



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

**Station Information**

|                              |                   |              |                |
|------------------------------|-------------------|--------------|----------------|
| <b>Station Number:</b> W-244 | Trip ID: 2012-244 | River Basin: | Kennebec       |
| Waterbody:                   | APPLE VALLEY LAKE | HUC8 Name:   | Lower Kennebec |
| Town:                        | Winthrop          | Latitude:    | 44 17 41.15 N  |
| Mitigation Monitoring Site:  | No                | Longitude:   | 70 1 13.76 W   |

**Sample Information**

|                               |                        |                        |                    |
|-------------------------------|------------------------|------------------------|--------------------|
| <b>Sample ID:</b> DN-2012-244 | Type of Sample: DIPNET | Sampling Organization: | BIOMONITORING UNIT |
| Date Sampled: 6/20/2012       | Replicates: 3          | Taxonomist:            | LOTIC INC.         |
| Subsample Factor:             | X1                     |                        |                    |

**Classification Attainment**

|                                  |            |                                  |                                    |                 |
|----------------------------------|------------|----------------------------------|------------------------------------|-----------------|
| <b>Statutory Class:</b>          | <b>GPA</b> | <b>Final Determination:</b>      | <b>A</b>                           | Date: 7/23/2019 |
| Model Result with $P \geq 0.6$ : | B          | <b>Reason for Determination:</b> | <b>Best Professional Judgement</b> |                 |
| Date Last Calculated:            | 12/20/2018 | Comments:                        |                                    |                 |

**Model Probabilities**

| <u>First Stage Model</u>  |               | <u>C or Better Model</u>       |      |
|---------------------------|---------------|--------------------------------|------|
| Class A: 0.54             | Class C: 0.02 | Class A, B, or C               | 1.00 |
| Class B: 0.44             | 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                        | 0.54 |
| Class C or Non-Attainment | 0.02          | Class B or C or Non-Attainment | 0.46 |

**Model Variables**

|                                                                               |        | Reference Range<br>(10th or 90th percentile value) |
|-------------------------------------------------------------------------------|--------|----------------------------------------------------|
| Abundance of Taxa in the Order Ephemeroptera                                  | 12.667 | $\geq 0.000$                                       |
| Relative Richness of Taxa in the Orders Ephemeroptera, Odonata and Tricoptera | 0.192  | $\geq 0.140$                                       |
| Shannon-Wiener Diversity Index                                                | 3.566  | $\geq 2.497$                                       |
| Relative Abundance of Collector-Gatherer Taxa                                 | 0.635  | $\geq 0.131$                                       |
| Abundance of Sensitive Taxa                                                   | 50.667 | $\geq 3.424$                                       |
| Richness of Sensitive Taxa                                                    | 11.000 | $\geq 3.000$                                       |
| Maine Tolerance Index Score For Wetland Macroinvertebrates                    | 26.316 | $\leq 29.776$                                      |
| Ratio of MTI Sensitive to Eurytopic Taxa Abundance                            | 2.576  | $\geq 0.334$                                       |

**Other Variables**

|                          |      |
|--------------------------|------|
| Total Mean Abundance     | 456  |
| Generic Richness:        | 52   |
| Hilsenhoff Biotic Index: | 7.79 |

**Five Most Dominant Taxa**

| Rank | Taxon Name              | Percent |
|------|-------------------------|---------|
| 1    | <i>Hyalella</i>         | 42.87   |
| 2    | <i>Chironomus</i>       | 8.05    |
| 3    | <i>Ablabesmyia</i>      | 6.51    |
| 4    | <i>Psectrocladius</i>   | 5.12    |
| 5    | <i>Bezzia/palpomyia</i> | 4.97    |



