# EDI Metadata Template (2016)[[1]](#footnote-1)

Data should be submitted as csv text file. If submitting an Excel spreadsheet, please make sure it does not contain any formulas and comments on cells. If you need comments put them in their own column. If data were used in a database and major table linking is necessary to analyze, please de-normalize into a flat file, not just database table exports.

Is this dataset similar enough to an earlier submitted dataset that metadata can be used from that earlier submission? (list a dataset title)

## Dataset Title

LAGOS - Lake nitrogen, phosphorus, and stoichiometry data and geospatial data for lakes in a 17-state region of the U.S.

## Short name or nickname you use to refer to this dataset:

LAGOS Spatial Stoichiometry data

## Abstract

This dataset includes information about total nitrogen (TN) concentrations, total phosphorus (TP) concentrations, TN:TP stoichiometry, and 12 driver variables that might predict nutrient concentrations and ratios. All observed values came from LAGOSLIMNO v. 1.054.1 and LAGOSGEO v. 1.03 (LAke multi-scaled GeOSpatial and temporal database), an integrated database of lake ecosystems (Soranno *et al.* 2015). LAGOS contains a complete census of lakes great than or equal to 4 ha with corresponding geospatial information for a 17-state region of the U.S., and a subset of the lakes has observational data on morphometry and chemistry. Approximately 54 different sources of data were compiled for this dataset and were mostly generated by government agencies (state, federal, tribal) and universities. Here, we compiled chemistry data from lakes with concurrent observations of TN and TP from the summer stratified season (June 15-September 15) in the most recent 10 years of data included in LAGOSLIMNO v. 1.054.1 (2002-2011). We report the median TN, TP and molar TN:TP values for each lake, which was calculated as the grand median of each yearly median value. We also include data for lake and landscape characteristics that might be important controls on lake nutrients, including: land use (agricultural, pasture, row crop, urban, forest), nitrogen deposition, temperature, precipitation, hydrology (baseflow), maximum depth, and the ratio of lake area to watershed area, which is used to approximate residence time. These data were used to identify drivers of lake nutrient stoichiometry at sub-continental and regional scales (Collins *et al,* submitted). This research was supported by the NSF Macrosystems Biology program (awards EF-1065786 and EF-1065818) and by the NSF Postdoctoral Research Fellowship in Biology (DBI-1401954).

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## Other personnel names and roles

None

## Keywords

“Limnology”,” water quality”,” lakes”,” watersheds”,” freshwater”,” land use”,” land cover”,” bathymetry”,” atmospheric properties”,” climate”,” geographic information systems”

## Funding of this work:

Title of grant: NSF Postdoctoral Fellowship in Biology FY 2014

Granting agency: National Science Foundation

Grant identification number: DBI-1401954

Title of grant: Collaborative Research: The Effects of Cross-Scale Interactions on Freshwater Ecosystem State Across Space and Time

Granting agency: National Science Foundation

Grant identification number: EF-1065786 and EF-1065818

## LTER ONLY: Choose one or more major subject areas

## Timeframe

* Begin date: March 2015
* End date: November 2016
* Data collection ongoing/completed -? Ongoing if you consider the continuation of LAGOS to be ongoing, but complete for this version? Whatever you think is most appropriate?

## Geographic location

* Verbal description: A 17-state region of the upper midwest to northeast United States. States included in the database are Minnesota, Iowa, Missouri, Wisconsin, Michigan, Illinois, Indiana, Ohio, Pennsylvania, New York, New Jersey, Connecticut, Massachusetts, Rhode Island, Vermont, New Hampshire, and Maine.
* North bounding coordinates (decimals): 48.165
* South bounding coordinates (decimals): 36.491
* East bounding coordinates (decimals): -96.330
* West bounding coordinates (decimals): -67.152

## Taxonomic species or groups

Water chemistry

## Methods

See Soranno, P.A., Bissell, E.G., Cheruvelil, K.S., Christel, S.T., Collins, S.M., Fergus, C.E., Filstrup, C.T., Lapierre, J.F., Lottig, N.R., Oliver, S.K., Scott, C.E., Smith, N.J., Stopyak, S., Yuan, S., Bremigan, M.T., Downing, J.A., Gries, C., Henry, E.N., Skaff, N.K., Stanley, E.H., Stow, C.A., Tan, P.-N., Wagner, T., and Webster, K.E. 2015. Building a multi-scaled geospatial temporal ecology database from disparate data sources: fostering open science and data reuse. Gigascience 4: 28. doi: 10.1186/s13742-015-0067-4 for details on how the observed values were obtained.

