**Woods Lake phytoplankton field data to AED-MARVL unit conversion equations**

**31/07/2024**

**Table 1. Field data phytoplankton categorization to obtain total cell counts for each group.**

|  |  |  |
| --- | --- | --- |
| **Category** | **Masterkey Var No.** | **Name** |
| Dolichospermum | var00699 | Cyanobacteria (Dolichospermum sp.) |
| Chlorophyte | var00753 | Unidentified chlorophyte |
| var00636 | Chlorophyta (Ankistrodesmus sp.) |
| var00637 | Chlorophyta (Ankyra sp.) |
| var00638 | Chlorophyta (Botryococcus sp.) |
| …\* | Chlorophyta () |
| var00676 | Chlorophyta (Ulothrix sp.) |
| var00677 | Chlorophyta (Volvox sp.) |
| Picoplankton | var00756 | Unidentified pico cyanobacteria |
| var00694 | Cyanobacteria (Aphanothece sp. 1) |
| var00695 | Cyanobacteria (Aphanothece sp.) |
| var00710 | Cyanobacteria (Rhabdoderma sp.) |
| var00713 | Cyanobacteria (Synechococcus sp.) |
| Diatom | var00760 | Bacillariophyta (Amphora sp.) |
| var00761 | Bacillariophyta (Tabellaria flocculosa) |
| var00609 | Bacillariophyta (Achnanthes sp.) |
| var00610 | Bacillariophyta (Asterionella sp.) |
| …\* | Bacillariophyta () |
| var00622 | Bacillariophyta Unid Diatom-Bacillariale |

**\*… in the table represents the variables between the upper cell and the lower cell. i.e. for chlorophyta, … represents all the variables between var00638 and var00676; for bacillariophyta, … represents all the variables between var00610 and var00622. … has the same indication in Table 2.**

**Table 2. Conversion equations from field data units to TUFLOW variable units.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Masterkey**  **Var No.** | **Name** | **Masterkey Unit** | **TUFLOW var No.** | **TUFLOW var Unit** | **Equation** |
| var00699 | Dolichospermum | cell/ml | var00778 | mmolC/m3 | 1 |
| var00754 + sum(var00636 + var00637 + var00638 + … var00677) | Chlorophyte | cell/ml | var00038 | mmolC/m3 | 2 |
| var00757 + var00694 + var00695 + var00710 + var00713 | Picoplankton | cell/ml | var00779 | mmolC/m3 | 3 |
| sum (var00609 + var00610 + … + var00622) | Diatom (Bacillariophyta) | cell/ml | var00040 | mmolC/m3 | 4 |
| var00767 | Phycocyanin |  | var00778+var00779  (Cyanobacteria) | mmolC/m3 | 5\* |

**\*For phycocyanin, what is provided is a correlation rather than an equation, thus no units are included. The objective is to study the correlation of two curves rather than to obtain RMSE/NMAE etc.**

Equations:

(1)

(2)

(3)

(4)

(5)