

# **2005 Study Plan for the Twin Creek, Fourmile Creek, and Indian Creek Watersheds (Darke, Preble, Montgomery, Butler, and Warren Counties, Ohio)**

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State of Ohio Environmental Protection Agency  
Division of Surface Water  
Lazarus Government Center  
122 South Front St., Columbus, OH 43215  
Mail to:  
P.O. Box 1049, Columbus, OH 43216-1049  
&  
Ecological Assessment Section  
4675 Homer Ohio Lane  
Groveport, OH 43125  
&  
Surface Water Section  
Southwest District Office  
Dayton, OH

**Introduction**

During the 2005 field season (June thru October) chemical, physical, and biological sampling will be conducted in the Twin, Fourmile, and Indian Creek basins to assess and characterize all of the various potential sources of water quality impairment in the watershed. As a Total Maximum Daily Load (TMDL) basin, this survey will incorporate a study design and some assessment techniques which are more comprehensive than a targeted sampling strategy alone would entail.

The Twin Creek basin has not been assessed since 1995, Fourmile Creek since 1996, and Indian Creek since 1985 and therefore will be thoroughly evaluated. Table 1 contains a list of all the NPDES facilities within the basin. Selected point source discharges from Table 1 will be assessed. These will be targeted for evaluation of their potential aquatic influence. The sampling effort is structured to characterize non point source impacts including those from unsewered communities and agricultural activities. Unsewered communities within the study area include Ithaca and Verona in the Twin Creek basin, Darrrtown, Fairhaven, and Morning Star in the Fourmile Creek basin, and Millville in the Indian Creek basin.

Streams, locations and types of sampling scheduled for the study area are listed in Table 2. geographic coordinates are provided in Table 3.

**Sampling Objectives:**

Monitor and assess the chemical, physical and biological integrity of the water bodies within the Twin, Fourmile, and Indian Creek study areas.

Assess the physical conditions present in streams listed in the study plan to identify those which likely function as habitat for fish communities.

Evaluate the appropriateness of existing use designations and assign uses to undesignated streams.

Characterize the amount of aquatic resource degradation attributable to various land uses including agricultural practices and rural community development.

Determine any aquatic impacts from known potential sources including point source dischargers, and from unsewered communities.

**Chemical/Physical Water and Sediment Quality**

Chemical sampling locations within the study area are listed in Table 2.

Conventional chemical/physical water quality samples will be collected 5 times.

Bacteriological water samples will be collected five times within a 30 day period to fulfill requirements in the WQS at locations yet to be determined.

Organic water samples will be collected twice at designated locations.

Sediment metal and organic samples will be collected once at designated locations.

Datasonde sampling will be completed by the Modeling Unit. Two runs are requested.

The letters in the parameter column are as follows: C = water column chemistry, S = sediment, O = organics (BNA, VOC, PCB, pesticides and herbicides), D = datasondes, Pd = dissolved phosphorus, Chla = chlorophyll a, F = fish, M = macroinvertebrates.

### **Macroinvertebrate and Fish Assemblages**

Quantitative macroinvertebrate and two pass fish sampling will be conducted at all stream stations with a drainage area of 20 sq. mi. or greater, is a reference site, is a nutrient study site, or is otherwise noted in Table 2. These stations are indicated in the table by being **bold and underlined**. All other stations will be sampled using the qualitative macroinvertebrate and one pass fish methods. QHEI scores will be calculated on the habitat at all fish sampling locations.

### **Study Planning Team: Assigned DSW Staff**

Coordinator: Mike Bolton (614) 836-8781 and Angela Dripps (614) 836-8798

Chemical Sampling: Diana Zimmerman (937) 285-6440, MaryAnne Mahr (937) 285-6196, Louise Snyder (937) 285-6475, Greg Buthker (937) 285-6445

Nonpoint: Hugh Trimble (937) 285-6444

Modeling: Mohammad Asasi (Twin) (614) 644-2882, Jo Bishop (Fourmile) (614) 644-2874, Curt Chipps (Indian) (614) 644-2892

Benthic: Mike Bolton (Twin) (614)836-8781, Angela Dripps (Twin) (614) 836-8798 and Ed Moore (Fourmile and Indian) (614) 836-8785

Fish: Chuck Boucher (614) 836-8776 and Holly Tucker (614)836-8777

*Please notify Mike Bolton (614) 836-8781 if there are any changes to this study plan, sampling problems, or additional information.*

Table 1. Facilities regulated by the National Pollution Discharge Elimination System in the Twin, Fourmile, and Indian Creek basins.

