

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

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| <b>Station Information</b> |
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|                                  |                   |              |
|----------------------------------|-------------------|--------------|
| <b>Station Number: W-406</b>     | Trip ID: 2023-406 | River Basin: |
| Waterbody: PEMADUMCOOK LAKE (K2) |                   | HUC8 Name:   |
| Town: T01 R09 Wels               |                   | Latitude:    |
| Mitigation Monitoring Site: No   |                   | Longitude:   |

|                           |
|---------------------------|
| <b>Sample Information</b> |
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|                               |                                  |                                              |
|-------------------------------|----------------------------------|----------------------------------------------|
| <b>Sample ID: KQ-2023-406</b> | Type of Sample: KICK-QUALITATIVE | Sampling Organization: NORMANDEAU ASSOCIATES |
| Date Sampled: 8/15/2023       | Replicates: 3                    | Taxonomist: NORMANDEAU ASSOCIATES            |
| Subsample Factor: X1          |                                  |                                              |

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| <b>Classification Attainment</b> |
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|                                  |            |                                                                                             |          |                       |
|----------------------------------|------------|---------------------------------------------------------------------------------------------|----------|-----------------------|
| <b>Statutory Class:</b>          | <b>GPA</b> | <b>Final Determination:</b>                                                                 | <b>C</b> | <b>Date:</b> 1/3/2025 |
| Model Result with $P \geq 0.6$ : | A          | <b>Reason for Determination: Best Professional Judgement</b>                                |          |                       |
| Date Last Calculated:            | 11/21/2024 | Comments: Sample method not appropriate for model. Sample does meet structure and function. |          |                       |

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| <b>Model Probabilities</b> |
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| <u>First Stage Model</u>  |               | <u>C or Better Model</u>       |      |
|---------------------------|---------------|--------------------------------|------|
| Class A: 0.62             | Class C: 0.02 | Class A, B, or C               | 1.00 |
| Class B: 0.36             | 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                        | 0.62 |
| Class C or Non-Attainment | 0.02          | Class B or C or Non-Attainment | 0.38 |

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| <b>Model Variables</b> |
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|                                                                               |        | Reference Range<br>(10th or 90th percentile value) |
|-------------------------------------------------------------------------------|--------|----------------------------------------------------|
| Abundance of Taxa in the Order Ephemeroptera                                  | 10.000 | $\geq 0.000$                                       |
| Relative Richness of Taxa in the Orders Ephemeroptera, Odonata and Tricoptera | 0.250  | $\geq 0.140$                                       |
| Shannon-Wiener Diversity Index                                                | 3.844  | $\geq 2.497$                                       |
| Relative Abundance of Collector-Gatherer Taxa                                 | 0.660  | $\geq 0.131$                                       |
| Abundance of Sensitive Taxa                                                   | 44.412 | $\geq 3.424$                                       |
| Richness of Sensitive Taxa                                                    | 9.000  | $\geq 3.000$                                       |
| Maine Tolerance Index Score For Wetland Macroinvertebrates                    | 25.213 | $\leq 29.776$                                      |
| Ratio of MTI Sensitive to Eurytopic Taxa Abundance                            | 2.335  | $\geq 0.334$                                       |

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| <b>Other Variables</b> |
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|                          |      |
|--------------------------|------|
| Total Mean Abundance     | 182  |
| Generic Richness:        | 48   |
| Hilsenhoff Biotic Index: | 7.08 |

|                                |
|--------------------------------|
| <b>Five Most Dominant Taxa</b> |
|--------------------------------|

| Rank | Taxon Name                | Percent |
|------|---------------------------|---------|
| 1    | <i>Hyaella azteca</i>     | 33.64   |
| 2    | <i>Stylaria lacustris</i> | 10.05   |
| 3    | <i>Nais</i>               | 9.87    |

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|   |                   |      |
|---|-------------------|------|
| 4 | <i>Oxyethira</i>  | 6.95 |
| 5 | <i>Tanytarsus</i> | 4.20 |

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|--------------------------------|
| <b>Surface Water Chemistry</b> |
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**Sample Date:** 8/15/2023 10:43:00 AM

| <b>Collection Method</b> | <b>Parameter</b>     | <b>Value</b> | <b>Units</b> | <b>Qualifier</b> |
|--------------------------|----------------------|--------------|--------------|------------------|
| In-situ                  | Dissolved Oxygen     | 9.33         | mg/l         |                  |
| In-situ                  | pH                   | 6.79         |              |                  |
| In-situ                  | Specific Conductance | 21           | us/cm        |                  |
| In-situ                  | Temperature          | 21.83        | deg c        |                  |

|                                      |
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| <b>Landcover Summary - 2004 Data</b> |
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**Summary of Habitat Characteristics**

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

Comments:

Dominant Plant Species:

