



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

**Station Information**

<b>Station Number:</b> S-220	River Basin: Saco
Waterbody: Hatchery Brook - Station 220	HUC8 Name: Presumpscot
Town: Gray	Latitude: 43 55 14.87 N
Directions: DRY MILLS STATE HATCHERY BELOW SETTLING POND	Longitude: 70 20 46.18 W
	Stream Order: 2

**Sample Information**

<b>Log Number:</b> 2354	Type of Sample: ROCK BAG	Date Deployed: 7/9/2015
Subsample Factor: X8	Replicates: 3	Date Retrieved: 8/6/2015

**Classification Attainment**

<b>Statutory Class:</b> B	<b>Final Determination:</b> B	Date: 9/14/2016
Model Result with $P \geq 0.6$ : B	<b>Reason for Determination:</b> Model	
Date Last Calculated: 9/8/2016	Comments:	

**Model Probabilities**

<u>First Stage Model</u>		<u>C or Better Model</u>	
Class A	0.08	Class A, B, or C	1.00
Class B	0.83	Non-Attainment	0.00
<u>B or Better Model</u>		<u>A Model</u>	
Class A or B	0.78	Class A	0.24
Class C or Non-Attainment	0.22	Class B or C or Non-Attainment	0.76

**Model Variables**

01 Total Mean Abundance	4008.00	18 Relative Abundance Ephemeroptera	0.03
02 Generic Richness	45.00	19 EPT Generic Richness	11.00
03 Plecoptera Mean Abundance	16.00	21 Sum of Abundances: <i>Dicrotendipes, Micropsectra, Parachironomus, Helobdella</i>	233.93
04 Ephemeroptera Mean Abundance	109.33	23 Relative Generic Richness- Plecoptera	0.02
05 Shannon-Wiener Generic Diversity	3.25	25 Sum of Abundances: <i>Cheumatopsyche, Cricotopus, Tanytarsus, Ablabesmyia</i>	0.00
06 Hilsenhoff Biotic Index	5.17	26 Sum of Abundances: <i>Acroneuria, Maccaffertium, Stenonema</i>	0.00
07 Relative Abundance - Chironomidae	0.54	28 EP Generic Richness/14	0.29
08 Relative Generic Richness Diptera	0.42	30 Presence of Class A Indicator Taxa/7	0.14
09 <i>Hydropsyche</i> Abundance	8.00		
11 <i>Cheumatopsyche</i> Abundance	0.00		
12 EPT Generic Richness/ Diptera Generic Richness	0.58		

**Five Most Dominant Taxa**

Rank	Taxon Name	Percent
1	<i>Tvetenia</i>	37.05
2	Rhabditophora	24.95
3	<i>Micropsectra</i>	5.84
4	<i>Eukiefferiella</i>	4.34
5	<i>Lymnaea</i>	2.93



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**Station Number: S-220**      Town: Gray      Date Deployed: 7/9/2015  
**Log Number: 2354**      Waterbody: Hatchery Brook - Station 220      Date Retrieved: 8/6/2015

**Sample Collection and Processing Information**

Sampling Organization: BIOMONITORING UNIT      Taxonomist: MICHAEL WINNELL

**Waterbody Information - Deployment**

Temperature: 12.9 deg C  
Dissolved Oxygen: 9.62 mg/l  
Dissolved Oxygen Saturation:  
Specific Conductance: 106.5 uS/cm  
Velocity: 15.2 cm/s  
pH: 6.92  
Wetted Width: 3.1 m  
Bankfull Width: 3.1 m  
Depth: 33 cm

**Waterbody Information - Retrieval**

Temperature: 13.9 deg C  
Dissolved Oxygen: 9.16 mg/l  
Dissolved Oxygen Saturation:  
Specific Conductance: 104.1 uS/cm  
Velocity: 12.2 cm/s  
pH: 6.96  
Wetted Width: 3.1 m  
Bankfull Width: 3.1 m  
Depth: 28 cm

