



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

Station Information

Station Number: S-221	River Basin: Saco
Waterbody: Libby Brook - Station 221	HUC8 Name: Presumpscot
Town: Gray	Latitude: 43 55 11.9 N
Directions: 50 M BELOW WEYMOUTH RD. CROSSING	Longitude: 70 19 40.19 W
	Stream Order: 2

Sample Information

Log Number: 2359	Type of Sample: ROCK BASKET	Date Deployed: 7/14/2015
Subsample Factor: X4	Replicates: 3	Date Retrieved: 8/11/2015

Classification Attainment

Statutory Class: B	Final Determination: B	Date: 3/9/2016
Model Result with $P \geq 0.6$: B	Reason for Determination: Best Professional Judgement	
Date Last Calculated: 3/9/2016	Comments: Indeterminate Class A (.48) not raised to Class A based on the number of Class A indicator taxa present.	

Model Probabilities

	<u>First Stage Model</u>			<u>C or Better Model</u>	
Class A	0.59	Class C	0.00	Class A, B, or C	1.00
Class B	0.40	NA	0.00	Non-Attainment	0.00
	<u>B or Better Model</u>			<u>A Model</u>	
Class A or B			1.00	Class A	0.48
Class C or Non-Attainment			0.00	Class B or C or Non-Attainment	0.52

Model Variables

01 Total Mean Abundance	1328.00	18 Relative Abundance Ephemeroptera	0.19
02 Generic Richness	67.00	19 EPT Generic Richness	23.00
03 Plecoptera Mean Abundance	61.33	21 Sum of Abundances: <i>Dicrotendipes</i> , <i>Micropsectra</i> , <i>Parachironomus</i> , <i>Helobdella</i>	39.43
04 Ephemeroptera Mean Abundance	252.00	23 Relative Generic Richness- Plecoptera	0.06
05 Shannon-Wiener Generic Diversity	4.21	25 Sum of Abundances: <i>Cheumatopsyche</i> , <i>Cricotopus</i> , <i>Tanytarsus</i> , <i>Ablabesmyia</i>	255.56
06 Hilsenhoff Biotic Index	4.67	26 Sum of Abundances: <i>Acroneuria</i> , <i>Maccaffertium</i> , <i>Stenonema</i>	1.33
07 Relative Abundance - Chironomidae	0.37	28 EP Generic Richness/14	1.00
08 Relative Generic Richness Diptera	0.39	30 Presence of Class A Indicator Taxa/7	0.00
09 <i>Hydropsyche</i> Abundance	216.54		
11 <i>Cheumatopsyche</i> Abundance	183.46		
12 EPT Generic Richness/ Diptera Generic Richness	0.88		
13 Relative Abundance - Oligochaeta	0.00		
15 Perlidae Mean Abundance (Family Functional Group)	0.00		
16 Tanypodinae Mean Abundance (Family Functional Group)	12.72		
17 Chironomini Abundance (Family Functional Group)	207.83		

Five Most Dominant Taxa

Rank	Taxon Name	Percent
1	<i>Hydropsyche</i>	16.31
2	<i>Polypedilum</i>	15.44
3	<i>Cheumatopsyche</i>	13.81
4	<i>Baetis</i>	12.09
5	<i>Tanytarsus</i>	5.32



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Sample Collection and Processing Information

Sampling Organization: BIOMONITORING UNIT

Taxonomist: MICHAEL WINNELL

Waterbody Information - Deployment

Temperature: 15 deg C
Dissolved Oxygen: 9.95 mg/l
Dissolved Oxygen Saturation:
Specific Conductance: 245 uS/cm
Velocity: 33.5 cm/s
pH: 7.57
Wetted Width: 4.2 m
Bankfull Width: 4.5 m
Depth: 45 cm

