



**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: ABOVE RT. 220	Longitude: 69 16 33.23 W
	Stream Order: 3

**Sample Information**

<b>Log Number:</b> 2345	Type of Sample: ROCK BAG	Date Deployed: 7/7/2015
Subsample Factor: X4	Replicates: 3	Date Retrieved: 8/4/2015

**Classification Attainment**

<b>Statutory Class:</b> A	<b>Final Determination:</b> B	Date: 12/9/2015
Model Result with $P \geq 0.6$ : B	<b>Reason for Determination: Best Professional Judgement</b>	
Date Last Calculated: 12/8/2015	Comments: Indeterminate for Class A (.40). Not raised to Class A based on Total Abundance and Dominant Taxa.	

**Model Probabilities**

	<u>First Stage Model</u>			<u>C or Better Model</u>	
Class A	0.15	Class C	0.15	Class A, B, or C	1.00
Class B	0.70	NA	0.00	Non-Attainment	0.00
	<u>B or Better Model</u>			<u>A Model</u>	
Class A or B		0.99	Class A		0.40
Class C or Non-Attainment		0.01	Class B or C or Non-Attainment		0.60

**Model Variables**

01 Total Mean Abundance	2600.00	18 Relative Abundance Ephemeroptera	0.08
02 Generic Richness	67.00	19 EPT Generic Richness	30.00
03 Plecoptera Mean Abundance	4.00	21 Sum of Abundances: <i>Dicrotendipes</i> , <i>Micropsectra</i> , <i>Parachironomus</i> , <i>Helobdella</i>	1.38
04 Ephemeroptera Mean Abundance	196.00	23 Relative Generic Richness- Plecoptera	0.04
05 Shannon-Wiener Generic Diversity	3.89	25 Sum of Abundances: <i>Cheumatopsyche</i> , <i>Cricotopus</i> , <i>Tanytarsus</i> , <i>Ablabesmyia</i>	394.71
06 Hilsenhoff Biotic Index	4.70	26 Sum of Abundances: <i>Acroneuria</i> , <i>Maccaffertium</i> , <i>Stenonema</i>	76.67
07 Relative Abundance - Chironomidae	0.29	28 EP Generic Richness/14	1.00
08 Relative Generic Richness Diptera	0.37	30 Presence of Class A Indicator Taxa/7	0.43
09 <i>Hydropsyche</i> Abundance	847.21		
11 <i>Cheumatopsyche</i> Abundance	302.12		
12 EPT Generic Richness/ Diptera Generic Richness	1.20		
13 Relative Abundance - Oligochaeta	0.00		
15 Perlidae Mean Abundance (Family Functional Group)	2.67		
16 Tanypodinae Mean Abundance (Family Functional Group)	107.79		
17 Chironomini Abundance (Family Functional Group)	301.26		

**Five Most Dominant Taxa**

Rank	Taxon Name	Percent
1	<i>Hydropsyche</i>	32.59
2	<i>Cheumatopsyche</i>	11.62
3	<i>Rheotanytarsus</i>	9.19
4	<i>Helicopsyche</i>	8.36
5	<i>Microtendipes</i>	5.10



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**Log Number: 2345**      Waterbody: Halfmoon Stream - Station 697      Date Retrieved: 8/4/2015

**Sample Collection and Processing Information**

Sampling Organization: BIOMONITORING UNIT      Taxonomist: MICHAEL WINNELL

**Waterbody Information - Deployment**

Temperature:                      24.9 deg C  
Dissolved Oxygen:              10.51 mg/l  
Dissolved Oxygen Saturation:  
Specific Conductance:          128.4 uS/cm  
Velocity:                          12.2 cm/s  
pH:                                  8.9  
Wetted Width:                    15 m  
Bankfull Width:                 15 m  
Depth:                              35 cm

**Waterbody Information - Retrieval**

Temperature:                      25.4 deg C  
Dissolved Oxygen:              9.54 mg/l  
Dissolved Oxygen Saturation:  
Specific Conductance:          154.8 uS/cm  
Velocity:                          3 cm/s  
pH:                                  7.99  
Wetted Width:                    12.6 m  
Bankfull Width:                 15 m  
Depth:                              34 cm

