



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

Station Information

Station Number: S-510	River Basin: Penobscot
Waterbody: Crooked Brook - Station 510	HUC8 Name: Lower Penobscot
Town: Corinth	Latitude: 44 59 41.38 N
Directions: DOWNSTREAM OF RTE 11/43. USED TO BE UPSTREAM BUT MOVED IT IN 2011 BECAUSE OF SITE ACCESS.	Longitude: 69 3 9.33 W
	Stream Order: 3

Sample Information

Log Number: 2500	Type of Sample: ROCK BAG	Date Deployed: 7/25/2016
Subsample Factor: X1	Replicates: 3	Date Retrieved: 8/22/2016

Classification Attainment

Statutory Class: B	Final Determination: A	Date: 5/10/2017
Model Result with $P \geq 0.6$: A	Reason for Determination: Model	
Date Last Calculated: 5/9/2017	Comments:	

Model Probabilities

<u>First Stage Model</u>		<u>C or Better Model</u>	
Class A	0.76	Class C	0.00
Class B	0.24	NA	0.00
<u>B or Better Model</u>		<u>A Model</u>	
Class A or B	1.00	Class A	1.00
Class C or Non-Attainment	0.00	Class B or C or Non-Attainment	0.00

Model Variables

01 Total Mean Abundance	366.33	18 Relative Abundance Ephemeroptera	0.38
02 Generic Richness	63.00	19 EPT Generic Richness	26.00
03 Plecoptera Mean Abundance	13.00	21 Sum of Abundances: <i>Dicrotendipes, Micropsectra, Parachironomus, Helobdella</i>	3.67
04 Ephemeroptera Mean Abundance	141.00	23 Relative Generic Richness- Plecoptera	0.05
05 Shannon-Wiener Generic Diversity	4.82	25 Sum of Abundances: <i>Cheumatopsyche, Cricotopus, Tanytarsus, Ablabesmyia</i>	30.00
06 Hilsenhoff Biotic Index	4.85	26 Sum of Abundances: <i>Acroneuria, Maccaffertium, Stenonema</i>	38.67
07 Relative Abundance - Chironomidae	0.24	28 EP Generic Richness/14	1.14
08 Relative Generic Richness Diptera	0.29	30 Presence of Class A Indicator Taxa/7	0.43
09 <i>Hydropsyche</i> Abundance	29.00		
11 <i>Cheumatopsyche</i> Abundance	14.33		
12 EPT Generic Richness/ Diptera Generic Richness	1.44		
13 Relative Abundance - Oligochaeta	0.00		
15 Perlidae Mean Abundance (Family Functional Group)	13.00		
16 Tanypodinae Mean Abundance (Family Functional Group)	6.67		
17 Chironomini Abundance (Family Functional Group)	42.33		

Five Most Dominant Taxa

Rank	Taxon Name	Percent
1	<i>Stenacron</i>	12.19
2	<i>Maccaffertium</i>	9.46
3	<i>Hydropsyche</i>	7.92
4	<i>Microtendipes</i>	6.73
5	<i>Rheotanytarsus</i>	5.37



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Sample Collection and Processing Information

Sampling Organization: BIOMONITORING UNIT Taxonomist: MICHAEL COLE

Waterbody Information - Deployment

Temperature: 24.2 deg C
Dissolved Oxygen: 10.53 mg/l
Dissolved Oxygen Saturation: 126.4 %
Specific Conductance: 215.3 uS/cm
Velocity: 9.1 cm/s
pH: 8.31
Wetted Width: 5.9 m
Bankfull Width: 9.3 m
Depth: 24 cm

Waterbody Information - Retrieval

Temperature: 21.7 deg C
Dissolved Oxygen: 10.95 mg/l
Dissolved Oxygen Saturation: 125.7 %
Specific Conductance: 188.8 uS/cm
Velocity: 6.1 cm/s
pH: 8.43
Wetted Width: 7 m
Bankfull Width: 9.3 m
Depth: 24 cm

Water Chemistry - 8/22/2016

Nitrate+nitrite As N	0.13 mg/l	Total Phosphorus	21 ug/l
Total Kjeldahl Nitrogen	0.4 mg/l	Total Suspended Solids	3.4 mg/l
Dissolved Organic Carbon	3.2 mg/l	Dissolved Organic Carbon	3.2 mg/l
Total Dissolved Solids	100 mg/l	Orthophosphate As Phosphorus	2 ug/l

Summary of Habitat Characteristics

<u>Landuse Name</u>	<u>Canopy Cover</u>	<u>Terrain</u>
Cultivated		Rolling
Pasture		
Swamp Conifer		
Upland Hardwood		
<u>Potential Stressor</u>	<u>Location</u>	<u>Substrate</u>
Agricultural Runoff	Below Agriculture NPS	Boulder 20 %
	Below Road Crossing	Gravel 15 %
		Rubble/Cobble 60 %
		Sand 5 %

Landcover Summary - 2004 Data

Total Area (ac)	11798	High Int. Dev. %	0.3	Water %	0.0	Non-vegetated %	0.8
		Med Int. Dev. %	0.5	Wetland %	9.3	Tilled Agriculture %	11.5
		Low Int. Dev. %	3.5	Upland Woody %	68.5	Grassland %	5.1
		Development %	4.3	Natural %	78.0	Human Altered %	22.0
						Impervious %	2.6

Sample Comments

7/25/2016: FISH PRESENT.
8/22/2016: FISH PRESENT.



