

***Alabama Department of Environmental Management
Auburn / Opelika Intensive Fecal Coliform Study
January – February 2007***

Introduction

In October 2006 the Alabama Department of Environmental Management (ADEM) was contacted by the Save Our Saugahatchee watershed group concerning the results of water quality sampling conducted by some of its members on several streams in the Auburn and Opelika area. The results of the sampling indicated that, at times, levels of certain indicator bacteria (*E. coli*) were elevated at some of the locations in Saugahatchee (Sougahatchee) Creek and its tributaries and in Parkerson Mill Creek. The Saugahatchee Creek watershed includes portions of the cities of Opelika and Auburn and drains to the Tallapoosa River within Yates Reservoir. The Parkerson Mill Creek watershed includes the western and southern portion of Auburn and Auburn University and drains to Chewacla Creek. In response to the data being reported by the watershed group, the Department conducted weekly sampling for fecal coliform bacteria at a number of locations within the Saugahatchee Creek and Parkerson Mill Creek watersheds between January 16, 2007 and February 15, 2007. The purpose of the five-week sampling effort was to determine if elevated bacteria levels were occurring in these watersheds using the indicator bacteria for which Alabama has established water quality criteria and to begin the process of identifying possible sources of the bacteria.

Plan of Study

A total of sixteen sampling locations within the Saugahatchee Creek and Parkerson Mill Creek watersheds, including the effluents from two wastewater treatment facilities, were initially selected for sampling beginning on January 16, 2007. In the fourth week of the five week study an additional sampling location was added on a tributary to Saugahatchee Creek. Samples were collected once per week along with in-situ measurements of dissolved oxygen, air and water temperature, pH, conductivity and turbidity at each sampling location. In addition, a sample of water was collected at each location and returned to the Department's Central Laboratory in Montgomery and analyzed for total suspended solids. All sampling was conducted in accordance with the procedures specified in *Standard Operating Procedures and Quality Control Assurance Manual*, Volume I, Physical Chemical, ADEM, June 2000. Stream flow was also measured at selected stations. Since the holding time for bacteria samples is relatively short (six hours), the weekly sampling occurred over a three-day period. Saugahatchee Creek was sampled on the first day, Pepperell Branch on the second day, and the Parkerson Mill Creek watershed was sampled on the third day.

Sampling locations in the Saugahatchee Creek watershed are shown on **Figure 1**. The Parkerson Mill Creek sampling locations are shown on **Figure 2**. A description, along with the latitude and longitude, of each location is given in **Table 1**.

Results

Tables 2 through 6 provide the results of in-situ measurements, fecal coliform tests, and total suspended solids analyses for each sampling location. **Figure 3** is a chart showing fecal coliform levels at the ADEM sampling locations in the Saugahatchee Creek watershed relative to the water quality criteria for fecal coliform bacteria. **Figure 4** shows the stream flow recorded at the stream gaging station on Saugahatchee Creek near Loachapoka during the period in which the study occurred. Similar charts for the Parkerson Mill Creek watershed are shown in **Figure 5 and 6**. It is important to note that actual values may be greater than those depicted on the chart in some cases, as indicated in results tables.

Saugahatchee Creek upstream of Pepperell Branch (station SOGL-8) consistently had the lowest bacteria levels in the watershed with values ranging from an estimated count of 1 colony/100 ml to a high of 20 colonies/100 ml. Saugahatchee Creek at North Donahue Drive (SOGL-10) and Saugahatchee Creek at Alabama Highway 147 (SOGL-9) had the highest levels of fecal coliform bacteria, ranging from 100 colonies/100 ml to more than 6000 colonies/ 100 ml at SOGL-9 and from 87 colonies/100 ml to more than 5600 colonies/100 ml at SOGL-10.

Within the Parkerson Mill Creek watershed, the station at Shug Jordan Parkway (PKML-2) consistently had the highest levels of fecal coliform bacteria ranging from 330 colonies/100 ml to more than 6700 colonies/100 ml. Fecal coliform levels in Chewacla Creek at Lee County Road 010 were less than or equal to 200 colonies/ 100 ml during the study.

All in-situ measurements were within expected ranges. Maximum total suspended solids concentrations were measured on Parkerson Mill Creek at West Samford Avenue (PKML-3) during a rain event.

Discussion

Based on information obtained from the study, the following observations are provided.

- As expected, elevated fecal coliform levels appear to coincide with rainfall events.
- The highest fecal coliform levels in the Saugahatchee Creek watershed occurred between US Highway 280 and North Donahue Drive.
- The highest fecal coliform levels in the Parkerson Mill Creek watershed occurred at Shug Jordan Parkway and at West Samford Avenue.
- Potential fecal coliform sources in the Saugahatchee Creek watershed have still not been definitively identified. However, the Opelika Westside wastewater treatment facility, the old Opelika wastewater treatment lagoons, and the Westpoint Stevens wastewater treatment facility do not appear to have been significant sources during this study.
- There was evidence of the presence of wildlife at nearly all of the sampling locations. However, wildlife probably could not, by themselves, account for the elevated bacteria levels in Saugahatchee Creek.

- Beef cattle are a likely source of fecal coliform bacteria in Parkerson Mill Creek at Shug Jordan Parkway. The owner of the cattle has been contacted about implementation of enhanced Best Management Practices to reduce pathogen loading. Several drains from the cattle pasture on the north side of the stream were noted and photographed. Beef cattle are not the source of elevated fecal coliform bacteria levels at West Samford Avenue. However, conductivity values were similar and higher than background at these two sites.
- Bacteria levels in Chewacla Creek upstream of Parkerson Mill Creek were consistently below the water quality criteria.
- A second study should be conducted during dry weather (August – October).

