



Maine Department of Environmental Protection  
Biological Monitoring Program  
Aquatic Life Classification Attainment Report

Station Information

**Station Number: S-304**  
Waterbody: Frost Gulley Brook - Station 304  
Town: Freeport  
Directions: BELOW

DEP Drainage: Piscataqua - Presumpscot - Saco  
HUC8: 01060001  
HUC8 Name: Presumpscot  
Latitude: 43 51 41.45 N  
Longitude: 70 5 32.67 W  
Stream Order: 1

Sample Information

**Log Number: 1921**  
Subsample Factor: X1  
Type of Sample: ROCK BAG  
Replicates: 3  
Date Deployed: 7/8/2010  
Date Retrieved: 8/11/2010

Classification Attainment

**Statutory Class: A**  
Model Result with P>.6: A  
Date Last Calculated: 3/7/2011

**Final Determination: A**  
**Reason for Determination: Model**  
Comments:

Date: 3/7/2011

Model Probabilities

First Stage Model		C or Better Model	
Class A	0.60	Class A, B, or C	1.00
Class B	0.38	Non-Attainment	0.00
Class C			
0.02			
NA			
0.00			
B or Better Model		A Model	
Class A or B	1.00	Class A	0.87
Class C or Non-Attainment	0.00	Class B or C or Non-Attainment	0.13

Model Variables

01 Total Mean Abundance	365.33	18 Relative Abundance Ephemeroptera	0.15
02 Generic Richness	74.00	19 EPT Generic Richness	25.00
03 Plecoptera Mean Abundance	2.67	21 Sum of Abundances: <i>Dicrotendipes</i> , <i>Micropsectra</i> , <i>Parachironomus</i> , <i>Helobdella</i>	30.51
04 Ephemeroptera Mean Abundance	56.00	23 Relative Generic Richness- Plecoptera	0.05
05 Shannon-Wiener Generic Diversity	4.56	25 Sum of Abundances: <i>Cheumatopsyche</i> , <i>Cricotopus</i> , <i>Tanytarsus</i> , <i>Ablabesmyia</i>	33.59
06 Hilsenhoff Biotic Index	5.47	26 Sum of Abundances: <i>Acroneuria</i> , <i>Maccaffertium</i> , <i>Stenonema</i>	12.00
07 Relative Abundance - Chironomidae	0.62	28 EP Generic Richness/14	0.71
08 Relative Generic Richness Diptera	0.46	30 Presence of Class A Indicator Taxa/7	0.29
09 <i>Hydropsyche</i> Abundance	8.88		
11 <i>Cheumatopsyche</i> Abundance	2.39		
12 EPT Generic Richness/ Diptera	0.74		
Generic Richness			
13 Relative Abundance - Oligochaeta	0.02		
15 Perlidae Mean Abundance	0.00		
(Family Functional Group)			
16 Tanypodinae Mean Abundance	13.87		
(Family Functional Group)			
17 Chironomini Abundance (Family	95.33		
Functional Group)			

Five Most Dominant Taxa

Rank	Taxon Name	Percent
1	<i>Polypedilum</i>	20.21
2	<i>Acerpenna</i>	11.13
3	<i>Micropsectra</i>	8.35
4	<i>Microtendipes</i>	5.88
5	<i>Rheotanytarsus</i>	5.69



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Date Retrieved: 8/11/2010

**Sample Collection and Processing Information**

Sampling Organization: BIOMONITORING UNIT

Taxonomist: MICHAEL WINNELL

**Waterbody Information - Deployment**

Temperature: 21.1 deg C  
Dissolved Oxygen: 8.3 mg/l  
Specific Conductance: 312 uS/cm  
Velocity: 25 cm/s  
pH:  
Wetted Width: 3.5 m  
Bankfull Width: 5.3 m  
Depth: 20 cm

**Waterbody Information - Retrieval**

Temperature: 19.9 deg C  
Dissolved Oxygen: 8.3 mg/l  
Specific Conductance: 305 uS/cm  
Velocity: 17 cm/s  
pH: 7.22  
Wetted Width: 4.2 m  
Bankfull Width: 5.3 m  
Depth: 20 cm

