

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

Station Information

Station Number: W-122	Trip ID: 2004-122	River Basin: St. John
Waterbody: SOUTH BRANCH MEDUXNEKEAG RIVER		HUC8 Name: Meduxnekeag
Town: Hodgdon		Latitude: 46 1 49.57 N
Mitigation Monitoring Site: No		Longitude: 67 51 58.61 W

Sample Information

Sample ID: WA-122-2004E (329)	Type of Sample: PLANT RUBBINGS	Date Sampled: 6/23/2004
Bottle #: 329	Sampling Organization: BIOMONITORING UNIT	Taxonomist: MICHIGAN STATE UNIVERSITY

Classification Attainment

Statutory Class:	Final Determination: B	Date: 9/4/2019
Model Result with $P \geq 0.6$: B	Reason for Determination: Model L&w	
Date Last Calculated: 1/25/2019	Comments:	

Model Probabilities

<u>First Stage Model</u>		<u>C or Better Model</u>	
Class A: 0.19	Class C: 0.03	Class A, B, or C	1.00
Class B: 0.78	NA: 0.00	Non-Attainment	0.00
<u>B or Better Model</u>		<u>A Model</u>	
Class A or B	0.98	Class A	0.19
Class C or Non-Attainment	0.03	Class B or C or Non-Attainment	0.81

Model Variables

		<u>Reference Range (10th or 90th percentile value)</u>
Relative Richness of Diatoms in the Eunotiaceae Family	0.068	>0.09
Relative Density of Eutrophentic Diatoms	0.199	<0.15
Relative Richness of Oligosaprobic Diatoms	0.371	>0.37
Relative Richness of Intermediate Taxa	0.771	>0.61
Relative Richness of Sensitive Taxa	0.083	>0.13
Maine Tolerance Index Score for Wetland Epiphytic Algae	38.46	<38

Other Variables

	Density (cells/cm ²)	Relative Density	Richness	Relative Richness	Biovolume (um ³ /cm ²)	Relative Biovolume
Total for Sample	47,958	-	74	-	108,633,092	-
Diatom Only	6,266	-	40	-	1,835,337	-
MTI Sensitive	1,102	0.049	4	0.083	53,939	0.022
MTI Intermediate	20,690	0.929	37	0.771	2,224,465	0.900
MTI Eurytopic	481	0.022	7	0.146	193,859	0.078
Ratio of MTI:						
Sensitive to Eurytopic	2.290	2.290	0.571	0.571	0.278	0.278

**Maine Department of Environmental Protection
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Water Chemistry

Sample Date: 6/23/2004 3:00:00 PM

Collection Method	Parameter	Value	Units	Qualifier
Grab Sample	Ammonia As Nitrogen	0.04	mg/l	
Grab Sample	Calcium	19	mg/l	
Grab Sample	Chloride	5	mg/l	
Grab Sample	Chlorophyll A	0.0064	mg/l	
Grab Sample	Chlorophyll A - Phaeophytin	0.0056	mg/l	
Grab Sample	Dissolved Organic Carbon	9.6	mg/l	
Grab Sample	Magnesium	1.8	mg/l	
Grab Sample	Nitrate + Nitrite As Nitrogen	0.02	mg/l	
Grab Sample	Orthophosphate As Phosphorus	1	ug/l	
Grab Sample	pH	7.2		
Grab Sample	Potassium	0.4	mg/l	
Grab Sample	Silica	1.7	mg/l	
Grab Sample	Sodium	3.8	mg/l	
Grab Sample	Specific Conductance	139	us/cm	
Grab Sample	Total Alkalinity	54	mg/l	
Grab Sample	Total Hardness	55	mg/l	
Grab Sample	Total Kjeldahl Nitrogen (organic And Nh3) As Nitrogen	0.5	mg/l	
Grab Sample	Total Phosphorus Mixed Forms (po4 And Organic) As Phosphorus	0.02	mg/l	
Grab Sample	True Color	46	unit	
In-situ	Dissolved Oxygen	6.7	mg/l	
In-situ	pH	7.63		
In-situ	Specific Conductance	113	us/cm	
In-situ	Temperature	20.8	deg c	

