

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

Station Information

Station Number: W-132	Trip ID: 2005-132	River Basin: Saco
Waterbody: HOBBS POND (MERRILAND RIVER)	HUC8 Name: Piscataqua-Salmon Falls	
Town: Wells	Latitude: 43 20 48.91 N	
Mitigation Monitoring Site: No	Longitude: 70 37 29.48 W	

Sample Information

Sample ID: WA-132-2005E (519)	Type of Sample: PLANT RUBBINGS	Date Sampled: 7/5/2005
Bottle #: 519	Sampling Organization: BIOMONITORING UNIT	Taxonomist: MICHIGAN STATE UNIVERSITY

Classification Attainment

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

Model Probabilities

<u>First Stage Model</u>	<u>C or Better Model</u>
Class A: 0.77 Class C: 0.00	Class A, B, or C 1.00
Class B: 0.23 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 0.77
Class C or Non-Attainment 0.00	Class B or C or Non-Attainment 0.24

Model Variables

		<u>Reference Range (10th or 90th percentile value)</u>
Relative Richness of Diatoms in the Eunotiaceae Family	0.175	>0.09
Relative Density of Eutrophentic Diatoms	0.102	<0.15
Relative Richness of Oligosaprobic Diatoms	0.452	>0.37
Relative Richness of Intermediate Taxa	0.660	>0.61
Relative Richness of Sensitive Taxa	0.191	>0.13
Maine Tolerance Index Score for Wetland Epiphytic Algae	36.26	<38

Other Variables

	Density (cells/cm ²)	Relative Density	Richness	Relative Richness	Biovolume (um ³ /cm ²)	Relative Biovolume
Total for Sample	283,869	-	63	-	1,400,709,580	-
Diatom Only	84,898	-	52	-	172,547,065	-
MTI Sensitive	4,528	0.053	9	0.191	8,729,904	0.049
MTI Intermediate	77,243	0.912	31	0.660	163,241,605	0.920
MTI Eurytopic	2,971	0.035	7	0.149	5,443,709	0.031
Ratio of MTI:						
Sensitive to Eurytopic	1.524	1.524	1.286	1.286	1.604	1.604

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Water Chemistry

Sample Date: 7/5/2005 9:45:00 AM

Collection Method	Parameter	Value	Units	Qualifier
Grab Sample	Chlorophyll A	0.0047	mg/l	
Grab Sample	Chlorophyll A - Phaeophytin	0.0035	mg/l	
Grab Sample	Dissolved Organic Carbon	18	mg/l	
Grab Sample	Nitrate + Nitrite As Nitrogen	0.05	mg/l	
Grab Sample	Orthophosphate As Phosphorus	3	ug/l	
Grab Sample	pH	6.6		
Grab Sample	Silica	9.2	mg/l	
Grab Sample	Specific Conductance	66.5	us/cm	
Grab Sample	Total Alkalinity	8	mg/l	
Grab Sample	Total Kjeldahl Nitrogen (organic And Nh3) As Nitrogen	0.7	mg/l	
Grab Sample	Total Phosphorus Mixed Forms (po4 And Organic) As Phosphorus	0.029	mg/l	
Grab Sample	True Color	250	unit	
In-situ	Dissolved Oxygen	7.6	mg/l	
In-situ	pH	7.63		
In-situ	Specific Conductance	56	us/cm	
In-situ	Temperature	20.8	deg c	

Landcover Summary - 2004 Data

Total Area (ac)	5728	High Int. Dev. %	0.4	Water %	0.1	Non-vegetated %	1.5
		Med Int. Dev. %	0.5	Wetland %	29.0	Tilled Agriculture %	1.0
		Low Int. Dev. %	3.3	Upland Woody %	59.4	Grassland %	2.2
		Development %	4.2	Natural %	88.4	Human Altered %	11.5
						Impervious %	3.1
Total Land (ac)	5720	High Int. Dev. %	0.4	Water %	N/A	Non-vegetated %	N/A
		Med Int. Dev. %	0.5	Wetland %	29.0	Tilled Agriculture %	1.0
		Low Int. Dev. %	3.3	Upland Woody %	59.5	Grassland %	2.2
		Development %	4.2	Natural %	88.5	Human Altered %	11.5
						Impervious %	3.1

Summary of Habitat Characteristics

Human Disturbance

Total Score:	11
Hydrologic Modifications to Wetland:	3
Vegetative Modifications to Wetland:	0
Evidence of Chemical Pollutants:	0
Impervious Surface in Watershed:	5
Potential for NPS Pollution:	3

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Summary of Habitat Characteristics

Dominant Plant Species: PICKERELWEED, POTAMOGETON, YELLOW WATER LILY, UTRICULARIA
(BLADDERWORT SP.)