**Water Chemistry**

**Summary of Habitat Characteristics**

<u>Landuse Name</u>	<u>Canopy Cover</u>	<u>Terrain</u>
Cultivated	Dense	Rolling
Upland Hardwood		
<u>Potential Stressor</u>	<u>Location</u>	<u>Substrate</u>
Nutrients	Below Fish Hatchery	Detritus 5 %
		Gravel 50 %
		Sand 45 %

**Landcover Summary - 2004 Data**

Total Area (ac)	171	High Int. Dev. % 0.6	Water % 0.0	Non-vegetated % 0.0
		Med Int. Dev. % 2.7	Wetland % 1.4	Tilled Agriculture % 0.0
		Low Int. Dev. % 7.7	Upland Woody % 82.5	Grassland % 3.9
		Development % 11.0	Natural % 83.9	Human Altered % 16.0
				Impervious % 10.1

**Sample Comments**

7/9/2015: IF&W FLUSHED DENTENTION PONDS TODAY. 91.7% DO.  
9/8/2015: ONE BAG PARTIALLY BURIED. 89.6% DO.



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Aquatic Life Taxonomic Inventory Report**

**Station Number: S-220**

Waterbody: Hatchery Brook - Station 220

Town: Gray

**Log Number: 2354**

Subsample Factor: X8

Replicates: 3

Calculated: 9/8/2016

Taxon	Maine Taxonomic Code	Count (Mean of Samplers)		Hilsenhoff Biotic Index	Functional Feeding Group	Relative Abundance %	
		Actual	Adjusted			Actual	Adjusted
<i>Hydra</i>	02010101001	8.00	8.00		PR	0.2	0.2
Rhabditophora	0301	1000.00	1000.00		--	25.0	25.0
<i>Stylodrilus</i>	08020101004		21.33		--		0.5
<i>Stylodrilus heringianus</i>	08020101004001	21.33			--	0.5	
Tubificida	080202	10.67	10.67		--	0.3	0.3
<i>Nais</i>	08020202009		8.00		CG		0.2
<i>Nais communis</i>	08020202009005	2.67			--	0.1	
<i>Nais variabilis</i>	08020202009009	5.33			--	0.1	
<i>Ophidonais</i>	08020202010		77.33		CG		1.9
<i>Ophidonais serpentina</i>	08020202010001	77.33			--	1.9	
<i>Slavina</i>	08020202012		5.33		--		0.1
<i>Slavina appendiculata</i>	08020202012001	5.33			--	0.1	
<i>Limnodrilus</i>	08020202022		5.33		CG		0.1
<i>Limnodrilus hoffmeisteri</i>	08020202022003	5.33			--	0.1	
<i>Glossiphonia</i>	08030101004		2.67		--		0.1
<i>Glossiphonia elegans</i>	08030101004001	2.67			--	0.1	
<i>Hyaella</i>	09010203006	8.00	8.00	8	CG	0.2	0.2
<i>Leuctra</i>	09020204020		16.00	0	SH		0.4
<i>Leuctra ferruginea</i>	09020204020050	13.33			--	0.3	
<i>Leuctra truncata</i>	09020204020058	2.67			--	0.1	
<i>Baetis</i>	09020401001	21.33	98.67	4	CG	0.5	2.5
<i>Baetis tricaudatus</i>	09020401001012	77.33			--	1.9	
Leptophlebiidae	09020406	5.33	5.33		--	0.1	0.1
<i>Eurylophella</i>	09020410036	5.33	5.33	3	CG	0.1	0.1
<i>Diplectrona</i>	09020604014		2.67	0	CF		0.1
<i>Diplectrona modesta</i>	09020604014025	2.67			--	0.1	
<i>Hydropsyche</i>	09020604016	8.00	8.00	4	CF	0.2	0.2
<i>Rhyacophila</i>	09020605019	58.67	58.67	2	PR	1.5	1.5
<i>Pycnopsyche</i>	09020610049	2.67	2.67	4	SH	0.1	0.1
<i>Frenesia</i>	09020610058		5.33	0	SH		0.1
<i>Frenesia difficilis</i>	09020610058117	5.33			--	0.1	
<i>Psychoglypha</i>	09020610060		2.67	0	SH		0.1
<i>Psychoglypha subborealis</i>	09020610060120	2.67			--	0.1	
<i>Lepidostoma</i>	09020611064	18.67	18.67	1	SH	0.5	0.5
<i>Tipula</i>	09021001002	8.00	8.00	4	SH	0.2	0.2
<i>Pericoma</i>	09021002016	13.33	13.33	4	CG	0.3	0.3
Chironomidae	09021011	42.67			--	1.1	