See Collins et al. Lake nutrient stoichiometry is less predictable than nutrient concentrations at regional and sub-continental scales, Submitted to Ecological Applications, for details on data filtering and relationships between nutrient chemistry and landscape characteristics

## Data Table

* Column name: exactly as it appears in the dataset. Please avoid special characters, dashes and spaces.
* Description: please be specific, it can be lengthy
* Unit: please avoid special characters and describe units in this pattern: e.g. microSiemenPerCentimeter, microgramsPerLiter, absoptionPerMolePerCentimeter
* Code explanation: if you use codes in your column, please explain in this way: e.g. LR=Little Rock Lake, A=Sample suspect, J=Nonstandard routine followed
* Data format: please tell us exactly how the date and time is formatted: e.g. mm/dd/yyyy hh:mm:ss plus the time zone and whether or not daylight savings was observed.
* If a code for ‘no data’ is used, please specify: e.g. -99999

Please add rows as needed

|  |  |  |  |
| --- | --- | --- | --- |
| Column name | Description | Unit or  code explanation or date format | Empty value code |
| lagoslakeid | Unique identifier for each lake from the LAGOS database |  |  |
| hu4\_zoneid | Identifier for HUC 4 watershed unit where the sampled lake is located |  |  |
| Latitude | Location of sampled lake | Decimal |  |
| Longitude | Location of sampled lake | Decimal |  |
| State | Name of the state where the sampled lake is located |  |  |
| NO3deposition\_hu12 | Mean NO3 deposition from 2005 for the HUC12 watershed where the sampled lake is located | MilligramsPerLiter |  |
| 30yrTemp\_hu12 | 30-year normal mean temperature for the HUC12 watershed where the sample lake is located | DegreesC |  |
| 30yrPrecip\_hu12 | 30-year normal mean precipitation for the HUC12 watershed where the sample lake is located | Millimeters |  |
| Baseflow\_hu12 | Mean hydrologic baseflow for the HUC 12 watershed where the sample lake is located | Percentage |  |
| Agriculture\_hu4 | Mean percentage of agricultural land use for the HUC4 watershed where the sampled lake is located | Percentage |  |
| ln\_TNTP | Natural log of the median TN:TP ratio for the sampled lake | MolarRatio |  |
| ln\_TN | Natural log of the median TN concentration for the sampled lake | MicrogramsPerLiter |  |
| ln\_TP | Natural log of the median TP concentration for the sampled lake | MicrogramsPerLiter |  |
| ln\_maxdepth | Natural log of the maximum lake depth for the sampled lake | Meters |  |
| ln\_Urban\_iws | Natural log of the percent urban land use in the individual watershed of the sampled lake | Percentage |  |
| ln\_Agriculture\_iws | Natural log of the percent agricultural land use in the individual watershed of the sampled lake | Percentage |  |
| ln\_Forest\_iws | Natural log of the percent forest land use in the individual watershed of the sampled lake | Percentage |  |
| ln\_Pasture\_iws | Natural log of the percent pasture agriculture land use in the individual watershed of the sampled lake | Percentage |  |
| ln\_RowCrop\_iws | Natural log of the percent row crop agriculture land use in the individual watershed of the sampled lake | Percentage |  |
| ln\_ResTime\_lawa | Natural log of an estimate for residence time, the ratio of the area of a lake to the area of its watershed | Ratio |  |
| Region | Identifier for regions used in Collins et al In Review manuscript. Lakes in the Northeast and Midwest regions are identified and lakes that are part of neither region do not have data for this column |  | NA |

## Notes and Comments

1. This document liberally borrows from similar documents at SBC and GCE [↑](#footnote-ref-1)