Facility Name	Receiving Stream	River Mile	County	Design Cap. MGD	Avg. Flow MGD*
<b>Twin Creek</b>					
Lewisburg WWTP	Twin Creek	35.20	Preble	0.261	0.158
Marathon Oil Co.	Twin Creek	34.20	Preble	unknown	0.001
Iams Company	Twin Cr.	33.7	Preble	0.075	0.038
Carl Akey Co.	Twin Cr.	33.91	Preble	0.006	0.001
Eldorado WWTP	Price Creek	13.34/29.74	Preble	0.1	0.052
West Alexandria WWTP	Twin Creek	26.82	Preble	0.3	0.138
Mid Valley Pipeline	Lesley Run	6.85/24.6	Preble	stormwater	
Dayton Travel Center	UT to Goose Cr., to Bantas Fork	0.2/4.75/7.55/ 24.32	Preble	0.025	
Pilot Oil Travel Center	UT to Goose, to Bantas Fork	0.4/4.75/7.55/ 24.32	Preble	0.02	
Gratis WWTP	Twin Creek	19.05	Preble	0.119	0.088
Farmersville WWTP	Reigle Ditch to Little Twin Creek	0.45/5.43/6.61	Montgome ry	0.22	0.15
<b>Fourmile Creek</b>					
Square D Co.	UT To Elams Run	2.11/0.95/ 18.80	Butler		
Oxford WWTP	Fourmile Creek	16.30	Butler		
<b>Indian Creek</b>					
Butler Co. Queen Acres WWTP	UT to Indian Cr.	0.1/6.57	Butler		0.5

\* These values are from the 1997 Twin Creek TSD.

**Table 2. Twin Creek, Fourmile, Indian Creek sampling sites.**

<b>STREAM NAME</b>	<b>RM</b>	<b>SAMPLE TYPE</b>	<b>LOCATION</b>	<b>COUNTY</b>	<b>TOPO</b>	<b>ISSUE</b>
Fourmile Creek	41.10	C,F,M	Gravel lane Upst. Weist Rd	Preble	New Paris	Geometric
Fourmile Creek	38.90	C,F,M	Concord-Fairhaven Rd	Preble	Fairhaven	Geometric
Fourmile Creek	35.60	C,F,M	Concord-Fairhaven Rd	Preble	Fairhaven	Geometric
Fourmile Creek	30.80	C	Paint Creek Fourmile Road	Preble	Fairhaven	Upst. Fairhaven
Fourmile Creek	28.25	C,S,O,D	Rt. 725	Preble	Fairhaven	Dst. Fairhaven
Fourmile Creek	26.70	C,S,O, <b>F,M</b>	Junction Rd	Preble	College Corner	Geometric
Fourmile Creek	24.77	C, <b>F,M</b>	Camden-College Road	Preble	College Corner	Historical, Upst. Acton Lake
Fourmile Creek	20.25	C,S,O,D, <b>F,M</b>	Buckley Rd.	Butler	Oxford	Dst. Acton Lake
Fourmile Creek	18.70	C, <b>F,M</b>	Dst. Elams Run, Dst. SR 732	Butler	Oxford	Square D, heavy metals
Fourmile Creek	16.40	C,S,O,D, <b>F,M</b>	Ust. Oxford WWTP	Butler	Millville	Oxford WWTP
Fourmile Creek	16.20	C,S,O,D, <b>F,M</b>	Dst. Oxford WWTP	Butler	Millville	Oxford WWTP
Fourmile Creek	13.65	C, <b>F,M</b>	Lanes Mill Rd.	Butler	Millville	Recovery
Fourmile Creek	11.00	C,S,O,D,Pd,Chla, <b>F,M</b>	SR 177	Butler	Millville	Background - nutrient study
Fourmile Creek	5.40	C,S,O, <b>F,M</b>	Eaton Rd.	Butler	Hamilton	Background
Fourmile Creek	0.30	C,S,O, D, <b>F,M</b>	Sevenmile Ave	Butler	Hamilton	Impounded, Mod. Reference
Dixon Branch (Trib to Fourmile Creek @ RM 34.80)	0.30	C,F,M	California School Rd	Preble	Fairhaven	Geometric
East Fork (Trib to Fourmile Creek @ RM 24.82)	5.40	C,S,O,F,M	State Route 732	Preble	Eaton South	Geometric
East Fork (Trib to Fourmile Creek @ RM 24.82)	2.50	C,F,M	State Route 177	Preble	College Corner	Geometric
Trib to Fourmile Creek @ RM 24.32	1.00	C	Paxton Branch NE of College Corner - Fourmile Church Rd.	Preble	College Corner	Upst. Acton Lake
Little Fourmile Creek (Trib Fourmile @ RM23.89)	13.70	C,F,M	State Route 177	Preble	Fairhaven	Geometric
Little Fourmile Creek (Trib Fourmile @ RM23.89)	2.80	C,S,O, <b>F,M</b>	Upst Fairhaven Rd	Preble	College Corner	Geometric
Fleisch Run (Trib to Little Fourmile Creek @ RM 11.41)	0.70	C,F,M	Paint Creek-Fourmile Rd	Preble	Fairhaven	Geometric
Trib to Fourmile Creek @ RM 23.57 (Morning Sun trib – north)	0.70	C,F,M	Main Loop Road	Preble	College Corner	Geometric, dst. unsewered Morning Star
Trib to Fourmile Creek (Morning Sun Trib - south)	0.85	C,F,M	Loop Road in Park	Preble	College Corner	dst. unsewered Morning Star