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Town: Gray

**Log Number: 2354**

Subsample Factor: X8

Replicates: 3

Calculated: 9/8/2016

Taxon	Maine Taxonomic Code	Count (Mean of Samplers)		Hilsenhoff Biotic Index	Functional Feeding Group	Relative Abundance %	
		Actual	Adjusted			Actual	Adjusted
<i>Conchapelopia</i>	09021011004	5.33	5.44	6	PR	0.1	0.1
<i>Pagastia</i>	09021011025		40.80	1	--		1.0
<i>Pagastia orthogonia</i>	09021011025001	40.00			--	1.0	
<i>Brillia</i>	09021011033		2.72	5	SH		0.1
<i>Brillia parva</i>	09021011033050	2.67			--	0.1	
<i>Corynoneura</i>	09021011036	21.33	21.76	7	CG	0.5	0.5
<i>Eukiefferiella</i>	09021011041		174.08	8	CG		4.3
<i>Eukiefferiella brehmi group</i>	09021011041073	133.33			--	3.3	
<i>Eukiefferiella claripennis group</i>	09021011041075	37.33			--	0.9	
<i>Heterotrissocladius</i>	09021011044		5.44	0	CG		0.1
<i>Heterotrissocladius marcidus</i>	09021011044083	5.33			--	0.1	
<i>Parametricnemus</i>	09021011053	48.00	48.96	5	CG	1.2	1.2
<i>Rheocricotopus</i>	09021011057		95.20	6	CG		2.4
<i>Rheocricotopus glabricollis</i>	09021011057110	5.33			--	0.1	
<i>Rheocricotopus pauciseta</i>	09021011057111	88.00			--	2.2	
<i>Thienemanniella</i>	09021011062		5.44	6	CG		0.1
<i>Thienemanniella boltoni</i>	09021011062113	5.33			--	0.1	
<i>Tvetenia</i>	09021011065		1485.16	5	CG		37.1
<i>Tvetenia bavarica group</i>	09021011065111	1440.00			--	35.9	
<i>Tvetenia paucunca</i>	09021011065114	16.00			--	0.4	
<i>Micropsectra</i>	09021011070	184.00	233.93	7	CG	4.6	5.8
<i>Micropsectra polita</i>	09021011070124	45.33		7	--	1.1	
<i>Microtendipes</i>	09021011094		10.88	6	CF		0.3
<i>Microtendipes pedellus group</i>	09021011094166	10.67			--	0.3	
<i>Polypedilum</i>	09021011102		38.08	6	SH		1.0
<i>Polypedilum aviceps</i>	09021011102181	37.33			--	0.9	
<i>Macropelopia</i>	09021011111		5.44		P		0.1
<i>Macropelopia decedens</i>	09021011111002	5.33			--	0.1	
<i>Simulium</i>	09021012047		40.00	4	CF		1.0
<i>Simulium vittatum</i>	09021012047064	40.00			--	1.0	
<i>Clinocera</i>	09021016056	5.33	5.33	3	PR	0.1	0.1
<i>Limnophora</i>	09021022080	8.00	8.00	2	PR	0.2	0.2
<i>Sperchon</i>	09030107001	24.00	24.00		--	0.6	0.6
Basommatophora	100102	72.00	72.00		--	1.8	1.8
<i>Lymnaea</i>	10010201022	98.67	117.33		SC	2.5	2.9
<i>Lymnaea catascopium</i>	10010201022039	18.67			--	0.5	
<i>Physa</i>	10010202027	117.33	117.33		SC	2.9	2.9
<i>Gyraulus</i>	10010203029		2.67		SC		0.1



