



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

Station Information

| | |
|--|---------------------------|
| Station Number: 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

| | | |
|-------------------------|--------------------------|--------------------------|
| Log Number: 2551 | Type of Sample: ROCK BAG | Date Deployed: 7/6/2017 |
| Subsample Factor: X8 | Replicates: 3 | Date Retrieved: 8/2/2017 |

Classification Attainment

| | | |
|------------------------------------|--|-----------------|
| Statutory Class: A | Final Determination: B | Date: 11/6/2017 |
| Model Result with $P \geq 0.6$: B | Reason for Determination: Model | |
| Date Last Calculated: 11/6/2017 | Comments: | |

Model Probabilities

| | | | |
|---------------------------|------|--------------------------------|------|
| <u>First Stage Model</u> | | <u>C or Better Model</u> | |
| Class A | 0.07 | Class A, B, or C | 1.00 |
| Class B | 0.74 | Non-Attainment | 0.00 |
| <u>B or Better Model</u> | | <u>A Model</u> | |
| Class A or B | 0.93 | Class A | 0.06 |
| Class C or Non-Attainment | 0.07 | Class B or C or Non-Attainment | 0.94 |

Model Variables

| | | | |
|--|---------|---|---------|
| 01 Total Mean Abundance | 3258.67 | 18 Relative Abundance Ephemeroptera | 0.08 |
| 02 Generic Richness | 47.00 | 19 EPT Generic Richness | 21.00 |
| 03 Plecoptera Mean Abundance | 2.67 | 21 Sum of Abundances: <i>Dicrotendipes</i> , <i>Micropsectra</i> , <i>Parachironomus</i> , <i>Helobdella</i> | 5.35 |
| 04 Ephemeroptera Mean Abundance | 264.00 | 23 Relative Generic Richness- Plecoptera | 0.02 |
| 05 Shannon-Wiener Generic Diversity | 3.35 | 25 Sum of Abundances: <i>Cheumatopsyche</i> , <i>Cricotopus</i> , <i>Tanytarsus</i> , <i>Ablabesmyia</i> | 1720.55 |
| 06 Hilsenhoff Biotic Index | 5.13 | 26 Sum of Abundances: <i>Acroneuria</i> , <i>Maccaffertium</i> , <i>Stenonema</i> | 133.33 |
| 07 Relative Abundance - Chironomidae | 0.30 | 28 EP Generic Richness/14 | 0.86 |
| 08 Relative Generic Richness Diptera | 0.38 | 30 Presence of Class A Indicator Taxa/7 | 0.29 |
| 09 <i>Hydropsyche</i> Abundance | 80.00 | | |
| 11 <i>Cheumatopsyche</i> Abundance | 1514.67 | | |
| 12 EPT Generic Richness/ Diptera Generic Richness | 1.17 | | |
| 13 Relative Abundance - Oligochaeta | 0.00 | | |
| 15 Perlidae Mean Abundance (Family Functional Group) | 0.00 | | |
| 16 Tanypodinae Mean Abundance (Family Functional Group) | 104.28 | | |
| 17 Chironomini Abundance (Family Functional Group) | 398.40 | | |

Five Most Dominant Taxa

| Rank | Taxon Name | Percent |
|------|-----------------------|---------|
| 1 | <i>Cheumatopsyche</i> | 46.48 |
| 2 | <i>Microtendipes</i> | 5.99 |
| 3 | <i>Polypedilum</i> | 5.91 |
| 4 | <i>Rheotanytarsus</i> | 5.09 |
| 5 | <i>Cricotopus</i> | 4.84 |



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Station Number: S-697 Town: Thorndike Date Deployed: 7/6/2017
Log Number: 2551 Waterbody: Halfmoon Stream - Station 697 Date Retrieved: 8/2/2017

Sample Collection and Processing Information

Sampling Organization: BIOMONITORING UNIT Taxonomist: MICHAEL COLE

Waterbody Information - Deployment

Temperature: 19.2 deg C
Dissolved Oxygen: 10.67 mg/l
Dissolved Oxygen Saturation: 114.4 %
Specific Conductance: 125.3 uS/cm
Velocity: 33.5 cm/s
pH: 7.65
Wetted Width: 7.9 m
Bankfull Width: 20 m
Depth: 30 cm

Waterbody Information - Retrieval

Temperature: 21.4 deg C
Dissolved Oxygen: 10.02 mg/l
Dissolved Oxygen Saturation: 112.2 %
Specific Conductance: 150.6 uS/cm
Velocity: 18.288 cm/s
pH: 7.74
Wetted Width: 6.7 m
Bankfull Width: 20 m
Depth: 23 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 |

Sample Comments

7/6/17: LOTS OF FISH, TADPOLES OBSERVED. WATER LEVEL LOW.
8/2/17: FISH PRESENT, SILT, LOW WATER.



