



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

Station Information

| | | | |
|------------------------|--|---------------|----------------|
| Station Number: | S-405 | River Basin: | Kennebec |
| Waterbody: | Kennebec River - Station 405 | HUC8 Name: | Lower Kennebec |
| Town: | Madison | Latitude: | 44 46 48.67 N |
| Directions: | (MADISON PAPER) BELOW ABENAKI POWERHOUSE - 500 M BELOW FASTEST PORTION OF TAILRACE | Longitude: | 69 53 13.95 W |
| | | Stream Order: | 5 |

Sample Information

| | | | | | |
|--------------------|-------------|-----------------|-------------|-----------------|-----------|
| Log Number: | 2581 | Type of Sample: | ROCK BASKET | Date Deployed: | 7/25/2017 |
| Subsample Factor: | X4 | Replicates: | 3 | Date Retrieved: | 8/22/2017 |

Classification Attainment

| | | | | | |
|----------------------------------|----------|----------------------------------|--------------|-------|----------|
| Statutory Class: | B | Final Determination: | A | Date: | 4/5/2018 |
| Model Result with $P \geq 0.6$: | A | Reason for Determination: | Model | | |
| Date Last Calculated: | 4/2/2018 | Comments: | | | |

Model Probabilities

| First Stage Model | | | | C or Better Model | |
|---------------------------|------|---------|------|--------------------------------|------|
| Class A | 0.78 | Class C | 0.00 | Class A, B, or C | 1.00 |
| Class B | 0.22 | NA | 0.00 | Non-Attainment | 0.00 |
| B or Better Model | | | | A Model | |
| Class A or B | | | 1.00 | Class A | 0.95 |
| Class C or Non-Attainment | | | 0.00 | Class B or C or Non-Attainment | 0.05 |

Model Variables

| | | | |
|--|--------|---|-------|
| 01 Total Mean Abundance | 405.33 | 18 Relative Abundance Ephemeroptera | 0.35 |
| 02 Generic Richness | 46.00 | 19 EPT Generic Richness | 24.00 |
| 03 Plecoptera Mean Abundance | 12.00 | 21 Sum of Abundances: <i>Dicrotendipes</i> , <i>Micropsectra</i> , <i>Parachironomus</i> , <i>Helobdella</i> | 0.00 |
| 04 Ephemeroptera Mean Abundance | 141.33 | 23 Relative Generic Richness- Plecoptera | 0.04 |
| 05 Shannon-Wiener Generic Diversity | 4.45 | 25 Sum of Abundances: <i>Cheumatopsyche</i> , <i>Cricotopus</i> , <i>Tanytarsus</i> , <i>Ablabesmyia</i> | 19.24 |
| 06 Hilsenhoff Biotic Index | 3.84 | 26 Sum of Abundances: <i>Acroneuria</i> , <i>Maccaffertium</i> , <i>Stenonema</i> | 35.32 |
| 07 Relative Abundance - Chironomidae | 0.18 | 28 EP Generic Richness/14 | 0.86 |
| 08 Relative Generic Richness Diptera | 0.24 | 30 Presence of Class A Indicator Taxa/7 | 0.14 |
| 09 <i>Hydropsyche</i> Abundance | 73.53 | | |
| 11 <i>Cheumatopsyche</i> Abundance | 11.10 | | |
| 12 EPT Generic Richness/ Diptera Generic Richness | 2.18 | | |
| 13 Relative Abundance - Oligochaeta | 0.00 | | |
| 15 Perlidae Mean Abundance (Family Functional Group) | 12.00 | | |
| 16 Tanypodinae Mean Abundance (Family Functional Group) | 4.07 | | |
| 17 Chironomini Abundance (Family Functional Group) | 25.79 | | |

Five Most Dominant Taxa

| Rank | Taxon Name | Percent |
|------|-----------------------|---------|
| 1 | <i>Hydropsyche</i> | 18.14 |
| 2 | <i>Leucrocuta</i> | 9.05 |
| 3 | <i>Rheotanytarsus</i> | 8.04 |
| 4 | <i>Isonychia</i> | 6.91 |
| 5 | <i>Baetis</i> | 6.77 |