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**Log Number: 2354**      Subsample Factor: X8      Replicates: 3      Calculated: 9/8/2016

Taxon	Maine Taxonomic Code	Count (Mean of Samplers)		Hilsenhoff Biotic Index	Functional Feeding Group	Relative Abundance %	
		Actual	Adjusted			Actual	Adjusted
<i>Gyraulus circumstriatus</i>	10010203029054	2.67			--	0.1	
Sphaeriidae	10020201	34.67	34.67		CF	0.9	0.9
<i>Pisidium</i>	10020201002	21.33	21.33		CF	0.5	0.5



**Maine Department of Environmental Protection  
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**Station Information**

<b>Station Number:</b> S-799	River Basin: Saco
Waterbody: Royal River - Station 799	HUC8 Name: Presumpscot
Town: Gray	Latitude: 43 53 26.7 N
Directions: 15M DOWNSTREAM OF DEPOT ROAD	Longitude: 70 16 37.67 W
	Stream Order: 4

**Sample Information**

<b>Log Number:</b> 2358	Type of Sample: ROCK BASKET	Date Deployed: 7/14/2015
Subsample Factor: X4	Replicates: 3	Date Retrieved: 8/11/2015

**Classification Attainment**

<b>Statutory Class:</b> B	<b>Final Determination:</b> C	Date: 3/9/2016
Model Result with $P \geq 0.6$ : C	<b>Reason for Determination:</b> Model	
Date Last Calculated: 3/9/2016	Comments:	

**Model Probabilities**

<u>First Stage Model</u>		<u>C or Better Model</u>	
Class A	0.01	Class A, B, or C	1.00
Class B	0.28	Non-Attainment	0.00
<u>B or Better Model</u>		<u>A Model</u>	
Class A or B	0.13	Class A	0.03
Class C or Non-Attainment	0.87	Class B or C or Non-Attainment	0.97

**Model Variables**

01 Total Mean Abundance	3016.00	18 Relative Abundance Ephemeroptera	0.12
02 Generic Richness	44.00	19 EPT Generic Richness	20.00
03 Plecoptera Mean Abundance	2.67	21 Sum of Abundances: <i>Dicrotendipes</i> , <i>Micropsectra</i> , <i>Parachironomus</i> , <i>Helobdella</i>	0.00
04 Ephemeroptera Mean Abundance	369.33	23 Relative Generic Richness- Plecoptera	0.02
05 Shannon-Wiener Generic Diversity	2.62	25 Sum of Abundances: <i>Cheumatopsyche</i> , <i>Cricotopus</i> , <i>Tanytarsus</i> , <i>Ablabesmyia</i>	884.38
06 Hilsenhoff Biotic Index	4.42	26 Sum of Abundances: <i>Acroneuria</i> , <i>Maccaffertium</i> , <i>Stenonema</i>	98.67
07 Relative Abundance - Chironomidae	0.13	28 EP Generic Richness/14	0.71
08 Relative Generic Richness Diptera	0.41	30 Presence of Class A Indicator Taxa/7	0.29
09 <i>Hydropsyche</i> Abundance	1345.16		
11 <i>Cheumatopsyche</i> Abundance	825.51		
12 EPT Generic Richness/ Diptera Generic Richness	1.11		
13 Relative Abundance - Oligochaeta	0.00		
15 Perlidae Mean Abundance (Family Functional Group)	2.67		
16 Tanypodinae Mean Abundance (Family Functional Group)	5.35		
17 Chironomini Abundance (Family Functional Group)	61.55		

**Five Most Dominant Taxa**

Rank	Taxon Name	Percent
1	<i>Hydropsyche</i>	44.60
2	<i>Cheumatopsyche</i>	27.37
3	<i>Rheotanytarsus</i>	6.79
4	<i>Baetis</i>	3.90
5	<i>Maccaffertium</i>	3.18



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**Station Number: S-799**      Town: Gray      Date Deployed: 7/14/2015  
**Log Number: 2358**      Waterbody: Royal River - Station 799      Date Retrieved: 8/11/2015

