

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

**Station Information**

<b>Station Number: W-105</b>	Trip ID: 2011-105	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**

<b>Sample ID: WA-105-2011E (1092)</b>	Type of Sample: PLANT RUBBINGS	Date Sampled: 6/29/2011
Bottle #: 1092	Sampling Organization: BIOMONITORING UNIT	Taxonomist: ACADEMY OF NATURAL SCIENCES

**Classification Attainment**

<b>Statutory Class: B</b>	<b>Final Determination: NA</b>	Date: 9/4/2019
Model Result with $P \geq 0.6$ : NA	<b>Reason for Determination: Model L&amp;w</b>	
Date Last Calculated: 1/22/2019	Comments:	

**Model Probabilities**

<u>First Stage Model</u>		<u>C or Better Model</u>	
Class A: 0.00	Class C: 0.07	Class A, B, or C	0.07
Class B: 0.00	NA: 0.93	Non-Attainment	0.93
<u>B or Better Model</u>		<u>A Model</u>	
Class A or B	0.00	Class A	0.00
Class C or Non-Attainment	1.00	Class B or C or Non-Attainment	1.00

**Model Variables**

		<u>Reference Range (10th or 90th percentile value)</u>
Relative Richness of Diatoms in the Eunotiaceae Family	0.082	>0.09
Relative Density of Eutrophentic Diatoms	0.621	<0.15
Relative Richness of Oligosaprobic Diatoms	0.231	>0.37
Relative Richness of Intermediate Taxa	0.531	>0.61
Relative Richness of Sensitive Taxa	0.020	>0.13
Maine Tolerance Index Score for Wetland Epiphytic Algae	44.19	<38

**Other Variables**

	Density (cells/cm <sup>2</sup> )	Relative Density	Richness	Relative Richness	Biovolume (um <sup>3</sup> /cm <sup>2</sup> )	Relative Biovolume
Total for Sample	41,850	-	61	-	44,159,176	-
Diatom Only	3,111	-	50	-	2,123,577	-
MTI Sensitive	16	0.002	1	0.020	119,459	0.003
MTI Intermediate	6,793	0.824	26	0.531	37,529,651	0.979
MTI Eurytopic	1,431	0.174	22	0.449	688,975	0.018
Ratio of MTI:						
Sensitive to Eurytopic	0.011	0.011	0.045	0.045	0.173	0.173

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**Water Chemistry**

**Sample Date:** 6/29/2011 10:00:00 AM

Collection Method	Parameter	Value	Units	Qualifier
Grab Sample	Chloride	19	mg/l	
Grab Sample	Chlorophyll A	0.0037	mg/l	
Grab Sample	Chlorophyll A - Phaeophytin	0.003	mg/l	
Grab Sample	Dissolved Organic Carbon	8.3	mg/l	
Grab Sample	Nitrate + Nitrite As Nitrogen		mg/l	U
Grab Sample	Orthophosphate As Phosphorus	29	ug/l	
Grab Sample	pH	6.9		
Grab Sample	Silica	4.8	mg/l	
Grab Sample	Silicon	2.2	mg/l	
Grab Sample	Specific Conductance	170	umhos/cm	
Grab Sample	Total Alkalinity	57	mg/l	
Grab Sample	Total Kjeldahl Nitrogen (organic And Nh3) As Nitrogen	0.8	mg/l	
Grab Sample	Total Phosphorus Mixed Forms (po4 And Organic) As Phosphorus	0.08	mg/l	
Grab Sample	True Color	95	unit	
In-situ	Dissolved Oxygen	0.3	mg/l	
In-situ	pH	6.44		
In-situ	Specific Conductance	167	us/cm	
In-situ	Temperature	19.4	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

**Summary of Habitat Characteristics**

Human Disturbance

Total Score:	19
Hydrologic Modifications to Wetland:	4
Vegetative Modifications to Wetland:	0
Evidence of Chemical Pollutants:	2
Impervious Surface in Watershed:	7
Potential for NPS Pollution:	6

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**Summary of Habitat Characteristics**

Dominant Plant Species: YELLOW WATER LILY (NUPHAR VARIEGATA), PICKEREL WEED (PONTEDERIA CORDATA ), DUCKWEED (LEMNA SP.), UNKNOWN SUBMERGED WEED

