Compiled Mesocosm Data Metadata

Contact Information

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Context

This data is from a collaborative KSU project looking at the effects of nutrient treatments on algal biomass via ash free dry mass (AFDM) and Chlorophyll-a. Data was initially in multiple sheets based on site and analysis, then compiled into 1 with columns as 'sample ID', 'AFDM mg/L, 'Chl-a mg/L' and 'treatment'.

Geographic Coverage

Water was collected from Green Bay, Ford River, North Lake Erie and Maumee Bay. A mesocosm experiment was conducted at KSU.

Attributes of AFDM Data sheets

Site (Green Bay, Ford River, North Erie or Maumee)
Sample ID (samples labelled 1-72 in replicate (a,b or c))
Treatment (control, nitrogen, phosphorus, trace (trace metals), n+p, n+trace, p+trace, n+p+trace, chelex (removes metals), initial (sample taken before treatments were applied.
Filter # (pre-ashed glass filter number assignment)
Filter Initial Mass(pre-ashed filter weight before water was filtered through)
Tin # (aluminum tin used to weight, store and ash filters in)
Tin Mass (weight in grams of aluminum tins)
Dry Mass (weight in grams of filter and dry biomass after water was filtered through and filter was dried in an oven at 60 degrees celsius)
Ashed Mass (weight in grams of filter and inorganic biomass left after ashing for 4 hours at 450 degrees F)
Filtered Volume (volume of water in mL filtered through each respective filter)
AFDM mg/L (((dry mass-ashed mass)/filtered volume) * 1,000,000 to get mg/L)

Chelex treated samples were adjusted for the addition of 10 mg of Chelex by subtracting 10 mg from the dry weight prior to AFDM calculation

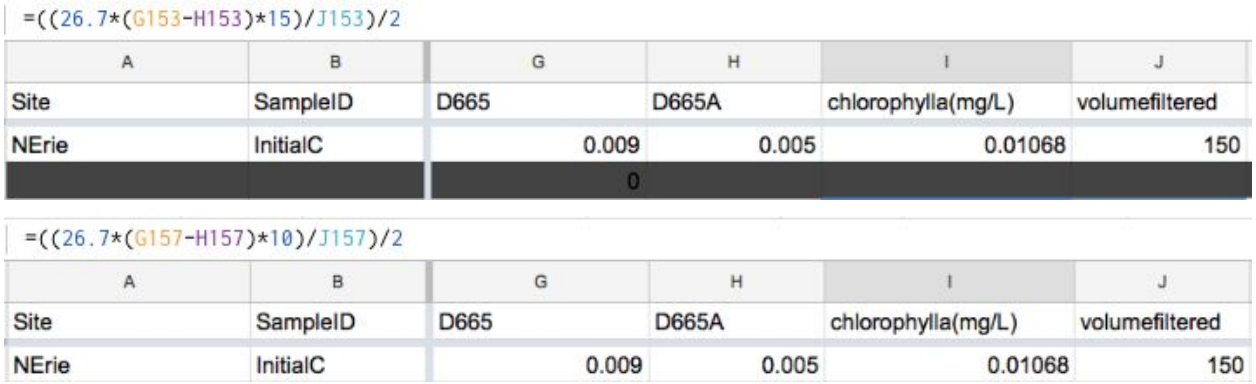
Attributes of Chlorophyll-a Data Sheets

Site: (Green Bay, Ford River, North Erie or Maumee)
Sample ID: (samples labelled 1-72 in replicate (a,b or c))
Treatment: (control, nitrogen, phosphorus, trace (trace metals), n+p, n+trace, p+trace, n+p+trace, chelex (removes metals), initial (sample taken before treatments were applied.
Abs665: absorbance at wavelength 665 before acidification

Abs750: absorbance at wavelength 750 before acidification
AcidAbs665: absorbance at wavelength 665 after acidification
AcidAbs750: absorbance at wavelength 750 after acidification
D665: Abs665-Abs750
D665a: AcidAbs665-AcidAbs750
chlorophylla(mg/L): (26.7(D665-D665a)*extraction volume)/filtered volume
Volume filtered: volume of mesocosm water filtered
Comments any notes about the sample

extraction volume for North Erie and Maumee is 15 mL, or Green Bay and Ford is 10 mL

any Chlorophyll-a values that were calculated as negative numbers were made zero, zeros were then adjusted to ½ the minimum detection limit (using 0.001 as the minimum detection limit of the spectrophotometer and assuming no turbidity (D665-D665a=0.001)



For both AFDM and Chlorophyll-a, there were 3 analytical replicates for each sample for Green Bay and Maumee sites. These replicates were averaged to get the final value for the respective sample. Instances in which one of the replicates was an outlier, that replicate was left out of the average calculation.