Figure 1. Saughatchee Creek Watershed Sampling Locations

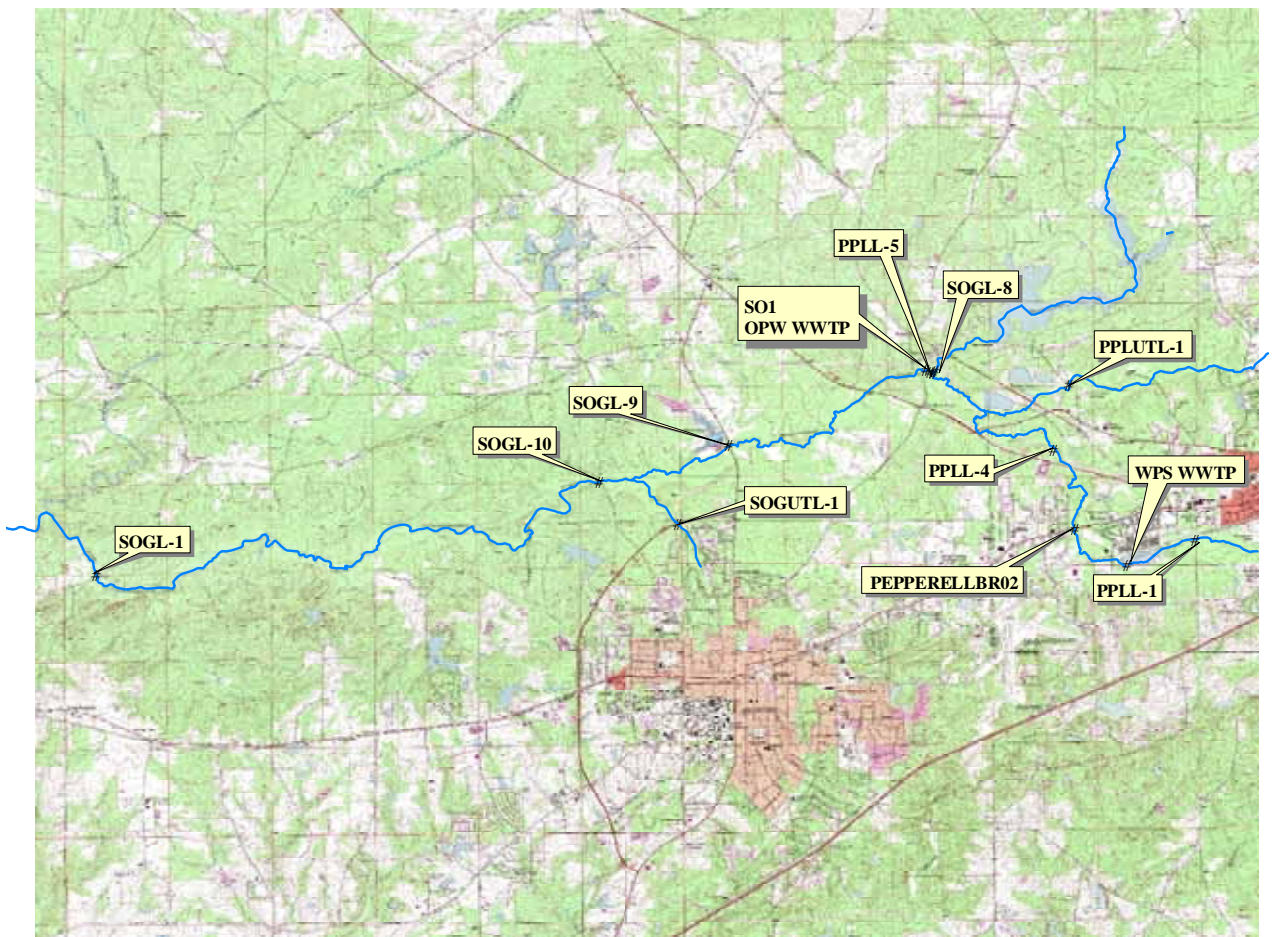


Figure 2. Parkerson Mill Creek Watershed Sampling Locations

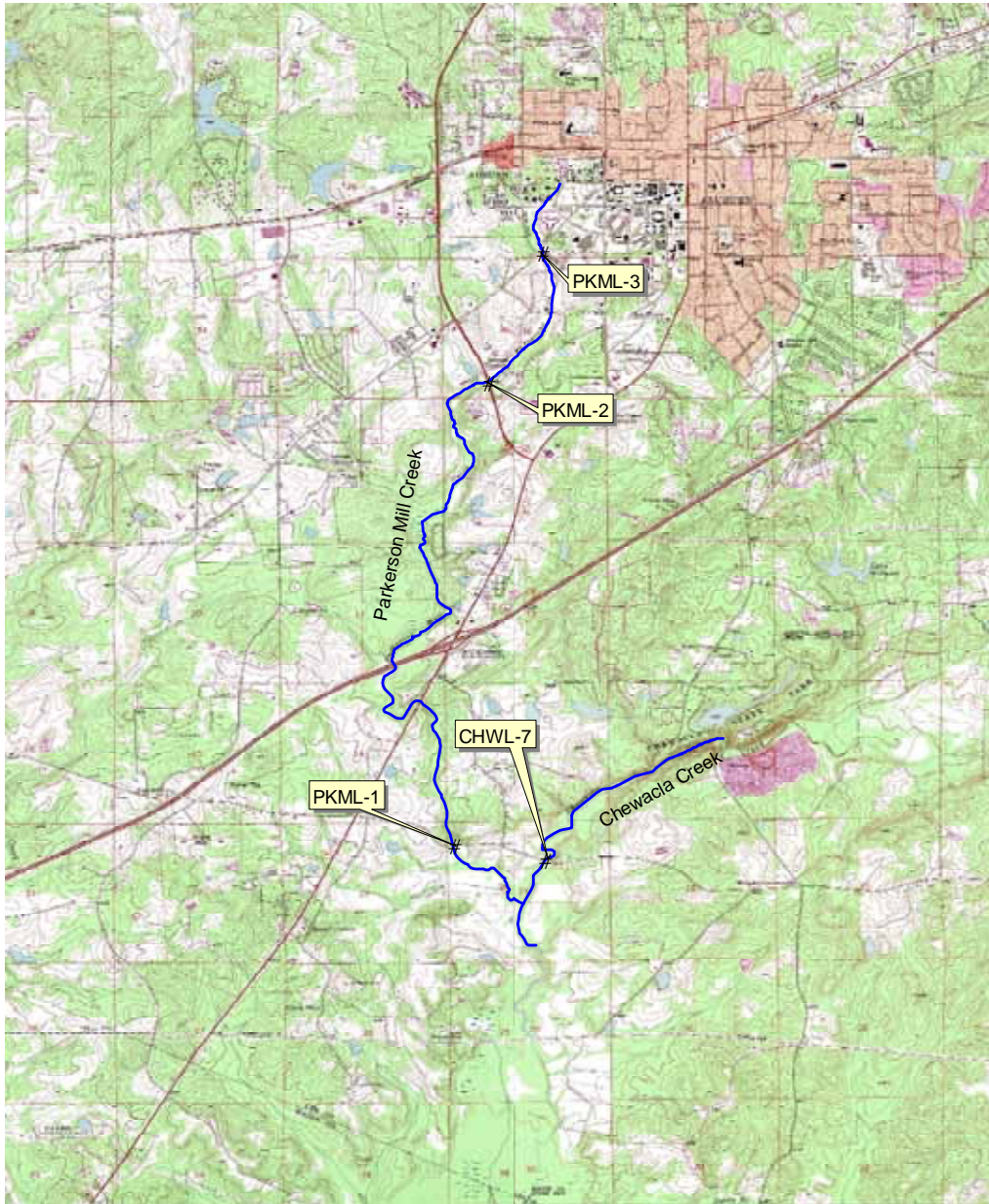


Table 1. Sampling Location Descriptions

Stream Name	Station ID	Location Description	Latitude	Longitude
Pepperell Branch	PPLL-1	Pepperell Branch at Thomason Drive	32.63255	-85.40516
Pepperell Branch	PEPPERELLBR02	Pepperell Branch at U.S. Hwy 29 (ADEM Ambient Monitoring Station)	32.6344	-85.4253
Pepperell Branch	PPLL-4	Pepperell Branch at Veterans Parkway	32.64749	-85.42871
Pepperell Branch	PPLL-5	Pepperell Branch upstream of Sougahatchee Creek behind Opelika Westside WWTP	32.6603	-85.4487
Pepperell Branch UT	PPLUTL-1	Unnamed tributary to Pepperell Branch at Sougahatchee Lake Road	32.6583	-85.4262
Sougahatchee Creek	SOGL-8	Sougahatchee Creek upstream of Pepperell Branch behind Opelika Westside WWTP	32.6607	-85.4485
Sougahatchee Creek	SO1	Sougahatchee Creek at Lee Co. Road 35 (Grand National Parkway)	32.66081	-85.44996
Sougahatchee Creek	SOGL-9	Sougahatchee Creek at Alabama Hwy 147	32.6483	-85.4827
Sougahatchee Creek	SOGL-10	Sougahatchee Creek at North Donahue Drive	32.6422	-85.5043
Sougahatchee Creek	SOGL-1	Sougahatchee Creek at Lee Co. Road 188 (USGS Gage)	32.6267	-85.5880
Sougahatchee Creek	SOGUTL-1	Unnamed tributary to Sougahatchee Creek at Shug Jordan Parkway	32.63527	-85.49126
Parkerson Mill Creek	PKML-1	Parkerson Mill Creek at Lee Co. Road 010 (Sand Hill Road)	32.53744	-85.50601
Parkerson Mill Creek	PKML-2	Parkerson Mill Creek at Shug Jordan Parkway	32.58551	-85.50249
Parkerson Mill Creek	PKML-3	Parkerson Mill Creek at West Samford Avenue	32.59890	-85.49683
Chewacla Creek	CHWL-7	Chewacla Creek at Lee Co. Road 010 (Sand Hill Road)	32.53592	-85.49650
Westpoint Stevens WWTP	WPS WWTP	Westpoint Stevens Wastewater Treatment facility outfall to Pepperell Branch	32.6285	-85.4165
Opelika Westside WWTP	OPW WWTP	Opelika Westside Wastewater Treatment facility outfall to Sougahatchee Creek	32.6606	-85.4493

Table 2. Sampling Results from Week 1

Auburn - Opelika Intensive Fecal Coliform Survey FY 2007

Week 1

Station_ID	Date	Time (24hr)	T-Air (C)	T-H2O (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb-Field (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Fecal Coliform Remark Code	TSS (mg/l)	Weather Now	Rain		Flow Stage	Stream Velocity	Flow Measured	Reason No Flow	Physical Char	Comments
