This data package, LAGOS-NE-LIMNO v1.087.1, is 1 of 5 data packages associated with the LAGOS-NE database-- the LAke multi-scaled GeOSpatial and temporal database. Three of the data packages each contain different types of data for 51,101 lakes and reservoirs larger than 4 ha in 17 lake-rich U.S. states to support research on thousands of lakes. These three package are: (1) LAGOS-NE-LOCUS v1.01: lake location and physical characteristics for all lakes. (2) LAGOS-NE-GEO v1.05: ecological context (i.e., the land use, geologic, climatic, and hydrologic setting of lakes) for all lakes. These geospatial data were created by processing national-scale and publicly-accessible datasets to quantify numerous metrics at multiple spatial resolutions. And, (3) LAGOS-NE-LIMNO v1.087.1: in-situ measurements of lake water quality from the past three decades for approximately 2,600-12,000 lakes, depending on the variable. This module was created by harmonizing 87 water quality datasets from federal, state, tribal, and non-profit agencies, university researchers, and citizen scientists. The other two data packages contain supporting data for the LAGOS-NE database: (4) LAGOS-NE-GIS v1.0: the GIS data layers for lakes, wetlands, and streams, as well as the spatial resolutions that were used to create the LAGOS-NE-GEO module. (5) LAGOS-NE-RAWDATA: the original 87 datasets of lake water quality prior to processing, the R code that converts the original data formats into LAGOS-NE data format, and the log file from this procedure to create LAGOS-NE. This latter data package supports the reproducibility of LAGOS-NE-LIMNO.

The LAGOS-NE-LIMNO v1.087.1 module includes in situ measurements of lake water quality. We included variables that are most commonly measured by state agencies and researchers for studying eutrophication. For each water quality data value, we also include metadata related to the sampling program, methods, qualifiers with data flags from the original program (qual, not standardized for LAGOS-NE), censor codes from our quality control procedures (censorcode, standardized for LAGOS-NE), and the date of each sample.

Citation for the full documentation of this database:

Soranno, P.A., E.G. Bissell, K.S. Cheruvelil, S.T. Christel, S.M. Collins, C.E. Fergus, C.T. Filstrup, J.F. Lapierre, N.R. Lottig, S.K. Oliver, C.E. Scott, N.J. Smith, S. Stopyak, S. Yuan, M.T. Bremigan, J.A. Downing, C. Gries, E.N. Henry, N.K. Skaff, E.H. Stanley, C.A. Stow, P.-N. Tan, T. Wagner, K.E. Webster. 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

Citation for the data paper for this database:

Soranno, P.A., L.C. Bacon, M. Beauchene, K.E. Bednar, E.G. Bissell, C.K. Boudreau, M.G. Boyer, M.T. Bremigan, S.R. Carpenter, J.W. Carr, K.S. Cheruvelil, S.T. Christel, M. Claucherty, S.M.Collins, J.D. Conroy, J.A. Downing, J. Dukett, C.E. Fergus, C.T. Filstrup, C. Funk, M.J. Gonzalez, L.T. Green, C. Gries, J.D. Halfman, S.K. Hamilton, P.C. Hanson, E.N. Henry, E.M. Herron, C. Hockings, J.R. Jackson, K. Jacobson-Hedin, L.L. Janus, W.W. Jones, J.R. Jones, C.M. Keson, K.B.S. King, S.A. Kishbaugh, J.F. Lapierre, B. Lathrop, J.A. Latimore, Y. Lee, N.R. Lottig, J.A. Lynch, L.J. Matthews, W.H. McDowell, K.E.B. Moore, B.P. Neff, S.J. Nelson, S.K. Oliver, M.L. Pace, D.C. Pierson, A.C. Poisson, A.I. Pollard, D.M. Post, P.O. Reyes, D.O. Rosenberry, K.M. Roy, L.G. Rudstam, O. Sarnelle, N.J. Schuldt, C.E. Scott, N.K. Skaff, N.J. Smith, N.R. Spinelli, J.J. Stachelek, E.H. Stanley, J.L. Stoddard, S.B. Stopyak, C.A. Stow, J.M. Tallant, P.-N. Tan, A.P. Thorpe, M.J. Vanni, T. Wagner, G. Watkins, K.C. Weathers, K.E. Webster, J.D. White, M.K. Wilmes, S. Yuan. In Review. LAGOS-NE: A multi-scaled geospatial and temporal database of lake ecological context and water quality for thousands of U.S. lakes. In Review at GigaScience. Submitted April 2017.