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Station Number: S-405

Town: Madison

Date Deployed: 7/25/2017

Log Number: 2581

Waterbody: Kennebec River - Station 405

Date Retrieved: 8/22/2017

Sample Collection and Processing Information

Sampling Organization: BIOMONITORING UNIT

Taxonomist: MICHAEL WINNELL

Waterbody Information - Deployment

| | |
|------------------------------|------------|
| Temperature: | 20.9 deg C |
| Dissolved Oxygen: | 10.02 mg/l |
| Dissolved Oxygen Saturation: | 110.8 % |
| Specific Conductance: | 33.3 uS/cm |
| Velocity: | 76.2 cm/s |
| pH: | 7.52 |
| Wetted Width: | 164 m |
| Bankfull Width: | 164 m |
| Depth: | 73 cm |

Waterbody Information - Retrieval

| | |
|------------------------------|------------|
| Temperature: | 22 deg C |
| Dissolved Oxygen: | 9.93 mg/l |
| Dissolved Oxygen Saturation: | 112.8 % |
| Specific Conductance: | 36.9 uS/cm |
| Velocity: | 24.4 cm/s |
| pH: | 6.84 |
| Wetted Width: | 163 m |
| Bankfull Width: | 164 m |
| Depth: | 52 cm |

Water Chemistry

Summary of Habitat Characteristics

| | | |
|---------------------------|---------------------|--------------------|
| <u>Landuse Name</u> | <u>Canopy Cover</u> | <u>Terrain</u> |
| Upland Conifer | Open | Rolling |
| Upland Hardwood | | |
| <u>Potential Stressor</u> | <u>Location</u> | <u>Substrate</u> |
| Regulated Flows | Below Dam | Boulder 5 % |
| | Below Point Source | Gravel 20 % |
| | | Rubble/Cobble 65 % |
| | | Sand 10 % |

Landcover Summary - 2004 Data

Sample Comments

7/25/17: WATER LEVEL IS VERY HIGH.

8/22/17: FISH, OSPREY PRESENT. WATER LEVEL DOWN FROM DEPLOYMENT.



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Aquatic Life Taxonomic Inventory Report**