Landcover Summary - 2004 Data

Total Area (ac)	34659	High Int. Dev. %	0.0	Water %	0.2	Non-vegetated %	0.0
		Med Int. Dev. %	0.1	Wetland %	20.1	Tilled Agriculture %	3.1
		Low Int. Dev. %	0.7	Upland Woody %	74.4	Grassland %	1.0
		Development %	0.8	Natural %	94.5	Human Altered %	5.3
						Impervious %	0.6
Total Land (ac)	34602	High Int. Dev. %	0.0	Water %	N/A	Non-vegetated %	N/A
		Med Int. Dev. %	0.1	Wetland %	20.1	Tilled Agriculture %	3.1
		Low Int. Dev. %	0.7	Upland Woody %	74.5	Grassland %	1.0
		Development %	0.8	Natural %	94.7	Human Altered %	5.3
						Impervious %	0.6

Summary of Habitat Characteristics

Human Disturbance

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Total Score:	6
Hydrologic Modifications to Wetland:	3
Vegetative Modifications to Wetland:	0
Evidence of Chemical Pollutants:	0
Impervious Surface in Watershed:	3
Potential for NPS Pollution:	0

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Summary of Habitat Characteristics

Dominant Plant Species: SEDGES, WATER CELERY (VALLISNERIA), YELLOW WATER LILY

Additional Plant Community Observations:

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

Visible Flow: Rain In Previous 24 Hours: Unknown

Sample Comments: No comments

Additional Summary Variables

	Density (cells/cm²)	Relative Density	Richness	Relative Richness	Biovolume (um³/cm²)	Relative Biovolume
Diatom Growth Forms and Motility:						
Unattached	10	0.002	1	0.025	21,885	0.012
Variable	502	0.080	6	0.150	134,139	0.073
Erect	256	0.041	6	0.150	498,186	0.271
Stalked	840	0.134	9	0.225	340,147	0.185
Prostrate	4,658	0.743	18	0.450	840,980	0.458
Motile	553	0.088	12	0.300	459,687	0.250

**Maine Department of Environmental Protection
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Additional Summary Variables

Station Number: W-122

Waterbody: SOUTH BRANCH MEDUXNEKEAG RIVER

Town: Hodgdon

Sample ID: WA-122-2004E (329)

Bottle #: 329

Calculated: 1/25/2019

	Density (cells/cm ²)	Relative Density	Richness	Relative Richness	Biovolume (um ³ /cm ²)	Relative Biovolume
Taxa Group:						
Pennate Diatom	6,266	0.131	40	0.541	1,835,337	0.017
Centric Diatom	0	0.000	0	0.000	0	0.000
Cyanobacteria	27,687	0.577	13	0.176	470,483	0.004
Filamentous Cyanobacteria	10,282	0.214	6	0.081	149,616	0.001
Green Algae	13,576	0.283	19	0.257	106,140,376	0.977
Colonial Green	5,918	0.123	9	0.122	936,403	0.009
Filamentous Green	4,017	0.084	6	0.081	73,695,874	0.678
Unicellular Green	3,561	0.074	2	0.027	898,816	0.008
Desmid	80	0.002	2	0.027	30,609,282	0.282
Red Algae	268	0.006	1	0.014	167,489	0.002
Euglenoid	0	0.000	0	0.000	0	0.000
Chrysophyte	161	0.003	1	0.014	19,406	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
Diatom Autecology Groups:						
High Oxygen	4,464	0.855	17	0.548	909,771	0.598
Low Oxygen	41	0.008	1	0.032	12,395	0.008
N-Autotrophic	973	0.186	16	0.516	520,931	0.343
N-Heterotrophic	92	0.018	2	0.065	21,170	0.014
Oligosaprobic	860	0.157	13	0.371	482,781	0.291
Polysaprobic	72	0.013	3	0.086	36,222	0.022
Oligotrophentic	184	0.119	4	0.143	398,288	0.336
Eutrophentic	307	0.199	5	0.179	152,542	0.129
Acidobiontic	10	0.002	1	0.028	10,876	0.006
Brackish	0	0.000	0	0.000	0	0.000
Dry Condition	0	0.000	0	0.000	0	0.000