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Waterbody: Halfmoon Stream - Station 697

Town: Thorndike

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Subsample Factor: X8

Replicates: 3

Calculated: 11/6/2017

| Taxon | Maine Taxonomic Code | Count (Mean of Samplers) | | Hilsenhoff Biotic Index | Functional Feeding Group | Relative Abundance % | |
|---|----------------------|-----------------------------|----------|-------------------------|--------------------------|----------------------|----------|
| | | Actual | Adjusted | | | Actual | Adjusted |
| <i>Girardia</i> | 03010102002 | 72.00 | 72.00 | | -- | 2.2 | 2.2 |
| <i>Leuctra</i> | 09020204020 | 2.67 | 2.67 | 0 | SH | 0.1 | 0.1 |
| <i>Baetis</i> | 09020401001 | 8.00 | 45.33 | 4 | CG | 0.2 | 1.4 |
| <i>Baetis flavistriga</i> | 09020401001004 | 13.33 | | | -- | 0.4 | |
| <i>Baetis intercalaris</i> | 09020401001008 | 13.33 | | | -- | 0.4 | |
| <i>Baetis pluto</i> | 09020401001009 | 10.67 | | | -- | 0.3 | |
| <i>Acerpenna</i> | 09020401007 | 5.33 | 5.33 | 5 | CG | 0.2 | 0.2 |
| <i>Dipheter</i> | 09020401013 | | 2.67 | | -- | | 0.1 |
| <i>Dipheter hageni</i> | 09020401013001 | 2.67 | | | -- | 0.1 | |
| <i>Epeorus</i> | 09020402009 | | 8.00 | 0 | SC | | 0.2 |
| <i>Epeorus vitreus</i> | 09020402009033 | 8.00 | | | -- | 0.2 | |
| <i>Stenacron</i> | 09020402014 | | 8.00 | 7 | SC | | 0.2 |
| <i>Stenacron interpunctatum</i> | 09020402014045 | 8.00 | | | -- | 0.2 | |
| <i>Maccaffertium</i> | 09020402015 | 90.67 | 133.33 | 4 | SC | 2.8 | 4.1 |
| <i>Maccaffertium vicarium</i> | 09020402015055 | 42.67 | | | -- | 1.3 | |
| <i>Isonychia</i> | 09020404018 | | 8.00 | 2 | CF | | 0.2 |
| <i>Isonychia bicolor</i> | 09020404018059 | 8.00 | | | -- | 0.2 | |
| Leptophlebiidae | 09020406 | 2.67 | 2.67 | | -- | 0.1 | 0.1 |
| <i>Ephemerella</i> | 09020410035 | 18.67 | 18.67 | 1 | CG | 0.6 | 0.6 |
| <i>Serratella</i> | 09020410037 | | 2.67 | 2 | CG | | 0.1 |
| <i>Serratella serratoides</i> | 09020410037124 | 2.67 | | | -- | 0.1 | |
| <i>Tricorythodes</i> | 09020411038 | 29.33 | 29.33 | 4 | CG | 0.9 | 0.9 |
| <i>Polycentropus</i> | 09020603010 | 48.00 | 48.00 | 6 | PR | 1.5 | 1.5 |
| <i>Cheumatopsyche</i> | 09020604015 | 1514.67 | 1514.67 | 5 | CF | 46.5 | 46.5 |
| <i>Hydropsyche</i> | 09020604016 | | 80.00 | 4 | CF | | 2.5 |
| <i>Hydropsyche bronta</i> | 09020604016029 | 21.33 | | | -- | 0.7 | |
| <i>Hydropsyche morosa</i> | 09020604016030 | 16.00 | | | -- | 0.5 | |
| <i>Hydropsyche sparna</i> | 09020604016032 | 8.00 | | | -- | 0.2 | |
| <i>Hydropsyche scalaris species group</i> | 09020604016048 | 34.67 | | | -- | 1.1 | |
| <i>Rhyacophila</i> | 09020605019 | 2.67 | 2.67 | 2 | PR | 0.1 | 0.1 |
| <i>Hydroptila</i> | 09020607026 | 82.67 | 82.67 | 6 | P | 2.5 | 2.5 |
| <i>Brachycentrus</i> | 09020609043 | | 8.00 | 0 | CF | | 0.2 |
| <i>Brachycentrus appalachia</i> | 09020609043096 | 8.00 | | | -- | 0.2 | |
| <i>Helicopsyche</i> | 09020616070 | 64.00 | 64.00 | 3 | SC | 2.0 | 2.0 |
| <i>Mystacides</i> | 09020618075 | | 5.33 | 4 | CG | | 0.2 |
| <i>Mystacides sepulchralis</i> | 09020618075147 | 5.33 | | | -- | 0.2 | |
| <i>Oecetis</i> | 09020618078 | 32.00 | 32.00 | 8 | PR | 1.0 | 1.0 |