														Weather last 24 hrs	prev 7 days						
OPW WWTP	1/16/2007	1012	7	19	6.7	833.2	9.1	6.05	4.6	510		9	Lt. Rain/Drizzle	Lt. Rain/Drizzle	Yes	Normal	Moderate	No	other - see comments		flow acquired from plant operator was 3.0 mgd. Multiply by 1.548 to convert to 4.644 cfs.
SO-1	1/16/2007	0948	7	14	7.3	404.5	9.2	7.97		2600	G	4	Lt. Rain/Drizzle	Lt. Rain/Drizzle	Yes	Normal	Moderate	No	not required in Study Plan		
SOGL-1	1/16/2007	0837	6	14	7.2	224.3	8.4	12.2	56.0	240		10	Lt. Rain/Drizzle	Lt. Rain/Drizzle	Yes	Normal	Moderate	No	USGS		
SOGL-10	1/16/2007	0905	6	14	7.2	278.2	8.3	9.79		5600	G	10	Lt. Rain/Drizzle	Lt. Rain/Drizzle	Yes	Normal	Moderate	No	not required in Study Plan		
SOGL-8	1/16/2007	1027	7	13	7.2	44.4	10.1	10.8	16.0	20	J	5	Lt. Rain/Drizzle	Lt. Rain/Drizzle	Yes	Normal	Slow	Yes-ADEM			
SOGL-9	1/16/2007	0927	6	14	7.3	302.4	8.6	10.1		6000	G	7	Lt. Rain/Drizzle	Lt. Rain/Drizzle	Yes	Normal	Moderate	No	not required in Study Plan		
PepperellBr02	1/17/2007	0958	5	10	7.7	1055.0	10.6	8.79	6.3	380		7	Partly Cloudy	Lt. Rain/Drizzle	Yes	Normal	Moderate	Yes-ADEM			
PPLL-1	1/17/2007	1045	7	9	7.1	175.3	10.9	4.89	1.8	180		1	Partly Cloudy	Lt. Rain/Drizzle	Yes	Normal	Slow	Yes-ADEM			
PPLL-4	1/17/2007	0916	3	9	7.6	898.0	10.7	6.32		210		2	Partly Cloudy	Lt. Rain/Drizzle	Yes	Normal	Moderate	No	not required in Study Plan		
PPLL-5	1/17/2007	0849	3	9	7.5	579.1	10.1	5.43	13.9	140		5	Cloudy	Lt. Rain/Drizzle	Yes	Normal	Moderate	Yes-ADEM			
PPLUTL-1	1/17/2007	0930	4	9	7.1	116.5	10.7	4.56	3.5	93		4	Partly Cloudy	Lt. Rain/Drizzle	Yes	Normal	Moderate	Yes-ADEM			
WPS WWTP	1/17/2007	1028	6	10	7.8	951.8	11.0	8.03	2.3	820		14	Partly Cloudy	Lt. Rain/Drizzle	Yes	Normal	Moderate	No	other - see comments		flow acquired from plant operator was 1.466 mgd. Multiply by 1.548 to convert to 2.27 cfs.
CHWL-7	1/18/2007	0833	4	10	7.6	140.0	10.4	8.56	21.6	34		2	Mostly Cloudy/Overcast	Partly Cloudy	Yes	Normal	Moderate	Yes-ADEM			
PKML-1	1/18/2007	0907	5	9	7.6	160.0	11.5	6.72	5.6	130		2	Mostly Cloudy/Overcast	Partly Cloudy	Yes	Normal	Moderate	Yes-ADEM			
PKML-2	1/18/2007	0942	3	9	7.2	342.9	10.9	4.19		330		1	Cloudy	Partly Cloudy	Yes	Normal	Slow	No	not required in Study Plan		
PKML-3	1/18/2007	0957	3	11	7.5	337.8	10.5	3.65	0.3	400		2	Mostly Cloudy/Overcast	Partly Cloudy	Yes	Normal	Slow	Yes-ADEM			