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Bottle # : 329

Waterbody: South Branch Meduxnekeag River - W-122

Town: Hodgdon

Sample ID: WA-122-2004E (329)

Station Number: W-122

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>Dactylococcopsis acicularis</i>	Cyanobacteria	27	0.056%	56	1,478	0.001%										
<i>Aphanocapsa elachista</i>	Cyanobacteria	10,122	21.106%	1	65,271	0.060%										37-I
<i>Aphanocapsa grevillei</i>	Cyanobacteria	536	1.117%	13	15,765	0.015%										
<i>Aphanocapsa parasitica</i>	Cyanobacteria	1,339	2.792%	10	2,297	0.002%										
<i>Merismopedia tenuissima</i>	Cyanobacteria	1,071	2.233%	12	7,621	0.007%										25.4-S
<i>Aphanothece clathrata</i>	Cyanobacteria	1,741	3.629%	8	7,320	0.007%										32.2-I
<i>Xenococcus</i>	Cyanobacteria	2,571	5.360%	6	221,116	0.204%										
<i>Phormidium minnesotense</i>	Filamentous Cyanobacteria	241	0.503%	19	1,350	0.001%										32.8-I
<i>Leibleinia</i>	Filamentous Cyanobacteria	214	0.447%	24	4,322	0.004%										
<i>Limnothrix redekei</i>	Filamentous Cyanobacteria	214	0.447%	24	6,306	0.006%										
<i>Pseudanabaena catenata</i>	Filamentous Cyanobacteria	295	0.614%	16	1,594	0.001%										
<i>Pseudolyngbya</i>	Filamentous Cyanobacteria	9,131	19.040%	2	123,286	0.113%										
<i>Hapalosiphon hibernicus</i>	Filamentous Cyanobacteria	187	0.391%	26	12,757	0.012%										
<i>Batrachospermum</i>	Red Algae	268	0.558%	18	167,489	0.154%										
<i>Fragilaria capucina</i>	Pennate Diatom	92	0.192%	40	42,484	0.039%	V	N	3		2	3		2		58.2-E
<i>Fragilaria gracilis</i>	Pennate Diatom	174	0.363%	27	35,679	0.033%	V	N	3	1	1	1	2		2	39.1-I
<i>Fragilaria tenera</i>	Pennate Diatom	102	0.213%	39	34,033	0.031%	V	N	2	1	1	1	2	2	1	41.5-I
<i>Fragilaria sepes</i>	Pennate Diatom	20	0.043%	64	4,370	0.004%	V	N	3	1	1	1	2	2	1	38.7-I
<i>Meridion circulare</i>	Pennate Diatom	20	0.043%	64	22,444	0.021%	E	N	4	2	2	2	7	1	2	40.8-I