Waterbody Information - Retrieval

Temperature: 14.3 deg C
Dissolved Oxygen: 9.81 mg/l
Dissolved Oxygen Saturation:
Specific Conductance: 236.5 uS/cm
Velocity: 33.5 cm/s
pH: 7.57
Wetted Width: 4.2 m
Bankfull Width: 4.5 m
Depth: 45 cm

Water Chemistry - 8/11/2015

Nitrate+nitrite As N	0.84 mg/l	Total Phosphorus	22 ug/l
Total Kjeldahl Nitrogen	0.2 mg/l	Total Suspended Solids	<2 mg/l
Dissolved Organic Carbon	<1 mg/l	Total Dissolved Solids	160 mg/l
Orthophosphate As Phosphorus	10 ug/l		

Summary of Habitat Characteristics

<u>Landuse Name</u>	<u>Canopy Cover</u>	<u>Terrain</u>	
Pasture	Open	Flat	
Swamp Hardwood			
<u>Potential Stressor</u>	<u>Location</u>	<u>Substrate</u>	
Agricultural Runoff	Below Road Crossing	Detritus	15 %
		Gravel	10 %
		Sand	75 %

Landcover Summary - 2004 Data

Total Area (ac)	5479	High Int. Dev. %	1.4	Water %	3.2	Non-vegetated %	0.0
		Med Int. Dev. %	2.1	Wetland %	4.6	Tilled Agriculture %	4.1
		Low Int. Dev. %	7.8	Upland Woody %	63.3	Grassland %	7.2
		Development %	11.3	Natural %	67.9	Human Altered %	28.9
						Impervious %	7.6

Sample Comments

7/14/2015: ELODEA AND VALESNERIA PRESENT. 99.5% DO.

8/11/2015: 96.3% DO.



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Replicates: 3

Calculated: 3/9/2016

Taxon	Maine Taxonomic Code	Count (Mean of Samplers)		Hilsenhoff Biotic Index	Functional Feeding Group	Relative Abundance %	
		Actual	Adjusted			Actual	Adjusted
Rhabditophora	0301	2.67	2.67		--	0.2	0.2
<i>Aulodrilus</i>	08020202018		1.33		--		0.1
<i>Aulodrilus pluriseta</i>	08020202018004	1.33			--	0.1	
Clitellata	0803	13.33	13.33		--	1.0	1.0
<i>Glossiphonia</i>	08030101004		2.67		--		0.2
<i>Glossiphonia elegans</i>	08030101004001	2.67			--	0.2	
<i>Helobdella</i>	08030101005		2.67		--		0.2
<i>Helobdella modesta</i>	08030101005004	2.67			--	0.2	
<i>Erpobdella</i>	08030203002		1.33		--		0.1
<i>Erpobdella fervida</i>	08030203002002	1.33			--	0.1	
<i>Orconectes</i>	09010301008		1.33		CG		0.1
<i>Orconectes virilis</i>	09010301008016	1.33			--	0.1	
Isotomidae	09020102	1.33	1.33		--	0.1	0.1
<i>Taeniopteryx</i>	09020202014	1.33	1.33	2	SH	0.1	0.1
<i>Leuctra</i>	09020204020	8.00	36.00	0	SH	0.6	2.7
<i>Leuctra ferruginea</i>	09020204020050	28.00			--	2.1	
Perlodidae	09020207	5.33	5.33		--	0.4	0.4
<i>Isoperla</i>	09020207026	18.67	18.67	2	PR	1.4	1.4
<i>Cordulegaster</i>	09020303019	1.33	1.33	3	PR	0.1	0.1
Baetidae	09020401	22.67			--	1.7	
<i>Baetis</i>	09020401001	25.33	160.58	4	CG	1.9	12.1
<i>Baetis intercalaris</i>	09020401001008	1.33			--	0.1	
<i>Baetis tricaudatus</i>	09020401001012	118.67			--	8.9	
<i>Acerpenna</i>	09020401007	5.33	10.31	5	CG	0.4	0.8
<i>Acerpenna macdunnoughi</i>	09020401007001	4.00			--	0.3	
<i>Plauditus</i>	09020401012	42.67	51.56		CG	3.2	3.9
<i>Plauditus punctiventris</i>	09020401012027	4.00			--	0.3	
<i>Dipheter</i>	09020401013		2.95		--		0.2
<i>Dipheter hageni</i>	09020401013001	2.67			--	0.2	
<i>Iswaeon</i>	09020401015	10.67	11.79		--	0.8	0.9
<i>Neocloeon (Centroptilum)</i>	09020401017	1.33	1.47	2	CG	0.1	0.1
<i>Heptagenia</i>	09020402010		2.67	2	SC		0.2
<i>Heptagenia flavescens</i>	09020402010038	2.67			--	0.2	
<i>Maccaffertium</i>	09020402015	1.33	1.33	4	SC	0.1	0.1
<i>Isonychia</i>	09020404018	8.00	8.00	2	CF	0.6	0.6
Leptophlebiidae	09020406	1.33	1.33		--	0.1	0.1
<i>Dolophilodes</i>	09020601001		22.67	0	CF		1.7



