

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

Station Information

Station Number: W-063	Trip ID: 2002-063	River Basin: Kennebec
Waterbody: MOSHER POND		HUC8 Name: Lower Kennebec
Town: Fayette		Latitude: 44 29 8.06 N
Mitigation Monitoring Site: No		Longitude: 70 5 39.22 W

Sample Information

Sample ID: WA-063-2002E (1230)	Type of Sample: PLANT RUBBINGS	Date Sampled: 6/17/2002
Bottle # : 1230	Sampling Organization: BIOMONITORING UNIT	Taxonomist: MICHIGAN STATE UNIVERSITY

Classification Attainment

Statutory Class:	Final Determination: B	Date: 8/29/2019
Model Result with $P \geq 0.6$: B	Reason for Determination: Model L&w	
Date Last Calculated: 1/15/2019	Comments: 0.46 A but not raised due to community structure and function.	

Model Probabilities

<u>First Stage Model</u>	<u>C or Better Model</u>
Class A: 0.46 Class C: 0.02	Class A, B, or C 1.00
Class B: 0.52 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 0.46
Class C or Non-Attainment 0.02	Class B or C or Non-Attainment 0.54

Model Variables

		<u>Reference Range (10th or 90th percentile value)</u>
Relative Richness of Diatoms in the Eunotiaceae Family	0.114	>0.09
Relative Density of Eutrophentic Diatoms	0.239	<0.15
Relative Richness of Oligosaprobic Diatoms	0.295	>0.37
Relative Richness of Intermediate Taxa	0.685	>0.61
Relative Richness of Sensitive Taxa	0.148	>0.13
Maine Tolerance Index Score for Wetland Epiphytic Algae	35.55	<38

Other Variables

	Density (cells/cm ²)	Relative Density	Richness	Relative Richness	Biovolume (um ³ /cm ²)	Relative Biovolume
Total for Sample	45,901	-	70	-	158,991,965	-
Diatom Only	18,048	-	48	-	28,870,740	-
MTI Sensitive	10,165	0.275	8	0.148	16,592,915	0.388
MTI Intermediate	25,452	0.688	37	0.685	25,428,398	0.595
MTI Eurytopic	1,384	0.037	9	0.167	733,558	0.017
Ratio of MTI:						
Sensitive to Eurytopic	7.346	7.346	0.889	0.889	22.620	22.620

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Water Chemistry

Sample Date: 6/17/2002 9:30:00 AM

Collection Method	Parameter	Value	Units	Qualifier
Grab Sample	Calcium	5.5	mg/l	
Grab Sample	Chloride	8	mg/l	
Grab Sample	Chlorophyll A	0.0022	mg/l	
Grab Sample	Dissolved Organic Carbon	13.2	mg/l	
Grab Sample	Magnesium	0.97	mg/l	
Grab Sample	Nitrate As Nitrogen		mg/l	U
Grab Sample	pH	6.5		
Grab Sample	Potassium	1.2	mg/l	
Grab Sample	Sodium	5	mg/l	
Grab Sample	Specific Conductance	58.2	us/cm	
Grab Sample	Sulfate	20	mg/l	
Grab Sample	Total Alkalinity	10	mg/l	
Grab Sample	Total Hardness	18	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	0.015	mg/l	
Grab Sample	True Color	100	unit	
In-situ	Dissolved Oxygen	5.3	mg/l	
In-situ	pH	5.79		
In-situ	Specific Conductance	57	us/cm	
In-situ	Temperature	11.7	deg c	

Landcover Summary - 2004 Data

Total Area (ac)	1423	High Int. Dev. %	0.3	Water %	0.0	Non-vegetated %	0.0
		Med Int. Dev. %	0.3	Wetland %	3.7	Tilled Agriculture %	2.6
		Low Int. Dev. %	2.3	Upland Woody %	79.1	Grassland %	11.7
		Development %	2.9	Natural %	82.8	Human Altered %	17.1
						Impervious %	3.3
Total Land (ac)	1422	High Int. Dev. %	0.3	Water %	N/A	Non-vegetated %	N/A
		Med Int. Dev. %	0.3	Wetland %	3.7	Tilled Agriculture %	2.6
		Low Int. Dev. %	2.3	Upland Woody %	79.1	Grassland %	11.7
		Development %	2.9	Natural %	82.9	Human Altered %	17.1
						Impervious %	3.3

Summary of Habitat Characteristics

Human Disturbance

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Total Score:	10
Hydrologic Modifications to Wetland:	2
Vegetative Modifications to Wetland:	1
Evidence of Chemical Pollutants:	0
Impervious Surface in Watershed:	3
Potential for NPS Pollution:	4