Remark Codes -

- G - The analyte is present, but the amount of the analyte is determined to be above an acceptable level for quantitation. QC measurements indicate a low bias for the sample result reported or an accurate result can not be calculated, but is determined to be greater than the value given (Micro: The actual number was greater than the number reported).
- J - Reported microbiological result is an estimate. The minimum colony count of 20 was not achieved.

Table 3. Sampling Results from Week 2

Auburn - Opelika Intensive Fecal Coliform Survey FY 2007
Week 2

Station_ID	Date	Time (24hr)	T-Air (C)	T-H2O (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb-Field (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Fecal Coliform Remark Code	TSS (mg/l)	Weather Now	Weather last 24 hrs	Rain prev 7 days	Flow Stage	Stream Velocity	Flow Measured	Reason No Flow	Physical Char_Comments
OPW WWTP	1/23/2007	0939	5	17	6.8	738.2	9.2	4.57	4.2	40	J	6	Mostly Cloudy/Overcast	Rain	Yes	Normal	Moderate	No	other - see comments	discharge flow 2.7 mgd
SO-1	1/23/2007	0927	5	11	7.2	166.4	10.3	16.7		100	J	9	Mostly Cloudy/Overcast	Rain	Yes	Above Normal	Fast	No	not required in Study Plan	very high stream flow. Unable to get to mid-depth for samples and field parameters.
SOGL-1	1/23/2007	0830	4	10	7.0	106.5	9.8	47.1	182.0	180	J	42	Mostly Cloudy/Overcast	Rain	Yes	Above Normal	Fast	USGS		very high stream flow. Unable to get to mid-depth for samples and field parameters.
SOGL-10	1/23/2007	0855	4	10	7.1	119.0	10.0	30.2		270	J	24	Mostly Cloudy/Overcast	Rain	Yes	Above Normal	Fast	No	not required in Study Plan	
SOGL-8	1/23/2007	0946	5	11	7.1	43.0	10.6	18		3	J	7	Mostly Cloudy/Overcast	Rain	Yes	Above Normal	Moderate	No	flow conditions dangerous	
SOGL-9	1/23/2007	0910	4	10	7.2	125.1	10.3	25.1		200	J	19	Mostly Cloudy/Overcast	Rain	Yes	Above Normal	Moderate	No	not required in Study Plan	
PepperellBr02	1/24/2007	0948	5	9	7.5	646.5	10.0	8.8	7.2	510	J	7	Mostly Cloudy/Overcast	Mostly Cloudy/Overcast	Yes	Normal	Moderate	Yes-ADEM		
PPLL-1	1/24/2007	1028	6	9	7.1	175.7	10.5	6.17	3.1	210	J	4	Mostly Cloudy/Overcast	Mostly Cloudy/Overcast	Yes	Normal	Slow	Yes-ADEM		
PPLL-4	1/24/2007	0906	4	9	7.5	528.2	10.4	8.32		390	J	2	Mostly Cloudy/Overcast	Mostly Cloudy/Overcast	Yes	Normal	Moderate	No	not required in Study Plan	
PPLL-5	1/24/2007	0838	4	8	7.4	329.1	10.2	10.2	19.0	140	J	6	Cloudy	Mostly Cloudy/Overcast	Yes	Normal	Moderate	Yes-ADEM		
PPLUTL-1	1/24/2007	0923	5	8	7.0	104.8	10.5	6.66	6.3	140	J	4	Mostly Cloudy/Overcast	Mostly Cloudy/Overcast	Yes	Normal	Moderate	Yes-ADEM		
WPS WWTP	1/24/2007	1012	7	9	7.9	947.8	10.7	6.8	1.6	2100	G	11	Mostly Cloudy/Overcast	Mostly Cloudy/Overcast	Yes	Normal	Moderate	No	other - see comments	discharge 1.05 mgd
CHWL-7	1/25/2007	0826	6	10	7.6	132.0	10.5	14.2	45.0	67	J	8	Clear/Cloudless	Mostly Cloudy/Overcast	Yes	Above Normal	Moderate	USGS		
PKML-1	1/25/2007	0845	6	8	7.6	144.0	11.5	6.84	7.4	190	J	1	Clear/Cloudless	Mostly Cloudy/Overcast	Yes	Above Normal	Moderate	Yes-ADEM		
PKML-2	1/25/2007	0919	6	8	7.2	218.1	10.8	4.17		670	G	2	Clear/Cloudless	Mostly Cloudy/Overcast	Yes	Normal	Slow	No	not required in Study Plan	
PKML-3	1/25/2007	0940	8	11	7.6	314.3	11.1	2.17	0.5	330	J	1	Clear/Cloudless	Mostly Cloudy/Overcast	Yes	Normal	Slow	Yes-ADEM		

Remark Codes -

- G - The analyte is present, but the amount of the analyte is determined to be above an acceptable level for quantitation.
- J - The analyte was positively identified; the reported value an estimate.