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**Surface Water Chemistry**

**Sample Date:** 6/20/2012 9:15:00 AM

| Collection Method | Parameter                                             | Value  | Units    | Qualifier |
|-------------------|-------------------------------------------------------|--------|----------|-----------|
| Grab Sample       | Chloride                                              | 1      | mg/l     |           |
| Grab Sample       | Chlorophyll A                                         | 0.0033 | mg/l     |           |
| Grab Sample       | Chlorophyll A - Phaeophytin                           | 0.0036 | mg/l     |           |
| Grab Sample       | Dissolved Organic Carbon                              | 3.4    | mg/l     |           |
| Grab Sample       | Nitrate + Nitrite As Nitrogen                         |        | mg/l     | U         |
| Grab Sample       | Orthophosphate As Phosphorus                          | 3      | ug/l     |           |
| Grab Sample       | pH                                                    | 7.2    |          |           |
| Grab Sample       | Silica                                                | 3.4    | mg/l     |           |
| Grab Sample       | Silicon                                               | 1.6    | mg/l     |           |
| Grab Sample       | Specific Conductance                                  | 32.3   | umhos/cm |           |
| Grab Sample       | Total Alkalinity                                      | 11     | mg/l     |           |
| Grab Sample       | Total Kjeldahl Nitrogen (organic And Nh3) As Nitrogen | 0.3    | mg/l     |           |
| Grab Sample       | Total Phosphorus                                      | 0.013  | mg/l     |           |
| Grab Sample       | True Color                                            | 23     | unit     |           |
| In-situ           | Dissolved Oxygen                                      | 8.1    | mg/l     |           |
| In-situ           | pH                                                    | 6.37   |          |           |
| In-situ           | Specific Conductance                                  | 28     | us/cm    |           |
| In-situ           | Temperature                                           | 22.6   | deg c    |           |

**Landcover Summary - 2004 Data**

|                 |      |                  |     |                |      |                      |     |
|-----------------|------|------------------|-----|----------------|------|----------------------|-----|
| Total Area (ac) | 1015 | High Int. Dev. % | 0.0 | Water %        | 5.9  | Non-vegetated %      | 0.0 |
|                 |      | Med Int. Dev. %  | 0.2 | Wetland %      | 2.9  | Tilled Agriculture % | 0.0 |
|                 |      | Low Int. Dev. %  | 0.7 | Upland Woody % | 89.2 | Grassland %          | 1.1 |
|                 |      | Development %    | 0.8 | Natural %      | 92.2 | Human Altered %      | 1.9 |
|                 |      |                  |     |                |      | Impervious %         | 0.9 |
| Total Land (ac) | 955  | High Int. Dev. % | 0.0 | Water %        | N/A  | Non-vegetated %      | N/A |
|                 |      | Med Int. Dev. %  | 0.2 | Wetland %      | 3.1  | Tilled Agriculture % | 0.0 |
|                 |      | Low Int. Dev. %  | 0.7 | Upland Woody % | 94.8 | Grassland %          | 1.2 |
|                 |      | Development %    | 0.9 | Natural %      | 98.0 | Human Altered %      | 2.0 |
|                 |      |                  |     |                |      | Impervious %         | 0.9 |



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**Summary of Habitat Characteristics**

| <u>Human Disturbance</u>    | <u>Landscape-level Cowardin Classification</u> | <u>Hydrogeomorphic Setting</u> |
|-----------------------------|------------------------------------------------|--------------------------------|
| Total Score: 10             | System:                                        | Landscape Position:            |
| Hydrologic Modifications: 2 | Subsystem:                                     | Lotic Gradient:                |
| Vegetative Modifications: 4 | Class 1:                                       | Flow Path:                     |
| Chemical Contaminants 0     | Subclass 1:                                    | Land Form:                     |
| Impervious Surface: 2       | Class 2:                                       | Land Form Type:                |
| Non-point Sources: 2        | Subclass 2:                                    | Waterbody Type:                |
|                             | Class 3:                                       | Waterbody Subtype:             |
|                             | Subclass 3:                                    |                                |

Comments:

Dominant Plant Species: PICKEREL WEED (PONTEDERIA CORDATA), WHITE WATERLILY (NYMPHAEA ODORATA), WATERSHIELD (BRASENIA SCHREBERI), BLADDERWORT (UTRICULARIA SP.), SPARGANIUM SP., POTAMOGETON SP., YELLOW WATER LILY (NUPHAR VARIEGATA).

Additional Plant Community Observations:

|                                    |                           |
|------------------------------------|---------------------------|
| Habitat Classification:            | Substrate Classification: |
| AQUATIC MACROPHYTE BED             | DETRITUS SUBSTRATE        |
| EMERGENT NON-PERSISTENT VEGETATION | SILT/MUCK SUBSTRATE       |

Average Depth: 66 cm

Sample Comments: HOBO #9 DELPOYED

BEAVER DAM CURRENTLY IMPOUNDS LAKE; HISTORIC DAM WASHED OUT IN 1994 - SITE IS RECOVERING. PEAT MATS WASHED OUT AND REMOVED INTENTIONALLY.  
No soft algae data. Samples incompletely analyzed and data not recoverable.



