion. Located in the Cahaba River Basin, the site was also sampled in conjunction with the 2007 Assessment of the Black Warrior/Cahaba River Basins (BWC). The objectives of the BWC Basin Assessments were to assess the biological integrity of each monitoring site and to estimate overall water quality within the BWC basin group. However, due to no flow conditions, habitat and macroinvertebrate assessment were not conducted.

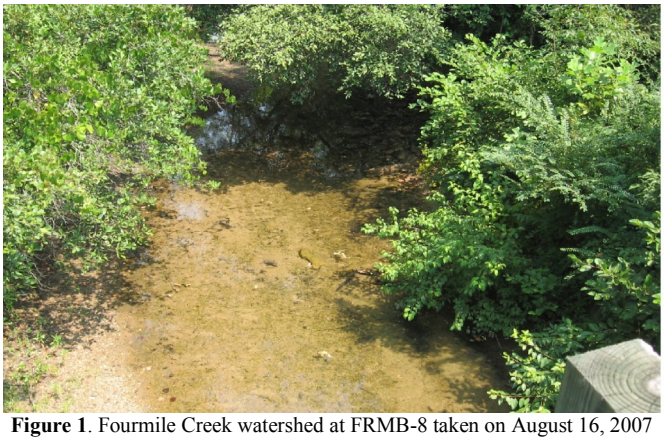

Figure 1. Fourmile Creek watershed at FRMB-8 taken on August 16, 2007

WATERSHED CHARACTERISTICS

Watershed characteristics are summarized in Table 1. Fourmile Creek at FRMB-8 is a *Fish & Wildlife (F&W)* stream located mostly in the Cahaba Wildlife Management Area in Bibb County. Based on the 2000 National Landcover Dataset, land use within the watershed is primarily forest (72%) and shrub (13%). As of February 23, 2011, ADEM has issued no NPDES permits in this watershed.

WATER CHEMISTRY

Results of water chemistry analyses are presented in Table 2. In situ measurements and water samples were supposed to be collected monthly during March through October. However, due to severe drought, the creek was only sampled in March and April.

SUMMARY

Habitat and macrocroinvertebrate assessments could not be conducted at the station due to drought conditions. Additionally, water quality data could only be collected during March and April. Future monitoring is recommended to assess conditions under more normal conditions.

Table 1. Summary of watershed characteristics.

Watershed Characteristics		
Basin		Cahaba River
Drainage Area (mi^2)		7
Ecoregion[a]		67f
% Landuse		
Forest	Deciduous	16
	Evergreen	50
	Mixed	6
Shrub/scrub		13
Grassland/herbaceous		8
Pasture/hay		<1
Cultivated crops		<1
Development	Open space	4
Barren		1
Population/km^2[b]		1

a.Southern Limestone/Dolomite Valleys and Low Rolling Hills
b.2000 US Census

Table 2. Summary of water quality data collected March-April, 2007. Minimum (Min) and maximum (Max) values calculated using minimum detection limits (MDL) when results were less than this value. Median, average (Avg), and st andard deviations (SD) values were calculated by multiplying the MDL by 0.5 when results were less than this value.

	Parameter	N		Min	Max	Med	Avg	SD
	Physical							
	Temperature (°C)	2		15.0	19.0	17.0	17.0	2.8
	Turbidity (NTU)	5		0.0	3.4	0.0	1.2	1.6
	Total Dissolved Solids (mg/L)	2		55.0	90.0	72.5	72.5	24.8
	Total Suspended Solids (mg/L)	1					4.0	
	Specific Conductance (µmhos)	2		102.6	155.8	129.2	129.2	37.6
	Alkalinity (mg/L)	2		41.8	67.9	54.8	54.8	18.5
	Stream Flow (cfs)	2		1.1	2.3	1.7	1.7	0.8
	Chemical							
	Dissolved Oxygen (mg/L)	2		8.8	10.5	9.7	9.7	1.2
	pH (su)	2		7.4	7.6	7.5	7.5	0.1
	Ammonia Nitrogen (mg/L)	2	<	0.015	0.015	0.008	0.008	0.000
	Nitrate+Nitrite Nitrogen (mg/L)	2		0.022	0.078	0.050	0.050	0.040
	Total Kjeldahl Nitrogen (mg/L)	2	<	0.150	0.195	0.135	0.135	0.085
	Total Nitrogen (mg/L)	2	<	0.097	0.273	0.185	0.185	0.124
	Dissolved Reactive Phosphorus (mg/L)	2		0.014	0.076	0.045	0.045	0.044
J	Total Phosphorus (mg/L)	2		0.022	0.037	0.030	0.030	0.011
	CBOD-5 (mg/L)	2	<	1.0	1.4	1.0	1.0	0.6
	COD (mg/L)	1	<			<	2.0	
	TOC (mg/L)	1					1.5	
J	Chlorides (mg/L)	2		5.9	6.6	6.1	6.1	0.7
	Biological							
J	Chlorophyll a (ug/L)	2		0.10	0.53	0.32	0.32	0.30
J	Fecal Coliform (col/100 mL)	2		20	22	21	21	1

J=estimate; N= # of samples;

FOR MORE INFORMATION, CONTACT:
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