**Water Chemistry - 8/11/2010**

Ammonia As Nitrogen	<0.01 mg/l	Soluble Reactive Phosphorus	ug/l
Nitrate+nitrite As N	0.28 mg/l	Total Phosphorus	0.027 mg/l
Total Kjeldahl Nitrogen	0.2 mg/l	Total Suspended Solids	<2 mg/l
Dissolved Organic Carbon	2.2 mg/l	Total Dissolved Solids	200 mg/l

**Summary of Habitat Characteristics**

<u>Landuse Name</u>	<u>Canopy Cover</u>	<u>Terrain</u>
Upland Conifer	Dense	Rolling
Upland Hardwood		
<u>Potential Stressor</u>	<u>Location</u>	<u>Substrate</u>
Altered Habitat	Below Town	Gravel 10 %
Altered Hydrology	Below Urban NPS	Rubble/Cobble 70 %
		Sand 20 %

**Landcover Summary - 2004 Data**

Total Area (ac)	1259	High Int. Dev. %	1.6	Water %	0.7	Non-vegetated %	0.2
		Med Int. Dev. %	2.0	Wetland %	1.3	Tilled Agriculture %	0.9
		Low Int. Dev. %	9.0	Upland Woody %	67.6	Grassland %	10.6
		Development %	12.6	Natural %	68.9	Human Altered %	30.4
						Impervious %	10.3

**Sample Comments**

7/8/2010 ERODED BANKS, CLOUDY WATER, FISH.



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Replicates: 3

Calculated: 3/7/2011

Taxon	Maine Taxonomic Code	Count (Mean of Samplers)		Hilsenhoff Biotic Index	Functional Feeding Group	Relative Abundance	
		Actual	Adjusted			Actual	Adjusted
<i>Stylodrilus</i>	08020101004		6.00		--		1.6
<i>Stylodrilus heringianus</i>	08020101004001	6.00			--	1.6	
Enchytraeidae	08020201	0.67	0.67		--	0.2	0.2
Lumbricidae	08020205	1.67	1.67		--	0.5	0.5
<i>Nemoura</i>	09020201002	0.67	0.67	1	SH	0.2	0.2
<i>Leuctra</i>	09020204020		0.33	0	SH		0.1
<i>Leuctra truncata</i>	09020204020058	0.33			--	0.1	
Perlodidae	09020207	1.33	1.33		--	0.4	0.4
Chloroperlidae	09020208	0.33	0.33		--	0.1	0.1
<i>Boyeria</i>	09020301004		1.67	2	PR		0.5
<i>Boyeria vinosa</i>	09020301004012	1.67			--	0.5	
Calopterygidae	09020307	1.33	1.33		--	0.4	0.4
<i>Calopteryx</i>	09020307043		2.00	5	PR		0.5
<i>Calopteryx maculata</i>	09020307043088	2.00			--	0.5	
Baetidae	09020401	0.67			--	0.2	
<i>Baetis</i>	09020401001		0.34	4	CG		0.1
<i>Baetis brunneicolor</i>	09020401001003	0.33			--	0.1	
<i>Acerpenna</i>	09020401007	12.00	40.66	5	CG	3.3	11.1
<i>Acerpenna macdunnoughi</i>	09020401007001	28.00			--	7.7	
<i>Maccaffertium</i>	09020402015	11.00	12.00	4	SC	3.0	3.3
<i>Maccaffertium modestum</i>	09020402015051	1.00			--	0.3	
Leptophlebiidae	09020406	2.33	2.33		--	0.6	0.6
Ephemerellidae	09020410	0.33	0.33		--	0.1	0.1
<i>Eurylophella</i>	09020410036	0.33	0.33	3	CG	0.1	0.1
<i>Dolophilodes</i>	09020601001	0.33	0.33	0	CF	0.1	0.1
<i>Lype</i>	09020602004		0.33	2	SC		0.1
<i>Lype diversa</i>	09020602004005	0.33			--	0.1	
<i>Polycentropus</i>	09020603010	15.67	15.67	6	PR	4.3	4.3
Hydropsychidae	09020604	0.33			--	0.1	
<i>Diplectrona</i>	09020604014		2.39	0	CF		0.7
<i>Diplectrona modesta</i>	09020604014025	2.33			--	0.6	
<i>Cheumatopsyche</i>	09020604015	2.33	2.39	5	CF	0.6	0.7
<i>Hydropsyche</i>	09020604016	2.00	8.88	4	CF	0.5	2.4
<i>Hydropsyche sparna</i>	09020604016032	6.00			--	1.6	
<i>Hydropsyche depravata complex</i>	09020604016041	0.67			CF	0.2	
<i>Rhyacophila</i>	09020605019	1.00	3.67	2	PR	0.3	1.0
<i>Rhyacophila fuscua</i>	09020605019060	2.67			PR	0.7	
Phryganeidae	09020608	0.67			--	0.2	