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Replicates: 3

Calculated: 11/6/2017

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|---|----------------------|-----------------------------|----------|-------------------------|--------------------------|----------------------|----------|
| | | Actual | Adjusted | | | Actual | Adjusted |
| Chironomidae | 09021011 | 2.67 | | | -- | 0.1 | |
| <i>Ablabesmyia</i> | 09021011001 | 26.67 | 26.74 | 8 | PR | 0.8 | 0.8 |
| <i>Nilotanytus</i> | 09021011012 | | 2.67 | 6 | PR | | 0.1 |
| <i>Nilotanytus fimbriatus</i> | 09021011012027 | 2.67 | | | -- | 0.1 | |
| <i>Thienemannimyia</i> | 09021011020 | | 74.87 | 3 | PR | | 2.3 |
| <i>Thienemannimyia group</i> | 09021011020041 | 74.67 | | | -- | 2.3 | |
| <i>Cricotopus</i> | 09021011037 | 48.00 | 157.76 | 7 | SH | 1.5 | 4.8 |
| <i>Cricotopus bicinctus</i> | 09021011037057 | 109.33 | | | -- | 3.4 | |
| <i>Orthocladius</i> | 09021011050 | | 10.70 | 6 | CG | | 0.3 |
| <i>Orthocladius dubitatus</i> | 09021011050103 | 10.67 | | | -- | 0.3 | |
| <i>Psectrocladius</i> | 09021011056 | 2.67 | 2.67 | 8 | CG | 0.1 | 0.1 |
| <i>Synorthocladius</i> | 09021011061 | 5.33 | 5.35 | 2 | CG | 0.2 | 0.2 |
| <i>Tvetenia</i> | 09021011065 | | 120.32 | 5 | CG | | 3.7 |
| <i>Tvetenia vitracies</i> | 09021011065113 | 120.00 | | | -- | 3.7 | |
| <i>Rheotanytarsus</i> | 09021011072 | | 165.78 | 6 | CF | | 5.1 |
| <i>Rheotanytarsus exiguus group</i> | 09021011072127 | 165.33 | | | CF | 5.1 | |
| <i>Stempellinella</i> | 09021011074 | 2.67 | 2.67 | 2 | -- | 0.1 | 0.1 |
| <i>Sublettea</i> | 09021011075 | | 2.67 | | -- | | 0.1 |
| <i>Sublettea coffmani</i> | 09021011075131 | 2.67 | | | -- | 0.1 | |
| <i>Tanytarsus</i> | 09021011076 | 21.33 | 21.39 | 6 | CF | 0.7 | 0.7 |
| <i>Dicrotendipes</i> | 09021011085 | 5.33 | 5.35 | 8 | CG | 0.2 | 0.2 |
| <i>Microtendipes</i> | 09021011094 | | 195.19 | 6 | CF | | 6.0 |
| <i>Microtendipes pedellus group</i> | 09021011094166 | 88.00 | | | -- | 2.7 | |
| <i>Microtendipes rydalisensis group</i> | 09021011094168 | 106.67 | | | -- | 3.3 | |
| <i>Polypedilum</i> | 09021011102 | | 192.52 | 6 | SH | | 5.9 |
| <i>Polypedilum aviceps</i> | 09021011102181 | 192.00 | | | -- | 5.9 | |
| <i>Tribelos</i> | 09021011107 | 5.33 | 5.35 | 5 | CG | 0.2 | 0.2 |
| <i>Atherix</i> | 09021015055 | 5.33 | 5.33 | 2 | PR | 0.2 | 0.2 |
| <i>Hemerodromia</i> | 09021016057 | 2.67 | 2.67 | 3 | PR | 0.1 | 0.1 |
| <i>Dineutus</i> | 09021104032 | 5.33 | 5.33 | 2 | -- | 0.2 | 0.2 |
| <i>Psephenus</i> | 09021108058 | | 5.33 | 4 | SC | | 0.2 |
| <i>Psephenus herricki</i> | 09021108058028 | 5.33 | | | -- | 0.2 | |
| <i>Dubiraphia</i> | 09021113064 | 13.33 | 13.33 | 6 | -- | 0.4 | 0.4 |
| <i>Microcyloepus</i> | 09021113066 | | 2.67 | 3 | -- | | 0.1 |
| <i>Microcyloepus pusillus</i> | 09021113066041 | 2.67 | | | -- | 0.1 | |
| <i>Optioservus</i> | 09021113067 | 8.00 | 8.00 | 3 | SC | 0.2 | 0.2 |
| <i>Promoesia</i> | 09021113069 | | 16.00 | | -- | | 0.5 |
| <i>Promoesia elegans</i> | 09021113069051 | 8.00 | | | -- | 0.2 | |



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| | | Actual | Adjusted | | | Actual | Adjusted |
| <i>Promoesia tardella</i> | 09021113069052 | 8.00 | | | -- | 0.2 | |
| <i>Stenelmis</i> | 09021113070 | 5.33 | 32.00 | 5 | SC | 0.2 | 1.0 |
| <i>Stenelmis crenata</i> | 09021113070055 | 26.67 | | | -- | 0.8 | |