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**Additional Summary Variables**

|                                |                              |                        |
|--------------------------------|------------------------------|------------------------|
| <b>Station Number: W-244</b>   | Waterbody: APPLE VALLEY LAKE | Town: Winthrop         |
| <b>Log Number: DN-2012-244</b> | Subsample Factor: X1         | Replicates: 3          |
|                                |                              | Calculated: 12/20/2018 |

|                        | Abundance | Relative Abundance | Richness | Relative Richness |
|------------------------|-----------|--------------------|----------|-------------------|
| EOT Taxa:              | 29.33     | 0.064              | 10       | 0.19              |
| EPT Taxa:              | 16.33     | 0.036              | 4        | 0.08              |
| Insects:               | 225.33    | 0.495              | 38       | 0.73              |
| Non-Insects:           | 230.33    | 0.505              | 14       | 0.27              |
| Leeches:               | 0.67      | 0.001              | 1        | 0.02              |
| Oligochaetes:          | 14.67     | 0.032              | 1        | 0.02              |
| Snails:                | 7.33      | 0.016              | 5        | 0.10              |
| Bivalves:              | 10.00     | 0.022              | 2        | 0.04              |
| Isopods:               | 0.00      | 0.000              | 0        | 0.00              |
| Amphipods:             | 195.33    | 0.429              | 1        | 0.02              |
| Mites:                 | 2.33      | 0.005              | 4        | 0.08              |
| Stoneflies:            | 0.00      | 0.000              | 0        | 0.00              |
| Mayflies:              | 12.67     | 0.028              | 2        | 0.04              |
| Odonates:              | 13.00     | 0.029              | 6        | 0.12              |
| Caddisflies:           | 3.67      | 0.008              | 2        | 0.04              |
| Diptera:               | 181.00    | 0.397              | 20       | 0.38              |
| Hemiptera:             | 9.33      | 0.020              | 4        | 0.08              |
| Beetles:               | 5.00      | 0.011              | 3        | 0.06              |
| Chironomids:           | 133.67    | 0.293              | 13       | 0.25              |
| Tanypodinae Tribe:     | 32.67     | 0.072              | 4        | 0.08              |
| Chironomiinae Tribe:   | 77.67     | 0.170              | 8        | 0.15              |
| Orthocloidiinae Tribe: | 23.33     | 0.051              | 1        | 0.02              |
| Collector-Filterers:   | 22.67     | 0.050              | 4        | 0.08              |
| Collector-Gatherers:   | 289.33    | 0.635              | 10       | 0.19              |
| Predators:             | 73.00     | 0.160              | 12       | 0.23              |
| Piercers:              | 2.33      | 0.005              | 3        | 0.06              |
| Shredders:             | 19.00     | 0.042              | 2        | 0.04              |
| Scrapers:              | 6.00      | 0.013              | 4        | 0.08              |
| Maine Tolerance:       |           |                    |          |                   |
| Sensitive:             | 50.67     | 0.116              | 11       | 0.26              |
| Intermediate:          | 366.67    | 0.839              | 27       | 0.64              |
| Eurytopic:             | 19.67     | 0.045              | 4        | 0.10              |
| Ratio of MTI           | 2.58      | 2.576              | 2.75     | 2.75              |
| Sensitive to Eurytopic |           |                    |          |                   |



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**Aquatic Life Taxonomic Inventory Report**

|                                |                              |                        |
|--------------------------------|------------------------------|------------------------|
| <b>Station Number: W-244</b>   | Waterbody: APPLE VALLEY LAKE | Town: Winthrop         |
| <b>Log Number: DN-2012-244</b> | Subsample Factor: X1         | Replicates: 3          |
|                                |                              | Calculated: 12/20/2018 |