**Water Chemistry - 8/4/2015**

Nitrate+nitrite As N	0.75 mg/l	Total Phosphorus	12 ug/l
Total Kjeldahl Nitrogen	0.3 mg/l	Total Suspended Solids	<2 mg/l
Dissolved Organic Carbon	1.3 mg/l	Total Dissolved Solids	92 mg/l
Orthophosphate As Phosphorus	1 ug/l		

**Summary of Habitat Characteristics**

<u>Landuse Name</u>	<u>Canopy Cover</u>	<u>Terrain</u>	
Pasture	Open	Rolling	
Upland Hardwood			
<u>Potential Stressor</u>	<u>Location</u>	<u>Substrate</u>	
Agricultural Runoff	Above Road Crossing	Bedrock	5 %
	Below Agriculture NPS	Boulder	35 %
		Gravel	10 %
		Rubble/Cobble	40 %
		Sand	10 %

**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

**Sample Comments**

7/6/2015 - 127.5% DO. FISH AND FILAMENTOUS ALGAE PRESENT.  
8/4/2015 - 117.8% DO.



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Subsample Factor: X4

Replicates: 3

Calculated: 12/8/2015

Taxon	Maine Taxonomic Code	Count (Mean of Samplers)		Hilsenhoff Biotic Index	Functional Feeding Group	Relative Abundance	
		Actual	Adjusted			Actual	Adjusted
<i>Hydra</i>	02010101001	6.67	6.67		PR	0.3	0.3
Rhabditophora	0301	4.00	4.00		--	0.2	0.2
<i>Girardia</i>	03010102002		18.67		--		0.7
<i>Girardia tigrina</i>	03010102002001	18.67			--	0.7	
<i>Nais</i>	08020202009		2.67		CG		0.1
<i>Nais behningi</i>	08020202009003	2.67			--	0.1	
Perlodidae	09020207	1.33	1.33		--	0.1	0.1
<i>Perlesta</i>	09020209046		1.33	5	PR		0.1
<i>Perlesta decipiens</i>	09020209046141	1.33			--	0.1	
<i>Agnatina</i>	09020209050		1.33	2	PR		0.1
<i>Agnatina capitata</i>	09020209050152	1.33		2	PR	0.1	
<i>Boyeria</i>	09020301004		2.67	2	PR		0.1
<i>Boyeria vinosa</i>	09020301004012	2.67			--	0.1	
Baetidae	09020401	1.33			--	0.1	
<i>Baetis</i>	09020401001	1.33	12.34	4	CG	0.1	0.5
<i>Baetis flavistriga</i>	09020401001004	10.67			--	0.4	
<i>Acerpenna</i>	09020401007	13.33	27.43	5	CG	0.5	1.1
<i>Acerpenna macdunnoughi</i>	09020401007001	1.33			--	0.1	
<i>Acerpenna pygmaea</i>	09020401007011	12.00			--	0.5	
<i>Procloeon</i>	09020401010	5.33	5.49		CG	0.2	0.2
<i>Plauditus</i>	09020401012	1.33	1.37		CG	0.1	0.1
<i>Iswaeon</i>	09020401015		1.37		--		0.1
<i>Iswaeon anoka</i>	09020401015001	1.33			--	0.1	
Heptageniidae	09020402	56.00			--	2.2	
<i>Stenacron</i>	09020402014	6.67	16.67	7	SC	0.3	0.6
<i>Maccaffertium</i>	09020402015	21.33	76.67	4	SC	0.8	2.9
<i>Maccaffertium luteum</i>	09020402015049	9.33			--	0.4	
Leptophlebiidae	09020406	2.67	2.67		--	0.1	0.1
<i>Ephemerella</i>	09020410035	36.00	36.00	1	CG	1.4	1.4
<i>Serratella</i>	09020410037		1.33	2	CG		0.1
<i>Serratella serratoides</i>	09020410037124	1.33			--	0.1	
<i>Tricorythodes</i>	09020411038	14.67	14.67	4	CG	0.6	0.6
<i>Chimarra</i>	09020601003	4.00	4.00	2	CF	0.2	0.2
Polycentropodidae	09020603	1.33			--	0.1	
<i>Cernotina</i>	09020603006	32.00	32.71		PR	1.2	1.3
<i>Nyctiophylax</i>	09020603009		1.36	5	PR		0.1
<i>Nyctiophylax moestus</i>	09020603009013	1.33			--	0.1	
<i>Polycentropus</i>	09020603010	26.67	27.26	6	PR	1.0	1.0