**Table 2. Twin Creek, Fourmile, Indian Creek sampling sites.**

<b>STREAM NAME</b>	<b>RM</b>	<b>SAMPLE TYPE</b>	<b>LOCATION</b>	<b>COUNTY</b>	<b>TOPO</b>	<b>ISSUE</b>
Elams Run (Trib to Fourmile Creek @ RM 18.80)	0.30	C,S,F,M	Ust. Corso	Butler	Oxford	Hist. Square D/ Upst. Develop
Harkers Run (Trib to Fourmile Creek @ RM 17.26)	2.40	C,F,M	Somerville Rd, Dwnst. Trib	Butler	Oxford	Geometric
Collins Creek (Trib to Fourmile Creek @ RM 16.6)	0.60	C,F,M	US 27	Butler	Millville	Geometric
Darrs Run (Trib to Fourmile Creek @ RM 10.58)	2.10	C,S,O,D,F,M	SR 73	Butler	Oxford	Geometric
Stony Run (Trib to Fourmile Creek @ RM 8.68)	0.30	C,F,M	State Route 177	Butler	Millville	Geometric
Cotton Run (Trib to Fourmile Creek @ RM 2.47)	0.70	C,F,M	Morganthaler Rd	Butler	Hamilton	Geometric
Indian Creek	23.90	C,S,O, <b>F,M</b>	Fairfield Rd, near Ohio/Indiana border	Butler	College Corner	Geometric
Indian Creek	17.70	C, <b>F,M</b>	Indian Creek Rd, southern crossing	Butler	Reily	Geometric
Indian Creek	9.40	C,S,O, <b>F,M</b>	Adj. Reily-Millville Rd	Butler	Millville	Reference
Indian Creek	6.80	C,S,O, D, <b>F,M</b>	Queen Acres MHP	Butler	Millville	WWTP Expansion
Indian Creek	6.50	C,S,O,D, <b>F,M</b>	Queen Acre WWTP	Butler	Millville	WWTP Expansion
Indian Creek	4.30	C, <b>F,M</b>	Hamilton-New London Rd	Butler	Shandon	Reference
Indian Creek	1.66	C	SR 128	Butler	Shandon	Mulch discharge ,Upst. gravel
Indian Creek	0.10	C,S,O, <b>F,M</b>	Gravel pit at mouth	Butler	Shandon	Geometric
Little Indian Creek (Trib to Indian Cr. @ RM 14.70)	0.10	C,F,M	Sawmill Road at mouth	Butler	Reily	Geometric
Reserve Run (Trib to Indian Creek @ RM 13.73)	0.30	C,S,O,F,M	Adj. Reily-Millville Rd	Butler	Millville	Geometric
Salmon Run (Trib to Indian Creek @ RM 10.18)	1.90	C,F,M	Salmon Road	Butler	Millville	Upst. Island Lake MHP trib
Salmon Run (Trib to Indian Creek @ RM 10.18)	0.10	C, <b>F,M</b>	Adj. Reily-Millville Rd	Butler	Millville	Geometric
Trib to Salmon Run	1.40	C only	Hussey Road	Butler	Millville	Island Lake MHP WWTP
Trib to Salmon Run	0.10	C,F,M	Salmon Road	Butler	Millville	Dwnst. Island Lake WWTP
Lick Run (Trib to Indian Creek @ RM 7.9)	0.90	C,F,M	Ross Rd	Butler	Millville	Geometric
Beals Run (Trib to Indian Creek @ RM 7.16)	0.10	C,F,M	Near mouth, Dst. trib	Butler	Millville	Geometric
Twin Creek	46.50	C,F,M	State Route 722	Darke	Arcanum	Geometric
Twin Creek	42.10	C, <b>F,M</b>	Euphemia-Castine Rd	Preble	Arcanum	Reference
Twin Creek	38.00	C,S, D,O, <b>F,M</b>	East Lock Rd	Preble	Lewisburg	Reference - dst two old landfill
Twin Creek	35.50	C,S,O,D,Pd,Chla, <b>F,M</b>	Dst. Swamp Creek, NW of Knapke Rd	Preble	Lewisburg	Reference - nutrient study
Twin Creek	34.90	C,S,O,D, <b>F,M</b>	Dst. Lewisburg WWTP, ust. Lewisburg Rd.	Preble	Lewisburg	Lewisburg WWTP