| Taxon                           | Maine<br>Taxonomic<br>Code | Count<br>(Mean of<br>Samples) |          | Hilsen-<br>hoff<br>Biotic<br>Index | Func-<br>tional<br>Feeding<br>Group | Maine<br>Toler-<br>ance<br>Index | Tribe Taxa Group |                     |
|---------------------------------|----------------------------|-------------------------------|----------|------------------------------------|-------------------------------------|----------------------------------|------------------|---------------------|
|                                 |                            | Actual                        | Adjusted |                                    |                                     |                                  |                  |                     |
| Stylaria                        | 08020202014                | 14.67                         | 14.67    | --                                 | CG                                  | 18-S                             | --               | Worm                |
| Erpobdellidae                   | 08030203                   | 0.67                          | 0.67     | --                                 | --                                  | --                               | --               | Leech               |
| Hyalella                        | 09010203006                | 195.33                        | 195.33   | 8                                  | CG                                  | 24.5-I                           | --               | Amphipod            |
| Aeshnidae                       | 09020301                   | 2.33                          | 2.33     | --                                 | --                                  | --                               | --               | Dragonfly/damselfly |
| Corduliidae                     | 09020305                   | 0.33                          | 0.33     | --                                 | --                                  | --                               | --               | Dragonfly/damselfly |
| Libellulidae                    | 09020306                   | 2.00                          | 2.00     | --                                 | --                                  | --                               | --               | Dragonfly/damselfly |
| Pachydiplax                     | 09020306037                | 0.33                          | 0.33     | --                                 | PR                                  | 37.1-I                           | --               | Dragonfly/damselfly |
| Lestes                          | 09020308045                | 0.00                          | 3.00     | 9                                  | PR                                  | 32.6-I                           | --               | Dragonfly/damselfly |
| <i>Lestes vigilax</i>           | 09020308045094             | 3.00                          | 0.00     | --                                 | --                                  | --                               | --               | Dragonfly/damselfly |
| Enallagma                       | 09020309051                | 5.00                          | 5.00     | 9                                  | PR                                  | 26.2-I                           | --               | Dragonfly/damselfly |
| Callibaetis                     | 09020401002                | 2.00                          | 2.00     | 9                                  | CG                                  | 40.5-I                           | --               | Mayfly              |
| Caenis                          | 09020412040                | 10.67                         | 10.67    | 7                                  | CG                                  | 22.1-I                           | --               | Mayfly              |
| Corixidae                       | 09020501                   | 4.00                          | 4.00     | --                                 | --                                  | --                               | --               | True Bug            |
| Hesperocorixa                   | 09020501004                | 0.67                          | 0.67     | --                                 | P                                   | --                               | --               | True Bug            |
| Pelocoris                       | 09020504013                | 1.00                          | 1.00     | --                                 | PR                                  | 24.7-I                           | --               | True Bug            |
| Notonectidae                    | 09020505                   | 3.67                          | 3.67     | --                                 | --                                  | --                               | --               | True Bug            |
| Polycentropus                   | 09020603010                | 2.33                          | 2.33     | 6                                  | PR                                  | 15.4-S                           | --               | Caddisfly           |
| Oxyethira                       | 09020607028                | 1.33                          | 1.33     | 3                                  | P                                   | 22-S                             | --               | Caddisfly           |
| Petrophila                      | 09020901004                | 0.67                          | 0.67     | 5                                  | SC                                  | 7.9-S                            | --               | Moth                |
| Rhabdomastix                    | 09021001018                | 3.67                          | 3.67     | --                                 | --                                  | --                               | --               | Fly: Crane          |
| Chaoborus                       | 09021007025                | 4.33                          | 4.33     | 8                                  | PR                                  | 25-I                             | --               | Fly: Phantom Midge  |
| Mansonia                        | 09021008033                | 0.33                          | 0.33     | --                                 | CG                                  | 42.2-I                           | --               | Fly: Mosquito       |
| Dasyhelea                       | 09021010036                | 2.67                          | 2.67     | --                                 | CG                                  | 30.6-I                           | --               | Fly: Biting Midge   |
| Bezzia/palpomyia                | 09021010043                | 22.67                         | 22.67    | 6                                  | PR                                  | 26.9-I                           | --               | Fly: Biting Midge   |
| Ceratopogon                     | 09021010046                | 13.33                         | 13.33    | --                                 | --                                  | 71.5-E                           | --               | Fly: Biting Midge   |
| Ablabesmyia                     | 09021011001                | 29.67                         | 29.67    | 8                                  | PR                                  | 23.6-I                           | T                | Fly: Midge          |
| Guttipelopia                    | 09021011006                | 0.00                          | 1.33     | 5                                  | PR                                  | 19.4-S                           | T                | Fly: Midge          |
| <i>Guttipelopia guttipennis</i> | 09021011006018             | 1.33                          | 0.00     | --                                 | --                                  | --                               | T                | Fly: Midge          |
| Labrundinia                     | 09021011008                | 0.00                          | 1.33     | 7                                  | PR                                  | 18.1-S                           | T                | Fly: Midge          |
| <i>Labrundinia neopilosella</i> | 09021011008021             | 1.33                          | 0.00     | --                                 | --                                  | --                               | T                | Fly: Midge          |
| Procladius                      | 09021011015                | 0.33                          | 0.33     | 9                                  | PR                                  | 25.1-I                           | T                | Fly: Midge          |
| Psectrocladius                  | 09021011056                | 23.33                         | 23.33    | 8                                  | CG                                  | 22-S                             | --               | Fly: Midge          |
| Paratanytarsus                  | 09021011071                | 5.00                          | 5.00     | 6                                  | --                                  | 43-E                             | Y                | Fly: Midge          |
| Tanytarsus                      | 09021011076                | 11.67                         | 11.67    | 6                                  | CF                                  | 25.7-I                           | Y                | Fly: Midge          |
| Chironomus                      | 09021011080                | 36.67                         | 36.67    | 10                                 | CG                                  | 27.4-I                           | C                | Fly: Midge          |