<i>Pseudostaurosira elliptica</i>	Pennate Diatom	10	0.021%	74	961	0.001%	V	N	4	1	1	2	4	1	2	34.8-I
<i>Staurosira construens var. venter</i>	Pennate Diatom	102	0.213%	39	16,612	0.015%	V	N	4	2	1	2	4	1	2	32.4-I
<i>Tabellaria flocculosa</i>	Pennate Diatom	10	0.021%	74	21,885	0.020%	U	N	2	1	1	2	3	3	1	24.7-S
<i>Achnanthydium minutissimum</i>	Pennate Diatom	3,553	7.408%	3	283,316	0.261%	P	N	6	2	1	2	7	3	2	49.5-I
<i>Achnanthydium rivulare</i>	Pennate Diatom	235	0.491%	21	22,924	0.021%	P	N								48-I
<i>Planothidium frequentissimum</i>	Pennate Diatom	10	0.021%	74	1,457	0.001%	P	V	4	2	3	4			2	77.1-E
<i>Psammothidium subatomoides</i>	Pennate Diatom	31	0.064%	51	1,874	0.002%	P	V	2	1	1	1	2	1	1	27.6-I
<i>Rossethidium linearis</i>	Pennate Diatom	205	0.427%	25	34,957	0.032%	P	V	3							32.1-I
<i>Cocconeis placentula var. lineata</i>	Pennate Diatom	72	0.149%	44	36,765	0.034%	P	N	4	2	3	2	5	2	2	53.6-E
<i>Eunotia bilunaris</i>	Pennate Diatom	20	0.043%	64	28,111	0.026%	E	V	6	2	2	2	7	3	2	36.1-I
<i>Eunotia flexuosa</i>	Pennate Diatom	41	0.085%	49	60,219	0.055%	E	V	2	1	1	1	2	3	1	27.2-I
<i>Eunotia incisa</i>	Pennate Diatom	154	0.320%	31	206,027	0.190%	E	V	2	1	1	1	1	2	1	28-I
<i>Eunotia naegelii</i>	Pennate Diatom	10	0.021%	74	6,827	0.006%	E	V	2	1	1	1	1	3	1	28.5-I
<i>Eunotia soleirolii</i>	Pennate Diatom	10	0.021%	74	174,559	0.161%	E	V	3	2	1	2	1	3	1	36.7-I
<i>Encyonema silesiacum</i>	Pennate Diatom	164	0.342%	28	75,418	0.069%	S	V	3	2	3	3	7	1	2	45.6-I
<i>Encyonema neogratile</i>	Pennate Diatom	10	0.021%	74	13,557	0.012%	S	V	2	1	1	1	2	3	1	18.2-S
<i>Encyonopsis microcephala</i>	Pennate Diatom	123	0.256%	34	16,659	0.015%	S	V	4	1	1	1	4	3	2	30.7-I
<i>Epithemia argus</i>	Pennate Diatom	10	0.021%	74	46,072	0.042%	P	M	4			1	3	3	2	
<i>Gomphonema acuminatum</i>	Pennate Diatom	20	0.043%	64	51,774	0.048%	S	N	4	1	2	2	5	2	2	41.4-I

