



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

Station Information

Station Number: S-494	River Basin:	Maine Coastal	
Waterbody:	East Machias River - Station 494	HUC8 Name:	Maine Coastal
Town:	Crawford	Latitude:	45 0 5.11 N
Directions:	ABOVE RT. 9 CROSSING	Longitude:	67 37 2.2 W
		Stream Order:	3

Sample Information

Log Number: 2907	Type of Sample:	ROCK BAG	Date Deployed:	7/12/2021	
Subsample Factor:	X1	Replicates:	3	Date Retrieved:	8/9/2021

Classification Attainment

Statutory Class: AA	Final Determination: A	Date:	4/13/2023
Model Result with $P \geq 0.6$:	B	Reason for Determination:	Best Professional Judgement
Date Last Calculated:	10/31/2022	Comments:	Indeterminate for Class A ($p = 0.56$). Raised to class A based on sensitive taxa.

Model Probabilities

First Stage Model		C or Better Model	
Class A	0.33	Class A, B, or C	1.00
Class B	0.61	Non-Attainment	0.00
B or Better Model		A Model	
Class A or B	0.99	Class A	0.56
Class C or Non-Attainment	0.01	Class B or C or Non-Attainment	0.44

Model Variables

01 Total Mean Abundance	516.67	18 Relative Abundance Ephemeroptera	0.15
02 Generic Richness	37.00	19 EPT Generic Richness	16.00
03 Plecoptera Mean Abundance	5.33	21 Sum of Abundances: <i>Dicrotendipes</i> , <i>Micropsectra</i> , <i>Parachironomus</i> , <i>Helobdella</i>	0.00
04 Ephemeroptera Mean Abundance	76.00	23 Relative Generic Richness- Plecoptera	0.03
05 Shannon-Wiener Generic Diversity	3.74	25 Sum of Abundances: <i>Cheumatopsyche</i> , <i>Cricotopus</i> , <i>Tanytarsus</i> , <i>Ablabesmyia</i>	66.33
06 Hilsenhoff Biotic Index	4.61	26 Sum of Abundances: <i>Acroneuria</i> , <i>Maccaffertium</i> , <i>Stenonema</i>	27.67
07 Relative Abundance - Chironomidae	0.21	28 EP Generic Richness/14	0.57
08 Relative Generic Richness Diptera	0.30	30 Presence of Class A Indicator Taxa/7	0.43
09 <i>Hydropsyche</i> Abundance	119.00		
11 <i>Cheumatopsyche</i> Abundance	49.00		
12 EPT Generic Richness/ Diptera Generic Richness	1.45		
13 Relative Abundance - Oligochaeta	0.00		
15 Perlidae Mean Abundance (Family Functional Group)	5.33		
16 Tanypodinae Mean Abundance (Family Functional Group)	4.00		
17 Chironomini Abundance (Family Functional Group)	14.67		

Five Most Dominant Taxa		
Rank	Taxon Name	Percent
1	<i>Hydropsyche</i>	23.03
2	<i>Rheotanytarsus</i>	14.13
3	<i>Hydroptila</i>	13.55
4	<i>Cheumatopsyche</i>	9.48
5	<i>Chimarra</i>	5.03



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Sample Collection and Processing Information

Sampling Organization: BIOMONITORING UNIT

Taxonomist: LOTIC INC.