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Taxon	Maine Taxonomic Code	Count (Mean of Samplers)		Hilsenhoff Biotic Index	Functional Feeding Group	Relative Abundance	
		Actual	Adjusted			Actual	Adjusted
Hydropsychidae	09020604	190.67			--	7.3	
<i>Cheumatopsyche</i>	09020604015	252.00	302.12	5	CF	9.7	11.6
<i>Hydropsyche</i>	09020604016	596.00	847.21	4	CF	22.9	32.6
<i>Hydropsyche bronta</i>	09020604016029	20.00			--	0.8	
<i>Hydropsyche morosa</i>	09020604016030	5.33			--	0.2	
<i>Hydropsyche sparna</i>	09020604016032	1.33			--	0.1	
<i>Hydropsyche placoda</i>	09020604016059	84.00			--	3.2	
<i>Rhyacophila</i>	09020605019	1.33	1.33	2	PR	0.1	0.1
<i>Glossosoma</i>	09020606020			0	SC		
Hydroptilidae	09020607				--		
<i>Hydroptila</i>	09020607026	28.00	28.00	6	P	1.1	1.1
<i>Ochrotrichia</i>	09020607027	1.33	1.33	4	P	0.1	0.1
<i>Brachycentrus</i>	09020609043		2.67	0	CF		0.1
<i>Brachycentrus appalachia</i>	09020609043096	2.67			--	0.1	
<i>Lepidostoma</i>	09020611064	2.67	2.67	1	SH	0.1	0.1
<i>Psilotreta</i>	09020614068	1.33	4.00	0	SC	0.1	0.2
<i>Psilotreta indecisa</i>	09020614068132	2.67			--	0.1	
<i>Molanna</i>	09020615069		1.33	6	SC		0.1
<i>Molanna blenda</i>	09020615069133	1.33			--	0.1	
<i>Helicopsyche</i>	09020616070		217.33	3	SC		8.4
<i>Helicopsyche borealis</i>	09020616070137	217.33			--	8.4	
Leptoceridae	09020618	24.00			--	0.9	
<i>Mystacides</i>	09020618075		15.72	4	CG		0.6
<i>Mystacides sepulchralis</i>	09020618075147	10.67			--	0.4	
<i>Oecetis</i>	09020618078	6.67	58.95	8	PR	0.3	2.3
<i>Oecetis avara</i>	09020618078153	16.00			--	0.6	
<i>Oecetis inconspicua complex</i>	09020618078156	17.33			--	0.7	
<i>Nigronia</i>	09020701003		1.33	0	PR		0.1
<i>Nigronia serricornis</i>	09020701003003	1.33			--	0.1	
<i>Antocha</i>	09021001004	2.67	2.67	3	CG	0.1	0.1
Chironomidae	09021011	26.67			--	1.0	
<i>Ablabesmyia</i>	09021011001		12.44	8	PR		0.5
<i>Ablabesmyia mallochi</i>	09021011001004	12.00			--	0.5	
<i>Conchapelopia</i>	09021011004	22.67	23.49	6	PR	0.9	0.9
<i>Labrundinia</i>	09021011008		2.76	7	PR		0.1
<i>Labrundinia pilosella</i>	09021011008022	2.67			--	0.1	
<i>Meropelopia</i>	09021011010	1.33	1.38		--	0.1	0.1
<i>Nilotanytus</i>	09021011012		13.82	6	PR		0.5



