



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

Station Information

Station Number: S-91 River Basin: Penobscot
Waterbody: Mattanawcook Stream - Station 91 HUC8 Name: Lower Penobscot
Town: Lincoln Latitude: 45 22 27.02 N
Directions: BELOW LINCOLN PULP AND PAPER (COOLING WATER); 100 M ABOVE CONFLUENCE WITH PENOPSCOT RIVER Longitude: 68 30 40.92 W
Stream Order: 2

Sample Information

Log Number: 2871 Type of Sample: ROCK BAG Date Deployed: 8/18/2021
Subsample Factor: X1 Replicates: 3 Date Retrieved: 9/15/2021

Classification Attainment

Statutory Class: C Final Determination: C Date: 2/7/2023
Model Result with $P \geq 0.6$: C Reason for Determination: Model
Date Last Calculated: 3/2/2023 Comments:

Model Probabilities

First Stage Model		C or Better Model	
Class A	0.03	Class A, B, or C	0.98
Class B	0.06	Non-Attainment	0.02
B or Better Model		A Model	
Class A or B	0.01	Class A	0.02
Class C or Non-Attainment	0.99	Class B or C or Non-Attainment	0.98

Model Variables

01 Total Mean Abundance	86.67	18 Relative Abundance Ephemeroptera	0.10
02 Generic Richness	38.00	19 EPT Generic Richness	13.00
03 Plecoptera Mean Abundance	0.00	21 Sum of Abundances: <i>Dicrotendipes</i> , <i>Micropsectra</i> , <i>Parachironomus</i> , <i>Helobdella</i>	0.00
04 Ephemeroptera Mean Abundance	8.67	23 Relative Generic Richness- Plecoptera	0.00
05 Shannon-Wiener Generic Diversity	4.09	25 Sum of Abundances: <i>Cheumatopsyche</i> , <i>Cricotopus</i> , <i>Tanytarsus</i> , <i>Ablabesmyia</i>	11.67
06 Hilsenhoff Biotic Index	4.46	26 Sum of Abundances: <i>Acroneuria</i> , <i>Maccaffertium</i> , <i>Stenonema</i>	0.00
07 Relative Abundance - Chironomidae	0.30	28 EP Generic Richness/14	0.21
08 Relative Generic Richness Diptera	0.34	30 Presence of Class A Indicator Taxa/7	0.14
09 <i>Hydropsyche</i> Abundance	15.33		
11 <i>Cheumatopsyche</i> Abundance	3.67		
12 EPT Generic Richness/ Diptera Generic Richness	1.00		
13 Relative Abundance - Oligochaeta	0.01		
15 Perlidae Mean Abundance (Family Functional Group)	0.00		
16 Tanypodinae Mean Abundance (Family Functional Group)	1.00		
17 Chironomini Abundance (Family Functional Group)	2.67		

Five Most Dominant Taxa		
Rank	Taxon Name	Percent
1	<i>Hydropsyche</i>	17.69
2	<i>Chimarra</i>	15.00
3	<i>Rheotanytarsus</i>	14.23
4	<i>Cricotopus</i>	6.54
5	<i>Baetis</i>	6.54



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

Station Number: S-91	Town: Lincoln	Date Deployed: 8/18/2021
Log Number: 2871	Waterbody: Mattanawcook Stream - Station 91	Date Retrieved: 9/15/2021

Sample Collection and Processing Information

Sampling Organization: BIOMONITORING UNIT

Taxonomist: ECOANALYSTS IDAHO

Waterbody Information - Deployment

Temperature:	24.2 deg C
Dissolved Oxygen:	9.64 mg/l
Dissolved Oxygen Saturation:	114.2 %
Specific Conductance:	67.9 uS/cm
Velocity:	19.3 cm/s
pH:	6.17
Wetted Width:	4.9 m
Bankfull Width:	
Depth:	31 cm