Table 4. Sampling Results from Week 3

Auburn - Opelika Intensive Fecal Coliform Survey FY 2007
Week 3

Station_ID	Date	Time (24hr)	T-Air (C)	T-H2O (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb-Field (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Fecal Coliform Remark Code	TSS (mg/l)	Weather Now	Weather last 24 hrs	Rain prev 7 days	Flow Stage	Stream Velocity	Flow Measured	Reason No Flow	Physical Char_Comments
OPW WWTP	1/30/2007	0937	5	17	6.4	1414.0	9.5	3.68	4.3	40		9	Mostly Cloudy/Overcast	Rain	Yes	Normal	Moderate	No	other - see comments	discharge flow =2.8mgd
SO-1	1/30/2007	0925	4	8	7.2	460.3	10.8	9		24		7	Partly Cloudy	Clear/Cloudless	Yes	Above Normal	Moderate	No	not required in Study Plan	
SOGL-1	1/30/2007	0835	2	6	6.9	217.0	10.8	9.48	49.0	97		6	Partly Cloudy	Clear/Cloudless	Yes	Above Normal	Moderate	USGS		
SOGL-10	1/30/2007	0857	3	7	6.9	347.5	10.5	9.23		370		8	Partly Cloudy	Clear/Cloudless	Yes	Above Normal	Moderate	No	not required in Study Plan	
SOGL-8	1/30/2007	0950	6	8	6.9	42.6	11.2	14.2	10.9	6	J	7	Partly Cloudy	Partly Cloudy	Yes	Normal	Slow	Yes-ADEM		
SOGL-9	1/30/2007	0911	3	7	6.9	342.9	10.8	8.2		100		6	Partly Cloudy	Clear/Cloudless	Yes	Above Normal	Moderate	No	not required in Study Plan	
PepperellBr02	1/31/2007	1039	2	6	7.5	924.0	12.0	5.75	6.1	100		8	Partly Cloudy	Partly Cloudy	Yes	Normal	Slow	Yes-ADEM		
PPLL-1	1/31/2007	1122	5	6	7.6	174.1	12.0	3.26	1.9	54		3	Partly Cloudy	Partly Cloudy	Yes	Normal	Slow	Yes-ADEM		
PPLL-4	1/31/2007	0939	-1	6	7.5	757.3	11.8	4.82		60		4	Partly Cloudy	Partly Cloudy	Yes	Normal	Moderate	No	not required in Study Plan	
PPLL-5	1/31/2007	0853	-1	4	7.4	464.7	11.3	4.43	11.7	37		4	Partly Cloudy	Partly Cloudy	Yes	Normal	Slow	Yes-ADEM		
PPLUTL-1	1/31/2007	0954	1	5	7.1	110.6	11.9	3.74	3.8	34		6	Partly Cloudy	Partly Cloudy	Yes	Normal	Moderate	Yes-ADEM		
WPS WWTP	1/31/2007	1105	4	6	7.9	1406.0	11.9	7.13	1.6	60	J	15	Partly Cloudy	Partly Cloudy	Yes	Normal	Moderate	No	other - see comments	discharge = 1.020 mgd
CHWL-7	2/1/2007	0844	3	8	7.6	116.5	11.2	36.6	85.0	200		31	Rain	Partly Cloudy	Yes	Above Normal	Fast	USGS		
PKML-1	2/1/2007	0937	4	7	7.4	67.3	11.4	135		1400	G	76	Rain	Partly Cloudy	Yes	Above Normal	Fast	No	flow conditions dangerous	high flow due to rain
PKML-2	2/1/2007	0925	4	6	7.2	52.5	11.7	179		3400	G	126	Rain	Partly Cloudy	Yes	Above Normal	Fast	No	not required in Study Plan	
PKML-3	2/1/2007	0903	3	6	7.2	61.3	11.9	330		5000	G	294	Rain	Partly Cloudy	Yes	Above Normal	Fast	No	flow conditions dangerous	high flow due to rain

Remark Codes -

- G - The analyte is present, but the amount of the analyte is determined to be above an acceptable level for quantitation.
- J - The analyte was positively identified; the reported value an estimate.

Table 5. Sampling Results from Week 4

Auburn - Opelika Intensive Fecal Coliform Survey FY 2007
Week 4

Station_ID	Date	Time (24hr)	T-Air (C)	T-H2O (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb-Field (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Fecal Coliform Remark Code	TSS (mg/l)	Weather Now	Weather last 24 hrs	Rain prev 7 days	Flow Stage	Stream Velocity	Flow Measured	Reason No Flow	Physical Char	Comments
OPW WWTP	2/6/2007	1016	6	16	6.0	1247.0	9.7	6.59	5.1	25		10	Clear/Cloudless	Clear/Cloudless	Yes	Normal	Moderate	No	other - see comments	discharge flow =3.3mgd	
SO-1	2/6/2007	1005	6	8	7.3	383.2	11.2	9.51		41		7	Clear/Cloudless	Clear/Cloudless	Yes	Above Normal	Moderate	No	not required in Study Plan		
SOGL-1	2/6/2007	0830	0	6	6.9	193.6	10.9	14.7	64	150		8	Clear/Cloudless	Clear/Cloudless	Yes	Above Normal	Moderate	USGS			
SOGL-10	2/6/2007	0854	3	6	7.0	266.7	11.0	11.3		1000		12	Clear/Cloudless	Clear/Cloudless	Yes	Above Normal	Moderate	No	not required in Study Plan		
SOGL-8	2/6/2007	1041	6	8	7.0	42.0	11.6	13.4	15.1	1	J	9	Clear/Cloudless	Clear/Cloudless	Yes	Normal	Slow	Yes-ADEM			
SOGL-9	2/6/2007	0954	4	6	7.1	273.8	11.2	9.98		120		10	Partly Cloudy	Clear/Cloudless	Yes	Above Normal	Moderate	No	not required in Study Plan		
SOGUTL-1	2/6/2007	0915	4	6	6.7	150.9	9.3	5.27	0.9	5400	G	7	Clear/Cloudless	Clear/Cloudless	Yes	Normal	Slow	Yes-ADEM			
PepperellBr02	2/7/2007	0953	13	9	7.6	850.0	10.7	6.45	6.4	150		8	Clear/Cloudless	Clear/Cloudless	Yes	Normal	Slow	Yes-ADEM			
PPLL-1	2/7/2007	1046	15	10	7.2	170.0	10.8	4.03	2.6	310		2	Clear/Cloudless	Clear/Cloudless	Yes	Normal	Slow	Yes-ADEM			
PPLL-4	2/7/2007	0902	11	8	7.5	719.3	10.8	5.47		120		3	Clear/Cloudless	Clear/Cloudless	Yes	Normal	Moderate	No	not required in Study Plan		
PPLL-5	2/7/2007	0825	8	7	7.5	432.0	10.6	6.17	14.8	63	J	5	Clear/Cloudless	Clear/Cloudless	Yes	Normal	Slow	Yes-ADEM			
PPLUTL-1	2/7/2007	0916	11	8	7.1	106.0	11.0	4.38	5	290		2	Clear/Cloudless	Clear/Cloudless	Yes	Normal	Slow	Yes-ADEM			
WPS WWTP	2/7/2007	1029	13	9	7.9	1518.0	10.9	6.17	1.81	57		9	Clear/Cloudless	Clear/Cloudless	Yes	Normal	Moderate	No	other - see comments	discharge = 1.169mgd	
CHWL-7	2/8/2007	0824	8	10	7.5	142.7	10.9	8.67	27	20	J	4	Mostly Cloudy/Overcast	Clear/Cloudless	Yes	Normal	Moderate	USGS			
PKML-1	2/8/2007	0842	9	9	7.4	150.2	11.6	4.59	6.1	64		3	Mostly Cloudy/Overcast	Clear/Cloudless	Yes	Normal	Moderate	Yes-ADEM			
PKML-2	2/8/2007	0942	10	10	7.3	256.3	10.9	5.37		6700	G	3	Mostly Cloudy/Overcast	Clear/Cloudless	Yes	Normal	Slow	No	not required in Study Plan		
PKML-3	2/8/2007	1010	12	12	8.0	317.6	12.9	2.43	0.3	190		3	Mostly Cloudy/Overcast	Clear/Cloudless	Yes	Normal	Moderate	Yes-ADEM			

