

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

Station Information

Station Number: W-202	Trip ID: 2009-202	River Basin: St. John
Waterbody: MALISEET POND		HUC8 Name: Meduxnekeag
Town: Littleton		Latitude: 46 12 5.11 N
Mitigation Monitoring Site: No		Longitude: 67 47 43.27 W

Sample Information

Sample ID: WA-202-2009E (853)	Type of Sample: PLANT RUBBINGS	Date Sampled: 7/1/2009
Bottle # : 853	Sampling Organization: BIOMONITORING UNIT	Taxonomist: ACADEMY OF NATURAL SCIENCES

Classification Attainment

Statutory Class: GPA	Final Determination: C	Date: 9/19/2019
Model Result with $P \geq 0.6$: C	Reason for Determination: Model L&w	
Date Last Calculated: 2/26/2019	Comments:	

Model Probabilities

<u>First Stage Model</u>		<u>C or Better Model</u>	
Class A: 0.00	Class C: 0.98	Class A, B, or C	0.98
Class B: 0.00	NA: 0.02	Non-Attainment	0.02
<u>B or Better Model</u>		<u>A Model</u>	
Class A or B	0.01	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		>0.09
Relative Density of Eutrophentic Diatoms	0.187	<0.15
Relative Richness of Oligosaprobic Diatoms	0.167	>0.37
Relative Richness of Intermediate Taxa	0.478	>0.61
Relative Richness of Sensitive Taxa	0.190	>0.13
Maine Tolerance Index Score for Wetland Epiphytic Algae	48.09	<38

Other Variables

	Density (cells/cm²)	Relative Density	Richness	Relative Richness	Biovolume (um³/cm²)	Relative Biovolume
Total for Sample	96,553	-	31	-	3,698,552,174	-
Diatom Only	7,567	-	24	-	2,611,540	-
MTI Sensitive	252	0.006	4	0.190	164,584	0.000
MTI Intermediate	8,424	0.865	11	0.478	49,163,240	0.985
MTI Eurytopic	1,312	0.135	12	0.522	751,259	0.015
Ratio of MTI:						
Sensitive to Eurytopic	0.192	0.046	0.333	0.365	0.219	0.003

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Water Chemistry

Sample Date: 7/1/2009 10:15:00 AM

Collection Method	Parameter	Value	Units	Qualifier
Grab Sample	Chloride	5	mg/l	
Grab Sample	Chlorophyll A	0.084	mg/l	
Grab Sample	Chlorophyll A - Phaeophytin	0.0812	mg/l	
Grab Sample	Nitrate + Nitrite As Nitrogen		mg/l	U
Grab Sample	Orthophosphate As Phosphorus	25	ug/l	
Grab Sample	pH	8.6		
Grab Sample	Silica	4.1	mg/l	
Grab Sample	Silicon	1.9	mg/l	
Grab Sample	Specific Conductance	242	umhos/cm	
Grab Sample	Total Alkalinity	116	mg/l	
Grab Sample	Total Kjeldahl Nitrogen (organic And Nh3) As Nitrogen	1.2	mg/l	
Grab Sample	Total Phosphorus Mixed Forms (po4 And Organic) As Phosphorus	0.11	mg/l	
Grab Sample	True Color	33	unit	
In-situ	Dissolved Oxygen	10.4	mg/l	
In-situ	pH	8.52		
In-situ	Specific Conductance	240	us/cm	
In-situ	Temperature	21.4	deg c	

Landcover Summary - 2004 Data

Total Area (ac)	97	High Int. Dev. %	0.0	Water %	0.0	Non-vegetated %	0.0
		Med Int. Dev. %	0.0	Wetland %	14.7	Tilled Agriculture %	67.1
		Low Int. Dev. %	0.0	Upland Woody %	18.2	Grassland %	0.0
		Development %	0.0	Natural %	32.9	Human Altered %	67.1
						Impervious %	0.2
Total Land (ac)	97	High Int. Dev. %	0.0	Water %	N/A	Non-vegetated %	N/A
		Med Int. Dev. %	0.0	Wetland %	14.7	Tilled Agriculture %	67.1
		Low Int. Dev. %	0.0	Upland Woody %	18.2	Grassland %	0.0
		Development %	0.0	Natural %	32.9	Human Altered %	67.1
						Impervious %	0.2