Additional Plant Community Observations:

Habitat Classification: EMERGENT NON-PERSISTENT VEGETATION	Substrate Classification: DETRITUS SUBSTRATE SILT/MUCK SUBSTRATE
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Visible Flow: Rain In Previous 24 Hours: Unknown

Sample Comments: DAMMED

Additional Summary Variables

	Density (cells/cm ²)	Relative Density	Richness	Relative Richness	Biovolume (um ³ /cm ²)	Relative Biovolume
Diatom Growth Forms and Motility:						
Unattached	18,395	0.217	7	0.135	85,589,784	0.496
Variable	27,026	0.318	6	0.115	5,496,651	0.032
Erect	19,527	0.230	14	0.269	62,612,209	0.363
Stalked	5,094	0.060	7	0.135	11,622,487	0.067
Prostrate	14,857	0.175	18	0.346	7,225,935	0.042
Motile	3,537	0.042	13	0.250	6,210,259	0.036

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Additional Summary Variables

Station Number: W-132 Waterbody: HOBBS POND (MERRILAND RIVER) Town: Wells
Sample ID: WA-132-2005E (519) Bottle #: 519 Calculated: 1/29/2019

	Density (cells/cm²)	Relative Density	Richness	Relative Richness	Biovolume (um³/cm²)	Relative Biovolume
Taxa Group:						
Pennate Diatom	83,766	0.295	48	0.762	172,139,343	0.123
Centric Diatom	1,132	0.004	4	0.063	407,722	0.000
Cyanobacteria	0	0.000	0	0.000	0	0.000
Filamentous Cyanobacteria	0	0.000	0	0.000	0	0.000
Green Algae	197,659	0.696	9	0.143	1,224,358,596	0.874
Colonial Green	1,311	0.005	1	0.016	135,885	0.000
Filamentous Green	195,037	0.687	7	0.111	1,215,576,844	0.868
Unicellular Green	0	0.000	0	0.000	0	0.000
Desmid	1,311	0.005	1	0.016	8,645,867	0.006
Red Algae	0	0.000	0	0.000	0	0.000
Euglenoid	656	0.002	1	0.016	1,667,155	0.001
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	656	0.002	1	0.016	2,136,764	0.002
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
Diatom Autecology Groups:						
High Oxygen	67,636	0.840	23	0.561	150,193,880	0.910
Low Oxygen	849	0.011	3	0.073	185,806	0.001
N-Autotrophic	47,119	0.587	24	0.600	110,039,772	0.667
N-Heterotrophic	849	0.011	3	0.075	185,806	0.001
Oligosaprobic	26,601	0.327	19	0.452	16,013,163	0.096
Polysaprobic	1,415	0.017	4	0.095	3,391,276	0.020
Oligotrophentic	13,301	0.191	8	0.200	50,353,632	0.314
Eutrophentic	7,075	0.102	8	0.200	4,544,161	0.028
Acidobiontic	566	0.007	3	0.067	661,076	0.004
Brackish	283	0.003	1	0.022	622,588	0.004
Dry Condition	1,698	0.034	3	0.073	1,607,366	0.020

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Bottle # : 519

Waterbody: Hobbs Pond (merriland River) - W-132

Town: Wells

Sample ID: WA-132-2005E (519)