**Sample Collection and Processing Information**

Sampling Organization: BIOMONITORING UNIT

Taxonomist: MICHAEL WINNELL

**Waterbody Information - Deployment**

Temperature: 20.5 deg C  
Dissolved Oxygen: 8 mg/l  
Dissolved Oxygen Saturation:  
Specific Conductance: 192.2 uS/cm  
Velocity: 36.6 cm/s  
pH: 7.62  
Wetted Width: 10 m  
Bankfull Width: 14 m  
Depth: 49 cm

**Waterbody Information - Retrieval**

Temperature: 18.3 deg C  
Dissolved Oxygen: 8.61 mg/l  
Dissolved Oxygen Saturation:  
Specific Conductance: 216.7 uS/cm  
Velocity: 61 cm/s  
pH: 7.51  
Wetted Width: 7.1 m  
Bankfull Width: 7.1 m  
Depth: 42 cm

**Water Chemistry - 8/11/2015**

Nitrate+nitrite As N	0.61 mg/l	Total Phosphorus	21 ug/l
Total Kjeldahl Nitrogen	0.2 mg/l	Total Suspended Solids	2.8 mg/l
Dissolved Organic Carbon	1.6 mg/l	Total Dissolved Solids	140 mg/l
Orthophosphate As Phosphorus	5 ug/l		

**Summary of Habitat Characteristics**

<u>Landuse Name</u>	<u>Canopy Cover</u>	<u>Terrain</u>	
Upland Hardwood	Open	Flat	
<u>Potential Stressor</u>	<u>Location</u>	<u>Substrate</u>	
	Below Road Crossing	Boulder	60 %
		Rubble/Cobble	20 %
		Sand	20 %

**Landcover Summary - 2004 Data**

Total Area (ac)	39181	High Int. Dev. %	0.7	Water %	0.6	Non-vegetated %	0.3
		Med Int. Dev. %	1.1	Wetland %	8.0	Tilled Agriculture %	2.2
		Low Int. Dev. %	5.6	Upland Woody %	68.9	Grassland %	10.2
		Development %	7.5	Natural %	76.9	Human Altered %	22.5
						Impervious %	6.1

**Sample Comments**

8/11/2015: 91.7% DO.





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**Station Number: S-799**      Waterbody: Royal River - Station 799      Town: Gray  
**Log Number: 2358**      Subsample Factor: X4      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
<i>Acroneuria</i>	09020209042		2.67	0	PR		0.1
<i>Acroneuria abnormis</i>	09020209042121	1.33		0	PR	0.0	
<i>Acroneuria internata</i>	09020209042124	1.33			--	0.0	
Calopterygidae	09020307	4.00	4.00		--	0.1	0.1
Baetidae	09020401	10.67			--	0.4	
<i>Baetis</i>	09020401001	10.67	117.49	4	CG	0.4	3.9
<i>Baetis flavistriga</i>	09020401001004	84.00			--	2.8	
<i>Baetis intercalaris</i>	09020401001008	5.33			--	0.2	
<i>Baetis pluto</i>	09020401001009	5.33			--	0.2	
<i>Baetis tricaudatus</i>	09020401001012	2.67			--	0.1	
<i>Acerpenna</i>	09020401007		4.35	5	CG		0.1
<i>Acerpenna pygmaea</i>	09020401007011	4.00			--	0.1	
<i>Procloeon</i>	09020401010	1.33	1.45		CG	0.0	0.0
<i>Isxaeon</i>	09020401015	6.67	8.70		--	0.2	0.3
<i>Isxaeon anoka</i>	09020401015001	1.33			--	0.0	
Heptageniidae	09020402	37.33	37.33		--	1.2	1.2
<i>Maccaffertium</i>	09020402015	78.67	96.00	4	SC	2.6	3.2
<i>Maccaffertium modestum</i>	09020402015051	17.33			--	0.6	
<i>Isonychia</i>	09020404018	21.33	21.33	2	CF	0.7	0.7
<i>Ephemerella</i>	09020410035	81.33	81.33	1	CG	2.7	2.7
<i>Serratella</i>	09020410037		1.33	2	CG		0.0
<i>Serratella serratoides</i>	09020410037124	1.33			--	0.0	
<i>Dolophilodes</i>	09020601001		1.33	0	CF		0.0
<i>Dolophilodes distinctus</i>	09020601001001	1.33			--	0.0	
<i>Chimarra</i>	09020601003	8.00	12.00	2	CF	0.3	0.4
<i>Chimarra obscura</i>	09020601003003	4.00			--	0.1	
Polycentropodidae	09020603	2.67			--	0.1	
<i>Neureclipsis</i>	09020603008	12.00	13.60	7	CF	0.4	0.5
<i>Nyctiophylax</i>	09020603009		9.07	5	PR		0.3
<i>Nyctiophylax celta</i>	09020603009012	8.00			--	0.3	
Hydropsychidae	09020604	221.33			--	7.3	
<i>Cheumatopsyche</i>	09020604015	741.33	825.51	5	CF	24.6	27.4
<i>Hydropsyche</i>	09020604016	698.67	1345.16	4	CF	23.2	44.6
<i>Hydropsyche bronta</i>	09020604016029	220.00			--	7.3	
<i>Hydropsyche sparna</i>	09020604016032	218.67			--	7.3	
<i>Hydropsyche depravata species group</i>	09020604016041	50.67			CF	1.7	
<i>Hydropsyche placoda</i>	09020604016059	20.00			--	0.7	