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Summary of Habitat Characteristics

Dominant Plant Species: GRASSES, SEDGES, SPIREA, ROYAL FERN, ALDER

Additional Plant Community Observations:

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

Sample Comments: HEADWATER - HEAD OF INLET TO MOSHER POND

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	5,655	0.313	2	0.042	12,042,712	0.417
Variable	1,233	0.068	7	0.146	200,525	0.007
Erect	4,121	0.228	11	0.229	10,379,695	0.360
Stalked	2,557	0.142	9	0.188	2,747,015	0.095
Prostrate	4,482	0.248	19	0.396	3,500,793	0.121
Motile	1,684	0.093	17	0.354	3,245,933	0.112

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Additional Summary Variables

Station Number: W-063 Waterbody: MOSHER POND Town: Fayette
Sample ID: WA-063-2002E (1230) Bottle #: 1230 Calculated: 1/15/2019

	Density (cells/cm²)	Relative Density	Richness	Relative Richness	Biovolume (um³/cm²)	Relative Biovolume
Taxa Group:						
Pennate Diatom	18,018	0.393	47	0.671	28,857,736	0.182
Centric Diatom	30	0.001	1	0.014	13,004	0.000
Cyanobacteria	12,577	0.274	6	0.086	1,122,872	0.007
Filamentous Cyanobacteria	4,192	0.091	2	0.029	1,001,881	0.006
Green Algae	8,953	0.195	13	0.186	123,726,851	0.778
Colonial Green	1,990	0.043	3	0.043	396,801	0.002
Filamentous Green	6,679	0.146	8	0.114	122,622,080	0.771
Unicellular Green	71	0.002	1	0.014	57,378	0.000
Desmid	213	0.005	1	0.014	650,591	0.004
Red Algae	0	0.000	0	0.000	0	0.000
Euglenoid	0	0.000	0	0.000	0	0.000
Chrysophyte	71	0.002	1	0.014	9,371	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	6,253	0.136	2	0.029	5,262,132	0.033
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	10,588	0.669	24	0.533	18,343,581	0.655
Low Oxygen	1,414	0.089	5	0.111	315,570	0.011
N-Autotrophic	8,633	0.562	19	0.452	15,118,614	0.548
N-Heterotrophic	1,414	0.092	5	0.119	315,570	0.011
Oligosaprobic	1,564	0.099	13	0.295	816,347	0.029
Polysaprobic	1,985	0.126	6	0.136	3,641,869	0.130
Oligotrophentic	451	0.035	6	0.171	427,308	0.021
Eutrophentic	3,068	0.239	10	0.286	2,107,557	0.103
Acidobiontic	0	0.000	0	0.000	0	0.000
Brackish	60	0.004	2	0.043	18,006	0.001
Dry Condition	60	0.004	2	0.044	5,998	0.000

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Bottle # : 1230 **Waterbody:** Mosher Pond - W-063

Town: Fayette

Sample ID: WA-063-2002E (1230)