Station Number: W-132

Taxa Name	Group	Density (cells/ cm ²)	Relative Density			Biovolume (um ³ / cm ²)	Relative Biovolume	Form	Mot- ility	van Dam Index Values							Maine Epi Tolerance
			All	Rank	Diatoms					pH	NO2	S	T	M	Sal		
<i>Aulacoseira ambigua</i>	Centric Diatom	566	0.199%	32	0.7%	253,798	0.018%	U	N	4	2	3	2	5	1	2	19.3-S
<i>Aulacoseira italica</i>	Centric Diatom	141	0.050%	63	0.2%	59,946	0.004%	U	N	3	2	2	2	2	2	2	35.1-I
<i>Pantocsekiella tripartita</i>	Centric Diatom	283	0.100%	53	0.3%	33,959	0.002%	U	N								
<i>Discostella stelligera</i>	Centric Diatom	141	0.050%	63	0.2%	60,018	0.004%	U	N						1	2	31.3-I
<i>Fragilaria gracilis</i>	Pennate Diatom	14,857	5.234%	4	17.5%	2,806,452	0.200%	V	N	3	1	1	1	2		2	39.1-I
<i>Fragilaria tenera</i>	Pennate Diatom	2,688	0.947%	13	3.2%	861,804	0.062%	V	N	2	1	1	1	2	2	1	41.5-I
<i>Fragilaria vaucheriae</i>	Pennate Diatom	4,103	1.446%	12	4.8%	1,007,112	0.072%	V	N	4	2	3	3	5	3	2	51.3-I
<i>Fragilaria sepes</i>	Pennate Diatom	283	0.100%	53	0.3%	60,397	0.004%	V	N	3	1	1	1	2	2	1	38.7-I
<i>Pseudostaurosira elliptica</i>	Pennate Diatom	849	0.299%	25	1.0%	79,662	0.006%	V	N	4	1	1	2	4	1	2	34.8-I
<i>Staurosira construens var. venter</i>	Pennate Diatom	4,245	1.495%	11	5.0%	681,223	0.049%	V	N	4	2	1	2	4	1	2	32.4-I
<i>Synedra rumpens</i>	Pennate Diatom	283	0.100%	53	0.3%	41,842	0.003%	E	N	3				2		2	34.9-I
<i>Ulnaria acus</i>	Pennate Diatom	283	0.100%	53	0.3%	150,012	0.011%	E	N	4	2	2	3	5	2	2	57.4-E
<i>Ulnaria ulna</i>	Pennate Diatom	566	0.199%	32	0.7%	3,205,470	0.229%	E	N	4	2	3	4		2	2	44.5-I
<i>Tabellaria fenestrata</i>	Pennate Diatom	16,980	5.982%	3	20.0%	84,354,220	6.022%	U	N	3	1	1	2	2		1	29.1-I
<i>Tabellaria flocculosa</i>	Pennate Diatom	141	0.050%	63	0.2%	285,791	0.020%	U	N	2	1	1	2	3	3	1	24.7-S
<i>Tabellaria quadrisepata</i>	Pennate Diatom	141	0.050%	63	0.2%	542,051	0.039%	U	N	1	1	1	1	1	2	1	21.9-S
<i>Achnanthydium minutissimum</i>	Pennate Diatom	9,339	3.290%	8	11.0%	692,041	0.049%	P	N	6	2	1	2	7	3	2	49.5-I
<i>Achnanthydium rivulare</i>	Pennate Diatom	566	0.199%	32	0.7%	60,734	0.004%	P	N								48-I
<i>Psammothidium subatomoides</i>	Pennate Diatom	424	0.150%	37	0.5%	32,424	0.002%	P	V	2	1	1	1	2	1	1	27.6-I
<i>Rossethidium linearis</i>	Pennate Diatom	849	0.299%	25	1.0%	145,178	0.010%	P	V	3							32.1-I
<i>Cocconeis placentula var. lineata</i>	Pennate Diatom	141	0.050%	63	0.2%	85,298	0.006%	P	N	4	2	3	2	5	2	2	53.6-E
<i>Eunotia bilunaris</i>	Pennate Diatom	1,415	0.498%	16	1.7%	1,466,805	0.105%	E	V	6	2	2	2	7	3	2	36.1-I
<i>Eunotia mucophila</i>	Pennate Diatom	566	0.199%	32	0.7%	163,453	0.012%	E	V	2	2	2	1	2	4	2	20-S
<i>Eunotia denticulata</i>	Pennate Diatom	283	0.100%	53	0.3%	794,855	0.057%	E	V	2	1	1	1	1	3	1	
<i>Eunotia flexuosa</i>	Pennate Diatom	1,839	0.648%	14	2.2%	2,704,797	0.193%	E	V	2	1	1	1	2	3	1	27.2-I
<i>Eunotia glacialis</i>	Pennate Diatom	990	0.349%	22	1.2%	3,884,332	0.277%	E	V	2	1	1	1	2	3	1	11.4-S
<i>Eunotia incisa</i>	Pennate Diatom	1,273	0.449%	19	1.5%	1,645,711	0.117%	E	V	2	1	1	1	1	2	1	28-I
<i>Eunotia minor</i>	Pennate Diatom	849	0.299%	25	1.0%	1,358,625	0.097%	E	V	2			1		4	1	38-I
<i>Eunotia naegelii</i>	Pennate Diatom	283	0.100%	53	0.3%	175,534	0.013%	E	V	2	1	1	1	1	3	1	28.5-I
<i>Eunotia paludosa</i>	Pennate Diatom	283	0.100%	53	0.3%	85,287	0.006%	E	V	1	1	1	1	1	4	1	11.2-S
<i>Eunotia pectinalis var. undulata</i>	Pennate Diatom	10,471	3.689%	6	12.3%	46,901,747	3.348%	E	V	2	2	1	2	1	3	1	31-I
<i>Eunotia subarcuatooides</i>	Pennate Diatom	141	0.050%	63	0.2%	33,738	0.002%	E	V	1	1	1	1	1	3	1	27.6-I
<i>Encyonema neogratile</i>	Pennate Diatom	283	0.100%	53	0.3%	374,737	0.027%	S	V	2	1	1	1	2	3	1	18.2-S
<i>Gomphonema acuminatum</i>	Pennate Diatom	1,132	0.399%	21	1.3%	2,862,134	0.204%	S	N	4	1	2	2	5	2	2	41.4-I
<i>Gomphonema affine</i>	Pennate Diatom	1,132	0.399%	21	1.3%	2,965,745	0.212%	S	N	4	1	1	2	3	3	2	25.8-S
<i>Gomphonema gracile</i>	Pennate Diatom	283	0.100%	53	0.3%	194,681	0.014%	S	N	3	1	1	1	3	3	2	38.6-I
<i>Gomphonema parvulum</i>	Pennate Diatom	424	0.150%	37	0.5%	141,595	0.010%	S	N	3	3	4	4	5	3	2	55.7-E
<i>Gomphonema truncatum</i>	Pennate Diatom	1,556	0.548%	15	1.8%	4,984,547	0.356%	S	N	4	1	2	2	4	2	2	54.3-E
<i>Gomphonema amoenum</i>	Pennate Diatom	283	0.100%	53	0.3%	99,048	0.007%	S	N								
<i>Brachysira brebissonii</i>	Pennate Diatom	424	0.150%	37	0.5%	174,709	0.012%	P	M	2	1	2	1	1	3	1	17.6-S
<i>Brachysira vitrea</i>	Pennate Diatom	424	0.150%	37	0.5%	99,515	0.007%	P	M	5	1	2	1	2	2	2	27.3-I
<i>Gyrosigma obscurum</i>	Pennate Diatom	283	0.100%	53	0.3%	3,537,432	0.253%	P	H								