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Calculated: 3/9/2016

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		Actual	Adjusted			Actual	Adjusted
<i>Dolophilodes distinctus</i>	09020601001001	22.67			--	1.7	
<i>Chimarra</i>	09020601003	1.33	1.33	2	CF	0.1	0.1
<i>Cernotina</i>	09020603006	1.33	1.33		PR	0.1	0.1
<i>Neureclipsis</i>	09020603008	10.67	10.67	7	CF	0.8	0.8
<i>Phylocentropus</i>	09020603011		2.67	5	CF		0.2
<i>Phylocentropus placidus</i>	09020603011021	2.67			--	0.2	
Hydropsychidae	09020604	222.67			--	16.8	
<i>Cheumatopsyche</i>	09020604015	81.33	183.46	5	CF	6.1	13.8
<i>Hydropsyche</i>	09020604016	74.67	216.54	4	CF	5.6	16.3
<i>Hydropsyche sparna</i>	09020604016032	16.00			--	1.2	
<i>Hydropsyche depravata species group</i>	09020604016041	5.33			CF	0.4	
<i>Rhyacophila</i>	09020605019	1.33	8.00	2	PR	0.1	0.6
<i>Rhyacophila fuscula</i>	09020605019060	6.67			PR	0.5	
<i>Glossosoma</i>	09020606020			0	SC		
Limnephilidae	09020610	1.33	1.33		--	0.1	0.1
<i>Nigronia</i>	09020701003		2.67	0	PR		0.2
<i>Nigronia serricornis</i>	09020701003003	2.67			--	0.2	
Lepidoptera	090209	9.33	9.33		--	0.7	0.7
<i>Antocha</i>	09021001004	2.67	2.67	3	CG	0.2	0.2
<i>Hexatoma</i>	09021001008	1.33	1.33	2	PR	0.1	0.1
<i>Cryptolabis</i>	09021001021	1.33	1.33		CG	0.1	0.1
Chironomidae	09021011	28.00			--	2.1	
<i>Natarsia</i>	09021011011	1.33	1.41	8	PR	0.1	0.1
<i>Paramerina</i>	09021011013	1.33	1.41		--	0.1	0.1
<i>Rheopelopia</i>	09021011017	1.33	1.41		PR	0.1	0.1
<i>Trissopelopia</i>	09021011021		8.48		PR		0.6
<i>Trissopelopia ogemawi</i>	09021011021042	8.00			--	0.6	
<i>Pagastia</i>	09021011025		12.72	1	--		1.0
<i>Pagastia orthogonia</i>	09021011025001	12.00			--	0.9	
<i>Prodiamesa</i>	09021011031		1.41	3	CG		0.1
<i>Prodiamesa olivacea</i>	09021011031048	1.33			--	0.1	
<i>Brillia</i>	09021011033	1.33	1.41	5	SH	0.1	0.1
<i>Corynoneura</i>	09021011036	2.67	2.83	7	CG	0.2	0.2
<i>Cricotopus</i>	09021011037		1.41	7	SH		0.1
<i>Cricotopus bicinctus</i>	09021011037057	1.33			--	0.1	
<i>Parachaetocladius</i>	09021011051		8.48		CG		0.6
<i>Parachaetocladius anoboenus</i>	09021011051001	8.00			--	0.6	