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Bottle # : 329 **Waterbody:** South Branch Meduxnekeag River - W-122 **Town:** Hodgdon
Sample ID: WA-122-2004E (329) **Station Number:** W-122

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>Gomphonema gracile</i>	Pennate Diatom	20	0.043%	64	0.3%	12,715	0.012%	S	N	3	1	1	1	3	3	2	38.6-I
<i>Gomphonema minutum</i>	Pennate Diatom	123	0.256%	34	2.0%	42,834	0.039%	S	N	3			2	5		2	68-E
<i>Gomphonema parvulum</i>	Pennate Diatom	41	0.085%	49	0.7%	12,395	0.011%	S	N	3	3	4	4	5	3	2	55.7-E
<i>Gomphonema pseudotenellum</i>	Pennate Diatom	102	0.213%	39	1.6%	34,810	0.032%	S	N								
<i>Gomphonema pumilum</i>	Pennate Diatom	235	0.491%	21	3.8%	79,986	0.074%	S	N					7		2	50.5-I
<i>Amphipleura pellucida</i>	Pennate Diatom	20	0.043%	64	0.3%	22,370	0.021%	P	M	4	2	2	4	2	2	2	31-I
<i>Brachysira microcephala</i>	Pennate Diatom	154	0.320%	31	2.5%	33,873	0.031%	P	M	4	1	2	1	2	2	2	29.4-I
<i>Frustulia crassinervia</i>	Pennate Diatom	10	0.021%	74	0.2%	10,876	0.010%	P	M	1	1	1	1	1	3	1	17.1-S
<i>Navicula cryptocephala</i>	Pennate Diatom	133	0.278%	32	2.1%	53,844	0.050%	P	M	4	2	3	3	7	2	2	66.2-E
<i>Navicula cryptotenella</i>	Pennate Diatom	20	0.043%	64	0.3%	7,922	0.007%	P	M	4			2	7	2	2	52.4-I
<i>Navicula radiosa</i>	Pennate Diatom	31	0.064%	51	0.5%	64,280	0.059%	P	M	3	2	2	2	4	3	2	49-I
<i>Stauroneis phoenicenteron</i>	Pennate Diatom	10	0.021%	74	0.2%	194,921	0.179%	P	M	3	2	3	2	4	2	2	35.4-I
<i>Nitzschia acidoclinata</i>	Pennate Diatom	82	0.171%	41	1.3%	9,603	0.009%	P	H	3	1	1	2	3	3	1	43.4-I
<i>Nitzschia dissipata</i>	Pennate Diatom	10	0.021%	74	0.2%	4,082	0.004%	P	H	4	2	2	2	4	3	2	57.9-E
<i>Nitzschia paleacea</i>	Pennate Diatom	51	0.107%	47	0.8%	8,775	0.008%	P	H	4	4	3	3	5	2	2	49-I
<i>Nitzschia pumila</i>	Pennate Diatom	20	0.043%	64	0.3%	3,069	0.003%	P	H								45.9-I
<i>Dinobryon bavaricum</i>	Chrysophyte	161	0.335%	29		19,406	0.018%										
<i>Unidentified green coccoid 14um</i>	Colonial Green	27	0.056%	56		38,453	0.035%										
<i>Stigeoclonium lubricum</i>	Filamentous Green	107	0.223%	36		51,131	0.047%										37.7-I
<i>Sphaerocystis</i>	Unicellular Green	3,535	7.370%	4		808,444	0.744%										
<i>Tetraedron muticum</i>	Unicellular Green	27	0.056%	56		90,373	0.083%										
<i>Gloeocystis sp. 2 MESLAP</i>	Colonial Green	107	0.223%	36		28,814	0.027%										
<i>Pediastrum duplex</i>	Colonial Green	1,714	3.573%	9		610,191	0.562%										
<i>Ankistrodesmus falcatus</i>	Colonial Green	80	0.168%	43		2,943	0.003%										36.8-I
<i>Coelastrum microporum</i>	Colonial Green	1,071	2.233%	12		111,003	0.102%										
<i>Crucigenia tetrapedia</i>	Colonial Green	27	0.056%	56		1,590	0.001%										
<i>Scenedesmus brevispina</i>	Colonial Green	214	0.447%	24		46,741	0.043%										
<i>Scenedesmus ecornis</i>	Colonial Green	2,410	5.025%	7		83,199	0.077%										34.2-I
<i>Scenedesmus spinosus</i>	Colonial Green	268	0.558%	18		13,469	0.012%										40.4-I
<i>Bulbochaete</i>	Filamentous Green	402	0.838%	14		3,093,742	2.848%										
<i>Oedogonium 5-7um</i>	Filamentous Green	321	0.670%	15		306,314	0.282%										
<i>Oedogonium 10-12um</i>	Filamentous Green	80	0.168%	43		418,447	0.385%										
<i>Cosmarium angulosum</i>	Desmid	27	0.056%	56		23,355	0.021%										32.4-I
<i>Pleurotaenium eugeneum</i>	Desmid	54	0.112%	46		30,585,926	28.155%										
<i>Mougeotia 10-12um</i>	Filamentous Green	54	0.112%	46		462,150	0.425%										29.5-I
<i>Zygnema</i>	Filamentous Green	3,053	6.365%	5		69,364,090	63.852%										