**Table 2. Twin Creek, Fourmile, Indian Creek sampling sites.**

<b>STREAM NAME</b>	<b>RM</b>	<b>SAMPLE TYPE</b>	<b>LOCATION</b>	<b>COUNTY</b>	<b>TOPO</b>	<b>ISSUE</b>
Twin Creek	33.60	C,O,D, <b><u>F, M</u></b>	Dst. Iams & Akey, from SR 503 opposite Eaton - Lewisburg Rd.	Preble	Lewisburg	Iams & Akey
Twin Creek	31.70	C,S,O,D, <b><u>F, M</u></b>	Ust. Pyrmont Rd.	Preble	Lewisburg	Recovery/background
Twin Creek	27.50	C,S,O,D, <b><u>F, M</u></b>	Adj. Stotler Rd.	Preble	Lewisburg	Ust. West Alexandria
Twin Creek	26.70	C,S,O,D, <b><u>F, M</u></b>	Dst. West Alexandria WWTP	Preble	West Alexandria	West Alexandria WWTP
Twin Creek	23.90	C,S,O,D, Pd, Chla, <b><u>F, M</u></b>	Ust. Halderman Rd.	Preble	West Alexandria	Recovery/background -nut.study
Twin Creek	19.20	C,S,O,D, <b><u>F, M</u></b>	Enterprise Rd	Preble	West Alexandria	Reference, Ust. Gratis WWTP
Twin Creek	19.00	<b><u>F, M</u></b>	Dst. Gratis WWTP	Preble	West Alexandria	Gratis WWTP
Twin Creek	18.29	C,S,O,D	Dst. Gratis WWTP, dirt Rd off 725	Preble	Farmersville	Gratis WWTP
Twin Creek	13.40	C, <b><u>F, M</u></b>	Dst. Tom's Run	Montgomery	Farmersville	Background
Twin Creek	9.80	C,S,O,D, <b><u>F, M</u></b>	Old gauge station	Montgomery	Farmersville	Historical/Sentinel
Twin Creek	3.40	C, <b><u>F, M</u></b>	Ust. Chamberlain Rd.	Warren	Franklin	Dst. Germantown
Twin Creek	0.90	C, <b><u>F, M</u></b>	Dayton-Oxford Rd	Warren	Franklin	Reference
Twin Creek	0.40	<b><u>F</u></b> only	Within Conservancy area	Warren	Franklin	Channel modification
Twin Creek	0.10	C, <b><u>F, M</u></b>	Near new mouth	Warren	Franklin	New Channel mouth
Maple Swamp Ditch (Trib to Twin Creek @ RM 47.03)	2.40	C, F, M	Grubbs-Rex Rd	Darke	New Madison	Geometric
Maple Swamp Ditch (Trib to Twin Creek @ RM 47.03)	1.40	C, F, M	Otterbine-Ithaca Rd	Darke	New Madison	Geometric
Dry Fork (Trib to Twin Creek @ RM 39.35)	0.80	C, F, M	Locke Rd	Preble	Lewisburg	Geometric
Millers Fork (Trib to Twin Creek @ RM 35.71)	10.80	C, F, M	Grubbs-Rex Rd	Darke	Arcanum	Geometric
Millers Fork (Trib to Twin Creek @ RM 35.71)	8.00	C, F, M	Clark Rd Dwnst trib	Darke	Arcanum	Geometric
Millers Fork (Trib to Twin Creek @ RM 35.71)	3.90	C,S,O,D, F, M	Georgetown-Verona Rd	Preble	Arcanum	Geometric - CAFO
Swamp Creek (Trib to Twin Creek @ RM 35.59)	6.30	C, F, M	Upst. County Line Rd,	Montgomery	Laura	Geometric
Swamp Creek (Trib to Twin Creek @ RM 35.59)	0.20	C,S,O,D, F, M	US 40	Preble	Lewisburg	Geometric - Sentinel
Trib to Swamp Creek @ RM 6.45	0.30	C, F, M	Baltimore-Phillipsburg Rd	Montgomery	Laura	Geometric
Price Creek (Trib to Twin Creek @ RM 29.74)	13.70	C,S,O,D, Pd, Chl, <b><u>F, M</u></b>	Pence-Sherman Rd, west of Eldorado	Preble	New Madison	Geometric - nutrient study
Price Creek (Trib to Twin Creek @ RM 29.74)	10.90	C, F, M	Shurley Rd	Preble	Eaton North	Geometric
Price Creek (Trib to Twin Creek @ RM 29.74)	3.80	C, <b><u>F, M</u></b>	Jims Run Rd	Preble	Lewisburg	Geometric
Price Creek (Trib to Twin Creek @ RM 29.74)	0.60	C,S,O,D	Upstream SR 503	Preble	Lewisburg	Historical - Sentinel
Lesley Run (Trib to Twin Creek @ RM 24.60)	6.00	C, F, M	Snyder Rd	Preble	Brookville	Geometric
Lesley Run (Trib to Twin Creek @ RM 24.60)	3.60	C	US 35	Preble	Farmersville	CAFO Recovery?

