



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

**Station Information**

<b>Station Number:</b> S-697	River Basin: Kennebec
Waterbody: Halfmoon Stream - Station 697	HUC8 Name: Lower Kennebec
Town: Thorndike	Latitude: 44 34 30.02 N
Directions: 93 M ABOVE RT. 220 BRIDGE	Longitude: 69 16 33.23 W
	Stream Order: 3

**Sample Information**

<b>Log Number:</b> 2759	Type of Sample: ROCK BAG	Date Deployed: 7/24/2019
Subsample Factor: X4	Replicates: 3	Date Retrieved: 8/21/2019

**Classification Attainment**

<b>Statutory Class:</b> A	<b>Final Determination:</b> A	Date: 11/12/2019
Model Result with $P \geq 0.6$ : A	<b>Reason for Determination:</b> Model	
Date Last Calculated: 11/5/2019	Comments:	

**Model Probabilities**

<u>First Stage Model</u>		<u>C or Better Model</u>	
Class A	0.50	Class A, B, or C	1.00
Class B	0.48	Non-Attainment	0.00
<u>B or Better Model</u>		<u>A Model</u>	
Class A or B	1.00	Class A	0.79
Class C or Non-Attainment	0.00	Class B or C or Non-Attainment	0.21

**Model Variables**

01 Total Mean Abundance	1384.00	18 Relative Abundance Ephemeroptera	0.19
02 Generic Richness	67.00	19 EPT Generic Richness	29.00
03 Plecoptera Mean Abundance	4.00	21 Sum of Abundances: <i>Dicrotendipes</i> , <i>Micropsectra</i> , <i>Parachironomus</i> , <i>Helobdella</i>	1.34
04 Ephemeroptera Mean Abundance	262.67	23 Relative Generic Richness- Plecoptera	0.03
05 Shannon-Wiener Generic Diversity	4.24	25 Sum of Abundances: <i>Cheumatopsyche</i> , <i>Cricotopus</i> , <i>Tanytarsus</i> , <i>Ablabesmyia</i>	153.38
06 Hilsenhoff Biotic Index	4.51	26 Sum of Abundances: <i>Acroneuria</i> , <i>Maccaffertium</i> , <i>Stenonema</i>	109.33
07 Relative Abundance - Chironomidae	0.27	28 EP Generic Richness/14	1.00
08 Relative Generic Richness Diptera	0.34	30 Presence of Class A Indicator Taxa/7	0.29
09 <i>Hydropsyche</i> Abundance	230.67		
11 <i>Cheumatopsyche</i> Abundance	140.00		
12 EPT Generic Richness/ Diptera Generic Richness	1.26		
13 Relative Abundance - Oligochaeta	0.00		
15 Perlidae Mean Abundance (Family Functional Group)	4.00		
16 Tanypodinae Mean Abundance (Family Functional Group)	52.19		
17 Chironomini Abundance (Family Functional Group)	88.32		

**Five Most Dominant Taxa**

Rank	Taxon Name	Percent
1	<i>Hydropsyche</i>	16.67
2	<i>Rheotanytarsus</i>	13.73
3	<i>Helicopsyche</i>	13.39
4	<i>Cheumatopsyche</i>	10.12
5	<i>Maccaffertium</i>	7.90



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**Log Number: 2759**      Waterbody: Halfmoon Stream - Station 697      Date Retrieved: 8/21/2019

**Sample Collection and Processing Information**

Sampling Organization: BIOMONITORING UNIT      Taxonomist: MICHAEL COLE

**Waterbody Information - Deployment**

Temperature:                      22.9 deg C  
Dissolved Oxygen:                11.3 mg/l  
Dissolved Oxygen Saturation:    130.5 %  
Specific Conductance:            143.1 uS/cm  
Velocity:                            33.5 cm/s  
pH:                                    8.37  
Wetted Width:                      6.2 m  
Bankfull Width:                    21 m  
Depth:                                30 cm

**Waterbody Information - Retrieval**

Temperature:                      18.7 deg C  
Dissolved Oxygen:                10.23 mg/l  
Dissolved Oxygen Saturation:    108.6 %  
Specific Conductance:            136.6 uS/cm  
Velocity:                            24.4 cm/s  
pH:                                    7.78  
Wetted Width:                      6.5 m  
Bankfull Width:                    21 m  
Depth:                                24 cm

**Water Chemistry**

**Summary of Habitat Characteristics**

<u>Landuse Name</u>	<u>Canopy Cover</u>	<u>Terrain</u>
Cultivated	Open	Rolling
Pasture		
Upland Hardwood		
<u>Potential Stressor</u>	<u>Location</u>	<u>Substrate</u>
Agricultural Runoff	Above Road Crossing	Bedrock                      5 %
	Below Agriculture NPS	Boulder                      30 %
		Gravel                        15 %
		Rubble/Cobble              45 %
		Sand                          5 %

