

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

**Station Information**

<b>Station Number: W-136</b>	Trip ID: 2011-136	River Basin: Maine Coastal
Waterbody: POLAND STREAM		HUC8 Name: Maine Coastal
Town: Morrill		Latitude: 44 26 54.68 N
Mitigation Monitoring Site: No		Longitude: 69 10 49.48 W

**Sample Information**

<b>Sample ID: WA-136-2011E (1094)</b>	Type of Sample: PLANT RUBBINGS	Date Sampled: 6/16/2011
Bottle #: 1094	Sampling Organization: BIOMONITORING UNIT	Taxonomist: ACADEMY OF NATURAL SCIENCES

**Classification Attainment**

<b>Statutory Class: B</b>	<b>Final Determination: A</b>	Date: 9/4/2019
Model Result with $P \geq 0.6$ : A	<b>Reason for Determination: Model L&amp;w</b>	
Date Last Calculated: 1/29/2019	Comments:	

**Model Probabilities**

<u>First Stage Model</u>		<u>C or Better Model</u>	
Class A: 0.98	Class C: 0.00	Class A, B, or C	1.00
Class B: 0.02	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	0.98
Class C or Non-Attainment	0.00	Class B or C or Non-Attainment	0.02

**Model Variables**

		<u>Reference Range (10th or 90th percentile value)</u>
Relative Richness of Diatoms in the Eunotiaceae Family	0.134	>0.09
Relative Density of Eutrophentic Diatoms	0.084	<0.15
Relative Richness of Oligosaprobic Diatoms	0.580	>0.37
Relative Richness of Intermediate Taxa	0.655	>0.61
Relative Richness of Sensitive Taxa	0.259	>0.13
Maine Tolerance Index Score for Wetland Epiphytic Algae	34.27	<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	148,359	-	82	-	143,582,368	-
Diatom Only	34,989	-	65	-	46,924,686	-
MTI Sensitive	9,760	0.231	15	0.259	7,325,892	0.193
MTI Intermediate	30,911	0.732	38	0.655	30,414,449	0.803
MTI Eurytopic	1,575	0.037	5	0.086	156,226	0.004
Ratio of MTI:						
Sensitive to Eurytopic	6.199	6.199	3.000	3.000	46.893	46.893

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**Water Chemistry**

**Sample Date:** 6/16/2011 9:30:00 AM

Collection Method	Parameter	Value	Units	Qualifier
Grab Sample	Chloride	2	mg/l	
Grab Sample	Chlorophyll A	0.0017	mg/l	
Grab Sample	Chlorophyll A - Phaeophytin	0.0022	mg/l	
Grab Sample	Dissolved Organic Carbon	7.1	mg/l	
Grab Sample	Nitrate + Nitrite As Nitrogen		mg/l	U
Grab Sample	Orthophosphate As Phosphorus	2	ug/l	
Grab Sample	pH	6.6		
Grab Sample	Silica	5.4	mg/l	
Grab Sample	Silicon	2.5	mg/l	
Grab Sample	Specific Conductance	30.3	umhos/cm	
Grab Sample	Total Alkalinity	9	mg/l	
Grab Sample	Total Kjeldahl Nitrogen (organic And Nh3) As Nitrogen	0.4	mg/l	
Grab Sample	Total Phosphorus Mixed Forms (po4 And Organic) As Phosphorus	0.02	mg/l	
Grab Sample	True Color	70	unit	
In-situ	Dissolved Oxygen	5.9	mg/l	
In-situ	pH	5.96		
In-situ	Specific Conductance	25	us/cm	
In-situ	Temperature	16	deg c	

**Landcover Summary - 2004 Data**

Total Area (ac)	3273	High Int. Dev. %	0.0	Water %	0.3	Non-vegetated %	0.0
		Med Int. Dev. %	0.1	Wetland %	14.0	Tilled Agriculture %	1.2
		Low Int. Dev. %	1.8	Upland Woody %	78.9	Grassland %	3.8
		Development %	1.8	Natural %	92.9	Human Altered %	6.8
						Impervious %	1.7
Total Land (ac)	3264	High Int. Dev. %	0.0	Water %	N/A	Non-vegetated %	N/A
		Med Int. Dev. %	0.1	Wetland %	14.1	Tilled Agriculture %	1.2
		Low Int. Dev. %	1.8	Upland Woody %	79.1	Grassland %	3.8
		Development %	1.8	Natural %	93.2	Human Altered %	6.8
						Impervious %	1.7

**Summary of Habitat Characteristics**

Human Disturbance

Total Score:	8
Hydrologic Modifications to Wetland:	2
Vegetative Modifications to Wetland:	0
Evidence of Chemical Pollutants:	0
Impervious Surface in Watershed:	3
Potential for NPS Pollution:	3

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**Summary of Habitat Characteristics**

Dominant Plant Species: YELLOW WATER LILY (NUPHAR VARIEGATA), PICKEREL WEED (PONTEDERIA CORDATA), RUSHES (JUNCUS SP.)