Additional Plant Community Observations:

Habitat Classification:	Substrate Classification:
AQUATIC MACROPHYTE BED	SILT/MUCK SUBSTRATE
EMERGENT NON-PERSISTENT VEGETATION	DETRITUS SUBSTRATE

Visible Flow: Rain In Previous 24 Hours: Unknown

Sample Comments: COOL, OVERCAST. LOTS OF DUCKWEED. IRRIDESCENT SHEEN ON WATER SURFACE. LARGE INVASIVE CHINESE SNAIL. ALGAL MATS (GREEN AND BROWN ALGAE AND POSSIBLY DIATOMS?) ALSO LARGE BUBBLES ON WATER'S SURFACE AND IN ALGAL MATS. BIOFILM EXTENSIVE ON SURFACE OF WATER.

**Additional Summary Variables**

	<b>Density (cells/cm<sup>2</sup>)</b>	<b>Relative Density</b>	<b>Richness</b>	<b>Relative Richness</b>	<b>Biovolume (um<sup>3</sup>/cm<sup>2</sup>)</b>	<b>Relative Biovolume</b>
<b>Diatom Growth Forms and Motility:</b>						
Unattached	41	0.013	2	0.040	35,833	0.017
Variable	181	0.058	4	0.080	25,220	0.012
Erect	508	0.163	9	0.180	553,079	0.260
Stalked	576	0.185	10	0.200	394,253	0.186
Prostrate	1,804	0.580	25	0.500	1,115,193	0.525
Motile	996	0.320	19	0.380	593,211	0.279