Summary of Habitat Characteristics

Human Disturbance

Total Score:	16
Hydrologic Modifications to Wetland:	3
Vegetative Modifications to Wetland:	0
Evidence of Chemical Pollutants:	5
Impervious Surface in Watershed:	0
Potential for NPS Pollution:	8

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Summary of Habitat Characteristics

Dominant Plant Species: NUPHAR SP., SWEET GALE

Additional Plant Community Observations:

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

Sample Comments: NUMEROUS DEAD FISH & STRESSED TADPOLES. FIELD NEXT TO POND WAS SPRAYED YESTERDAY, POSSIBLE SPRAYED WITH A FUNGICIDE. RECENT RAIN. DISSOLVED ORGANIC CARBON SAMPLE GIVEN TO BARRY MOWER FOR PESTICIDE ANALYSIS.

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	0	0.000	0	0.000	0	0.000
Variable	126	0.017	3	0.125	14,956	0.006
Erect	50	0.007	2	0.083	53,001	0.020
Stalked	1,665	0.220	8	0.333	1,760,698	0.674
Prostrate	5,726	0.757	11	0.458	782,885	0.300
Motile	908	0.120	7	0.292	540,498	0.207

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Additional Summary Variables

Station Number: W-202

Waterbody: MALISEET POND

Town: Littleton

Sample ID: WA-202-2009E (853)

Bottle #: 853

Calculated: 2/26/2019

	Density (cells/cm ²)	Relative Density	Richness	Relative Richness	Biovolume (um ³ /cm ²)	Relative Biovolume
Taxa Group:						
Pennate Diatom	7,567	0.078	24	0.774	2,611,540	0.001
Centric Diatom	0	0.000	0	0.000	0	0.000
Cyanobacteria	55,390	0.574	3	0.097	2,103,313	0.001
Filamentous Cyanobacteria	55,390	0.574	3	0.097	2,103,313	0.001
Green Algae	33,496	0.347	3	0.097	3,680,541,591	0.995
Colonial Green	0	0.000	0	0.000	0	0.000
Filamentous Green	33,496	0.347	3	0.097	3,680,541,591	0.995
Unicellular Green	0	0.000	0	0.000	0	0.000
Desmid	0	0.000	0	0.000	0	0.000
Red Algae	0	0.000	0	0.000	0	0.000
Euglenoid	0	0.000	0	0.000	0	0.000
Chrysophyte	0	0.000	0	0.000	0	0.000
Cryptophyte	0	0.000	0	0.000	0	0.000
Dinoflagellate	101	0.001	1	0.032	13,295,729	0.004
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
Diatom Autecology Groups:						
High Oxygen	5,209	0.784	4	0.267	526,147	0.395
Low Oxygen	164	0.025	1	0.067	36,361	0.027
N-Autotrophic	769	0.116	4	0.267	481,547	0.361
N-Heterotrophic	164	0.025	1	0.067	36,361	0.027
Oligosaprobic	227	0.033	3	0.167	114,959	0.085
Polysaprobic	214	0.032	2	0.111	39,853	0.029
Oligotrophentic	25	0.015	1	0.077	3,376	0.003
Eutrophentic	315	0.187	4	0.308	177,646	0.172
Acidobiontic	0	0.000	0	0.000	0	0.000
Brackish	25	0.004	1	0.050	1,645	0.001
Dry Condition	0	0.000	0	0.000	0	0.000

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Town: Littleton

Sample ID: WA-202-2009E (853)

