



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

Station Information

Station Number: W-105	Trip ID: 2016-105	River Basin: Penobscot
Waterbody: WHEELER STREAM - HERMON BOG		HUC8 Name: Lower Penobscot
Town: Hermon		Latitude: 44 47 54.68 N
Mitigation Monitoring Site: No		Longitude: 68 52 57.07 W

Sample Information

Sample ID: DN-2016-105	Type of Sample: DIPNET	Sampling Organization: BIOMONITORING UNIT
Date Sampled: 6/14/2016	Replicates: 3	Taxonomist: LOTIC INC.
Subsample Factor: X1		

Classification Attainment

Statutory Class: B	Final Determination: B	Date: 8/7/2017
Model Result with $P \geq 0.6$: B	Reason for Determination: Best Professional Judgement	
Date Last Calculated: 12/21/2018	Comments:	

Model Probabilities

<u>First Stage Model</u>		<u>C or Better Model</u>	
Class A: 0.25	Class C: 0.13	Class A, B, or C	1.00
Class B: 0.62	NA: 0.00	Non-Attainment	0.00
<u>B or Better Model</u>		<u>A Model</u>	
Class A or B	0.87	Class A	0.25
Class C or Non-Attainment	0.13	Class B or C or Non-Attainment	0.75

Model Variables

		<u>Reference Range</u> (10th or 90th percentile value)
Abundance of Taxa in the Order Ephemeroptera	19.667	≥ 0.000
Relative Richness of Taxa in the Orders Ephemeroptera, Odonata and Tricoptera	0.196	≥ 0.140
Shannon-Wiener Diversity Index	3.469	≥ 2.497
Relative Abundance of Collector-Gatherer Taxa	0.582	≥ 0.131
Abundance of Sensitive Taxa	20.000	≥ 3.424
Richness of Sensitive Taxa	8.000	≥ 3.000
Maine Tolerance Index Score For Wetland Macroinvertebrates	29.591	≤ 29.776
Ratio of MTI Sensitive to Eurytopic Taxa Abundance	1.333	≥ 0.334

Other Variables

Total Mean Abundance	239
Generic Richness:	46
Hilsenhoff Biotic Index:	7.84

Five Most Dominant Taxa

Rank	Taxon Name	Percent
1	<i>Hyalella azteca</i>	47.08
2	<i>Neoplea</i>	7.52
3	<i>Callibaetis</i>	6.82
4	<i>Amnicola limosus</i>	2.65
5	<i>Polypedilum illinoense group</i>	2.51



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Surface Water Chemistry

Sample Date: 6/14/2016 11:00:00 AM

Collection Method	Parameter	Value	Units	Qualifier
Grab Sample	Chloride	13	mg/l	
Grab Sample	Chlorophyll A	0.002	mg/l	
Grab Sample	Chlorophyll A - Pheophytin	0.0019	mg/l	J
Grab Sample	Dissolved Organic Carbon	13	mg/l	
Grab Sample	Nitrate + Nitrite As Nitrogen	0.01	mg/l	
Grab Sample	Orthophosphate As Phosphorus	11	ug/l	
Grab Sample	Total Alkalinity	47	mg/l	
Grab Sample	Total Kjeldahl Nitrogen (organic And Nh3) As Nitrogen	0.6	mg/l	
Grab Sample	Total Phosphorus	39	ug/l	
Grab Sample	True Color	110	unit	
In-situ	Dissolved Oxygen	4.64	mg/l	
In-situ	Dissolved Oxygen Saturation	45.4	%	
In-situ	pH	7.16		
In-situ	Specific Conductance	106.1	us/cm	
In-situ	Temperature	13.8	deg c	

Landcover Summary - 2004 Data

Total Area (ac)	6944	High Int. Dev. %	1.0	Water %	0.3	Non-vegetated %	0.0
		Med Int. Dev. %	1.2	Wetland %	23.7	Tilled Agriculture %	6.8
		Low Int. Dev. %	6.1	Upland Woody %	47.1	Grassland %	9.7
		Development %	8.4	Natural %	70.8	Human Altered %	28.9
						Impervious %	5.8
Total Land (ac)	6921	High Int. Dev. %	1.0	Water %	N/A	Non-vegetated %	N/A
		Med Int. Dev. %	1.2	Wetland %	23.8	Tilled Agriculture %	6.8
		Low Int. Dev. %	6.1	Upland Woody %	47.2	Grassland %	9.7
		Development %	8.4	Natural %	71.0	Human Altered %	29.0
						Impervious %	5.8



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Summary of Habitat Characteristics

