Periphyton, seston, and phytoplankton collection (DP1.20166.001)

Measurement

Identification, counts, and biomass of microalgae from benthic and water column collections per sample, per volume (cells L-1 and ash-free dry mass g L-1), and per benthic area (cells m-2 and ash-free dry mass g m-2)

Collection methodology

Clip harvest data are collected from 10 locations at all aquatic sites during bout 2 of the biological and sediment chemistry bouts (mid-summer). In lakes and rivers, additional presence/absence data are collected from 10 points during bouts 1 and 3. Points in lakes and rivers use randomized point sampling, and plant samples are collected using a submerged rake along three-1.5 m tows. Clip harvest data are collected near permanent transects using a 0.25 m2 (or 0.01 m2) quadrat. In wadeable streams, five of these collections are in the dominant habitat type and five are from the sub-dominant habitat type spaced >10m apart.

|  |  |  |
| --- | --- | --- |
| Site type | Benthic samples | Water column |
| Stream | 3 in subdominant habitat | 1 near sensor set 2 for chlorophyll/AFDM only |
| Lake | 5 in littoral zone | 3 near buoy, inlet, and outlet sensors |
| River | 5 in littoral zone | 1 near buoy, 2 in river channel |

Diagram

Description automatically generated with medium confidence

Spatial layout of sampling at streams, rivers, and lakes.

Data package contents

alg\_archive: Aquatic algae archived subsamples

alg\_biomass: Periphyton, seston, and phytoplankton biomass data

alg\_biovolumes: Biovolumes for algal taxonomy

alg\_fieldData: Periphyton, seston, and phytoplankton field collection data from streams, lakes, and non-wadeable streams

alg\_qualityCheck: Aquatic algae quality data

alg\_taxonomyProcessed: Periphyton, seston, and phytoplankton identifications by expert taxonomists – desynonimized

alg\_taxonomyRaw: Periphyton, seston, and phytoplankton identifications by expert taxonomists - raw

validation: Description of data validation applied at the points of collection and ingest

variables: Description and units for each column of data in data tables

readme: Data product description, issue log, and other metadata about the data product

EML: Metadata about the data product in Ecological Metadata Language

Data quality

10% of algal taxonomy samples are quality checked by the taxonomist, indicated in qcTaxonomyStatus. Percent similarity (PSc) must be >85% and percent difference in enumeration (PDE) <5% to pass the minimum quality objectives, else data are reconciled.

Standard calculations

Step 1: Convert to algal cells per L and correct for preservative volume when algalParameterUnit = countPerBottle (cells/L)

Step 2: Correct for benthicArea using calculation from Step 1 (cells/m2)

NEON suggests using algalParameter = 'cell density' for the calculations above. See Data Product User Guide for detailed descriptions of algalParameters.

samplingImpractical records in the fieldData table indicate instances where samples could not be collected due to environmental conditions.

Table joining

|  |  |  |
| --- | --- | --- |
| Table 1 | Table 2 | Join by field(s) |
| alg\_fieldData | alg\_biomass | parentSampleID |
| alg\_biomass | alg\_taxonomyProcessed | sampleID |
| alg\_biomass | alg\_taxonomyRaw | sampleID |
| alg\_taxonomyProcessed | alg\_biovolume | scientificName |
| alg\_taxonomyRaw | alg\_biovolume | scientificName |

Documentation

[AOS Protocol and Procedure: ALG – Periphyton and phytoplankton sampling](https://data.neonscience.org/api/v0/documents/NEON.DOC.003045vE)

[NEON User Guide to Periphyton and Phytoplankton Collection (DP1.20166.001)](https://data.neonscience.org/api/v0/documents/NEON_algalCollection_userGuide_vC)

Citation

If Provisional data are used:

NEON (National Ecological Observatory Network). Periphyton, seston, and phytoplankton collection (DP1.20166.001). https://data.neonscience.org (accessed July 22, 2021)

If Released data are used:

NEON (National Ecological Observatory Network). Periphyton, seston, and phytoplankton collection, RELEASE-2021 (DP1.20166.001). https://doi.org/10.48443/3cvp-hw55. Dataset accessed from https://data.neonscience.org on July 22, 2021