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|                                |                              |                        |
|--------------------------------|------------------------------|------------------------|
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| <b>Log Number: DN-2012-244</b> | Subsample Factor: X1         | Replicates: 3          |
|                                |                              | Calculated: 12/20/2018 |

| Taxon                               | Maine<br>Taxonomic<br>Code | Count<br>(Mean of<br>Samples) |          | Hilsen-<br>hoff<br>Biotic<br>Index | Func-<br>tional<br>Feeding<br>Group | Maine<br>Toler-<br>ance<br>Index | Tribe | Taxa                | Group |
|-------------------------------------|----------------------------|-------------------------------|----------|------------------------------------|-------------------------------------|----------------------------------|-------|---------------------|-------|
|                                     |                            | Actual                        | Adjusted |                                    |                                     |                                  |       |                     |       |
| Dicrotendipes                       | 09021011085                | 3.33                          | 3.33     | 8                                  | CG                                  | 28.8-I                           | C     | Fly: Midge          |       |
| Endochironomus                      | 09021011087                | 1.00                          | 1.00     | 10                                 | SH                                  | 50.2-E                           | C     | Fly: Midge          |       |
| Microtendipes                       | 09021011094                | 0.00                          | 1.00     | 6                                  | CF                                  | 22.3-I                           | C     | Fly: Midge          |       |
| <i>Microtendipes pedellus group</i> | 09021011094166             | 1.00                          | 0.00     | --                                 | --                                  | --                               | C     | Fly: Midge          |       |
| Polypedilum                         | 09021011102                | 0.00                          | 18.00    | 6                                  | SH                                  | 24.2-I                           | C     | Fly: Midge          |       |
| <i>Polypedilum illinoense group</i> | 09021011102185             | 18.00                         | 0.00     | --                                 | --                                  | --                               | C     | Fly: Midge          |       |
| Omisus                              | 09021011130                | 1.00                          | 1.00     | --                                 | --                                  | 20.7-S                           | H     | Fly: Midge          |       |
| Chrysops                            | 09021014052                | 0.33                          | 0.33     | 6                                  | CG                                  | 20.7-S                           | --    | Fly: Horse And Deer |       |
| Haliphus                            | 09021101001                | 0.33                          | 0.33     | --                                 | P                                   | 67.1-E                           | --    | Beetle              |       |
| Agabus                              | 09021103016                | 1.67                          | 1.67     | --                                 | PR                                  | 34.5-I                           | --    | Beetle              |       |
| Dineutus                            | 09021104032                | 3.00                          | 3.00     | 2                                  | --                                  | 23.2-I                           | --    | Beetle              |       |
| Unionicola                          | 09030108001                | 0.67                          | 0.67     | --                                 | --                                  | 24.8-I                           | --    | Mite                |       |
| Limnochares                         | 09030110002                | 0.67                          | 0.67     | --                                 | --                                  | 10.5-S                           | --    | Mite                |       |
| Arrenurus                           | 09030111001                | 0.67                          | 0.67     | --                                 | --                                  | 23.8-I                           | --    | Mite                |       |
| Frontipoda                          | 09030119001                | 0.33                          | 0.33     | --                                 | --                                  | --                               | --    | Mite                |       |
| Amnicola                            | 10010104013                | 3.67                          | 3.67     | --                                 | SC                                  | 18.7-S                           | --    | Snail               |       |
| Stagnicola                          | 10010201025                | 1.00                          | 1.00     | --                                 | --                                  | 42.8-I                           | --    | Snail               |       |
| Physa                               | 10010202027                | 1.00                          | 1.00     | --                                 | SC                                  | 34-I                             | --    | Snail               |       |
| Planorbidae                         | 10010203                   | 1.00                          | 1.00     | --                                 | --                                  | --                               | --    | Snail               |       |
| Gyraulus                            | 10010203029                | 0.00                          | 0.67     | --                                 | SC                                  | 37.2-I                           | --    | Snail               |       |
| <i>Gyraulus deflectus</i>           | 10010203029056             | 0.67                          | 0.00     | --                                 | --                                  | --                               | --    | Snail               |       |
| Musculium                           | 10020201001                | 5.67                          | 5.67     | --                                 | CF                                  | 24.8-I                           | --    | Clam                |       |
| Sphaerium                           | 10020201003                | 4.33                          | 4.33     | --                                 | CF                                  | 24.8-I                           | --    | Clam                |       |