**Landcover Summary - 2004 Data**

Total Area (ac)    20308	High Int. Dev. %    0.1	Water %                0.3	Non-vegetated %    0.1
	Med Int. Dev. %    0.3	Wetland %            1.4	Tilled Agriculture % 7.3
	Low Int. Dev. %    2.9	Upland Woody %    78.0	Grassland %        9.6
	Development %    3.3	Natural %            79.4	Human Altered %    20.3
			Impervious %        2.7
Total Land (ac)    20250	High Int. Dev. %    0.1	Water %                N/A	Non-vegetated %    N/A
	Med Int. Dev. %    0.3	Wetland %            1.4	Tilled Agriculture % 7.3
	Low Int. Dev. %    2.9	Upland Woody %    78.2	Grassland %        9.6
	Development %    3.3	Natural %            79.6	Human Altered %    20.4
			Impervious %        2.7

**Sample Comments**



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Town: Thorndike

**Log Number: 2759**

Subsample Factor: X4

Replicates: 3

Calculated: 11/5/2019

Taxon	Maine Taxonomic Code	Count (Mean of Samplers)		Hilsenhoff Biotic Index	Functional Feeding Group	Relative Abundance %	
		Actual	Adjusted			Actual	Adjusted
<i>Hydra</i>	02010101001	1.33	1.33		PR	0.1	0.1
<i>Girardia</i>	03010102002	20.00	20.00		--	1.4	1.4
<i>Prostoma</i>	04010101001	1.33	1.33		--	0.1	0.1
<i>Neoperla</i>	09020209048	2.67	2.67	1	PR	0.2	0.2
<i>Agnatina</i>	09020209050		1.33	2	PR		0.1
<i>Agnatina capitata</i>	09020209050152	1.33		2	PR	0.1	
Calopterygidae	09020307	1.33	1.33		--	0.1	0.1
<i>Calopteryx</i>	09020307043	1.33	1.33	5	PR	0.1	0.1
<i>Baetis</i>	09020401001		48.00	4	CG		3.5
<i>Baetis flavistriga</i>	09020401001004	17.33			--	1.3	
<i>Baetis intercalaris</i>	09020401001008	14.67			--	1.1	
<i>Baetis pluto</i>	09020401001009	16.00			--	1.2	
<i>Acerpenna</i>	09020401007		18.67	5	CG		1.3
<i>Acerpenna macdunnoughi</i>	09020401007001	2.67			--	0.2	
<i>Acerpenna pygmaea</i>	09020401007011	16.00			--	1.2	
<i>Procloeon</i>	09020401010	1.33	1.33		CG	0.1	0.1
<i>Plauditus</i>	09020401012	2.67	2.67		CG	0.2	0.2
<i>Leucrocuta</i>	09020402011	1.33	1.33	1	SC	0.1	0.1
<i>Stenacron</i>	09020402014	28.00	28.00	7	SC	2.0	2.0
<i>Maccaffertium</i>	09020402015	28.00	109.33	4	SC	2.0	7.9
<i>Maccaffertium vicarium</i>	09020402015055	81.33			--	5.9	
<i>Isonychia</i>	09020404018		6.67	2	CF		0.5
<i>Isonychia bicolor</i>	09020404018059	6.67			--	0.5	
<i>Paraleptophlebia</i>	09020406026	17.33	17.33	1	CG	1.3	1.3
<i>Ephemerella</i>	09020410035	24.00	24.00	1	CG	1.7	1.7
<i>Tricorythodes</i>	09020411038	4.00	4.00	4	CG	0.3	0.3
<i>Caenis</i>	09020412040	1.33	1.33	7	CG	0.1	0.1
<i>Neureclipsis</i>	09020603008	2.67	2.67	7	CF	0.2	0.2
<i>Nyctiophylax</i>	09020603009	1.33	1.33	5	PR	0.1	0.1
<i>Polycentropus</i>	09020603010	34.67	34.67	6	PR	2.5	2.5
<i>Cheumatopsyche</i>	09020604015	140.00	140.00	5	CF	10.1	10.1
<i>Hydropsyche</i>	09020604016	1.33	230.67	4	CF	0.1	16.7
<i>Hydropsyche bronta</i>	09020604016029	5.33			--	0.4	
<i>Hydropsyche morosa</i>	09020604016030	2.67			--	0.2	
<i>Hydropsyche sparna</i>	09020604016032	1.33			--	0.1	
<i>Hydropsyche scalaris species group</i>	09020604016048	220.00			--	15.9	
<i>Rhyacophila</i>	09020605019	1.33	8.00	2	PR	0.1	0.6