Station Number: W-063

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			
Undetermined bg filament 1-2µm	Cyanobacteria	1,066	2.322%	8		18,341	0.012%											
Chroococcus minor	Cyanobacteria	568	1.238%	23		12,755	0.008%											41.4-I
Aphanocapsa elachista	Cyanobacteria	6,040	13.158%	2		24,592	0.015%											37-I
Gloeocapsa	Cyanobacteria	711	1.548%	17		65,303	0.041%											
Anabaena inaequalis	Filamentous Cyanobacteria	284	0.619%	32		13,362	0.008%											
Hapalosiphon	Filamentous Cyanobacteria	3,908	8.514%	4		988,520	0.622%											25.2-S
Cyclotella meneghiniana	Centric Diatom	30	0.066%	70	0.2%	13,004	0.008%	U	N	4	3	5	4	5	2	3		85.6-E
Fragilaria gracilis	Pennate Diatom	180	0.393%	38	1.0%	28,348	0.018%	V	N	3	1	1	1	2		2		39.1-I
Fragilaria tenera	Pennate Diatom	541	1.180%	24	3.0%	74,639	0.047%	V	N	2	1	1	1	2	2	1		41.5-I
Fragilaria vaucheriae	Pennate Diatom	120	0.262%	43	0.7%	31,636	0.020%	V	N	4	2	3	3	5	3	2		51.3-I
Fragilaria sepes	Pennate Diatom	60	0.131%	54	0.3%	10,568	0.007%	V	N	3	1	1	1	2	2	1		38.7-I
Meridion circulare var. constrictum	Pennate Diatom	30	0.066%	70	0.2%	14,837	0.009%	E	N	4	2	2	2	7	2	2		43.8-I
Staurosira construens	Pennate Diatom	30	0.066%	70	0.2%	11,403	0.007%	V	N	4	1	1	2	4	1	2		44-I
Staurosira construens var. venter	Pennate Diatom	271	0.590%	34	1.5%	31,376	0.020%	V	N	4	2	1	2	4	1	2		32.4-I
Staurosirella pinnata	Pennate Diatom	30	0.066%	70	0.2%	12,554	0.008%	V	N	4	2	1	2	7	3	2		48.5-I
Ulnaria acus	Pennate Diatom	993	2.163%	12	5.5%	526,182	0.331%	E	N	4	2	2	3	5	2	2		57.4-E
Ulnaria ulna	Pennate Diatom	572	1.245%	20	3.2%	3,326,299	2.092%	E	N	4	2	3	4		2	2		44.5-I
Tabellaria flocculosa	Pennate Diatom	5,625	12.254%	3	31.2%	12,029,708	7.566%	U	N	2	1	1	2	3	3	1		24.7-S
Achnanthes lineariformis	Pennate Diatom	1,805	3.932%	5	10.0%	192,341	0.121%	P	V	3								32.3-I
Achnanthidium minutissimum	Pennate Diatom	993	2.163%	12	5.5%	62,519	0.039%	P	N	6	2	1	2	7	3	2		49.5-I
Eunotia bilunaris	Pennate Diatom	842	1.835%	14	4.7%	1,490,632	0.938%	E	V	6	2	2	2	7	3	2		36.1-I
Eunotia implicata	Pennate Diatom	391	0.852%	27	2.2%	640,303	0.403%	E	V	2					3	1		35.7-I
Eunotia incisa	Pennate Diatom	90	0.197%	46	0.5%	104,648	0.066%	E	V	2	1	1	1	1	2	1		28-I
Eunotia meisteri	Pennate Diatom	30	0.066%	70	0.2%	996	0.001%	E	V	2	1	1	1	1	4	1		
Eunotia naegelii	Pennate Diatom	211	0.459%	37	1.2%	173,777	0.109%	E	V	2	1	1	1	1	3	1		28.5-I
Eunotia pectinalis	Pennate Diatom	812	1.769%	15	4.5%	3,925,432	2.469%	E	V	2	2	1	2	3	3	1		28.4-I
Eunotia praerupta	Pennate Diatom	90	0.197%	46	0.5%	130,688	0.082%	E	V	2	1	1	1	2	3	1		28.5-I
Eunotia rhomboidea	Pennate Diatom	60	0.131%	54	0.3%	45,902	0.029%	E	V	2	1	1	1	1	3	1		19.8-S
Encyonema minutum	Pennate Diatom	30	0.066%	70	0.2%	11,332	0.007%	S	V	3						2		54.1-E
Encyonema silesiacum	Pennate Diatom	301	0.655%	31	1.7%	108,713	0.068%	S	V	3	2	3	3	7	1	2		45.6-I
Encyonema neogratile	Pennate Diatom	60	0.131%	54	0.3%	58,223	0.037%	S	V	2	1	1	1	2	3	1		18.2-S
Gomphonema acuminatum	Pennate Diatom	481	1.049%	25	2.7%	1,216,873	0.765%	S	N	4	1	2	2	5	2	2		41.4-I
Gomphonema affine	Pennate Diatom	331	0.721%	29	1.8%	866,886	0.545%	S	N	4	1	1	2	3	3	2		25.8-S
Gomphonema gracile	Pennate Diatom	150	0.328%	40	0.8%	80,473	0.051%	S	N	3	1	1	1	3	3	2		38.6-I
Gomphonema micropus	Pennate Diatom	30	0.066%	70	0.2%	12,294	0.008%	S	N	4	2	2	2	5	3	2		31.3-I
Gomphonema subclavatum	Pennate Diatom	150	0.328%	40	0.8%	127,302	0.080%	S	N	3	1	1	2	2	3	2		64.4-E
Gomphonema cf. parvulum MESLAP4	Pennate Diatom	1,023	2.228%	9	5.7%	264,919	0.167%	S	N	3	3	4	4	5	3	2		36.7-I
Brachysira vitrea	Pennate Diatom	30	0.066%	70	0.2%	6,099	0.004%	P	M	5	1	2	1	2	2	2		27.3-I
Luticola mutica	Pennate Diatom	30	0.066%	70	0.2%	5,002	0.003%	P	M	3	2	1	3	5	4	3		44.3-I
Navicula cryptocephala	Pennate Diatom	60	0.131%	54	0.3%	24,337	0.015%	P	M	4	2	3	3	7	2	2		66.2-E