Additional Plant Community Observations:

Habitat Classification: AQUATIC MACROPHYTE BED  
Substrate Classification: DETRITUS SUBSTRATE

Visible Flow: Rain In Previous 24 Hours: Unknown

Sample Comments: No comments

**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	4,840	0.138	6	0.092	4,204,186	0.090
Variable	4,724	0.135	5	0.077	447,551	0.010
Erect	6,765	0.193	15	0.231	5,625,044	0.120
Stalked	2,857	0.082	8	0.123	2,581,612	0.055
Prostrate	15,803	0.452	31	0.477	34,066,292	0.726
Motile	13,762	0.393	24	0.369	33,294,538	0.710

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**Additional Summary Variables**

**Station Number: W-136**                      Waterbody: POLAND STREAM                      Town: Morrill  
**Sample ID: WA-136-2011E (1094)**      Bottle #: 1094    Calculated: 1/29/2019

	Density (cells/cm <sup>2</sup> )	Relative Density	Richness	Relative Richness	Biovolume (um <sup>3</sup> /cm <sup>2</sup> )	Relative Biovolume
<b>Taxa Group:</b>						
Pennate Diatom	33,240	0.224	63	0.768	46,766,266	0.326
Centric Diatom	1,749	0.012	2	0.024	158,420	0.001
Cyanobacteria	92,845	0.626	3	0.037	42,054,411	0.293
Filamentous Cyanobacteria	11,984	0.081	1	0.012	229,445	0.002
Green Algae	20,387	0.137	13	0.159	52,331,803	0.364
Colonial Green	16,944	0.114	5	0.061	16,809,112	0.117
Filamentous Green	2,204	0.015	1	0.012	12,558,951	0.087
Unicellular Green	0	0.000	0	0.000	0	0.000
Desmid	1,240	0.008	7	0.085	22,963,739	0.160
Red Algae	0	0.000	0	0.000	0	0.000
Euglenoid	138	0.001	1	0.012	2,271,468	0.016
Chrysophyte	0	0.000	0	0.000	0	0.000
Cryptophyte	0	0.000	0	0.000	0	0.000
Dinoflagellate	0	0.000	0	0.000	0	0.000
Yellow Green Algae	0	0.000	0	0.000	0	0.000
Haptophyte	0	0.000	0	0.000	0	0.000
Raphidophyte	0	0.000	0	0.000	0	0.000
Synurophyte	0	0.000	0	0.000	0	0.000
<b>Diatom Autecology Groups:</b>						
High Oxygen	21,518	0.818	30	0.625	13,070,372	0.827
Low Oxygen	1,458	0.055	3	0.063	1,768,762	0.112
N-Autotrophic	18,428	0.720	29	0.630	11,149,000	0.712
N-Heterotrophic	1,575	0.062	4	0.087	1,773,684	0.113
Oligosaprobic	15,920	0.590	29	0.580	7,634,144	0.479
Polysaprobic	1,458	0.054	3	0.060	1,768,762	0.111
Oligotrophentic	11,255	0.461	17	0.405	7,394,706	0.474
Eutrophentic	2,041	0.084	8	0.190	2,086,598	0.134
Acidobiontic	4,607	0.164	3	0.056	2,572,185	0.148
Brackish	1,458	0.050	1	0.019	95,066	0.006
Dry Condition	991	0.039	4	0.087	265,383	0.020