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		Actual	Adjusted			Actual	Adjusted
<i>Oligostomis</i>	09020608039	0.33	0.67	2	PR	0.1	0.2
<i>Ptilostomis</i>	09020608041	0.33	0.67	5	SH	0.1	0.2
Limnephilidae	09020610	0.33	0.33		--	0.1	0.1
<i>Pycnopsyche</i>	09020610049	1.33	1.33	4	SH	0.4	0.4
<i>Lepidostoma</i>	09020611064	0.67	0.67	1	SH	0.2	0.2
<i>Psilotreta</i>	09020614068	0.33	0.67	0	SC	0.1	0.2
<i>Psilotreta labida</i>	09020614068133	0.33			--	0.1	
<i>Mystacides</i>	09020618075		0.33	4	CG		0.1
<i>Mystacides sepulchralis</i>	09020618075147	0.33			--	0.1	
<i>Oecetis</i>	09020618078		0.33	8	PR		0.1
<i>Oecetis persimilis</i>	09020618078157	0.33			--	0.1	
<i>Nigronia</i>	09020701003		4.33	0	PR		1.2
<i>Nigronia serricornis</i>	09020701003003	4.33			--	1.2	
Crambidae	09020905	0.33	0.33		SH	0.1	0.1
<i>Tipula</i>	09021001002	1.67	1.67	4	SH	0.5	0.5
<i>Dicranota</i>	09021001005	2.67	2.67	3	PR	0.7	0.7
<i>Hexatoma</i>	09021001008	0.67	0.67	2	PR	0.2	0.2
<i>Molophilus</i>	09021001016	0.33	0.33		--	0.1	0.1
<i>Gonomyia</i>	09021001019	0.33	0.33		--	0.1	0.1
Psychodidae	09021002	0.33	0.33		--	0.1	0.1
Chironomidae	09021011	8.67			--	2.4	
<i>Ablabesmyia</i>	09021011001		1.39	8	PR		0.4
<i>Ablabesmyia mallochi</i>	09021011001004	1.33			--	0.4	
<i>Conchapelopia</i>	09021011004	0.33	0.35	6	PR	0.1	0.1
<i>Meropelopia</i>	09021011010	0.33	0.35		--	0.1	0.1
<i>Nilotanytus</i>	09021011012		3.47	6	PR		0.9
<i>Nilotanytus fimbriatus</i>	09021011012027	3.33			--	0.9	
<i>Paramerina</i>	09021011013	2.00	2.08		--	0.5	0.6
<i>Procladius</i>	09021011015	0.33	0.35	9	PR	0.1	0.1
<i>Rheopelopia</i>	09021011017		1.04		PR		0.3
<i>Rheopelopia acra group</i>	09021011017036	1.00			--	0.3	
<i>Trissopelopia</i>	09021011021		4.51		PR		1.2
<i>Trissopelopia ogemawi</i>	09021011021042	4.33			--	1.2	
<i>Zavrelimyia</i>	09021011022		0.35	8	PR		0.1
<i>Zavrelimyia thryptica group</i>	09021011022045	0.33			PR	0.1	
<i>Pagastia</i>	09021011025		0.35	1	--		0.1
<i>Pagastia orthogonia</i>	09021011025001	0.33			--	0.1	
<i>Brillia</i>	09021011033		2.08	5	SH		0.6



