

## Meta-data for Recycled Growth Medium Experiment Datasets

Author: Sarah Loftus, [sarah.e.loftus@gmail.com](mailto:sarah.e.loftus@gmail.com)

In all datasets, 'NA' indicates data are not available.

### DataTable1\_Growth.csv

Growth-related variables for each experimental replicate culture. Units in parentheses.

Letters below represent CSV file columns, in order.

- A. Algae
  - i. Identity of algae used in the experiment.
  - ii. 'C323' = *Staurosira* sp. clone C323; 'D046' = *Chlorella* sp. clone D046; 'Navicula' = *Navicula* sp.
- B. Round
  - i. Round of experiment (indicates number of reuses of the medium for the recycled medium treatment).
  - ii. Number 0 through 4.
- C. Day
  - i. Day of the experiment round.
  - ii. Number 0 through 5.
- D. Treatment
  - i. Experimental treatment.
  - ii. 'F' indicates fresh medium treatment. 'R' indicates recycled medium treatment.
- E. Replicate
  - i. Biological replicate per experimental treatment.
  - ii. Letters A through C.
- F. Chl
  - i. In vivo chlorophyll concentration (arbitrary units).
  - ii. Raw value (not blank-subtracted).
- G. OD750
  - i. Optical density of whole culture measured at 750 nm (arbitrary units).
  - ii. Raw value (not blank-subtracted).
- H. OD750\_filt
  - i. Optical density of 0.2- $\mu$ m culture filtrate measured at 750 nm (arbitrary units).
  - ii. Raw value (not blank-subtracted).
- I. AlgaeConc
  - i. Algae cell concentration ( $10^6$  cells/mL).
- J. BacteriaConc
  - i. Bacteria cell concentration ( $10^6$  cells/mL).
- K. DOC
  - i. Biologically-derived dissolved organic carbon concentration of 0.2- $\mu$ m culture filtrate ( $\mu$ M C).
- L. TDN
  - i. Total dissolved nitrogen of 0.2- $\mu$ m culture filtrate ( $\mu$ M N).
- M. BulkLipids
  - i. Neutral lipids concentration, based on Nile Red staining, of whole culture in relative fluorescence units (RFU).
- N. ExtLipids
  - i. Neutral lipids concentration, based on Nile Red staining, of 0.2- $\mu$ m culture filtrate (RFU).
- O. Salinity

- i. Salinity of 0.2- $\mu$ m culture filtrate (parts per thousand).
- P. FvFm
  - i.  $F_v/F_m$ , the quantum yield of photochemistry in Photosystem II (unitless).
- Q. PC
  - i. Blank-corrected particulate carbon measured on a GF/F filter ( $\mu$ moles C).
- R. PN
  - i. Blank-corrected particulate nitrogen measured on a combusted GF/F filter ( $\mu$ moles N).
- S. Vol
  - i. Volume filtered through the GF/F filter used for measuring PC and PN (mL).
- T. pH
  - i. pH of whole culture.
- U. PO<sub>4</sub>
  - i. Orthophosphate concentration in 0.2- $\mu$ m culture filtrate ( $\mu$ M PO<sub>4</sub>).
- V. NH<sub>4</sub>
  - i. Ammonium concentration in 0.2- $\mu$ m culture filtrate ( $\mu$ M NH<sub>4</sub>).
- W. Si
  - i. Reactive silica concentration in 0.2- $\mu$ m culture filtrate ( $\mu$ M Si).
  - ii. D046 experiment did not use Si.
- X. DIC
  - i. Inorganic carbon concentration of whole culture ( $\mu$ M C).
  - ii. For *Navicula* sp., it is the average of 2 replicate samples. For *Staurosira* sp. C323, only one sample was measured per experiment culture. For *Chlorella* sp. D046, only one sample was measured per experiment culture only on the last day of the experiment (Round 4, Day 5).
- Y. TOC\_rate
  - i. Total organic carbon production rate, as calculated from the radiolabeled carbon method and DIC concentration ( $\mu$ M C/day).
  - ii. For *Chlorella* sp. D046 experiment, this is not the calculated rate but is the raw, blank-corrected, mean DPM (disintegrations per minute) divided by total <sup>14</sup>C DPM added. Therefore, it does not account for DIC concentrations, and absolute values cannot be compared among replicates or treatments.
- Z. POC\_rate
  - i. Particulate organic carbon production rate, as calculated from the radiolabeled carbon method and DIC concentration ( $\mu$ M C/day).
  - ii. For *Chlorella* sp. D046 experiment, this is not the calculated rate but is the raw, blank-corrected, mean DPM (disintegrations per minute) divided by total <sup>14</sup>C DPM added. Therefore, it does not account for DIC concentrations, and absolute values cannot be compared among replicates or treatments.

### **DataTable2\_Daily.csv**

Data common to all experimental replicate cultures in an experiment.

Letters below represent CSV file columns, in order.

- A. Algae
  - i. Identity of algae used in the experiment.
  - ii. 'C323' = *Staurosira* sp. clone C323; 'D046' = *Chlorella* sp. clone D046; 'Navicula' = *Navicula* sp.
- B. Round
  - i. Round of experiment.
  - ii. Number 0 through 4.
- C. Day
  - i. Day of the experiment round.
  - ii. Number 0 through 5.
- D. Date
  - i. Day of experiment sampling (MM/DD/YYYY).
- E. Tstart
  - i. Time of day (24-hour time) that experimental sampling began (HH:MM).
- F. Tend
  - i. Time of day (24-hour time) that experimental sampling ended (HH:MM).
  - ii. End time does not include the end of the radiolabeled carbon incubation method.
- G. CultureVol
  - i. Approximate volume of the experimental cultures (mL).
- H. AirFlow
  - i. Approximate air flow rate into the experimental cultures (mL/min).
- I. InocBefore
  - i. In vivo chlorophyll concentration of the inoculum culture prior to transferring with growth medium (arbitrary units).
- J. InocAfter
  - i. In vivo chlorophyll concentration of the inoculum culture after transferring with growth medium (arbitrary units).
- K. Chl\_medium
  - i. In vivo chlorophyll concentration of the growth medium blank sample (arbitrary units).
- L. OD750\_medium
  - i. Optical density at 750 nm of the growth medium blank sample (arbitrary units).

### **DataTable3\_Filtrate.csv**

Data from biodegradation experiments in post-experiment culture filtrate.

Letters below represent CSV file columns, in order.

- A. Algae
  - i. Identity of algae used in the experiment.
  - ii. 'C323' = *Staurosira* sp. clone C323; 'D046' = *Chlorella* sp. clone D046; 'Navicula' = *Navicula* sp.
- B. Date
  - i. Day of sampling (MM/DD/YYYY).
- C. ElapsedDays
  - i. Days elapsed since the last day of the experiment. The last day of the experiment represents 0 days elapsed.
- D. Treatment
  - i. Experimental Treatment from which the filtrate is derived.
  - ii. 'F' indicates fresh medium treatment. 'R' indicates recycled medium treatment.
- E. Replicate
  - i. Biological replicate per experimental treatment, from which the filtrate is derived.
  - ii. Letters A through C.
- F. BacteriaConc
  - i. Bacteria cell concentration ( $10^6$  cells/mL).
- G. DOC
  - i. Biologically-derived dissolved organic carbon concentration of 0.2- $\mu$ m filtrate ( $\mu$ M C).
- H. TDN
  - i. Total dissolved nitrogen of 0.2- $\mu$ m filtrate ( $\mu$ M N).