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**Bottle # :** 1094

**Waterbody:** Poland Stream - W-136

**Town:** Morrill

**Sample ID:** WA-136-2011E (1094)

**Station Number:** W-136

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>Undetermined bluegreen</i>	Cyanobacteria	58,269	39.276%	1		41,302,429	28.766%											
<i>Aphanocapsa</i>	Cyanobacteria	22,591	15.227%	2		522,537	0.364%											
<i>Cylindrospermum</i>	Filamentous Cyanobacteria	11,984	8.078%	3		229,445	0.160%											
<i>Aulacoseira alpigena</i>	Centric Diatom	1,633	1.101%	12	4.7%	117,107	0.082%	U	N	2	1	1	1	1	1	1	1	24.8-S
<i>Aulacoseira ambigua</i>	Centric Diatom	117	0.079%	78	0.3%	41,313	0.029%	U	N	4	2	3	2	5	1	2		19.3-S
<i>Fragilaria gracilis</i>	Pennate Diatom	350	0.236%	45	1.0%	12,926	0.009%	V	N	3	1	1	1	2		2		39.1-I
<i>Fragilaria tenera</i>	Pennate Diatom	816	0.550%	20	2.3%	126,522	0.088%	V	N	2	1	1	1	2	2	1		41.5-I
<i>Fragilaria vaucheriae</i>	Pennate Diatom	117	0.079%	78	0.3%	20,976	0.015%	V	N	4	2	3	3	5	3	2		51.3-I
<i>Fragilaria sepes</i>	Pennate Diatom	467	0.314%	35	1.3%	13,919	0.010%	V	N	3	1	1	1	2	2	1		38.7-I
<i>Meridion circulare var. constrictum</i>	Pennate Diatom	467	0.314%	35	1.3%	77,072	0.054%	E	N	4	2	2	2	7	2	2		43.8-I
<i>Pseudostaurosira brevistriata</i>	Pennate Diatom	1,283	0.865%	15	3.7%	183,018	0.127%	E	N	4	1	1	1	7	2	2		34.9-I
<i>Stauroforma exiguiformis</i>	Pennate Diatom	641	0.432%	24	1.8%	75,923	0.053%	E	N	3	1	1	1	1	2	1		28.7-I
<i>Staurosira construens var. venter</i>	Pennate Diatom	2,974	2.005%	7	8.5%	273,208	0.190%	V	N	4	2	1	2	4	1	2		32.4-I
<i>Synedra sp. 8 NAWQA MORALES</i>	Pennate Diatom	175	0.118%	56	0.5%	869,757	0.606%	E	N									39.3-I
<i>Tabellaria fenestrata</i>	Pennate Diatom	1,400	0.943%	14	4.0%	3,058,277	2.130%	U	N	3	1	1	2	2		1		29.1-I
<i>Tabellaria flocculosa</i>	Pennate Diatom	1,225	0.825%	16	3.5%	599,155	0.417%	U	N	2	1	1	2	3	3	1		24.7-S
<i>Tabellaria flocculosa var. linearis</i>	Pennate Diatom	233	0.157%	54	0.7%	242,474	0.169%	U	N									27.8-I
<i>Tabellaria ventricosa</i>	Pennate Diatom	233	0.157%	53	0.7%	145,860	0.102%	U	N									19.7-S
<i>Achnanthes lineariformis</i>	Pennate Diatom	408	0.275%	39	1.2%	609,450	0.424%	P	V	3								32.3-I