Waterbody Information - Retrieval

Temperature:	18.4 deg C
Dissolved Oxygen:	10.27 mg/l
Dissolved Oxygen Saturation:	109.6 %
Specific Conductance:	57 uS/cm
Velocity:	56.9 cm/s
pH:	6.69
Wetted Width:	5.9 m
Bankfull Width:	
Depth:	42 cm

Water Chemistry - 8/18/2021

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	3 ug/l
Total Alkalinity	12 mg/l	Total Kjeldahl Nitrogen (organic A	0.4 mg/l
Total Phosphorus Mixed Forms (po	16 ug/l		

Summary of Habitat Characteristics

<u>Landuse Name</u>	<u>Canopy Cover</u>	<u>Terrain</u>	
Upland Hardwood	Partly Open	Flat	
<u>Potential Stressor</u>	<u>Location</u>	<u>Substrate</u>	
Nps Pollution	Below In-place Contamination	Boulder	15 %
		Gravel	15 %
		Rubble/Cobble	50 %
		Sand	20 %

Landcover Summary - 2004 Data

Total Area (ac)	21066	High Int. Dev. %	3.0	Water %	11.0	Non-vegetated %	0.0
		Med Int. Dev. %	0.5	Wetland %	6.2	Tilled Agriculture %	1.0
		Low Int. Dev. %	0.5	Upland Woody %	75.2	Grassland %	1.2
		Development %	4.0	Natural %	82.7	Human Altered %	7.5
						Impervious %	2.6
Total Land (ac)	18747	High Int. Dev. %	3.4	Water %	N/A	Non-vegetated %	N/A
		Med Int. Dev. %	0.5	Wetland %	7.0	Tilled Agriculture %	1.1
		Low Int. Dev. %	0.5	Upland Woody %	84.5	Grassland %	1.4
		Development %	4.5	Natural %	92.9	Human Altered %	8.4
						Impervious %	2.9

Sample Comments



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

Station Number: S-91

Waterbody: Mattanawcook Stream - Station 91

Town: Lincoln

Log Number: 2871

Subsample Factor: X1

Replicates: 3

Calculated: 3/2/2023

Taxon	Maine Taxonomic Code	Count (Mean of Samplers)		Hilsenhoff Biotic Index	Functional Feeding Group	Relative Abundance %	
		Actual	Adjusted			Actual	Adjusted
<i>Pristina</i>	08020202004	0.33	0.33		--	0.4	0.4
<i>Dero</i>	08020202007	0.33	0.33		CG	0.4	0.4
<i>Boyeria</i>	09020301004		0.33	2	PR		0.4
<i>Boyeria vinosa</i>	09020301004012	0.33			--	0.4	
<i>Hagenius</i>	09020302008		0.67	1	PR		0.8
<i>Hagenius brevistylus</i>	09020302008015	0.67			PR	0.8	
<i>Coenagrion</i>	09020309050	0.33	0.33	8	PR	0.4	0.4
<i>Baetis</i>	09020401001		5.67	4	CG		6.5
<i>Baetis flavistriga</i>	09020401001004	1.33			--	1.5	
<i>Baetis pluto</i>	09020401001009	4.33			--	5.0	
<i>Plauditus</i>	09020401012	0.33	0.33		CG	0.4	0.4
<i>Iswaeon</i>	09020401015	2.67	2.67		--	3.1	3.1
<i>Chimarra</i>	09020601003	6.00	13.00	2	CF	6.9	15.0
<i>Chimarra aterrima</i>	09020601003002	2.67			--	3.1	
<i>Chimarra obscura</i>	09020601003003	4.33			--	5.0	
<i>Psychomyia</i>	09020602005	1.00	1.00	2	CG	1.2	1.2
<i>Polycentropus</i>	09020603010	1.33	1.33	6	PR	1.5	1.5
<i>Cheumatopsyche</i>	09020604015	3.67	3.67	5	CF	4.2	4.2
<i>Hydropsyche</i>	09020604016		15.33	4	CF		17.7
<i>Hydropsyche sparna</i>	09020604016032	0.33			--	0.4	
<i>Hydropsyche betteni</i>	09020604016037	15.00			--	17.3	
<i>Macrostemum</i>	09020604018	1.67	1.67	3	CF	1.9	1.9
Hydroptilidae	09020607	0.33	0.33		--	0.4	0.4
<i>Brachycentrus</i>	09020609043		0.33	0	CF		0.4
<i>Brachycentrus appalachia</i>	09020609043096	0.33			--	0.4	
<i>Micrasema</i>	09020609044	0.33	0.33	2	SH	0.4	0.4
<i>Oecetis</i>	09020618078	1.33	1.33	8	PR	1.5	1.5
<i>Nigronia</i>	09020701003		1.00	0	PR		1.2
<i>Nigronia serricornis</i>	09020701003003	1.00			--	1.2	
Sisyridae	09020801	0.33	0.33		--	0.4	0.4
<i>Tipula</i>	09021001002	0.33	0.33	4	SH	0.4	0.4
<i>Antocha</i>	09021001004	0.33	0.33	3	CG	0.4	0.4
<i>Ablabesmyia</i>	09021011001		0.67	8	PR		0.8
<i>Ablabesmyia mallochii</i>	09021011001004	0.67			--	0.8	
<i>Thienemannimyia</i>	09021011020		0.33	3	PR		0.4
<i>Thienemannimyia group</i>	09021011020041	0.33			--	0.4	
<i>Cricotopus</i>	09021011037	3.33	5.67	7	SH	3.8	6.5