**Table 2. Twin Creek, Fourmile, Indian Creek sampling sites.**

<b>STREAM NAME</b>	<b>RM</b>	<b>SAMPLE TYPE</b>	<b>LOCATION</b>	<b>COUNTY</b>	<b>TOPO</b>	<b>ISSUE</b>
Lesley Run (Trib to Twin Creek @ RM 24.60)	1.20	C,F,M	East Factory Rd	Preble	West Alexandria	Geometric/historical
Bantas Fork (Trib to Twin Creek @ RM 24.32)	13.70	C,F,M	Orange Rd	Preble	Eaton North	Geometric
Bantas Fork (Trib to Twin Creek @ RM 24.32)	9.40	C, <b>F,M</b>	US 127	Preble	Eaton North	Reference
Bantas Fork (Trib to Twin Creek @ RM 24.32)	7.10	C, <b>F,M</b>	Bantas Creek Rd	Preble	Lewisburg	Geometric
Bantas Fork (Trib to Twin Creek @ RM 24.32)	1.30	C,S,O,D, <b>F,M</b>	State Route 503	Preble	West Alexandria	Reference
Goose Creek (Trib to Bantas Fork @ RM 7.55)	4.40	C,S,O,F,M	Scheyhing rd	Preble	Lewisburg	Geometric/historical
Goose Creek (Trib to Bantas Fork @ RM 7.55)	0.30	C,F,M	Eaton - Lewisburg	Preble	Lewisburg	Geometric/historical
Aukerman Creek (Trib to Twin Creek @ RM 19.29)	3.30	C,F,M	Ketterman Rd	Preble	West Alexandria	Geometric
Aukerman Creek (Trib to Twin Creek @ RM 19.29)	1.80	C,F,M	Upst. Sandy Run, Adj. Swartzel Rd	Preble	West Alexandria	Geometric
Aukerman Creek (Trib to Twin Creek @ RM 19.29)	0.50	C, <b>F,M</b>	Fudge Rd	Preble	West Alexandria	Geometric
Trib to Aukerman Creek @ RM 2.88	0.50	C,F,M	Aukerman Creek Rd, Upst. trib	Preble	West Alexandria	Geometric
Trib to Twin Creek @ RM 18.29	0.10	C,F,M	End of gravel road, at mouth	Preble	Farmersville	Geometric
Toms Run (Trib to Twin Creek @ RM 13.52)	12.00	C,F,M	Amity Rd	Montgomery	Brookville	Geometric
Toms Run (Trib to Twin Creek @ RM 13.52)	8.50	C,F,M	Bull Rd	Montgomery	Farmersville	Geometric
Toms Run (Trib to Twin Creek @ RM 13.52)	0.40	C, <b>F,M</b>	Anthony Rd	Montgomery	Farmersville	Geometric
Toms Run (Trib to Twin Creek @ RM 13.52)	0.11	C,S,O,D	Adj. Anthony Rd	Montgomery	Farmersville	Sentinel
Little Twin Creek (Trib to Twin Creek @ RM 6.69)	6.20	C, <b>F,M</b>	Hemple Rd	Montgomery	Farmersville	Reference
Little Twin Creek (Trib to Twin Creek @ RM 6.69)	4.70	C,Pd,Chla, <b>F,M</b>	Farmersville-West Carrollton Rd	Montgomery	Farmersville	Geometric-nutrient study
Little Twin Creek (Trib to Twin Creek @ RM 6.69)	2.00	C,S,O,D,F,M	Little Twin Rd	Montgomery	Miamisburg	Geometric
Reigle Ditch (trib to Little Twin Creek @ RM 5.43)	1.20	C	Upst. pump station - wet weather bypass	Montgomery	Farmersville	enforcemnt wwtp
Reigle Ditch (trib to Little Twin Creek @ RM 5.43)	0.50	C	Upst. Farmersville wwtp	Montgomery	Farmersville	historical/enforcemnt wwtp
Reigle Ditch (trib to Little Twin Creek @ RM 5.43)	0.30	C	Dwnst. wwtp	Montgomery	Farmersville	enforcemnt wwtp

C = water column chemistry, S = sediment, O = organics (BNA, VOC, PCB, pesticides and herbicides), D = datasondes, Pd = dissolved phosphorus, Chla = chlorophyll a, F = fish one pass, **F** = fish two passes, M = macroinvertebrates qualitative sample, **M** = macroinvertebrates quantitative sample.