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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>Rivularia</i>	Filamentous Cyanobacteria	42,375	43.887%	1		520,014	0.014%										
<i>Lyngbya martensiana</i>	Filamentous Cyanobacteria	8,475	8.777%	3		1,469,795	0.040%										
<i>Planktothrix</i>	Filamentous Cyanobacteria	4,540	4.702%	6		113,503	0.003%										
<i>Fragilaria capucina</i>	Pennate Diatom	50	0.052%	24	0.7%	8,990	0.000%	V	N	3		2	3		2		58.2-E
<i>Fragilaria gracilis</i>	Pennate Diatom	50	0.052%	24	0.7%	1,870	0.000%	V	N	3	1	1	1	2		2	39.1-I
<i>Fragilaria pinnata</i> var. <i>acuminata</i>	Pennate Diatom	25	0.026%	31	0.3%	4,096	0.000%	V	N								
<i>Ulnaria acus</i>	Pennate Diatom	25	0.026%	31	0.3%	28,042	0.001%	E	N	4	2	2	3	5	2	2	57.4-E
<i>Ulnaria delicatissima</i>	Pennate Diatom	25	0.026%	31	0.3%	24,959	0.001%	E	N	3				3	1	2	52.2-I
<i>Achnanthis minutissimum</i>	Pennate Diatom	4,641	4.807%	5	61.3%	125,653	0.003%	P	N	6	2	1	2	7	3	2	49.5-I
<i>Planorthis frequentissimum</i>	Pennate Diatom	50	0.052%	24	0.7%	3,492	0.000%	P	V	4	2	3	4			2	77.1-E
<i>Cocconeis placentula</i>	Pennate Diatom	50	0.052%	24	0.7%	28,290	0.001%	P	N	4	2	3	2	5	2	2	67.9-E
<i>Cocconeis placentula</i> var. <i>lineata</i>	Pennate Diatom	76	0.078%	20	1.0%	84,952	0.002%	P	N	4	2	3	2	5	2	2	53.6-E
<i>Cymbella mexicana</i>	Pennate Diatom	25	0.026%	31	0.3%	1,122,847	0.030%	S	V								
<i>Encyonema silesiacum</i>	Pennate Diatom	88	0.091%	17	1.2%	23,800	0.001%	S	V	3	2	3	3	7	1	2	45.6-I
<i>Encyonopsis subminuta</i>	Pennate Diatom	504	0.522%	8	6.7%	85,422	0.002%	S	V								46.4-I
<i>Gomphonema gracile</i>	Pennate Diatom	151	0.157%	15	2.0%	109,713	0.003%	S	N	3	1	1	1	3	3	2	38.6-I
<i>Gomphonema parvulum</i>	Pennate Diatom	164	0.170%	14	2.2%	36,361	0.001%	S	N	3	3	4	4	5	3	2	55.7-E
<i>Gomphonema subclavatum</i>	Pennate Diatom	366	0.379%	10	4.8%	288,911	0.008%	S	N	3	1	1	2	2	3	2	64.4-E
<i>Gomphonema truncatum</i>	Pennate Diatom	202	0.209%	12	2.7%	81,053	0.002%	S	N	4	1	2	2	4	2	2	54.3-E
<i>Gomphonema minusculum</i>	Pennate Diatom	164	0.170%	14	2.2%	12,591	0.000%	S	N								50.7-I
<i>Navicula cryptocephala</i>	Pennate Diatom	202	0.209%	12	2.7%	59,358	0.002%	P	M	4	2	3	3	7	2	2	66.2-E
<i>Navicula cryptotenella</i>	Pennate Diatom	76	0.078%	20	1.0%	15,326	0.000%	P	M	4			2	7	2	2	52.4-I
<i>Navicula radiosa</i>	Pennate Diatom	479	0.496%	9	6.3%	332,360	0.009%	P	M	3	2	2	2	4	3	2	49-I
<i>Stauroneis kriegeri</i>	Pennate Diatom	25	0.026%	31	0.3%	3,548	0.000%	P	M	3	2	2	2	4	3	2	54.6-E
<i>Nitzschia incognita</i>	Pennate Diatom	25	0.026%	31	0.3%	1,645	0.000%	P	H							4	48.5-I
<i>Nitzschia palea</i> var. <i>debilis</i>	Pennate Diatom	25	0.026%	31	0.3%	3,376	0.000%	P	H	3			1	1	3	1	75.5-E
<i>Nitzschia recta</i>	Pennate Diatom	76	0.078%	20	1.0%	124,885	0.003%	P	H	4	2	2	2	7	1	2	54-E
<i>Ceratium hirudinella</i>	Dinoflagellate	101	0.104%	16		13,295,729	0.359%										
<i>Gongrosira</i>	Filamentous Green	25,828	26.750%	2		27,524,043	0.744%										
<i>Cladophora glomerata</i>	Filamentous Green	5,448	5.643%	4		3,604,587,646	97.459%										
<i>Oedogonium</i>	Filamentous Green	2,220	2.299%	7		48,429,902	1.309%										38.2-I