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		Actual	Adjusted			Actual	Adjusted
<i>Nilotanypus fimbriatus</i>	09021011012027	13.33			--	0.5	
<i>Paramerina</i>	09021011013		4.15		--		0.2
<i>Paramerina anomala</i>	09021011013001	4.00			--	0.2	
<i>Pentaneura</i>	09021011014		5.53	6	PR		0.2
<i>Pentaneura inconspicua</i>	09021011014028	5.33			--	0.2	
<i>Procladius</i>	09021011015	1.33	1.38	9	PR	0.1	0.1
<i>Rheopelopia</i>	09021011017	17.33	42.84		PR	0.7	1.6
<i>Rheopelopia acra group</i>	09021011017036	24.00			--	0.9	
<i>Potthastia</i>	09021011026		1.38	2	CG		0.1
<i>Potthastia gaedii</i>	09021011026045	1.33			--	0.1	
<i>Corynoneura</i>	09021011036	1.33	1.38	7	CG	0.1	0.1
<i>Cricotopus</i>	09021011037		41.46	7	SH		1.6
<i>Cricotopus bicinctus</i>	09021011037057	30.67			--	1.2	
<i>Cricotopus vierriensis</i>	09021011037071	9.33			--	0.4	
<i>Nanocladius</i>	09021011049	8.00	9.67	3	CG	0.3	0.4
<i>Nanocladius spiniplenus</i>	09021011049090	1.33			--	0.1	
<i>Tvetenia</i>	09021011065		9.67	5	CG		0.4
<i>Tvetenia vitracies</i>	09021011065113	9.33			--	0.4	
<i>Rheotanytarsus</i>	09021011072		239.07	6	CF		9.2
<i>Rheotanytarsus exiguus group</i>	09021011072127	222.67			CF	8.6	
<i>Rheotanytarsus pellucidus</i>	09021011072128	8.00			CF	0.3	
<i>Stempellinella</i>	09021011074		6.91	2	--		0.3
<i>Stempellinella fimbriata</i>	09021011074002	6.67			--	0.3	
<i>Sublettea</i>	09021011075		1.38		--		0.1
<i>Sublettea coffmani</i>	09021011075131	1.33			--	0.1	
<i>Tanytarsus</i>	09021011076	5.33	38.69	6	CF	0.2	1.5
<i>Tanytarsus buckleyi</i>	09021011076139	32.00			CF	1.2	
<i>Dicrotendipes</i>	09021011085		1.38	8	CG		0.1
<i>Dicrotendipes neomodestus</i>	09021011085152	1.33			--	0.1	
<i>Microtendipes</i>	09021011094		132.66	6	CF		5.1
<i>Microtendipes pedellus group</i>	09021011094166	14.67			--	0.6	
<i>Microtendipes rydalensis group</i>	09021011094168	113.33			--	4.4	
<i>Nilothauma</i>	09021011095	28.00	29.02	2	--	1.1	1.1
<i>Paratendipes</i>	09021011100		5.53	8	CG		0.2
<i>Paratendipes albimanus group</i>	09021011100176	5.33			--	0.2	
<i>Phaenopsectra</i>	09021011101		40.08	7	SC		1.5
<i>Phaenopsectra flavipes</i>	09021011101179	5.33			SC	0.2	
<i>Phaenopsectra obediens</i>	09021011101182	33.33			SC	1.3	



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Subsample Factor: X4

Replicates: 3

Calculated: 12/8/2015

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		Actual	Adjusted			Actual	Adjusted
<i>Polypedilum</i>	09021011102		92.59	6	SH		3.6
<i>Polypedilum aviceps</i>	09021011102181	29.33			--	1.1	
<i>Polypedilum flavum</i>	09021011102182	21.33			--	0.8	
<i>Polypedilum scalaenum group</i>	09021011102189	33.33			--	1.3	
<i>Polypedilum albicorne</i>	09021011102195	5.33			--	0.2	
<i>Dineutus</i>	09021104032	6.67	6.67	2	--	0.3	0.3
<i>Dubiraphia</i>	09021113064		1.33	6	--		0.1
<i>Dubiraphia minima</i>	09021113064036	1.33			--	0.1	
<i>Promoresia</i>	09021113069		6.67		--		0.3
<i>Promoresia tardella</i>	09021113069052	6.67			--	0.3	
<i>Stenelmis</i>	09021113070	9.33	34.67	5	SC	0.4	1.3
<i>Stenelmis crenata</i>	09021113070055	25.33			--	1.0	
Acariformes	090301	1.33	1.33		--	0.1	0.1
<i>Sperchon</i>	09030107001	1.33	1.33		--	0.1	0.1
Sphaeriidae	10020201	1.33	1.33		CF	0.1	0.1
<i>Pisidium</i>	10020201002	1.33	1.33		CF	0.1	0.1