**Table 3. Twin Creek, Fourmile, and Indian Creek sampling sites with lats/long.**

HUC	STREAM NAME	RM	DRAINAGE	POINT_X	POINT_Y	SAMPLE TYPE
05080002-070	Fourmile Creek	41.10	4.4	-84.7889	39.7611	C,F,M
05080002-070	Fourmile Creek	38.90	12.2	-84.7742	39.7365	C,F,M
05080002-070	Fourmile Creek	35.60	17.6	-84.7696	39.6999	C,F,M
05080002-070	Fourmile Creek	30.80	29	-84.7698	39.6566	C
05080002-070	Fourmile Creek	28.25		-84.7747	39.6342	C,S,O,D
05080002-070	Fourmile Creek	26.70	38	-84.7852	39.6115	C,S,O,F,M
05080002-070	Fourmile Creek	24.77	50	-84.7707	39.5918	C,F,M
05080002-070	Fourmile Creek	20.25	98	-84.7371	39.5424	C,S,O,D,F,M
05080002-070	Fourmile Creek	18.70	104	-84.7339	39.5231	C,F,M
05080002-070	Fourmile Creek	16.40	118	-84.7158	39.4972	C,S,O,D,F,M
05080002-070	Fourmile Creek	16.20	118	-84.7125	39.4966	C,S,O,D,F,M
05080002-070	Fourmile Creek	13.65	124	-84.6860	39.4820	C,F,M
05080002-070	Fourmile Creek	11.00	129	-84.6531	39.4874	C,S,O,D,Pd,Chla,F,M
05080002-070	Fourmile Creek	5.40	163	-84.5828	39.4631	C,S,O,F,M
05080002-070	Fourmile Creek	0.30	315	-84.5439	39.4288	C,S,O, D,F,M
05080002-070	Dixon Branch (Trib to Four Mile Creek @ RM 34.80)	0.30	5.5	-84.7542	39.6996	C,F,M
05080002-070	East Fork (Trib to Four Mile Creek @ RM 24.82)	5.40	4.9	-84.7415	39.6505	C,S,O,F,M
05080002-070	East Fork (Trib to Four Mile Creek @ RM 24.82)	2.50	9.8	-84.7583	39.6197	C,F,M
05080002-070	Trib to Fourmile Creek @ RM 24.32	1.00		-84.7817	39.5908	C
05080002-070	Little Four Mile Creek (Trib Four Mile @ RM23.89)	13.70	5.0	-84.8095	39.6762	C,F,M
05080002-070	Little Four Mile Creek (Trib Four Mile @ RM23.89)	2.80	28.0	-84.7977	39.5829	C,S,O,F,M
05080002-070	Fleisch Run (Trib to Little Four Mile Creek @ 11.41)	0.70	4.6	-84.8074	39.6558	C,F,M
05080002-070	Trib to Four Mile Creek @ RM 23.57 (Morning Sun trib - north)	0.70	4.0	-84.7554	39.5909	C,F,M
05080002-070	Trib to Fourmile Creek (Morning Sun Trib - south)	0.85		-84.7505	39.5895	C,F,M
05080002-070	Elams Run (Trib to Four Mile Creek @ RM 18.80)	0.30	1.6	-84.7375	39.5211	C,S,F,M
05080002-070	Harkers Run (Trib to Four Mile Creek @ RM 17.26)	2.40	5.0	-84.7089	39.5393	C,F,M
05080002-070	Collins Creek (Trib to Four Mile Creek @ RM 16.6)	0.60	5.4	-84.7293	39.4985	C,F,M
05080002-070	Darrs Run (Trib to Four Mile Creek @ RM 10.58)	2.10		-84.6623	39.5079	C,S,O,D,F,M
05080002-070	Stony Run (Trib to Four Mile Creek @ RM 8.68)	0.30	4.8	-84.6319	39.4681	C,F,M
05080002-070	Cotton Run (Trib to Four Mile Creek @ RM 2.47)	0.70	4.5	-84.5297	39.4600	C,F,M
05080002-080	Indian Creek	23.90	39	-84.8148	39.5085	C,S,O,F,M
05080002-080	Indian Creek	17.70	53	-84.7761	39.4485	C,F,M
05080002-080	Indian Creek	9.40	82	-84.6808	39.4002	C,S,O,F,M
05080002-080	Indian Creek	6.80		-84.6465	39.3869	C,S,O, D,F,M
05080002-080	Indian Creek	6.50	97	-84.6478	39.3822	C,S,O,D,F,M