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**Bottle # :** 1092

**Waterbody:** Wheeler Stream - Hermon Bog - W-105

**Town:** Hermon

**Sample ID:** WA-105-2011E (1092)

**Station Number:** W-105

Taxa Name	Group	Density (cells/ cm <sup>2</sup> )	Relative Density		Biovolume (um <sup>3</sup> / cm <sup>2</sup> )	Relative Biovolume	Form	Mot- ility	van Dam Index Values							Maine Epi Tolerance			
			All	Rank					Diatoms	pH	NO2	S	T	M	Sal				
<i>Leptolyngbya</i>	Filamentous Cyanobacteria	18,443	44.071%	1		60,140	0.136%												
<i>Pseudanabaena</i>	Filamentous Cyanobacteria	4,815	11.504%	3		41,724	0.094%												
<i>Cyclotella meneghiniana</i>	Centric Diatom	31	0.074%	38	1.0%	25,054	0.057%	U	N	4	3	5	4	5	2	3			85.6-E
<i>Fragilaria capucina</i>	Pennate Diatom	36	0.087%	36	1.2%	6,468	0.015%	V	N	3			2	3		2			58.2-E
<i>Fragilaria tenera</i>	Pennate Diatom	21	0.050%	47	0.7%	3,214	0.007%	V	N	2	1	1	1	2	2	1			41.5-I
<i>Fragilaria vaucheriae</i>	Pennate Diatom	47	0.112%	31	1.5%	8,393	0.019%	V	N	4	2	3	3	5	3	2			51.3-I
<i>Meridion circulare var. constrictum</i>	Pennate Diatom	62	0.149%	26	2.0%	10,279	0.023%	E	N	4	2	2	2	7	2	2			43.8-I
<i>Staurosira construens var. venter</i>	Pennate Diatom	78	0.186%	19	2.5%	7,145	0.016%	V	N	4	2	1	2	4	1	2			32.4-I
<i>Synedra sp. 8 NAWQA MORALES</i>	Pennate Diatom	41	0.099%	34	1.3%	206,219	0.467%	E	N										39.3-I
<i>Ulnaria acus</i>	Pennate Diatom	21	0.050%	47	0.7%	6,326	0.014%	E	N	4	2	2	3	5	2	2			57.4-E
<i>Ulnaria delicatissima</i>	Pennate Diatom	16	0.037%	49	0.5%	10,617	0.024%	E	N	3				3	1	2			52.2-I
<i>Tabellaria flocculosa var. linearis</i>	Pennate Diatom	10	0.025%	50	0.3%	10,779	0.024%	U	N										27.8-I
<i>Achnanthes lineariformis</i>	Pennate Diatom	47	0.112%	31	1.5%	69,670	0.158%	P	V	3									32.3-I
<i>Achnantheidium minutissimum</i>	Pennate Diatom	21	0.050%	47	0.7%	560	0.001%	P	N	6	2	1	2	7	3	2			49.5-I
<i>Lemnicola hungarica</i>	Pennate Diatom	21	0.050%	47	0.7%	6,066	0.014%	P	V	4	2	4	3	6	1	2			96.6-E
<i>Planothidium frequentissimum</i>	Pennate Diatom	10	0.025%	61	0.3%	714	0.002%	P	V	4	2	3	4			2			77.1-E
<i>Cocconeis placentula</i>	Pennate Diatom	627	1.499%	8	20.2%	351,836	0.797%	P	N	4	2	3	2	5	2	2			67.9-E
<i>Cocconeis placentula var. lineata</i>	Pennate Diatom	83	0.198%	18	2.7%	93,136	0.211%	P	N	4	2	3	2	5	2	2			53.6-E
<i>Eunotia bilunaris</i>	Pennate Diatom	109	0.260%	14	3.5%	31,279	0.071%	E	V	6	2	2	2	7	3	2			36.1-I
<i>Eunotia flexuosa</i>	Pennate Diatom	57	0.136%	27	1.8%	114,582	0.259%	E	V	2	1	1	1	2	3	1			27.2-I
<i>Eunotia formica</i>	Pennate Diatom	16	0.037%	49	0.5%	119,459	0.271%	E	V	2	1	1	1	3	2	2			26.5-S
<i>Eunotia incisa</i>	Pennate Diatom	176	0.421%	12	5.7%	51,252	0.116%	E	V	2	1	1	1	1	2	1			28-I
<i>Eunotia minor</i>	Pennate Diatom	10	0.025%	61	0.3%	3,068	0.007%	E	V	2			1		4	1			38-I
<i>Encyonema minutum</i>	Pennate Diatom	26	0.062%	39	0.8%	4,183	0.009%	S	V	3						2			54.1-E
<i>Encyonema silesiacum</i>	Pennate Diatom	21	0.050%	47	0.7%	5,591	0.013%	S	V	3	2	3	3	7	1	2			45.6-I
<i>Epithemia adnata</i>	Pennate Diatom	36	0.087%	36	1.2%	46,032	0.104%	P	M	5	1	2	2	4	2	2			
<i>Gomphonema angustatum</i>	Pennate Diatom	67	0.161%	25	2.2%	17,637	0.040%	S	N	4	1	1	1	1		2			57.8-E
<i>Gomphonema clavatum</i>	Pennate Diatom	10	0.025%	61	0.3%	17,220	0.039%	S	N	3	1	1	1	4	2	1			62.1-E
<i>Gomphonema gracile</i>	Pennate Diatom	21	0.050%	47	0.7%	15,035	0.034%	S	N	3	1	1	1	3	3	2			38.6-I
<i>Gomphonema parvulus</i>	Pennate Diatom	88	0.211%	16	2.8%	1,359	0.003%	S	N										69.5-E
<i>Gomphonema pseudoaugur</i>	Pennate Diatom	83	0.198%	18	2.7%	68,551	0.155%	S	N	3			3	5		2			72.5-E
<i>Gomphonema truncatum</i>	Pennate Diatom	10	0.025%	61	0.3%	4,165	0.009%	S	N	4	1	2	2	4	2	2			54.3-E
<i>Gomphonema minusculum</i>	Pennate Diatom	52	0.124%	28	1.7%	3,982	0.009%	S	N										50.7-I
<i>Gomphonema sp. 1 ME EAM</i>	Pennate Diatom	197	0.471%	10	6.3%	256,529	0.581%	S	N										
<i>Chamaepinnularia begeri</i>	Pennate Diatom	67	0.161%	25	2.2%	5,853	0.013%	P	M										
<i>Navicula cryptocephala</i>	Pennate Diatom	99	0.235%	15	3.2%	28,484	0.065%	P	M	4	2	3	3	7	2	2			66.2-E
<i>Navicula veneta</i>	Pennate Diatom	10	0.025%	61	0.3%	1,705	0.004%	P	M	4	2	4	4	5	3	3			84.2-E
<i>Pinnularia microstauron</i>	Pennate Diatom	10	0.025%	61	0.3%	7,941	0.018%	P	M	3	2	3	2	7	3	2			36.7-I
<i>Sellaphora seminulum</i>	Pennate Diatom	218	0.520%	9	7.0%	425,983	0.965%	P	M	3	3	4	4	5	3	2			48.7-I