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

Station Number: S-91	Waterbody: Mattanawcook Stream - Station 91	Town: Lincoln
Log Number: 2871	Subsample Factor: X1	Replicates: 3
		Calculated: 3/2/2023

Taxon	Maine Taxonomic Code	Count (Mean of Samplers)		Hilsenhoff Biotic Index	Functional Feeding Group	Relative Abundance %	
		Actual	Adjusted			Actual	Adjusted
<i>Cricotopus bicinctus</i>	09021011037057	2.33			--	2.7	
<i>Eukiefferiella</i>	09021011041		0.67	8	CG		0.8
<i>Eukiefferiella discoloripes</i>	09021011041085	0.67			--	0.8	
<i>Nanocladius</i>	09021011049			3	CG		
<i>Thienemanniella</i>	09021011062	1.00	1.00	6	CG	1.2	1.2
<i>Tvetenia</i>	09021011065		0.33	5	CG		0.4
<i>Tvetenia bavarica group</i>	09021011065111	0.33			--	0.4	
<i>Paratanytarsus</i>	09021011071	0.33	0.33	6	--	0.4	0.4
<i>Rheotanytarsus</i>	09021011072		12.33	6	CF		14.2
<i>Rheotanytarsus exiguus group</i>	09021011072127	11.33			CF	13.1	
<i>Rheotanytarsus pellucidus</i>	09021011072128	1.00			CF	1.2	
<i>Tanytarsus</i>	09021011076	1.67	1.67	6	CF	1.9	1.9
<i>Polypedilum</i>	09021011102		2.67	6	SH		3.1
<i>Polypedilum flavum</i>	09021011102182	2.33			--	2.7	
<i>Polypedilum illinoense group</i>	09021011102185	0.33			--	0.4	
<i>Simulium</i>	09021012047	0.33	0.33	4	CF	0.4	0.4
<i>Dubiraphia</i>	09021113064	1.00	1.00	6	--	1.2	1.2
<i>Macronychus</i>	09021113065		1.00	4	--		1.2
<i>Macronychus glabratus</i>	09021113065040	1.00			--	1.2	
<i>Hygrobates</i>	09030102001	0.33	0.33		--	0.4	0.4
<i>Amnicola</i>	10010104013	3.00	3.00		SC	3.5	3.5
<i>Ferrissia</i>	10010204035	4.33	4.33		SC	5.0	5.0