<i>Achnantheidium minutissimum</i>	Pennate Diatom	350	0.236%	45	1.0%	9,446	0.007%	P	N	6	2	1	2	7	3	2		49.5-I
<i>Achnantheidium reimeri</i>	Pennate Diatom	233	0.157%	53	0.7%	63,408	0.044%	P	V	3		1				2		
<i>Karayevia carissima</i>	Pennate Diatom	350	0.236%	45	1.0%	6,924	0.005%	P	V									
<i>Psammothidium grisichunum fo. daonensis</i>	Pennate Diatom	233	0.157%	53	0.7%	51,755	0.036%	P	V	3	1	1	1	1	1	1		
<i>Psammothidium subatomoides</i>	Pennate Diatom	350	0.236%	45	1.0%	23,370	0.016%	P	V	2	1	1	1	2	1	1		27.6-I
<i>Psammothidium rossii</i>	Pennate Diatom	117	0.079%	78	0.3%	7,400	0.005%	P	V	3	1	1	1	1		1		
<i>Eunotia bilunaris</i>	Pennate Diatom	58	0.039%	82	0.2%	16,752	0.012%	E	V	6	2	2	2	7	3	2		36.1-I
<i>Eunotia exigua</i>	Pennate Diatom	175	0.118%	56	0.5%	23,798	0.017%	E	V	1	2	2	3	7	3	2		22.7-S
<i>Eunotia flexuosa</i>	Pennate Diatom	525	0.354%	28	1.5%	1,054,396	0.734%	E	V	2	1	1	1	2	3	1		27.2-I
<i>Eunotia implicata</i>	Pennate Diatom	117	0.079%	78	0.3%	312,944	0.218%	E	V	2					3	1		35.7-I
<i>Eunotia incisa</i>	Pennate Diatom	467	0.314%	35	1.3%	135,632	0.094%	E	V	2	1	1	1	1	2	1		28-I
<i>Eunotia intermedia</i>	Pennate Diatom	467	0.314%	35	1.3%	313,842	0.219%	E	V	2			1	3	1			16.3-S
<i>Eunotia microcephala</i>	Pennate Diatom	233	0.157%	53	0.7%	20,968	0.015%	E	V	2	1	1	1	1	4	1		
<i>Eunotia naegelii</i>	Pennate Diatom	641	0.432%	24	1.8%	487,202	0.339%	E	V	2	1	1	1	1	3	1		28.5-I
<i>Eunotia paludosa</i>	Pennate Diatom	525	0.354%	28	1.5%	216,495	0.151%	E	V	1	1	1	1	1	4	1		11.2-S
<i>Eunotia pectinalis var. undulata</i>	Pennate Diatom	641	0.432%	24	1.8%	1,720,859	1.199%	E	V	2	2	1	2	1	3	1		31-I
<i>Eunotia rhomboidea</i>	Pennate Diatom	350	0.236%	45	1.0%	116,387	0.081%	E	V	2	1	1	1	1	3	1		19.8-S
<i>Encyonema silesiacum</i>	Pennate Diatom	233	0.157%	53	0.7%	62,885	0.044%	S	V	3	2	3	3	7	1	2		45.6-I
<i>Encyonema lunatum</i>	Pennate Diatom	933	0.629%	17	2.7%	1,423,198	0.991%	S	V									31.9-I
<i>Encyonema mesianum</i>	Pennate Diatom	117	0.079%	78	0.3%	216,232	0.151%	S	V	4						2		
<i>Cymbopleura naviculiformis</i>	Pennate Diatom	117	0.079%	78	0.3%	216,232	0.151%	S	V	3	2	2	2	5	2	2		29.2-I