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**Town:** Hermon

**Sample ID:** WA-105-2011E (1092)

**Station Number:** W-105

Taxa Name	Group	Density (cells/ cm <sup>2</sup> )	Relative Density			Biovolume (um <sup>3</sup> / cm <sup>2</sup> )	Relative Biovolume	Form	Mot- ility	van Dam Index Values							Maine Epi Tolerance	
			All	Rank	Diatoms					pH	NO2	S	T	M	Sal			
<i>Sellaphora arvensis</i>	Pennate Diatom	41	0.099%	34	1.3%	2,525	0.006%	P	M									
<i>Stauroneis kriegeri</i>	Pennate Diatom	21	0.050%	47	0.7%	2,917	0.007%	P	M	3	2	2	2	4	3	2		54.6-E
<i>Eolimna minima</i>	Pennate Diatom	124	0.297%	13	4.0%	7,938	0.018%	P	M	4	3	4	4	5	3	2		53.2-E
<i>Nitzschia acicularis</i>	Pennate Diatom	10	0.025%	61	0.3%	1,883	0.004%	P	H	4	4	4	3	5	1	2		77.4-E
<i>Nitzschia acidoclinata</i>	Pennate Diatom	176	0.421%	12	5.7%	4,573	0.010%	P	H	3	1	1	2	3	3	1		43.4-I
<i>Nitzschia brevissima</i>	Pennate Diatom	10	0.025%	61	0.3%	1,110	0.003%	P	H	3		3	2	5	3	3		
<i>Nitzschia dissipata</i>	Pennate Diatom	10	0.025%	61	0.3%	2,342	0.005%	P	H	4	2	2	2	4	3	2		57.9-E
<i>Nitzschia gracilis</i>	Pennate Diatom	47	0.112%	31	1.5%	8,916	0.020%	P	H	3		2	2	3	1	1		37.6-I
<i>Nitzschia incognita</i>	Pennate Diatom	41	0.099%	34	1.3%	2,705	0.006%	P	H							4		48.5-I
<i>Nitzschia intermedia</i>	Pennate Diatom	10	0.025%	61	0.3%	5,389	0.012%	P	H	3			2	5	1	2		68.9-E
<i>Nitzschia palea var. debilis</i>	Pennate Diatom	10	0.025%	61	0.3%	1,373	0.003%	P	H	3			1	1	3	1		75.5-E
<i>Nitzschia paleacea</i>	Pennate Diatom	31	0.074%	38	1.0%	1,313	0.003%	P	H	4	4	3	3	5	2	2		49-I
<i>Nitzschia recta</i>	Pennate Diatom	21	0.050%	47	0.7%	34,229	0.078%	P	H	4	2	2	2	7	1	2		54-E
<i>Ophiocytium</i>	Yellow Green Algae	74	0.177%	23		3,704	0.008%											
<i>Stigeoclonium lubricum</i>	Filamentous Green	1,259	3.009%	6		495,407	1.122%											37.7-I
<i>Gloeocystis</i>	Colonial Green	2,518	6.018%	4		471,868	1.069%											41.6-I
<i>Ankistrodesmus falcatus</i>	Colonial Green	74	0.177%	23		4,259	0.010%											36.8-I
<i>Bulbochaete</i>	Filamentous Green	815	1.947%	7		1,591,859	3.605%											
<i>Oedogonium</i>	Filamentous Green	1,630	3.894%	5		35,555,022	80.516%											38.2-I
<i>Uronema elongatum</i>	Filamentous Green	8,962	21.416%	2		761,812	1.725%											
<i>Closterium</i>	Desmid	74	0.177%	23		2,465,562	5.583%											
<i>Phacus</i>	Euglenoid	74	0.177%	23		584,244	1.323%											