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Bottle # : 1230 **Waterbody:** Mosher Pond - W-063

Town: Fayette

Sample ID: WA-063-2002E (1230)

Station Number: W-063

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>Navicula difficillima</i>	Pennate Diatom	60	0.131%	54	0.3%	2,551	0.002%	P	M	2	1	2	3	1			
<i>Pinnularia gibba</i>	Pennate Diatom	90	0.197%	46	0.5%	617,313	0.388%	P	M	3	2	3	3	7	2	2	22.2-S
<i>Pinnularia nodosa</i>	Pennate Diatom	30	0.066%	70	0.2%	34,381	0.022%	P	M	2	1	1	1	1	3	1	32.9-I
<i>Pinnularia subcapitata</i>	Pennate Diatom	30	0.066%	70	0.2%	28,766	0.018%	P	M	2	2	3	2	2	3	2	31.5-I
<i>Pinnularia viridis</i>	Pennate Diatom	60	0.131%	54	0.3%	1,918,759	1.207%	P	M	3	2	3	2	7	3	2	25.8-S
<i>Sellaphora seminulum</i>	Pennate Diatom	301	0.655%	31	1.7%	30,919	0.019%	P	M	3	3	4	4	5	3	2	48.7-I
<i>Stauroneis kriergeri</i>	Pennate Diatom	30	0.066%	70	0.2%	8,088	0.005%	P	M	3	2	2	2	4	3	2	54.6-E
<i>Eolimna minima</i>	Pennate Diatom	30	0.066%	70	0.2%	1,688	0.001%	P	M	4	3	4	4	5	3	2	53.2-E
<i>Stenopterobia curvula</i>	Pennate Diatom	30	0.066%	70	0.2%	67,605	0.043%	P	H	2	1	1	1	1	2	1	15.4-S
<i>Nitzschia acidoclinata</i>	Pennate Diatom	451	0.983%	26	2.5%	50,095	0.032%	P	H	3	1	1	2	3	3	1	43.4-I
<i>Nitzschia gracilis</i>	Pennate Diatom	120	0.262%	43	0.7%	20,200	0.013%	P	H	3		2	2	3	1	1	37.6-I
<i>Nitzschia nana</i>	Pennate Diatom	271	0.590%	34	1.5%	408,505	0.257%	P	H	3		1	2	3	3	2	43.5-I
<i>Nitzschia palea</i>	Pennate Diatom	30	0.066%	70	0.2%	5,040	0.003%	P	H	3	4	4	5	6	3	2	52.5-E
<i>Nitzschia recta</i>	Pennate Diatom	30	0.066%	70	0.2%	16,586	0.010%	P	H	4	2	2	2	7	1	2	54-E
<i>Lagynion</i>	Chrysophyte	71	0.155%	48		9,371	0.006%										
<i>Ophiocytium</i>	Yellow Green Algae	213	0.464%	36		169,948	0.107%										
<i>Tribonema affine</i>	Yellow Green Algae	6,040	13.158%	2		5,092,184	3.203%										42.2-I
<i>Undetermined green coccoid 5-7µm</i>	Colonial Green	782	1.703%	16		333,412	0.210%										
<i>Microthamnion kuetzingii</i>	Filamentous Green	1,776	3.870%	6		47,244	0.030%										
<i>Gloeocystis</i>	Colonial Green	853	1.858%	13		47,121	0.030%										41.6-I
<i>Ankistrodesmus</i>	Colonial Green	355	0.774%	28		16,268	0.010%										
<i>Bulbochaete</i>	Filamentous Green	995	2.167%	10		5,276,167	3.319%										
<i>Oedogonium 5-7µm</i>	Filamentous Green	639	1.393%	19		1,229,104	0.773%										
<i>Oedogonium 10-12µm</i>	Filamentous Green	568	1.238%	23		4,353,346	2.738%										
<i>Oedogonium 15-20 µm</i>	Filamentous Green	142	0.310%	41		1,987,917	1.250%										
<i>Chlamydomonas</i>	Unicellular Green	71	0.155%	48		57,378	0.036%										43.4-I
<i>Hyalotheca mucosa</i>	Desmid	213	0.464%	36		650,591	0.409%										30.7-I
<i>Mougeotia 10-12µm</i>	Filamentous Green	1,350	2.941%	7		7,014,537	4.412%										29.5-I
<i>Mougeotia 15-25µm</i>	Filamentous Green	639	1.393%	19		29,917,890	18.817%										
<i>Mougeotia 30-40µm</i>	Filamentous Green	568	1.238%	23		72,795,876	45.786%										