Station Number: S-405

Waterbody: Kennebec River - Station 405

Town: Madison

Log Number: 2581

Subsample Factor: X4

Replicates: 3

Calculated: 4/2/2018

| Taxon | Maine Taxonomic Code | Count (Mean of Samplers) | | Hilsenhoff Biotic Index | Functional Feeding Group | Relative Abundance % | |
|-------------------------------|----------------------------|-----------------------------|----------|-------------------------------|--------------------------------|-------------------------|----------|
| | | Actual | Adjusted | | | Actual | Adjusted |
| <i>Hyalella</i> | 09010203006 | 1.33 | 1.33 | 8 | CG | 0.3 | 0.3 |
| <i>Orconectes</i> | 09010301008 | | 1.33 | | CG | | 0.3 |
| <i>Orconectes limosus</i> | 09010301008013 | 1.33 | | | -- | 0.3 | |
| Entomobryidae | 09020103 | 1.33 | 1.33 | | -- | 0.3 | 0.3 |
| <i>Acroneuria</i> | 09020209042 | 5.33 | 9.33 | 0 | PR | 1.3 | 2.3 |
| <i>Acroneuria lycorias</i> | 09020209042125 | 4.00 | | | -- | 1.0 | |
| <i>Perlesta</i> | 09020209046 | 2.67 | 2.67 | 5 | PR | 0.7 | 0.7 |
| <i>Boyeria</i> | 09020301004 | | 4.00 | 2 | PR | | 1.0 |
| <i>Boyeria vinosa</i> | 09020301004012 | 4.00 | | | -- | 1.0 | |
| <i>Calopteryx</i> | 09020307043 | | 1.33 | 5 | PR | | 0.3 |
| <i>Calopteryx maculata</i> | 09020307043088 | 1.33 | | | -- | 0.3 | |
| Baetidae | 09020401 | 1.33 | | | -- | 0.3 | |
| <i>Baetis</i> | 09020401001 | 4.00 | 27.43 | 4 | CG | 1.0 | 6.8 |
| <i>Baetis intercalaris</i> | 09020401001008 | 22.67 | | | -- | 5.6 | |
| <i>Acerpenna</i> | 09020401007 | | 12.34 | 5 | CG | | 3.0 |
| <i>Acerpenna pygmaea</i> | 09020401007011 | 12.00 | | | -- | 3.0 | |
| <i>Labiobaetis</i> | 09020401009 | | 1.37 | | -- | | 0.3 |
| <i>Labiobaetis propinquus</i> | 09020401009010 | 1.33 | | | -- | 0.3 | |
| <i>Procloeon</i> | 09020401010 | 2.67 | 2.74 | | CG | 0.7 | 0.7 |
| <i>Plauditus</i> | 09020401012 | 4.00 | 4.11 | | CG | 1.0 | 1.0 |
| Heptageniidae | 09020402 | 8.00 | | | -- | 2.0 | |
| <i>Leucrocuta</i> | 09020402011 | 32.00 | 36.68 | 1 | SC | 7.9 | 9.1 |
| <i>Maccaffertium</i> | 09020402015 | 22.67 | 25.98 | 4 | SC | 5.6 | 6.4 |
| <i>Isonychia</i> | 09020404018 | 28.00 | 28.00 | 2 | CF | 6.9 | 6.9 |
| <i>Drunella</i> | 09020410034 | | 1.33 | 0 | SC | | 0.3 |
| <i>Drunella tuberculata</i> | 09020410034101 | 1.33 | | | -- | 0.3 | |
| <i>Ephemerella</i> | 09020410035 | 1.33 | 1.33 | 1 | CG | 0.3 | 0.3 |
| <i>Chimarra</i> | 09020601003 | | 13.33 | 2 | CF | | 3.3 |
| <i>Chimarra aterrima</i> | 09020601003002 | 2.67 | | | -- | 0.7 | |
| <i>Chimarra obscura</i> | 09020601003003 | 8.00 | | | -- | 2.0 | |
| <i>Chimarra socia</i> | 09020601003004 | 2.67 | | | -- | 0.7 | |
| <i>Cernotina</i> | 09020603006 | 8.00 | 8.00 | | PR | 2.0 | 2.0 |
| <i>Neureclipsis</i> | 09020603008 | 8.00 | 8.00 | 7 | CF | 2.0 | 2.0 |
| <i>Polycentropus</i> | 09020603010 | 2.67 | 2.67 | 6 | PR | 0.7 | 0.7 |
| Hydropsychidae | 09020604 | 4.00 | | | -- | 1.0 | |
| <i>Cheumatopsyche</i> | 09020604015 | 10.67 | 11.10 | 5 | CF | 2.6 | 2.7 |
| <i>Hydropsyche</i> | 09020604016 | 53.33 | 73.53 | 4 | CF | 13.2 | 18.1 |



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| | | Calculated: 4/2/2018 |