Additional Plant Community Observations:

Habitat Classification:

OPEN WATER STANDING

Substrate Classification:

BOULDER SUBSTRATE

CLAY SUBSTRATE

RUBBLE/COBBLE SUBSTRATE

SILT/MUCK SUBSTRATE

Average Depth:

Visible Flow: No

Rain In Previous 24 Hours: No

Sample Comments: SUBSTRATE ALSO HAS 5% DETRITUS

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**Additional Summary Variables**

|                                |                                  |                        |
|--------------------------------|----------------------------------|------------------------|
| <b>Station Number: W-406</b>   | Waterbody: PEMADUMCOOK LAKE (K2) | Town: T01 R09 Wels     |
| <b>Log Number: KQ-2023-406</b> | Subsample Factor: X1             | Replicates: 3          |
|                                |                                  | Calculated: 11/21/2024 |

|                                     | Abundance | Relative Abundance | Richness | Relative Richness |
|-------------------------------------|-----------|--------------------|----------|-------------------|
| EOT Taxa:                           | 33.67     | 0.185              | 12       | 0.25              |
| EPT Taxa:                           | 26.67     | 0.146              | 10       | 0.21              |
| Insects:                            | 65.33     | 0.358              | 36       | 0.75              |
| Non-Insects:                        | 117.00    | 0.642              | 12       | 0.25              |
| Leeches:                            | 0.00      | 0.000              | 0        | 0.00              |
| Oligochaetes:                       | 48.00     | 0.263              | 8        | 0.17              |
| Snails:                             | 7.00      | 0.038              | 2        | 0.04              |
| Bivalves:                           | 0.67      | 0.004              | 1        | 0.02              |
| Isopods:                            | 0.00      | 0.000              | 0        | 0.00              |
| Amphipods:                          | 61.33     | 0.336              | 1        | 0.02              |
| Mites:                              | 0.00      | 0.000              | 0        | 0.00              |
| Stoneflies:                         | 0.00      | 0.000              | 0        | 0.00              |
| Mayflies:                           | 10.00     | 0.055              | 5        | 0.10              |
| Odonates:                           | 7.00      | 0.038              | 2        | 0.04              |
| Caddisflies:                        | 16.67     | 0.091              | 5        | 0.10              |
| Diptera:                            | 31.00     | 0.170              | 22       | 0.46              |
| Hemiptera:                          | 0.33      | 0.002              | 1        | 0.02              |
| Beetles:                            | 0.33      | 0.002              | 1        | 0.02              |
| Chironomids:                        | 30.67     | 0.168              | 21       | 0.44              |
| Tanypodinae Tribe:                  | 3.79      | 0.021              | 3        | 0.06              |
| Chironomiinae Tribe:                | 21.71     | 0.119              | 13       | 0.27              |
| Orthoclodiinae Tribe:               | 4.82      | 0.026              | 4        | 0.08              |
| Collector-Filterers:                | 8.93      | 0.049              | 3        | 0.06              |
| Collector-Gatherers:                | 120.42    | 0.660              | 19       | 0.40              |
| Predators:                          | 15.85     | 0.087              | 10       | 0.21              |
| Piercers:                           | 12.67     | 0.069              | 1        | 0.02              |
| Shredders:                          | 2.04      | 0.011              | 2        | 0.04              |
| Scrapers:                           | 7.67      | 0.042              | 4        | 0.08              |
| Maine Tolerance:                    |           |                    |          |                   |
| Sensitive:                          | 44.41     | 0.268              | 9        | 0.33              |
| Intermediate:                       | 102.34    | 0.617              | 14       | 0.52              |
| Eurytopic:                          | 19.02     | 0.115              | 4        | 0.15              |
| Ratio of MTI Sensitive to Eurytopic | 2.33      | 2.335              | 2.25     | 2.25              |

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**Aquatic Life Taxonomic Inventory Report**

|                                |                                  |                                         |
|--------------------------------|----------------------------------|-----------------------------------------|
| <b>Station Number: W-406</b>   | Waterbody: PEMADUMCOOK LAKE (K2) | Town: T01 R09 Wels                      |
| <b>Log Number: KQ-2023-406</b> | Subsample Factor: X1             | Replicates: 3<br>Calculated: 11/21/2024 |