<u>Human Disturbance</u>	<u>Landscape-level Cowardin Classification</u>	<u>Hydrogeomorphic Setting</u>
Total Score: 22	System: PALUSTRINE	Landscape Position: LOTIC STREAM
Hydrologic Modifications: 3	Subsystem:	Lotic Gradient: LOW GRADIENT
Vegetative Modifications: 1	Class 1: SCRUB SHRUB	Flow Path: THROUGHFLOW
Chemical Pollutants: 4	Subclass 1: BROAD-LEAVED	Land Form: FRINGE
Watershed 14	DECIDUOUS	
Characterization and Non-point Sources:	Class 2:	Land Form Type: LOTIC STREAM
	Subclass 2:	Waterbody Type: STREAM
	Class 3:	Waterbody Subtype:
	Subclass 3:	

Comments:

Dominant Plant Species:

Additional Plant Community Observations: SEDGES, RUSHES, DUCKWEED RELATIVELY ABUNDANT

Habitat Classification: AQUATIC MACROPHYTE BED EMERGENT NON-PERSISTENT VEGETATION	Substrate Classification: SILT/MUCK SUBSTRATE
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Average Depth: 42 cm Visible Flow: Yes Rain In Previous 24 Hours: No

Sample Comments: SUBMERGED AQUATIC VEGETATION FAIRLY DENSE (UNKNOWN SPECIES)

Common Plants Observed

Scientific Name	Common Name	Maine Taxonomic Code	Plant CoC Score	Wetland Indicator Status	Growth Form
<i>Typha</i>		LW-34011301002			
<i>Nuphar lutea ssp. variegata</i>	Variegated yellow pond-lily	LW-34023103002002	4	OBL	FORB/HERB
<i>Lemna minor</i>	Common duckweed	LW-34010201002001	3	OBL	FORB/HERB
<i>Pontederia cordata</i>	Pickerelweed	LW-34010906002002	4	OBL	FORB/HERB
<i>Utricularia</i>		LW-34022305002			
<i>Sparganium</i>		LW-34011301001			
<i>Potamogeton</i>		LW-34011101001			



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Additional Summary Variables

Station Number: W-105 Waterbody: WHEELER STREAM - HERMON BOG Town: Hermon
Log Number: DN-2016-105 Subsample Factor: X1 Replicates: 3 Calculated: 12/21/2018

	Abundance	Relative Abundance	Richness	Relative Richness
EOT Taxa:	32.00	0.134	9	0.20
EPT Taxa:	23.00	0.096	4	0.09
Insects:	101.00	0.422	34	0.74
Non-Insects:	138.33	0.578	12	0.26
Leeches:	0.00	0.000	0	0.00
Oligochaetes:	0.00	0.000	0	0.00
Snails:	21.00	0.088	6	0.13
Bivalves:	0.67	0.003	1	0.02
Isopods:	0.00	0.000	0	0.00
Amphipods:	112.67	0.471	1	0.02
Mites:	4.00	0.017	4	0.09
Stoneflies:	0.00	0.000	0	0.00
Mayflies:	19.67	0.082	3	0.07
Odonates:	9.00	0.038	5	0.11
Caddisflies:	3.33	0.014	1	0.02
Diptera:	33.33	0.139	15	0.33
Hemiptera:	30.67	0.128	5	0.11
Beetles:	4.33	0.018	4	0.09
Chironomids:	32.67	0.136	13	0.28
Tanypodinae Tribe:	5.00	0.021	4	0.09
Chironomiinae Tribe:	20.33	0.085	6	0.13
Orthocloidiinae Tribe:	7.33	0.031	3	0.07
Collector-Filterers:	5.00	0.021	2	0.04
Collector-Gatherers:	139.33	0.582	7	0.15
Predators:	41.33	0.173	14	0.30
Piercers:	1.33	0.006	2	0.04
Shredders:	16.67	0.070	6	0.13
Scrapers:	21.00	0.088	6	0.13
Maine Tolerance:				
Sensitive:	20.00	0.088	8	0.20
Intermediate:	192.11	0.846	25	0.63
Eurytopic:	15.00	0.066	7	0.18
Ratio of MTI Sensitive to Eurytopic	1.33	1.333	1.14	1.14



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Aquatic Life Taxonomic Inventory Report

Station Number: W-105 Waterbody: WHEELER STREAM - HERMON BOG Town: Hermon
Log Number: DN-2016-105 Subsample Factor: X1 Replicates: 3 Calculated: 12/21/2018