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**Log Number: 2358**      Subsample Factor: X4      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
<i>Rhyacophila</i>	09020605019	14.67	14.67	2	PR	0.5	0.5
<i>Brachycentrus</i>	09020609043		2.67	0	CF		0.1
<i>Brachycentrus numerosus</i>	09020609043098	2.67			--	0.1	
<i>Micrasema</i>	09020609044		1.33	2	SH		0.0
<i>Micrasema rusticum group</i>	09020609044100	1.33			--	0.0	
<i>Oecetis</i>	09020618078		4.00	8	PR		0.1
<i>Oecetis persimilis</i>	09020618078157	4.00			--	0.1	
<i>Antocha</i>	09021001004	2.67	2.67	3	CG	0.1	0.1
Chironomidae	09021011	1.33			--	0.0	
<i>Rheopelopia</i>	09021011017		5.35		PR		0.2
<i>Rheopelopia acra group</i>	09021011017036	5.33			--	0.2	
<i>Pagastia</i>	09021011025		6.69	1	--		0.2
<i>Pagastia orthogonia</i>	09021011025001	6.67			--	0.2	
<i>Potthastia</i>	09021011026		1.34	2	CG		0.0
<i>Potthastia longimana</i>	09021011026046	1.33			--	0.0	
<i>Cricotopus</i>	09021011037	1.33	56.20	7	SH	0.0	1.9
<i>Cricotopus bicinctus</i>	09021011037057	54.67			--	1.8	
<i>Nanocladius</i>	09021011049		1.34	3	CG		0.0
<i>Nanocladius spiniplenus</i>	09021011049090	1.33			--	0.0	
<i>Orthocladius</i>	09021011050		2.68	6	CG		0.1
<i>Orthocladius annectens</i>	09021011050092	1.33			--	0.0	
<i>Orthocladius lignicola</i>	09021011050100	1.33			--	0.0	
<i>Rheocricotopus</i>	09021011057		6.69	6	CG		0.2
<i>Rheocricotopus robacki</i>	09021011057105	6.67			--	0.2	
<i>Thienemanniella</i>	09021011062	4.00	6.69	6	CG	0.1	0.2
<i>Thienemanniella similis</i>	09021011062111	1.33			--	0.0	
<i>Thienemanniella boltoni</i>	09021011062113	1.33			--	0.0	
<i>Tvetenia</i>	09021011065		28.10	5	CG		0.9
<i>Tvetenia vitracies</i>	09021011065113	5.33			--	0.2	
<i>Tvetenia paucunca</i>	09021011065114	22.67			--	0.8	
<i>Rheotanytarsus</i>	09021011072		204.71	6	CF		6.8
<i>Rheotanytarsus exiguus group</i>	09021011072127	160.00			CF	5.3	
<i>Rheotanytarsus pellucidus</i>	09021011072128	44.00			CF	1.5	
<i>Tanytarsus</i>	09021011076	2.67	2.68	6	CF	0.1	0.1
<i>Microtendipes</i>	09021011094		6.69	6	CF		0.2
<i>Microtendipes rydalensis group</i>	09021011094168	6.67			--	0.2	
<i>Nilothauma</i>	09021011095	1.33	1.34	2	--	0.0	0.0
<i>Polypedilum</i>	09021011102	1.33	53.52	6	SH	0.0	1.8