HUC	STREAM NAME	RM	DRAINAGE	POINT_X	POINT_Y	SAMPLE TYPE
05080002-080	Indian Creek	4.30	102	-84.6433	39.3630	C,F,M
05080002-080	Indian Creek	1.66		-84.6269	39.3377	C
05080002-080	Indian Creek	0.10	109	-84.6276	39.3202	C,F,M,S,O
05080002-080	Little Indian Creek (Trib to Indian Creek @ RM 14.70)	0.10	5.6	-84.7588	39.4292	C,F,M
05080002-080	Reserve Run (Trib to Indian Creek @ RM 13.73)	0.30	4.5	-84.7425	39.4294	C,S,O,F,M
05080002-080	Salmon Run (Trib to Indian Creek @ RM 10.18)	1.90		-84.6950	39.4291	C,F,M
05080002-080	Salmon Run (Trib to Indian Creek @ RM 10.18)	0.10	4.8	-84.6928	39.4072	C,F,M
05080002-080	Trib to Salmon Run	1.40		-84.6879	39.4460	C only
05080002-080	Trib to Salmon Run	0.10		-84.6934	39.4290	C,F,M
05080002-080	Lick Run (Trib to Indian Creek @ RM 7.9)	0.90	4.7	-84.6750	39.3908	C,F,M
05080002-080	Beals Run (Trib to Indian Creek @ RM 7.16)	0.10	6.9	-84.6501	39.3902	C,F,M
05080002-030	Twin Creek	46.50	19.7	-84.6228	39.9313	C,F,M
05080002-030	Twin Creek	42.10	28.0	-84.5953	39.8962	C,F,M
05080002-030	Twin Creek	38.00	38	-84.5684	39.8660	C,S, D,O, F,M
05080002-030	Twin Creek	35.50	87	-84.5325	39.8518	C,S,O,D,Pd,Chla,F,M
05080002-030	Twin Creek	34.90	88	-84.5328	39.8442	C,S,O,D,F,M
05080002-030	Twin Creek	33.60		-84.5372	39.8285	C,O,D, F, M
05080002-030	Twin Creek	31.70	96	-84.5303	39.8030	C,S,O,D,F,M
05080002-030	Twin Creek	27.50	143	-84.5275	39.7515	C,S,O,D,F,M
05080002-030	Twin Creek	26.70	146	-84.5217	39.7413	C,S,O,D,F,M
05080002-040	Twin Creek	23.90	192	-84.5246	39.7088	C,S,O,D,Pd,Chla,F,M
05080002-040	Twin Creek	19.20	225	-84.5123	39.6567	C,S,O,D,F,M
05080002-040	Twin Creek	19.00	225	-84.5081	39.6552	F,M
05080002-040	Twin Creek	18.29	228	-84.4984	39.6482	C,S,O,D
05080002-040	Twin Creek	13.40	127	-84.4422	39.6640	C,F,M
05080002-040	Twin Creek	9.80	275	-84.3987	39.6367	C,S,O,D,F,M
05080002-040	Twin Creek	3.40	312	-84.3446	39.5851	C,F,M
05080002-040	Twin Creek	0.90	315	-84.3496	39.5560	C,F,M
05080002-040	Twin Creek	0.40		-84.3489	39.5509	F only
05080002-040	Twin Creek	0.10	316	-84.3509	39.5463	C,F,M
05080002-030	Maple Swamp Ditch (Trib to Twin Creek @ RM 47.03)	2.40	5.5	-84.6416	39.9603	C,F,M
05080002-030	Maple Swamp Ditch (Trib to Twin Creek @ RM 47.03)	1.40	10.2	-84.6399	39.9458	C,F,M
05080002-030	Dry Fork (Trib to Twin Creek @ RM 39.35)	0.80	5.4	-84.5956	39.8669	C,F,M
05080002-030	Millers Fork (Trib to Twin Creek @ RM 35.71)	10.80	5.7	-84.5682	39.9607	C,F,M
05080002-030	Millers Fork (Trib to Twin Creek @ RM 35.71)	8.00	10.1	-84.5559	39.9362	C,F,M
05080002-030	Millers Fork (Trib to Twin Creek @ RM 35.71)	3.90	19.7	-84.5232	39.9029	C,S,O,D,F,M
05080002-030	Swamp Creek (Trib to Twin Creek @ RM 35.59)	6.30	8.7	-84.4855	39.9090	C,F,M
05080002-030	Swamp Creek (Trib to Twin Creek @ RM 35.59)	0.20	18.0	-84.5303	39.8550	C,S,O,D,F,M