Taxon	Maine Taxonomic Code	Count (Mean of Samples)		Hilsenhoff Biotic Index	Functional Feeding Group	Maine Tolerance Index	Tribe	Taxa Group
		Actual	Adjusted					
<i>Hyaella</i>	09010203006	0.00	112.67	8	CG	24.5-I	--	Amphipod
<i>Hyaella azteca</i>	09010203006011	112.67	0.00	--	--	--	--	Amphipod
Sminthuridae	09020104	0.67	0.67	--	--	--	--	Collembola
Aeshnidae	09020301	2.33	2.33	--	--	--	--	Dragonfly/damselfly
Libellulidae	09020306	2.00	0.00	--	--	--	--	Dragonfly/damselfly
Erythemis	09020306031	0.33	0.56	--	PR	--	--	Dragonfly/damselfly
Sympetrum	09020306041	2.67	4.44	10	PR	37-I	--	Dragonfly/damselfly
Lestes	09020308045	0.33	0.33	9	PR	32.6-I	--	Dragonfly/damselfly
Enallagma	09020309051	1.33	1.33	9	PR	26.2-I	--	Dragonfly/damselfly
Callibaetis	09020401002	16.33	16.33	9	CG	40.5-I	--	Mayfly
Procladius	09020401010	3.00	3.00	--	CG	21-S	--	Mayfly
Caenis	09020412040	0.33	0.33	7	CG	22.1-I	--	Mayfly
Corixidae	09020501	2.67	2.67	--	--	--	--	True Bug
Hesperocorixa	09020501004	0.33	0.33	--	P	--	--	True Bug
Belostoma	09020502009	4.00	4.00	--	PR	41.7-I	--	True Bug
Notonecta	09020505015	5.67	5.67	--	PR	--	--	True Bug
Neoplea	09020512016	18.00	18.00	--	PR	35.5-I	--	True Bug
Triaenodes	09020618077	3.33	3.33	6	SH	19.3-S	--	Caddisfly
Tipula	09021001002	0.33	0.33	4	SH	53.8-E	--	Fly: Crane
Bezzia/palpomyia	09021010043	0.33	0.33	6	PR	26.9-I	--	Fly: Biting Midge
Ablabesmyia	09021011001	0.00	0.33	8	PR	23.6-I	T	Fly: Midge
<i>Ablabesmyia mallochii</i>	09021011001004	0.33	0.00	--	--	--	T	Fly: Midge
Clinotanypus	09021011002	0.00	0.33	8	PR	30.3-I	T	Fly: Midge
<i>Clinotanypus pinguis</i>	09021011002008	0.33	0.00	--	--	--	--	Fly: Midge
Labrundinia	09021011008	0.00	0.33	7	PR	18.1-S	T	Fly: Midge
<i>Labrundinia neopilosella</i>	09021011008021	0.33	0.00	--	--	--	T	Fly: Midge
Larsia	09021011009	4.00	4.00	6	PR	15.6-S	T	Fly: Midge
Corynoneura	09021011036	2.67	2.67	7	CG	40.1-I	--	Fly: Midge
Cricotopus	09021011037	3.33	4.33	7	SH	43-E	--	Fly: Midge
<i>Cricotopus trifascia</i>	09021011037070	1.00	0.00	--	--	--	--	Fly: Midge
Psectrocladius	09021011056	0.33	0.33	8	CG	22-S	--	Fly: Midge
Paratanytarsus	09021011071	4.67	4.67	6	--	43-E	Y	Fly: Midge
Tanytarsus	09021011076	4.33	4.33	6	CF	25.7-I	Y	Fly: Midge
Dicrotendipes	09021011085	4.00	4.00	8	CG	28.8-I	C	Fly: Midge
Glyptotendipes	09021011088	0.33	0.33	10	SH	43-E	C	Fly: Midge



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		Actual	Adjusted					
Parachironomus	09021011097	1.00	1.00	10	PR	28.6-I	C	Fly: Midge
Polypedilum	09021011102	0.00	6.00	6	SH	24.2-I	C	Fly: Midge
<i>Polypedilum illinoense group</i>	09021011102185	6.00	0.00	--	--	--	C	Fly: Midge
Peltodytes	09021101002	1.00	1.00	--	P	56.2-E	--	Beetle
Dineutus	09021104032	0.33	0.33	2	--	23.2-I	--	Beetle
Tropisternus	09021105038	0.67	0.67	--	PR	61.8-E	--	Beetle
Scirtes	09021107057	2.33	2.33	--	SH	20.9-S	--	Beetle
Hydrachna	09030103001	2.00	2.00	--	--	30.8-I	--	Mite
Limnochares	09030110002	0.33	0.33	--	--	10.5-S	--	Mite
Arrenurus	09030111001	1.00	1.00	--	--	23.8-I	--	Mite
Eylais	09030117001	0.67	0.67	--	--	23-I	--	Mite
Amnicola	10010104013	0.00	6.33	--	SC	18.7-S	--	Snail
<i>Amnicola limosus</i>	10010104013018	6.33	0.00	--	--	--	--	Snail
Lymnaea	10010201022	0.00	3.67	--	SC	83.3-E	--	Snail
<i>Lymnaea columella</i>	10010201022038	3.67	0.00	--	--	--	--	Snail
Physa	10010202027	2.67	2.67	--	SC	34-I	--	Snail
Gyraulus	10010203029	2.00	2.00	--	SC	37.2-I	--	Snail
Helisoma	10010203030	5.33	5.33	--	SC	42.8-I	--	Snail
Ferrissia	10010204035	1.00	1.00	--	SC	26.7-I	--	Snail
Sphaerium	10020201003	0.67	0.67	--	CF	24.8-I	--	Clam