Remark Codes -

- G - The analyte is present, but the amount of the analyte is determined to be above an acceptable level for quantitation.
- J - The analyte was positively identified; the reported value an estimate.

Table 6. Sampling Results from Week 5

Auburn - Opelika Intensive Fecal Coliform Survey FY 2007

Week 5

Station_ID	Date	Time (24hr)	T-Air (C)	T-H2O (C)	pH (su)	Cond (umhos @ 25C)	DO (mg/l)	Turb-Field (NTU)	Stream Flow (cfs)	Fecal Coliform (col/100ml)	Fecal Coliform Remark Code	TSS (mg/l)	Weather Now	Weather last 24 hrs	Rain prev 7 days	Flow Stage	Stream Vel	Flow Measur	Reason No Flow	Physical Char	Comments
OPW WWTP	2/13/2007	1012	13	16	6.6	933.4	9.5	3.97	5.4	83		7	Rain	Clear/Cloudless	Yes	Normal	Moderate	No	other - see comments	discharge flow = 3.5 mgd	
SO-1	2/13/2007	1001	13	11	7.4	387.3	10.0	6.93		62	G	6	Rain	Clear/Cloudless	Yes	Above Normal	Moderate	No	not required in Study Plan		
SOGL-1	2/13/2007	0834	14	10	7.1	218.0	9.5	8.92	49	130		7	Mostly Cloudy/Overcast	Clear/Cloudless	No	Above Normal	Moderate	USGS			
SOGL-10	2/13/2007	0855	13	11	7.1	310.7	9.5	7.81		87		6	Mostly Cloudy/Overcast	Clear/Cloudless	No	Above Normal	Moderate	No	not required in Study Plan		
SOGL-8	2/13/2007	1027	13	11	7.0	42.0	10.5	10.8		1	J	9	Rain	Clear/Cloudless	Yes	Normal	Slow	No	other - see comments	lightning at station, no flow attempted.	
SOGL-9	2/13/2007	0948	13	11	7.2	332.0	9.6	7.95		150		6	Rain	Clear/Cloudless	No	Above Normal	Moderate	No	not required in Study Plan		
SOGUTL-1	2/13/2007	0908	12	11	6.8	112.5	10.5	2.18	0.6	300		6	Rain	Clear/Cloudless	No	Normal	Slow	Yes-ADEM			
PepperellBr02	2/14/2007	0956	0	9	7.5	611.8	9.5	40.1	9.7	370		24	Mostly Cloudy/Overcast	Rain	Yes	Above Normal	Slow	Yes-ADEM			
PPLL-1	2/14/2007	1045	1	9	6.9	127.8	10.2	27.8	3.6	470		7	Mostly Cloudy/Overcast	Rain	Yes	Above Normal	Slow	Yes-ADEM			
PPLL-4	2/14/2007	0909	0	10	7.3	434.9	9.9	47.3		1000		24	Mostly Cloudy/Overcast	Rain	Yes	Above Normal	Moderate	No	not required in Study Plan		
PPLL-5	2/14/2007	0832	1	10	7.2	215.5	9.7	60.8	26.4	1500		40	Mostly Cloudy/Overcast	Rain	Yes	Above Normal	Moderate	Yes-ADEM			
PPLUTL-1	2/14/2007	0922	1	9	6.8	86.6	10.1	23.7	7.5	1100		13	Mostly Cloudy/Overcast	Rain	Yes	Above Normal	Slow	Yes-ADEM			
WPS WWTP	2/14/2007	1032	1	9	7.9	1158.0	10.3	9.46	2.3	90		13	Mostly Cloudy/Overcast	Rain	Yes	Normal	Moderate	No	other - see comments	discharge = 1.456 mgd	
CHWL-7	2/15/2007	0819	1	8	7.5	123.1	11.1	23.7	52	87		11	Clear/Cloudless	Mostly Cloudy/Overcast	Yes	Above Normal	Moderate	USGS			
PKML-1	2/15/2007	0835	-1	5	7.5	127.1	12.4	12.5	8.7	620	G	4	Clear/Cloudless	Mostly Cloudy/Overcast	Yes	Above Normal	Moderate	Yes-ADEM			
PKML-2	2/15/2007	0916	0	5	7.1	203.1	11.9	8.64		480		2	Clear/Cloudless	Mostly Cloudy/Overcast	Yes	Normal	Slow	No	not required in Study Plan		
PKML-3	2/15/2007	0930	2	7	7.9	298.4	12.1	3.99	0.5	170	J	5	Clear/Cloudless	Mostly Cloudy/Overcast	Yes	Normal	Slow	Yes-ADEM			

Remark Codes -

- G - The analyte is present, but the amount of the analyte is determined to be above an acceptable level for quantitation.
- J - The analyte was positively identified; the reported value an estimate.