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			All	Rank	Diatoms					pH	NO2	S	T	M	Sal		
<i>Gomphonema angustatum</i>	Pennate Diatom	117	0.079%	78	0.3%	30,518	0.021%	S	N	4	1	1	1	1	2	57.8-E	
<i>Gomphonema gracile</i>	Pennate Diatom	816	0.550%	20	2.3%	591,861	0.412%	S	N	3	1	1	1	3	3	38.6-I	
<i>Gomphonema micropus</i>	Pennate Diatom	117	0.079%	78	0.3%	34,393	0.024%	S	N	4	2	2	2	5	3	31.3-I	
<i>Gomphonema parvulus</i>	Pennate Diatom	408	0.275%	39	1.2%	6,293	0.004%	S	N							69.5-E	
<i>Brachysira microcephala</i>	Pennate Diatom	467	0.314%	35	1.3%	32,592	0.023%	P	M	4	1	2	1	2	2	29.4-I	
<i>Brachysira brebissonii</i>	Pennate Diatom	408	0.275%	39	1.2%	49,549	0.035%	P	M	2	1	2	1	1	3	17.6-S	
<i>Caloneis tenuis</i>	Pennate Diatom	117	0.079%	78	0.3%	13,492	0.009%	P	M	3	1	1	1	3	4		
<i>Frustulia crassinervia</i>	Pennate Diatom	3,907	2.634%	6	11.2%	2,331,893	1.624%	P	M	1	1	1	1	1	3	17.1-S	
<i>Frustulia krammeri</i>	Pennate Diatom	292	0.197%	46	0.8%	1,639,235	1.142%	P	M	2	1	1	1	1	2	16.6-S	
<i>Navicula notha</i>	Pennate Diatom	408	0.275%	39	1.2%	81,536	0.057%	P	M							28.4-I	
<i>Nupela fennica</i>	Pennate Diatom	58	0.039%	82	0.2%	7,542	0.005%	P	M								
<i>Pinnularia interrupta</i>	Pennate Diatom	58	0.039%	82	0.2%	43,761	0.030%	P	M	3	1	1	1	2	3	22.2-S	
<i>Pinnularia subcapitata</i>	Pennate Diatom	117	0.079%	78	0.3%	68,446	0.048%	P	M	2	2	3	2	2	3	31.5-I	
<i>Pinnularia viridis</i>	Pennate Diatom	117	0.079%	78	0.3%	171,054	0.119%	P	M	3	2	3	2	7	3	25.8-S	
<i>Sellaphora laevisisima</i>	Pennate Diatom	58	0.039%	82	0.2%	64,874	0.045%	P	M	3	1	1	1	3	2	32.1-I	
<i>Sellaphora seminulum</i>	Pennate Diatom	875	0.590%	18	2.5%	1,711,094	1.192%	P	M	3	3	4	4	5	3	48.7-I	
<i>Sellaphora arvensis</i>	Pennate Diatom	350	0.236%	45	1.0%	21,301	0.015%	P	M								
<i>Stauroneis gracilis</i>	Pennate Diatom	117	0.079%	78	0.3%	35,572	0.025%	P	M	2		2	1			2	
<i>Eolimna minima</i>	Pennate Diatom	467	0.314%	35	1.3%	29,760	0.021%	P	M	4	3	4	4	5	3	53.2-E	
<i>Stenopterobia delicatissima</i>	Pennate Diatom	117	0.079%	78	0.3%	18,194	0.013%	P	H	2	1	1	1	1	1	7.5-S	
<i>Stenopterobia planctonica</i>	Pennate Diatom	2,274	1.533%	8	6.5%	26,640,995	18.555%	P	H								
<i>Nitzschia acidoclinata</i>	Pennate Diatom	700	0.472%	21	2.0%	18,151	0.013%	P	H	3	1	1	2	3	3	43.4-I	
<i>Nitzschia gracilis</i>	Pennate Diatom	583	0.393%	25	1.7%	111,426	0.078%	P	H	3		2	2	3	1	37.6-I	
<i>Nitzschia hantzschiana</i>	Pennate Diatom	117	0.079%	78	0.3%	14,429	0.010%	P	H	3	1	1	1	3	4	1	
<i>Nitzschia incognita</i>	Pennate Diatom	1,458	0.983%	13	4.2%	95,066	0.066%	P	H							4	
<i>Nitzschia palea</i>	Pennate Diatom	117	0.079%	78	0.3%	27,908	0.019%	P	H	3	4	4	5	6	3	52.5-E	
<i>Nitzschia palea var. debilis</i>	Pennate Diatom	467	0.314%	35	1.3%	61,747	0.043%	P	H	3			1	1	3	75.5-E	
<i>Nitzschia paleacea</i>	Pennate Diatom	117	0.079%	78	0.3%	4,922	0.003%	P	H	4	4	3	3	5	2	49-I	
<i>Undetermined Green Filament</i>	Colonial Green	5,372	3.621%	5		14,871,093	10.357%										
<i>Gloeocystis</i>	Colonial Green	7,439	5.014%	4		1,393,766	0.971%									41.6-I	
<i>Stauridium tetras</i>	Colonial Green	1,653	1.114%	11		98,814	0.069%									38-I	
<i>Oocystis parva</i>	Colonial Green	1,929	1.300%	10		437,776	0.305%										
<i>Scenedesmus dispar</i>	Colonial Green	551	0.371%	26		7,662	0.005%										
<i>Cosmarium</i>	Desmid	138	0.093%	62		1,873,199	1.305%										
<i>Cosmarium sp.1 MDEP FWA</i>	Desmid	138	0.093%	62		2,522,119	1.757%									34.4-I	
<i>Euastrum binale</i>	Desmid	276	0.186%	47		797,532	0.555%										
<i>Euastrum pulchellum</i>	Desmid	138	0.093%	62		1,498,249	1.043%									15-S	
<i>Staurostrum punctulatum</i>	Desmid	138	0.093%	62		1,571,263	1.094%										
<i>Xanthidium antilopaeum</i>	Desmid	138	0.093%	62		5,530,718	3.852%										
<i>Closterium</i>	Desmid	276	0.186%	48		9,170,661	6.387%										
<i>Mougeotia</i>	Filamentous Green	2,204	1.486%	9		12,558,951	8.747%									37.5-I	
<i>Lepocinlis</i>	Euglenoid	138	0.093%	62		2,271,468	1.582%										