HUC	STREAM NAME	RM	DRAINAGE	POINT_X	POINT_Y	SAMPLE TYPE
05080002-030	Trib to Swamp Creek @ RM 6.45	0.30	4.7	-84.4796	39.9034	C,F,M
05080002-030	Price Creek (Trib to Twin Creek @ RM 29.74)	13.70	5.2	-84.6809	39.9019	C,S,O,D,Pd,Chl,F,M
05080002-030	Price Creek (Trib to Twin Creek @ RM 29.74)	10.90	11.4	-84.6527	39.8726	C,F,M
05080002-030	Price Creek (Trib to Twin Creek @ RM 29.74)	3.80	20.1	-84.5669	39.8131	C,F,M
05080002-030	Price Creek (Trib to Twin Creek @ RM 29.74)	0.60		-84.5354	39.7802	C,S,O,D
05080002-030	Lesley Run (Trib to Twin Creek @ RM 24.60)	6.00	5.0	-84.4904	39.7739	C,F,M
05080002-030	Lesley Run (Trib to Twin Creek @ RM 24.60)	3.60		-84.4830	39.7446	C
05080002-030	Lesley Run (Trib to Twin Creek @ RM 24.60)	1.20	7.7	-84.5054	39.7220	C,F,M
05080002-040	Bantas Fork (Trib to Twin Creek @ RM 24.32)	13.70	6.6	-84.6780	39.8283	C,F,M
05080002-040	Bantas Fork (Trib to Twin Creek @ RM 24.32)	9.40	11.8	-84.6332	39.7886	C,F,M
05080002-040	Bantas Fork (Trib to Twin Creek @ RM 24.32)	7.10	24.4	-84.5990	39.7734	C,F,M
05080002-040	Bantas Fork (Trib to Twin Creek @ RM 24.32)	1.30	34	-84.5354	39.7255	C,S,O,D,F,M
05080002-040	Goose Creek (Trib to Bantas Fork @ RM 7.55)	4.40	3.3	-84.6107	39.8302	C,S,O,F,M
05080002-040	Goose Creek (Trib to Bantas Fork @ RM 7.55)	0.30	11.25	-84.6057	39.7822	C,F,M
05080002-040	Aukerman Creek (Trib to Twin Creek @ RM 19.29)	3.30	5.2	-84.5625	39.6637	C,F,M
05080002-040	Aukerman Creek (Trib to Twin Creek @ RM 19.29)	1.80	13.7	-84.5410	39.6544	C,F,M
05080002-040	Aukerman Creek (Trib to Twin Creek @ RM 19.29)	0.50	20.7	-84.5205	39.6602	C,F,M
05080002-040	Trib to Aukerman Creek @ RM 2.88	0.50	4.5	-84.5651	39.6554	C,F,M
05080002-040	Trib to Twin Creek @ RM 18.29	0.10	5.1	-84.4988	39.6477	C,F,M
05080002-040	Toms Run (Trib to Twin Creek @ RM 13.52)	12.00	6.0	-84.4454	39.7886	C,F,M
05080002-040	Toms Run (Trib to Twin Creek @ RM 13.52)	8.50	10.6	-84.4526	39.7418	C,F,M
05080002-040	Toms Run (Trib to Twin Creek @ RM 13.52)	0.40	24.3	-84.4493	39.6658	C,F,M
05080002-040	Toms Run (Trib to Twin Creek @ RM 13.52)	0.11		-84.4449	39.6638	C,S,O,D
05080002-040	Little Twin Creek (Trib to Twin Creek @ RM 6.69)	6.20	4.9	-84.4119	39.6851	C,F,M
05080002-040	Little Twin Creek (Trib to Twin Creek @ RM 6.69)	4.70	11.5	-84.3946	39.6724	C,Pd,Chla,F,M
05080002-040	Little Twin Creek (Trib to Twin Creek @ RM 6.69)	2.00	19.8	-84.3721	39.6469	C,S,O,D,F,M
05080002-040	Reigle Ditch (trib to Little Twin Creek @ RM 5.43)	1.20		-84.4242	39.6818	C
05080002-040	Reigle Ditch (trib to Little Twin Creek @ RM 5.43)	0.50	3.3	-84.4168	39.6760	C
05080002-040	Reigle Ditch (trib to Little Twin Creek @ RM 5.43)	0.30	3.4	-84.4120	39.6771	C