| 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 |                                    |                                     |                                  |       |                     |
| Oligochaeta                    | 0802                       | 1.67                          | 1.67     | --                                 | --                                  | --                               | --    | Oligochaete         |
| Stylodrilus                    | 08020101004                | 0.00                          | 0.67     | --                                 | --                                  | --                               | --    | Worm                |
| <i>Stylodrilus heringianus</i> | 08020101004001             | 0.67                          | 0.00     | --                                 | --                                  | --                               | --    | Worm                |
| Pristina                       | 08020202004                | 0.67                          | 0.67     | --                                 | --                                  | --                               | --    | Worm                |
| Nais                           | 08020202009                | 18.00                         | 18.00    | --                                 | CG                                  | 43-E                             | --    | Worm                |
| Ripistes                       | 08020202011                | 0.00                          | 0.33     | --                                 | --                                  | --                               | --    | Worm                |
| <i>Ripistes parasita</i>       | 08020202011001             | 0.33                          | 0.00     | --                                 | --                                  | --                               | --    | Worm                |
| Slavina                        | 08020202012                | 0.00                          | 4.67     | --                                 | --                                  | 4.2-S                            | --    | Worm                |
| <i>Slavina appendiculata</i>   | 08020202012001             | 4.67                          | 0.00     | --                                 | --                                  | --                               | --    | Worm                |
| Stylaria                       | 08020202014                | 0.00                          | 18.33    | --                                 | CG                                  | 18-S                             | --    | Worm                |
| <i>Stylaria lacustris</i>      | 08020202014002             | 18.33                         | 0.00     | --                                 | --                                  | --                               | --    | Worm                |
| Aulodrilus                     | 08020202018                | 0.00                          | 3.33     | --                                 | --                                  | 3.8-S                            | --    | Tubificid Worm      |
| <i>Aulodrilus americanus</i>   | 08020202018001             | 0.67                          | 0.00     | --                                 | --                                  | --                               | --    | Tubificid Worm      |
| <i>Aulodrilus pigueti</i>      | 08020202018003             | 2.67                          | 0.00     | --                                 | --                                  | --                               | --    | Tubificid Worm      |
| Limnodrilus                    | 08020202022                | 0.33                          | 0.33     | --                                 | CG                                  | 83.9-E                           | --    | Tubificid Worm      |
| Hyaella                        | 09010203006                | 0.00                          | 61.33    | 8                                  | CG                                  | 24.5-I                           | --    | Amphipod            |
| <i>Hyaella azteca</i>          | 09010203006011             | 61.33                         | 0.00     | --                                 | --                                  | --                               | --    | Amphipod            |
| Gomphus                        | 09020302012                | 0.33                          | 0.33     | 5                                  | PR                                  | --                               | --    | Dragonfly/damselfly |
| Enallagma                      | 09020309051                | 6.67                          | 6.67     | 9                                  | PR                                  | 26.2-I                           | --    | Dragonfly/damselfly |
| Centropetium                   | 09020401003                | 0.67                          | 0.67     | 2                                  | CG                                  | --                               | --    | Mayfly              |
| Maccaffertium                  | 09020402015                | 0.33                          | 0.33     | 4                                  | SC                                  | --                               | --    | Mayfly              |
| Paraleptophlebia               | 09020406026                | 1.33                          | 1.33     | 1                                  | CG                                  | --                               | --    | Mayfly              |
| Hexagenia                      | 09020407028                | 1.00                          | 1.00     | 6                                  | CG                                  | --                               | --    | Mayfly              |
| Caenis                         | 09020412040                | 6.67                          | 6.67     | 7                                  | CG                                  | 22.1-I                           | --    | Mayfly              |
| Corixidae                      | 09020501                   | 0.33                          | 0.33     | --                                 | --                                  | --                               | --    | True Bug            |
| Cheumatopsyche                 | 09020604015                | 0.33                          | 0.33     | 5                                  | CF                                  | --                               | --    | Caddisfly           |
| Oxyethira                      | 09020607028                | 12.67                         | 12.67    | 3                                  | P                                   | 22-S                             | --    | Caddisfly           |
| Lepidostoma                    | 09020611064                | 0.67                          | 0.67     | 1                                  | SH                                  | --                               | --    | Caddisfly           |
| Molanna                        | 09020615069                | 0.33                          | 0.33     | 6                                  | SC                                  | --                               | --    | Caddisfly           |
| Oecetis                        | 09020618078                | 2.67                          | 2.67     | 8                                  | PR                                  | 16.3-S                           | --    | Caddisfly           |
| Palpomyia                      | 09021010044                | 0.33                          | 0.33     | 6                                  | PR                                  | --                               | --    | Fly: Biting Midge   |
| Chironomidae                   | 09021011                   | 1.00                          | 0.00     | --                                 | --                                  | --                               | --    | Fly: Midge          |
| Ablabesmyia                    | 09021011001                | 1.67                          | 1.72     | 8                                  | PR                                  | 23.6-I                           | T     | Fly: Midge          |
| Clinotanypus                   | 09021011002                | 0.00                          | 1.72     | 8                                  | PR                                  | 30.3-I                           | T     | Fly: Midge          |
| <i>Clinotanypus pinguis</i>    | 09021011002008             | 1.67                          | 0.00     | --                                 | --                                  | --                               | --    | Fly: Midge          |