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<i>Parametrioconemus</i>	09021011053	22.67	29.69	5	CG	1.7	2.2
<i>Parametrioconemus sp. F Epler</i>	09021011053101	5.33			--	0.4	
<i>Rheocricotopus</i>	09021011057		4.24	6	CG		0.3
<i>Rheocricotopus robacki</i>	09021011057105	4.00			--	0.3	
<i>Thienemanniella</i>	09021011062		5.66	6	CG		0.4
<i>Thienemanniella xena</i>	09021011062110	4.00			--	0.3	
<i>Thienemanniella boltoni</i>	09021011062113	1.33			--	0.1	
<i>Tvetenia</i>	09021011065		16.97	5	CG		1.3
<i>Tvetenia paucunca</i>	09021011065114	16.00			--	1.2	
<i>Cladotanytarsus</i>	09021011068	49.33	52.31	7	CG	3.7	3.9
<i>Micropsectra</i>	09021011070	28.00	36.76	7	CG	2.1	2.8
<i>Micropsectra polita</i>	09021011070124	6.67		7	--	0.5	
<i>Rheotanytarsus</i>	09021011072		18.38	6	CF		1.4
<i>Rheotanytarsus exiguus group</i>	09021011072127	5.33			CF	0.4	
<i>Rheotanytarsus pellucidus</i>	09021011072128	12.00			CF	0.9	
<i>Stempellinella</i>	09021011074		8.48	2	--		0.6
<i>Stempellinella leptocelloides</i>	09021011074001	8.00			--	0.6	
<i>Tanytarsus</i>	09021011076	66.67	70.69	6	CF	5.0	5.3
<i>Microtendipes</i>	09021011094		2.83	6	CF		0.2
<i>Microtendipes rydalensis group</i>	09021011094168	2.67			--	0.2	
<i>Polypedilum</i>	09021011102		205.00	6	SH		15.4
<i>Polypedilum aviceps</i>	09021011102181	193.33			--	14.6	
<i>Brundiniella eumorpha</i>	09021011115001				--		
<i>Simulium</i>	09021012047	2.67	5.33	4	CF	0.2	0.4
<i>Simulium venustum/verecundum complex</i>	09021012047072	2.67			CF	0.2	
<i>Neoplasta</i>	09021016064	5.33	5.33		PR	0.4	0.4
<i>Helichus</i>	09021112062		1.33	5	SH		0.1
<i>Helichus basalis</i>	09021112062031	1.33			--	0.1	
<i>Optioservus</i>	09021113067	1.33	1.33	3	SC	0.1	0.1
<i>Oulimnius</i>	09021113068		4.00		--		0.3
<i>Oulimnius latiusculus</i>	09021113068049	4.00			--	0.3	
<i>Promoresia</i>	09021113069		2.67		--		0.2
<i>Promoresia tardella</i>	09021113069052	2.67			--	0.2	
<i>Stenelmis</i>	09021113070		1.33	5	SC		0.1
<i>Stenelmis crenata</i>	09021113070055	1.33			--	0.1	
Basommatophora	100102	1.33	1.33		--	0.1	0.1
Sphaeriidae	10020201	2.67	2.67		CF	0.2	0.2



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		Actual	Adjusted			Actual	Adjusted
<i>Pisidium</i>	10020201002	4.00	4.00		CF	0.3	0.3