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		Actual	Adjusted			Actual	Adjusted
<i>Brillia flavifrons</i>	09021011033049	2.00			--	0.5	
<i>Cricotopus</i>	09021011037		11.09	7	SH		3.0
<i>Cricotopus bicinctus</i>	09021011037057	9.33			--	2.6	
<i>Cricotopus annulator complex</i>	09021011037074	1.33			--	0.4	
<i>Eukiefferiella</i>	09021011041		0.35	8	CG		0.1
<i>Eukiefferiella brehmi group</i>	09021011041073	0.33			--	0.1	
<i>Limnophyes</i>	09021011047	0.33	0.35	8	CG	0.1	0.1
<i>Parakiefferiella</i>	09021011052		2.08		CG		0.6
<i>Parakiefferiella coronata</i>	09021011052002	2.00			--	0.5	
<i>Parametriocnemus</i>	09021011053	15.67	16.29	5	CG	4.3	4.5
<i>Thienemanniella</i>	09021011062		0.35	6	CG		0.1
<i>Thienemanniella xena</i>	09021011062110	0.33			--	0.1	
<i>Tvetenia</i>	09021011065		2.77	5	CG		0.8
<i>Tvetenia vitracies</i>	09021011065113	0.33			--	0.1	
<i>Tvetenia paucunca</i>	09021011065114	2.33			--	0.6	
<i>Cladotanytarsus</i>	09021011068	1.33	1.39	7	CG	0.4	0.4
<i>Micropsectra</i>	09021011070	29.33	30.51	7	CG	8.0	8.4
<i>Paratanytarsus</i>	09021011071	7.33	7.63	6	--	2.0	2.1
<i>Rheotanytarsus</i>	09021011072	20.00	20.80	6	CF	5.5	5.7
<i>Stempellinella</i>	09021011074		1.39	2	--		0.4
<i>Stempellinella fimbriata</i>	09021011074002	1.33			--	0.4	
<i>Tanytarsus</i>	09021011076	18.00	18.72	6	CF	4.9	5.1
<i>Microtendipes</i>	09021011094		21.49	6	CF		5.9
<i>Microtendipes pedellus group</i>	09021011094166	12.00			--	3.3	
<i>Microtendipes rydalensis group</i>	09021011094168	8.67			--	2.4	
<i>Polypedilum</i>	09021011102		73.84	6	SH		20.2
<i>Polypedilum aviceps</i>	09021011102181	68.00			--	18.6	
<i>Polypedilum scalaenum group</i>	09021011102189	1.00			--	0.3	
<i>Polypedilum angulum</i>	09021011102198	2.00			--	0.5	
<i>Helopelopia</i>	09021011114			6	PR		
<i>Simulium</i>	09021012047		1.00	4	CF		0.3
<i>Simulium tuberosum</i>	09021012047067	1.00			--	0.3	
<i>Roederiodes</i>	09021016058	0.67	0.67	3	PR	0.2	0.2
<i>Dubiraphia</i>	09021113064	5.00	5.00	6	--	1.4	1.4
<i>Macronychus</i>	09021113065		0.67	4	--		0.2
<i>Macronychus glabratus</i>	09021113065040	0.67			--	0.2	
<i>Optioservus</i>	09021113067	0.33	0.33	3	SC	0.1	0.1
<i>Oulimnius</i>	09021113068		1.67		--		0.5



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		Actual	Adjusted			Actual	Adjusted
<i>Oulimnius latiusculus</i>	09021113068049	1.67			--	0.5	
<i>Promoresia</i>	09021113069		1.67		--		0.5
<i>Promoresia tardella</i>	09021113069052	1.67			--	0.5	
<i>Stenelmis</i>	09021113070	4.67	5.33	5	SC	1.3	1.5
<i>Stenelmis crenata</i>	09021113070055	0.67			--	0.2	
<i>Physa</i>	10010202026	2.33	2.33		SC	0.6	0.6