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**Aquatic Life Taxonomic Inventory Report**

|                                |                                  |                                         |
|--------------------------------|----------------------------------|-----------------------------------------|
| <b>Station Number: W-406</b>   | Waterbody: PEMADUMCOOK LAKE (K2) | Town: T01 R09 Wels                      |
| <b>Log Number: KQ-2023-406</b> | Subsample Factor: X1             | Replicates: 3<br>Calculated: 11/21/2024 |

| 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 |                                    |                                     |                                  |       |            |       |
| Labrundinia                                | 09021011008                | 0.33                          | 0.34     | 7                                  | PR                                  | 18.1-S                           | T     | Fly: Midge |       |
| Heterotanytarsus                           | 09021011043                | 2.33                          | 2.41     | --                                 | --                                  | --                               | --    | Fly: Midge |       |
| Heterotrissocladius                        | 09021011044                | 0.33                          | 0.34     | 0                                  | CG                                  | --                               | --    | Fly: Midge |       |
| Orthocladius                               | 09021011050                | 0.67                          | 0.69     | 6                                  | CG                                  | 22-S                             | --    | Fly: Midge |       |
| Psectrocladius                             | 09021011056                | 1.33                          | 1.38     | 8                                  | CG                                  | 22-S                             | --    | Fly: Midge |       |
| Cladotanytarsus                            | 09021011068                | 1.33                          | 1.38     | 7                                  | CG                                  | 22.2-I                           | Y     | Fly: Midge |       |
| Paratanytarsus                             | 09021011071                | 0.33                          | 0.34     | 6                                  | --                                  | 43-E                             | Y     | Fly: Midge |       |
| Stempellina                                | 09021011073                | 1.00                          | 1.03     | 2                                  | CG                                  | --                               | Y     | Fly: Midge |       |
| Tanytarsus                                 | 09021011076                | 7.67                          | 7.93     | 6                                  | CF                                  | 25.7-I                           | Y     | Fly: Midge |       |
| Zavrelia                                   | 09021011077                | 1.33                          | 1.38     | --                                 | CG                                  | --                               | Y     | Fly: Midge |       |
| Pseudochironomus                           | 09021011078                | 0.33                          | 0.34     | 5                                  | CG                                  | 47.7-E                           | S     | Fly: Midge |       |
| Chironomus                                 | 09021011080                | 4.00                          | 4.13     | 10                                 | CG                                  | 27.4-I                           | C     | Fly: Midge |       |
| Cryptochironomus                           | 09021011082                | 0.00                          | 1.38     | 8                                  | PR                                  | 31.3-I                           | C     | Fly: Midge |       |
| <i>Cryptochironomus fulvus</i>             | 09021011082144             | 1.33                          | 0.00     | --                                 | --                                  | --                               | C     | Fly: Midge |       |
| Dicrotendipes                              | 09021011085                | 0.67                          | 0.69     | 8                                  | CG                                  | 28.8-I                           | C     | Fly: Midge |       |
| Parachironomus                             | 09021011097                | 0.33                          | 0.34     | 10                                 | PR                                  | 28.6-I                           | C     | Fly: Midge |       |
| Paralauterborniella                        | 09021011099                | 0.00                          | 0.34     | 8                                  | CG                                  | --                               | C     | Fly: Midge |       |
| <i>Paralauterborniella nigrohalteralis</i> | 09021011099175             | 0.33                          | 0.00     | --                                 | --                                  | --                               | C     | Fly: Midge |       |
| Polypedilum                                | 09021011102                | 1.33                          | 1.38     | 6                                  | SH                                  | 24.2-I                           | C     | Fly: Midge |       |
| Stictochironomus                           | 09021011106                | 0.00                          | 1.03     | 9                                  | CG                                  | --                               | C     | Fly: Midge |       |
| <i>Stictochironomus devinctus</i>          | 09021011106197             | 1.00                          | 0.00     | --                                 | --                                  | --                               | C     | Fly: Midge |       |
| Lasiodiamesa                               | 09021011139                | 0.33                          | 0.34     | --                                 | --                                  | --                               | P     | Fly: Midge |       |
| Gyrinus                                    | 09021104033                | 0.33                          | 0.33     | 2                                  | PR                                  | 11.9-S                           | --    | Beetle     |       |
| Valvata                                    | 10010101001                | 6.67                          | 6.67     | --                                 | SC                                  | 33.4-I                           | --    | Snail      |       |
| Gyraulus                                   | 10010203029                | 0.33                          | 0.33     | --                                 | SC                                  | 37.2-I                           | --    | Snail      |       |
| Pisidium                                   | 10020201002                | 0.67                          | 0.67     | --                                 | CF                                  | --                               | --    | Clam       |       |