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Subsample Factor: X1

Replicates: 3

Calculated: 5/9/2017

Taxon	Maine Taxonomic Code	Count (Mean of Samplers)		Hilsenhoff Biotic Index	Functional Feeding Group	Relative Abundance %	
		Actual	Adjusted			Actual	Adjusted
<i>Hydra</i>	02010101001	0.33	0.33		PR	0.1	0.1
Cambaridae	09010301	0.33	0.33		--	0.1	0.1
<i>Acroneuria</i>	09020209042	0.33	4.00	0	PR	0.1	1.1
<i>Acroneuria abnormis</i>	09020209042121	1.67		0	PR	0.5	
<i>Acroneuria arenosa</i>	09020209042122	2.00			--	0.5	
<i>Neoperla</i>	09020209048	1.33	1.33	1	PR	0.4	0.4
<i>Agnatina</i>	09020209050		7.67	2	PR		2.1
<i>Agnatina capitata</i>	09020209050152	7.67		2	PR	2.1	
<i>Boyeria</i>	09020301004		0.67	2	PR		0.2
<i>Boyeria grafiana</i>	09020301004011	0.33			--	0.1	
<i>Boyeria vinosa</i>	09020301004012	0.33			--	0.1	
<i>Calopteryx</i>	09020307043	1.00	1.00	5	PR	0.3	0.3
<i>Argia</i>	09020309048	0.33	0.33	7	PR	0.1	0.1
<i>Baetis</i>	09020401001		3.67	4	CG		1.0
<i>Baetis flavistriga</i>	09020401001004	3.67			--	1.0	
<i>Acerpenna</i>	09020401007	2.67	16.67	5	CG	0.7	4.5
<i>Acerpenna macdunnoughi</i>	09020401007001	1.67			--	0.5	
<i>Acerpenna pygmaea</i>	09020401007011	12.33			--	3.4	
<i>Procloeon</i>	09020401010	5.00	5.00		CG	1.4	1.4
<i>Dipheter</i>	09020401013		0.33		--		0.1
<i>Dipheter hageni</i>	09020401013001	0.33			--	0.1	
<i>Leucrocuta</i>	09020402011	7.33	7.33	1	SC	2.0	2.0
<i>Stenacron</i>	09020402014		44.67	7	SC		12.2
<i>Stenacron interpunctatum</i>	09020402014045	44.67			--	12.2	
<i>Maccaffertium</i>	09020402015	16.33	34.67	4	SC	4.5	9.5
<i>Maccaffertium modestum</i>	09020402015051	0.33			--	0.1	
<i>Maccaffertium vicarium</i>	09020402015055	18.00			--	4.9	
<i>Isonychia</i>	09020404018	0.67	0.67	2	CF	0.2	0.2
<i>Paraleptophlebia</i>	09020406026	4.00	4.00	1	CG	1.1	1.1
<i>Ephemerella</i>	09020410035	14.00	14.00	1	CG	3.8	3.8
<i>Serratella</i>	09020410037		0.33	2	CG		0.1
<i>Serratella deficiens (Teloganopsis deficiens)</i>	09020410037121	0.33			--	0.1	
<i>Tricorythodes</i>	09020411038	8.33	8.33	4	CG	2.3	2.3
<i>Caenis</i>	09020412040	1.33	1.33	7	CG	0.4	0.4
<i>Metrobates</i>	09020506020	0.33	0.33		PR	0.1	0.1
<i>Nyctiophylax</i>	09020603009	0.33	0.33	5	PR	0.1	0.1
<i>Polycentropus</i>	09020603010	7.33	7.33	6	PR	2.0	2.0