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Taxa Name	Group	Density (cells/ cm ²)	Relative Density		Biovolume (um ³ / cm ²)	Relative Biovolume	Form	Mot- ility	van Dam Index Values						Maine Epi Tolerance		
			All	Rank Diatoms					pH	NO2	S	T	M	Sal			
<i>Neidium ampliatum</i>	Pennate Diatom	141	0.050%	63	0.2%	672,262	0.048%	P	M	3			2	3	2	29-I	
<i>Neidium productum</i>	Pennate Diatom	424	0.150%	37	0.5%	806,535	0.058%	P	M								
<i>Sellaphora pupula</i>	Pennate Diatom	283	0.100%	53	0.3%	130,801	0.009%	P	M	3	2	3	3	4	2	2	51.3-I
<i>Sellaphora schadei</i>	Pennate Diatom	283	0.100%	53	0.3%	20,061	0.001%	P	M	3	1	1	1	3		2	
<i>Stauroneis kriegeri</i>	Pennate Diatom	141	0.050%	63	0.2%	38,045	0.003%	P	M	3	2	2	2	4	3	2	54.6-E
<i>Eolimna minima</i>	Pennate Diatom	283	0.100%	53	0.3%	15,201	0.001%	P	M	4	3	4	4	5	3	2	53.2-E
<i>Surirella subsalsa</i>	Pennate Diatom	283	0.100%	53	0.3%	622,588	0.044%	P	H							3	
<i>Nitzschia acidoclinata</i>	Pennate Diatom	141	0.050%	63	0.2%	16,589	0.001%	P	H	3	1	1	2	3	3	1	43.4-I
<i>Nitzschia gracilis</i>	Pennate Diatom	283	0.100%	53	0.3%	47,511	0.003%	P	H	3		2	2	3	1	1	37.6-I
<i>Nitzschia palea</i>	Pennate Diatom	141	0.050%	63	0.2%	29,010	0.002%	P	H	3	4	4	5	6	3	2	52.5-E
<i>Ophiocytium cochleare</i>	Yellow Green Algae	656	0.231%	28		2,136,764	0.153%										35.1-I
<i>Coelastrum microporum</i>	Colonial Green	1,311	0.462%	18		135,885	0.010%										
<i>Bulbochaete</i>	Filamentous Green	656	0.231%	28		5,385,726	0.384%										
<i>Oedogonium spp. (3.5um)</i>	Filamentous Green	120,300	42.379%	1		20,465,439	1.461%										
<i>Closterium moniliferum</i>	Desmid	1,311	0.462%	18		8,645,867	0.617%										33.8-I
<i>Mougeotia sp. 1 d3-10um KMM Maine</i>	Filamentous Green	41,630	14.665%	2		269,234,017	19.221%										
<i>Mougeotia sp. 2 d10-12,5um KMM Maine</i>	Filamentous Green	11,473	4.042%	5		142,656,807	10.185%										
<i>Mougeotia sp. 5 d15-20um KMM Maine</i>	Filamentous Green	10,162	3.580%	7		294,011,570	20.990%										
<i>Spirogyra sp. 2 d25-35 KMM Maine</i>	Filamentous Green	6,228	2.194%	9		470,055,981	33.558%										
<i>Spirogyra sp. 3 d53 KMM Maine</i>	Filamentous Green	4,589	1.617%	10		13,767,304	0.983%										
<i>Euglena sp. 1 KMM Maine</i>	Euglenoid	656	0.231%	28		1,667,155	0.119%										