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Subsample Factor: X4

Replicates: 3

Calculated: 11/5/2019

Taxon	Maine Taxonomic Code	Count (Mean of Samplers)		Hilsenhoff Biotic Index	Functional Feeding Group	Relative Abundance %	
		Actual	Adjusted			Actual	Adjusted
<i>Rhyacophila minora</i>	09020605019063	6.67			PR	0.5	
<i>Hydroptila</i>	09020607026	1.33	1.33	6	P	0.1	0.1
<i>Mayatrichia</i>	09020607033	1.33	1.33		SC	0.1	0.1
<i>Pycnopsyche</i>	09020610049	1.33	1.33	4	SH	0.1	0.1
<i>Lepidostoma</i>	09020611064	2.67	2.67	1	SH	0.2	0.2
<i>Psilotreta</i>	09020614068		1.33	0	SC		0.1
<i>Psilotreta labida</i>	09020614068133	1.33			--	0.1	
<i>Molanna</i>	09020615069	2.67	2.67	6	SC	0.2	0.2
<i>Helicopsyche</i>	09020616070	185.33	185.33	3	SC	13.4	13.4
<i>Mystacides</i>	09020618075		5.33	4	CG		0.4
<i>Mystacides sepulchralis</i>	09020618075147	5.33			--	0.4	
<i>Oecetis</i>	09020618078	13.33	42.67	8	PR	1.0	3.1
<i>Oecetis avara</i>	09020618078153	20.00			--	1.4	
<i>Oecetis persimilis</i>	09020618078157	9.33			--	0.7	
<i>Nigronia</i>	09020701003		2.67	0	PR		0.2
<i>Nigronia serricornis</i>	09020701003003	2.67			--	0.2	
<i>Sialis</i>	09020702004	1.33	1.33	4	PR	0.1	0.1
<i>Antocha</i>	09021001004	1.33	1.33	3	CG	0.1	0.1
Chironomidae	09021011	1.33			--	0.1	
<i>Ablabesmyia</i>	09021011001	2.67	2.68	8	PR	0.2	0.2
<i>Larsia</i>	09021011009	1.33	1.34	6	PR	0.1	0.1
<i>Nilotanytus</i>	09021011012		2.68	6	PR		0.2
<i>Nilotanytus fimbriatus</i>	09021011012027	2.67			--	0.2	
<i>Thienemannimyia</i>	09021011020		45.50	3	PR		3.3
<i>Thienemannimyia group</i>	09021011020041	45.33			--	3.3	
<i>Corynoneura</i>	09021011036	1.33	1.34	7	CG	0.1	0.1
<i>Cricotopus</i>	09021011037	1.33	9.37	7	SH	0.1	0.7
<i>Cricotopus bicinctus</i>	09021011037057	8.00			--	0.6	
<i>Nanocladius</i>	09021011049	2.67	2.68	3	CG	0.2	0.2
<i>Parametriocnemus</i>	09021011053	1.33	1.34	5	CG	0.1	0.1
<i>Thienemanniella</i>	09021011062	4.00	4.01	6	CG	0.3	0.3
<i>Tvetenia</i>	09021011065		10.70	5	CG		0.8
<i>Tvetenia vitracies</i>	09021011065113	10.67			--	0.8	
<i>Cladotanytarsus</i>	09021011068	1.33	1.34	7	CG	0.1	0.1
<i>Rheotanytarsus</i>	09021011072		190.01	6	CF		13.7
<i>Rheotanytarsus exiguus group</i>	09021011072127	189.33			CF	13.7	
<i>Stempellinella</i>	09021011074	10.67	10.70	2	--	0.8	0.8
<i>Tanytarsus</i>	09021011076	1.33	1.34	6	CF	0.1	0.1



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<i>Pseudochironomus</i>	09021011078	2.67	2.68	5	CG	0.2	0.2
<i>Dicrotendipes</i>	09021011085	1.33	1.34	8	CG	0.1	0.1
<i>Microtendipes</i>	09021011094		42.82	6	CF		3.1
<i>Microtendipes pedellus group</i>	09021011094166	12.00			--	0.9	
<i>Microtendipes rydalensis group</i>	09021011094168	30.67			--	2.2	
<i>Nilothauma</i>	09021011095	6.67	6.69	2	--	0.5	0.5
<i>Phaenopsectra</i>	09021011101	8.00	8.03	7	SC	0.6	0.6
<i>Polypedilum</i>	09021011102		26.76	6	SH		1.9
<i>Polypedilum aviceps</i>	09021011102181	22.67			--	1.6	
<i>Polypedilum scalaenum group</i>	09021011102189	4.00			--	0.3	
<i>Atherix</i>	09021015055	2.67	2.67	2	PR	0.2	0.2
<i>Hemerodromia</i>	09021016057	1.33	1.33	3	PR	0.1	0.1
<i>Dineutus</i>	09021104032	1.33	1.33	2	--	0.1	0.1
<i>Psephenus</i>	09021108058		5.33	4	SC		0.4
<i>Psephenus herricki</i>	09021108058028	5.33			--	0.4	
<i>Dubiraphia</i>	09021113064	5.33	5.33	6	--	0.4	0.4
<i>Microcylloepus</i>	09021113066		2.67	3	--		0.2
<i>Microcylloepus pusillus</i>	09021113066041	2.67			--	0.2	
<i>Optioservus</i>	09021113067	2.67	2.67	3	SC	0.2	0.2
<i>Promoresia</i>	09021113069		5.33		--		0.4
<i>Promoresia elegans</i>	09021113069051	1.33			--	0.1	
<i>Promoresia tardella</i>	09021113069052	4.00			--	0.3	
<i>Stenelmis</i>	09021113070	22.67	22.67	5	SC	1.6	1.6
Sphaeriidae	10020201	2.67	2.67		CF	0.2	0.2