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		Actual	Adjusted			Actual	Adjusted
<i>Cheumatopsyche</i>	09020604015	14.33	14.33	5	CF	3.9	3.9
<i>Hydropsyche</i>	09020604016	12.67	29.00	4	CF	3.5	7.9
<i>Hydropsyche bronta</i>	09020604016029	7.33			--	2.0	
<i>Hydropsyche morosa</i>	09020604016030	4.33			--	1.2	
<i>Hydropsyche scalaris species group</i>	09020604016048	4.67			--	1.3	
<i>Rhyacophila</i>	09020605019		1.67	2	PR		0.5
<i>Rhyacophila minor</i>	09020605019063	1.67			PR	0.5	
Limnephilidae	09020610				--		
<i>Psilotreta</i>	09020614068		1.00	0	SC		0.3
<i>Psilotreta labida</i>	09020614068133	1.00			--	0.3	
<i>Helicopsyche</i>	09020616070	4.00	4.00	3	SC	1.1	1.1
Leptoceridae	09020618				--		
<i>Mystacides</i>	09020618075		3.00	4	CG		0.8
<i>Mystacides sepulchralis</i>	09020618075147	3.00			--	0.8	
<i>Oecetis</i>	09020618078		17.00	8	PR		4.6
<i>Oecetis avara</i>	09020618078153	9.00			--	2.5	
<i>Oecetis persimilis</i>	09020618078157	8.00			--	2.2	
<i>Apatania</i>	09020619061	1.33	1.33		SC	0.4	0.4
<i>Nigronia</i>	09020701003		0.67	0	PR		0.2
<i>Nigronia serricornis</i>	09020701003003	0.67			--	0.2	
<i>Petrophila</i>	09020901004	0.33	0.33	5	SC	0.1	0.1
<i>Antocha</i>	09021001004	0.33	0.33	3	CG	0.1	0.1
Chironomidae	09021011				--		
<i>Ablabesmyia</i>	09021011001	1.00	1.00	8	PR	0.3	0.3
<i>Nilotanytus</i>	09021011012			6	PR		
<i>Thienemannimyia</i>	09021011020		5.67	3	PR		1.5
<i>Thienemannimyia group</i>	09021011020041	5.67			--	1.5	
<i>Corynoneura</i>	09021011036	0.67	0.67	7	CG	0.2	0.2
<i>Cricotopus</i>	09021011037	3.67	5.00	7	SH	1.0	1.4
<i>Cricotopus bicinctus</i>	09021011037057	1.33			--	0.4	
<i>Orthocladius</i>	09021011050	0.33	0.33	6	CG	0.1	0.1
<i>Parametriocnemus</i>	09021011053	0.67	0.67	5	CG	0.2	0.2
<i>Thienemanniella</i>	09021011062	0.33	0.33	6	CG	0.1	0.1
<i>Micropsectra</i>	09021011070	0.67	0.67	7	CG	0.2	0.2
<i>Rheotanytarsus</i>	09021011072		19.67	6	CF		5.4
<i>Rheotanytarsus exiguus group</i>	09021011072127	17.33			CF	4.7	
<i>Rheotanytarsus pellucidus</i>	09021011072128	2.33			CF	0.6	
<i>Stempellinella</i>	09021011074	1.33	1.33	2	--	0.4	0.4



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<i>Tanytarsus</i>	09021011076	9.67	9.67	6	CF	2.6	2.6
<i>Dicrotendipes</i>	09021011085	3.00	3.00	8	CG	0.8	0.8
<i>Microtendipes</i>	09021011094		24.67	6	CF		6.7
<i>Microtendipes pedellus group</i>	09021011094166	5.67			--	1.5	
<i>Microtendipes rydalensis group</i>	09021011094168	19.00			--	5.2	
<i>Nilothauma</i>	09021011095	1.00	1.00	2	--	0.3	0.3
<i>Phaenopsectra</i>	09021011101	5.67	5.67	7	SC	1.5	1.5
<i>Polypedilum</i>	09021011102		8.00	6	SH		2.2
<i>Polypedilum aviceps</i>	09021011102181	8.00			--	2.2	
<i>Simulium</i>	09021012047	0.33	0.33	4	CF	0.1	0.1
<i>Psephenus</i>	09021108058		18.67	4	SC		5.1
<i>Psephenus herricki</i>	09021108058028	18.67			--	5.1	
<i>Ectopria</i>	09021109059		2.67	5	SC		0.7
<i>Ectopria nervosa</i>	09021109059029	2.67			--	0.7	
<i>Ancyronyx</i>	09021113063		0.33	6	--		0.1
<i>Ancyronyx variegatus</i>	09021113063034	0.33			CG	0.1	
<i>Dubiraphia</i>	09021113064	3.00	3.00	6	--	0.8	0.8
<i>Macronychus</i>	09021113065		2.33	4	--		0.6
<i>Macronychus glabratus</i>	09021113065040	2.33			--	0.6	
<i>Optioservus</i>	09021113067	2.33	5.33	3	SC	0.6	1.5
<i>Optioservus ovalis</i>	09021113067046	3.00			--	0.8	
<i>Promoesia</i>	09021113069		2.00		--		0.5
<i>Promoesia elegans</i>	09021113069051	0.33			--	0.1	
<i>Promoesia tardella</i>	09021113069052	1.67			--	0.5	
<i>Stenelmis</i>	09021113070		2.67	5	SC		0.7
<i>Stenelmis crenata</i>	09021113070055	2.67			--	0.7	
<i>Amnicola</i>	10010104013		0.33		SC		0.1
<i>Amnicola limosus</i>	10010104013018	0.33			--	0.1	
<i>Helisoma</i>	10010203030	3.67	3.67		SC	1.0	1.0
<i>Ferrissia</i>	10010204035	0.33	0.33		SC	0.1	0.1