Figure 3. Saugahatchee Creek Watershed Fecal Coliform Results

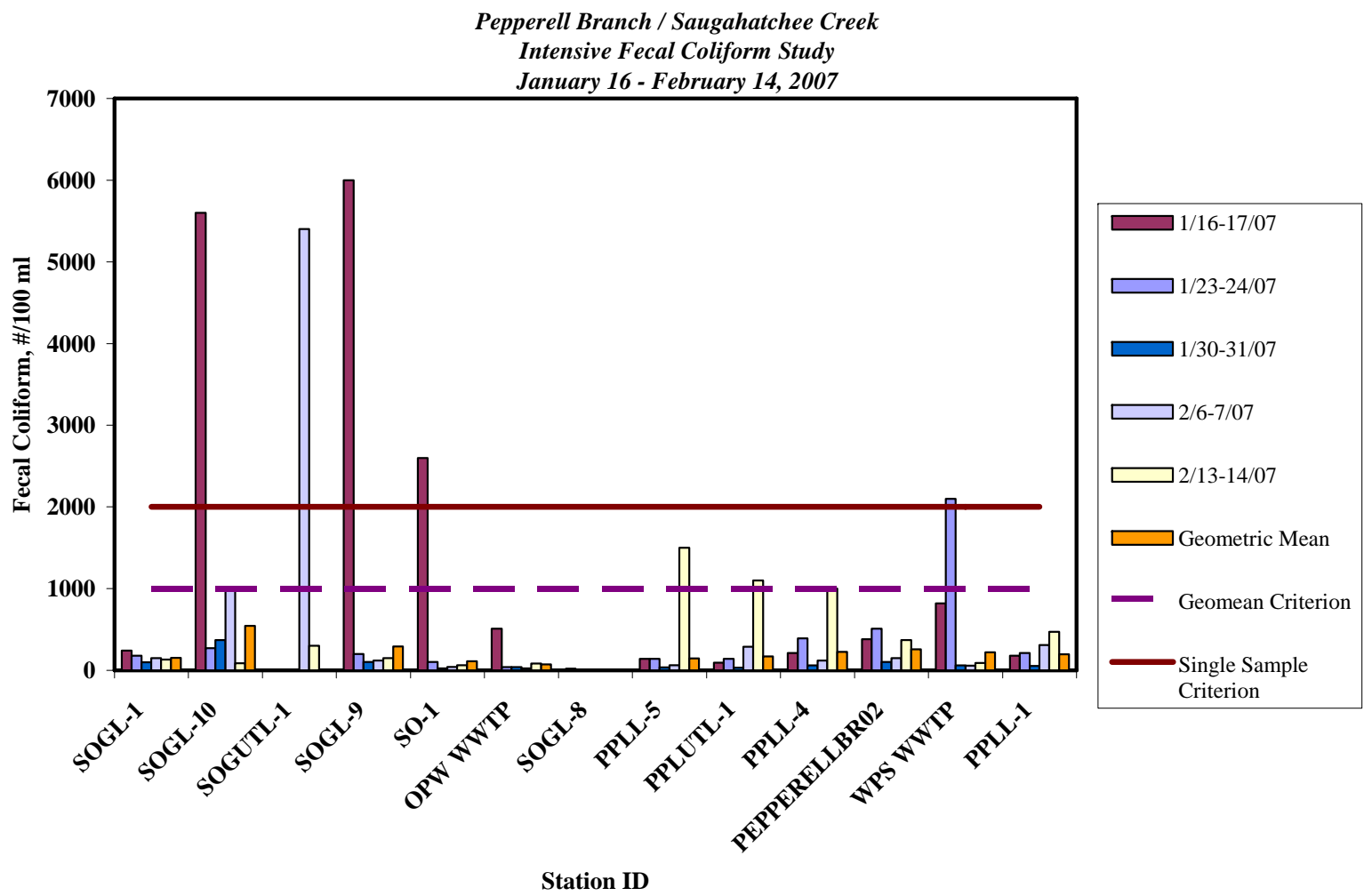


Figure 4. Saughatchee Creek Stream Flow at Loachapoka

**Saugahatchee Creek near Loachapoka, AL
Stream Flow at USGS Station 02418230**

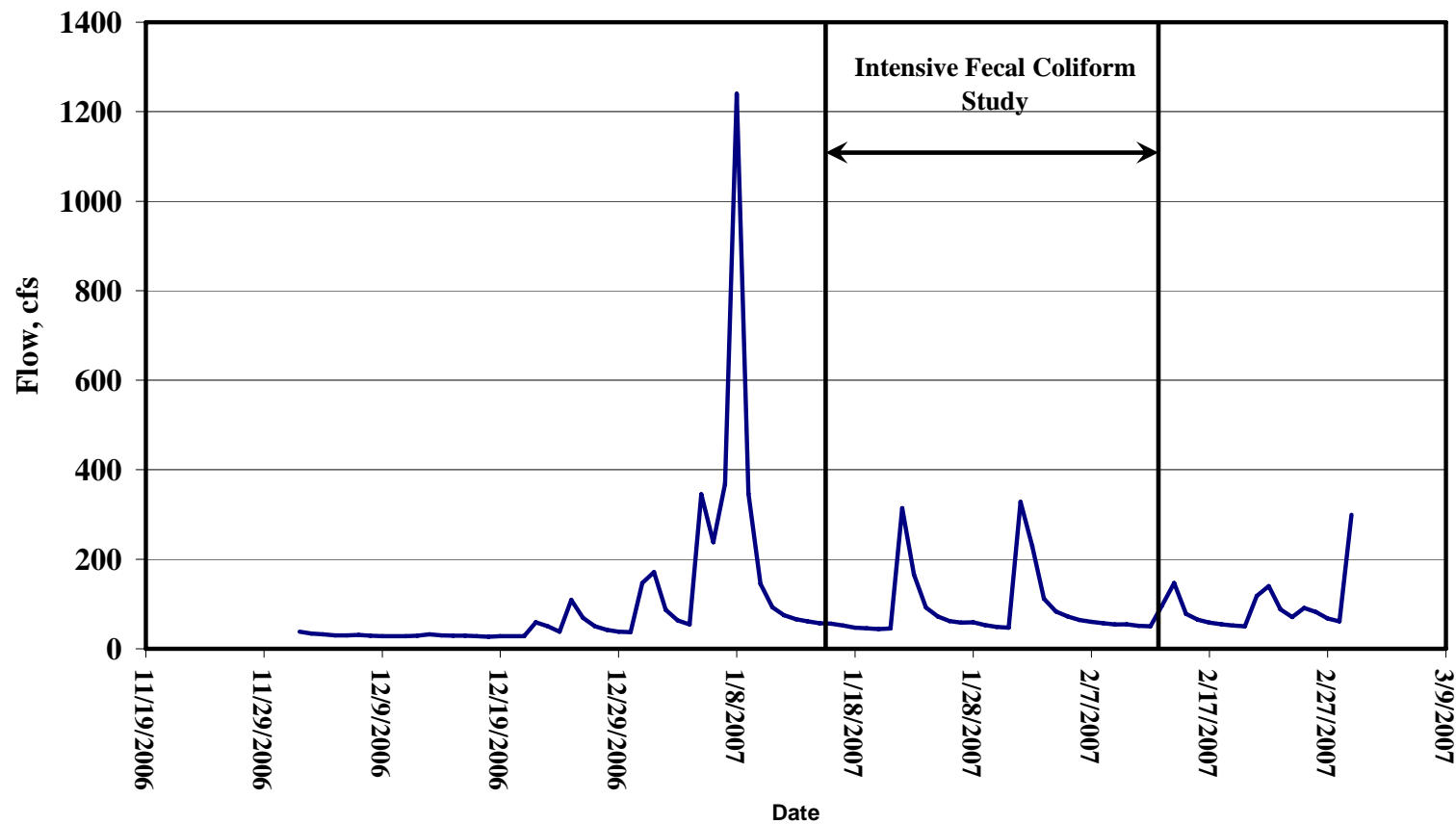