| Taxon | Maine Taxonomic Code | Count (Mean of Samplers) | | Hilsenhoff Biotic Index | Functional Feeding Group | Relative Abundance % | |
|---------------------------------------|----------------------------|-----------------------------|----------|-------------------------------|--------------------------------|-------------------------|----------|
| | | Actual | Adjusted | | | Actual | Adjusted |
| <i>Hydropsyche morosa</i> | 09020604016030 | 2.67 | | | -- | 0.7 | |
| <i>Hydropsyche sparna</i> | 09020604016032 | 12.00 | | | -- | 3.0 | |
| <i>Hydropsyche placoda</i> | 09020604016059 | 2.67 | | | -- | 0.7 | |
| <i>Macrostemum</i> | 09020604018 | | 18.04 | 3 | CF | | 4.4 |
| <i>Macrostemum zebratum</i> | 09020604018054 | 17.33 | | | -- | 4.3 | |
| <i>Rhyacophila</i> | 09020605019 | | 6.67 | 2 | PR | | 1.6 |
| <i>Rhyacophila minora</i> | 09020605019063 | 6.67 | | | PR | 1.6 | |
| <i>Protoptila</i> | 09020606022 | 1.33 | 1.33 | 1 | SC | 0.3 | 0.3 |
| <i>Hydroptila</i> | 09020607026 | 4.00 | 4.00 | 6 | P | 1.0 | 1.0 |
| <i>Limnephilus</i> | 09020610055 | 1.33 | 1.33 | 3 | SH | 0.3 | 0.3 |
| <i>Oecetis</i> | 09020618078 | 1.33 | 1.33 | 8 | PR | 0.3 | 0.3 |
| <i>Nigronia</i> | 09020701003 | | 1.33 | 0 | PR | | 0.3 |
| <i>Nigronia serricornis</i> | 09020701003003 | 1.33 | | | -- | 0.3 | |
| Chironomidae | 09021011 | 1.33 | | | -- | 0.3 | |
| <i>Pentaneura</i> | 09021011014 | | 1.36 | 6 | PR | | 0.3 |
| <i>Pentaneura inconspicua</i> | 09021011014028 | 1.33 | | | -- | 0.3 | |
| <i>Rheopelopia</i> | 09021011017 | | 1.36 | | PR | | 0.3 |
| <i>Rheopelopia acra group</i> | 09021011017036 | 1.33 | | | -- | 0.3 | |
| <i>Thienemannimyia</i> | 09021011020 | | 1.36 | 3 | PR | | 0.3 |
| <i>Thienemannimyia senata</i> | 09021011020040 | 1.33 | | | -- | 0.3 | |
| <i>Cricotopus</i> | 09021011037 | | 8.15 | 7 | SH | | 2.0 |
| <i>Cricotopus bicinctus</i> | 09021011037057 | 4.00 | | | -- | 1.0 | |
| <i>Cricotopus vierriensis</i> | 09021011037071 | 4.00 | | | -- | 1.0 | |
| <i>Nanocladius</i> | 09021011049 | | 1.36 | 3 | CG | | 0.3 |
| <i>Nanocladius downesi</i> | 09021011049092 | 1.33 | | | -- | 0.3 | |
| <i>Tvetenia</i> | 09021011065 | | 2.72 | 5 | CG | | 0.7 |
| <i>Tvetenia vitracies</i> | 09021011065113 | 1.33 | | | -- | 0.3 | |
| <i>Tvetenia paucunca</i> | 09021011065114 | 1.33 | | | -- | 0.3 | |
| <i>Rheotanytarsus</i> | 09021011072 | | 32.58 | 6 | CF | | 8.0 |
| <i>Rheotanytarsus exiguus group</i> | 09021011072127 | 28.00 | | | CF | 6.9 | |
| <i>Rheotanytarsus pellucidus</i> | 09021011072128 | 4.00 | | | CF | 1.0 | |
| <i>Microtendipes</i> | 09021011094 | | 1.36 | 6 | CF | | 0.3 |
| <i>Microtendipes rydalensis group</i> | 09021011094168 | 1.33 | | | -- | 0.3 | |
| <i>Phaenopsectra</i> | 09021011101 | | 2.72 | 7 | SC | | 0.7 |
| <i>Phaenopsectra obediens</i> | 09021011101182 | 2.67 | | | SC | 0.7 | |
| <i>Polypedilum</i> | 09021011102 | | 21.72 | 6 | SH | | 5.4 |
| <i>Polypedilum aviceps</i> | 09021011102181 | 1.33 | | | -- | 0.3 | |
| <i>Polypedilum flavum</i> | 09021011102182 | 20.00 | | | -- | 4.9 | |



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|---------------------------------|----------------------------|-----------------------------|----------|-------------------------------|--------------------------------|-------------------------|----------|
| | | Actual | Adjusted | | | Actual | Adjusted |
| <i>Simulium</i> | 09021012047 | | 1.33 | 4 | CF | | 0.3 |
| <i>Simulium jenningsi</i> group | 09021012047070 | 1.33 | | | CF | 0.3 | |
| <i>Psephenus</i> | 09021108058 | | 1.33 | 4 | SC | | 0.3 |
| <i>Psephenus herricki</i> | 09021108058028 | 1.33 | | | -- | 0.3 | |
| <i>Macronychus</i> | 09021113065 | | 2.67 | 4 | -- | | 0.7 |
| <i>Macronychus glabratus</i> | 09021113065040 | 2.67 | | | -- | 0.7 | |
| <i>Promoresia</i> | 09021113069 | | 5.33 | | -- | | 1.3 |
| <i>Promoresia elegans</i> | 09021113069051 | 4.00 | | | -- | 1.0 | |
| <i>Promoresia tardella</i> | 09021113069052 | 1.33 | | | -- | 0.3 | |
| <i>Stenelmis</i> | 09021113070 | 2.67 | 5.33 | 5 | SC | 0.7 | 1.3 |
| <i>Stenelmis musgravei</i> | 09021113070060 | 2.67 | | | -- | 0.7 | |
| <i>Physa</i> | 10010202027 | 1.33 | 1.33 | | SC | 0.3 | 0.3 |