**Maine Department of Environmental Protection  
Biological Monitoring Program  
Aquatic Life Taxonomic Inventory Report**

**Station Number: S-799**

Waterbody: Royal River - Station 799

Town: Gray

**Log Number: 2358**

Subsample Factor: X4

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
<i>Polypedilum aviceps</i>	09021011102181	34.67			--	1.1	
<i>Polypedilum flavum</i>	09021011102182	17.33			--	0.6	
<i>Simulium</i>	09021012047	1.33	2.67	4	CF	0.0	0.1
<i>Simulium venustum/verecundum complex</i>	09021012047072	1.33			CF	0.0	
<i>Atherix</i>	09021015055	2.67	2.67	2	PR	0.1	0.1
<i>Hemerodromia</i>	09021016057	6.67	6.67	3	PR	0.2	0.2
<i>Dineutus</i>	09021104032	2.67	2.67	2	--	0.1	0.1
<i>Macronychus</i>	09021113065		1.33	4	--		0.0
<i>Macronychus glabratus</i>	09021113065040	1.33			--	0.0	
<i>Optioservus</i>	09021113067		1.33	3	SC		0.0
<i>Optioservus ovalis</i>	09021113067046	1.33			--	0.0	
<i>Promoesia</i>	09021113069		5.33		--		0.2
<i>Promoesia tardella</i>	09021113069052	5.33			--	0.2	
<i>Sperchon</i>	09030107001	1.33	1.33		--	0.0	0.0



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

**Station Information**

<b>Station Number:</b> 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**

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

**Classification Attainment**

<b>Statutory Class:</b> B	<b>Final Determination:</b> B	Date: 3/9/2016
Model Result with $P \geq 0.6$ : B	<b>Reason for Determination: Best Professional Judgement</b>	
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



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

**Station Number: S-221**      Town: Gray      Date Deployed: 7/14/2015  
**Log Number: 2359**      Waterbody: Libby Brook - Station 221      Date Retrieved: 8/11/2015

**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.



**Maine Department of Environmental Protection  
Biological Monitoring Program  
Aquatic Life Taxonomic Inventory Report**

**Station Number: S-221**

Waterbody: Libby Brook - Station 221

Town: Gray

**Log Number: 2359**

Subsample Factor: X4

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



**Maine Department of Environmental Protection  
Biological Monitoring Program  
Aquatic Life Taxonomic Inventory Report**

**Station Number: S-221**

Waterbody: Libby Brook - Station 221

Town: Gray

**Log Number: 2359**

Subsample Factor: X4

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
<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	





**Maine Department of Environmental Protection  
Biological Monitoring Program  
Aquatic Life Taxonomic Inventory Report**

**Station Number: S-221**      Waterbody: Libby Brook - Station 221      Town: Gray  
**Log Number: 2359**      Subsample Factor: X4      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
<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



**Maine Department of Environmental Protection  
Biological Monitoring Program  
Aquatic Life Taxonomic Inventory Report**

<b>Station Number:</b> S-221	Waterbody: Libby Brook - Station 221		Town: Gray				
<b>Log Number:</b> 2359	Subsample Factor: X4	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
<i>Pisidium</i>	10020201002	4.00	4.00		CF	0.3	0.3