Figure 5. Parkerson Mill Creek Watershed Fecal Coliform Results

**Parkerson Mill Creek / Chewacla Creek
Intensive Fecal Coliform Study
1/18/07 - 2/15/07**

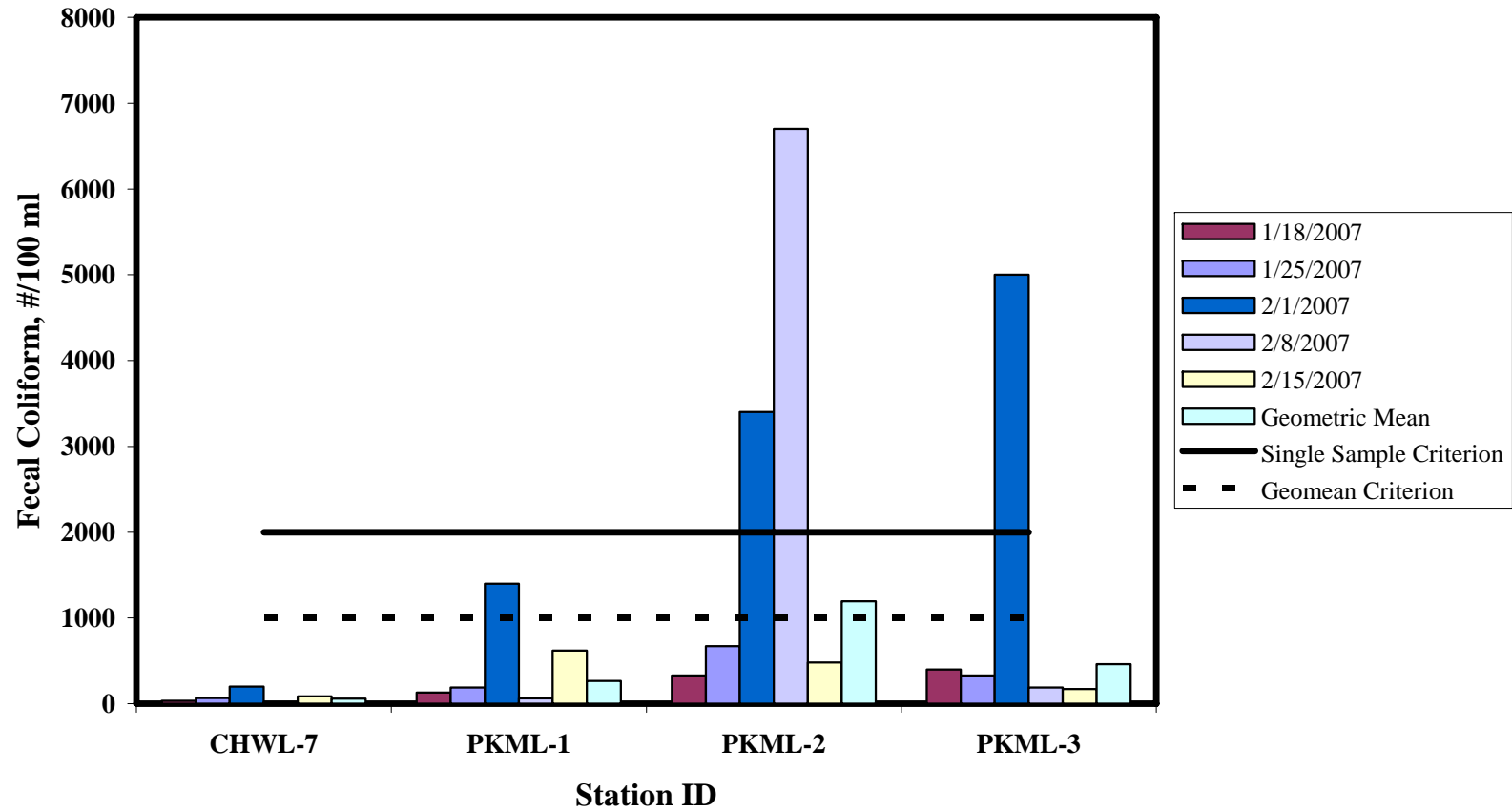


Figure 6. Chewacla Creek Stream Flow near Chewacla State Park

**Chewacla Creek near Chewacla State Park
Stream Flow at USGS Station 02418760**