Waterbody Information - Deployment

Temperature:	20.7 deg C
Dissolved Oxygen:	8.87 mg/l
Dissolved Oxygen Saturation:	97.9 %
Specific Conductance:	30.1 uS/cm
Velocity:	37.59 cm/s
pH:	5.91
Wetted Width:	18.4 m
Bankfull Width:	18.4 m
Depth:	50 cm

Waterbody Information - Retrieval

Temperature:	23.3 deg C
Dissolved Oxygen:	9.39 mg/l
Dissolved Oxygen Saturation:	108.8 %
Specific Conductance:	31.4 uS/cm
Velocity:	39.62 cm/s
pH:	6.12
Wetted Width:	19.5 m
Bankfull Width:	22.5 m
Depth:	38 cm

Water Chemistry - 7/12/2021

Nitrate + Nitrite As Nitrogen	<0.01 mg/l	Nitrate As Nitrogen	<0.01 mg/l
Nitrite As Nitrogen	<0.01 mg/l	Orthophosphate As Phosphorus	1 ug/l
Total Alkalinity	6 mg/l	Total Kjeldahl Nitrogen (organic A	0.5 mg/l
Total Phosphorus Mixed Forms (po	20 ug/l		

Summary of Habitat Characteristics

<u>Landuse Name</u>	<u>Canopy Cover</u>	<u>Terrain</u>
Upland Conifer		
Upland Hardwood		
<u>Potential Stressor</u>	<u>Location</u>	<u>Substrate</u>
Logging	Above Forestry NPS	Boulder 60 %
	Above Road Crossing	Gravel 5 %
	Below Forestry NPS	Rubble/Cobble 10 %
		Sand 25 %

Landcover Summary - 2004 Data

Total Area (ac)	60441	High Int. Dev. %	0.0	Water %	7.7	Non-vegetated %	0.4
		Med Int. Dev. %	0.1	Wetland %	14.3	Tilled Agriculture %	0.6
		Low Int. Dev. %	1.3	Upland Woody %	74.9	Grassland %	0.6
		Development %	1.4	Natural %	88.7	Human Altered %	3.7
						Impervious %	0.8
Total Land (ac)	55804	High Int. Dev. %	0.0	Water %	N/A	Non-vegetated %	N/A
		Med Int. Dev. %	0.1	Wetland %	15.5	Tilled Agriculture %	0.6
		Low Int. Dev. %	1.4	Upland Woody %	81.1	Grassland %	0.7
		Development %	1.5	Natural %	96.0	Human Altered %	4.0
						Impervious %	0.8

Sample Comments



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Aquatic Life Taxonomic Inventory Report

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Town: Crawford

Log Number: 2907

Subsample Factor: X1

Replicates: 3

Calculated: 10/31/2022

Taxon	Maine Taxonomic Code	Count (Mean of Samplers)		Hilsenhoff Biotic Index	Functional Feeding Group	Relative Abundance %	
		Actual	Adjusted			Actual	Adjusted
Naididae	08020202	0.67	0.67		--	0.1	0.1
<i>Acroneuria</i>	09020209042		5.33	0	PR		1.0
<i>Acroneuria abnormis</i>	09020209042121	5.33		0	PR	1.0	
<i>Boyeria</i>	09020301004		3.00	2	PR		0.6
<i>Boyeria grafiana</i>	09020301004011	3.00			--	0.6	
<i>Hagenius</i>	09020302008		0.33	1	PR		0.1
<i>Hagenius brevistylus</i>	09020302008015	0.33			PR	0.1	
<i>Sympetrum</i>	09020306041	0.33	0.33	10	PR	0.1	0.1
<i>Calopteryx</i>	09020307043	0.33	0.33	5	PR	0.1	0.1
<i>Enallagma</i>	09020309051	0.33	0.33	9	PR	0.1	0.1
<i>Baetis</i>	09020401001		25.67	4	CG		5.0
<i>Baetis brunneicolor</i>	09020401001003	15.67			--	3.0	
<i>Baetis flavistriga</i>	09020401001004	10.00			--	1.9	
<i>Acerpenna</i>	09020401007		6.67	5	CG		1.3
<i>Acerpenna pygmaea</i>	09020401007011	6.67			--	1.3	
<i>Plautidus</i>	09020401012	12.00	12.00		CG	2.3	2.3
<i>Leucrocuta</i>	09020402011	0.33	0.33	1	SC	0.1	0.1
<i>Maccaffertium</i>	09020402015		22.33	4	SC		4.3
<i>Maccaffertium modestum</i>	09020402015051	13.67			--	2.6	
<i>Maccaffertium vicarium</i>	09020402015055	8.67			--	1.7	
<i>Isonychia</i>	09020404018		8.67	2	CF		1.7
<i>Isonychia bicolor</i>	09020404018059	8.67			--	1.7	
<i>Serratella</i>	09020410037	0.33	0.33	2	CG	0.1	0.1
<i>Chimarra</i>	09020601003		26.00	2	CF		5.0
<i>Chimarra aterrima</i>	09020601003002	26.00			--	5.0	
<i>Polycentropus</i>	09020603010	10.33	10.33	6	PR	2.0	2.0
<i>Cheumatopsyche</i>	09020604015	49.00	49.00	5	CF	9.5	9.5
<i>Hydropsyche</i>	09020604016		119.00	4	CF		23.0
<i>Hydropsyche bronta</i>	09020604016029	2.67			--	0.5	
<i>Hydropsyche sparna</i>	09020604016032	116.33			--	22.5	
<i>Macrostemum</i>	09020604018		2.00	3	CF		0.4
<i>Macrostemum zebratum</i>	09020604018054	2.00			--	0.4	
<i>Hydroptila</i>	09020607026	70.00	70.00	6	P	13.5	13.5
<i>Brachycentrus</i>	09020609043		12.33	0	CF		2.4
<i>Brachycentrus appalachia</i>	09020609043096	12.33			--	2.4	
<i>Pycnopsyche</i>	09020610049	0.67	0.67	4	SH	0.1	0.1
<i>Tipula</i>	09021001002	0.33	0.33	4	SH	0.1	0.1



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		Actual	Adjusted			Actual	Adjusted
Chironomidae	09021011				--		
<i>Labrundinia</i>	09021011008		0.33	7	PR		0.1
<i>Labrundinia neopilosella</i>	09021011008021	0.33			--	0.1	
<i>Nilotanytus</i>	09021011012		0.67	6	PR		0.1
<i>Nilotanytus fimbriatus</i>	09021011012027	0.67			--	0.1	
<i>Thienemannimyia</i>	09021011020		3.00	3	PR		0.6
<i>Thienemannimyia group</i>	09021011020041	3.00			--	0.6	
<i>Corynoneura</i>	09021011036	0.33	0.33	7	CG	0.1	0.1
<i>Cricotopus</i>	09021011037		11.33	7	SH		2.2
<i>Cricotopus bicinctus</i>	09021011037057	9.00			--	1.7	
<i>Cricotopus trifascia</i>	09021011037070	2.33			--	0.5	
<i>Orthocladius</i>	09021011050	0.67	0.67	6	CG	0.1	0.1
<i>Rheotanytarsus</i>	09021011072		73.00	6	CF		14.1
<i>Rheotanytarsus exiguus group</i>	09021011072127	73.00			CF	14.1	
<i>Tanytarsus</i>	09021011076	6.00	6.00	6	CF	1.2	1.2
<i>Polypedilum</i>	09021011102		14.67	6	SH		2.8
<i>Polypedilum aviceps</i>	09021011102181	13.00			--	2.5	
<i>Polypedilum illinoense group</i>	09021011102185	1.00			--	0.2	
<i>Polypedilum halterale group</i>	09021011102193	0.67			--	0.1	
<i>Simulium</i>	09021012047	4.00	4.00	4	CF	0.8	0.8
<i>Dineutus</i>	09021104032	1.00	1.00	2	--	0.2	0.2
<i>Psephenus</i>	09021108058		1.33	4	SC		0.3
<i>Psephenus herricki</i>	09021108058028	1.33			--	0.3	
<i>Promoresia</i>	09021113069	3.67	3.67		--	0.7	0.7
<i>Sphaerium</i>	10020201003	20.67	20.67		CF	4.0	4.0