Package ‘LAGOSNE’

November 29, 2020

Title  Interface to the Lake Multi-Scaled Geospatial and Temporal Database

Version  2.0.2

URL  https://github.com/cont-limno/LAGOSNE

BugReports  https://github.com/cont-limno/LAGOSNE/issues

Description  Client for programmatic access to the Lake Multi-scaled Geospatial and Temporal database <https://lagoslakes.org>, with functions for accessing lake water quality and ecological context data for the US.

Depends  R (>= 3.5.0)

Imports  dplyr (>= 0.7.0), rappdirs (>= 0.3.1), lazyeval (>= 0.2), purrr (>= 0.2.2.2), magrittr (>= 1.5), sf, curl (>= 2.7.0), stringr (>= 1.2.0), tibble, tidyr, memoise, rlang, progress, qs

Suggests  testthat, knitr, rmarkdown, devtools, R.rsp, printr, ggplot2

License  GPL

Encoding  UTF-8

LazyData  true

RoxygenNote  7.1.1

VignetteBuilder  R.rsp, knitr

Language  en-US

NeedsCompilation  no

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LAGOSNE-package ................................................................. 2
chag ................................................................. 3
classifications ............................................................. 5
conn ................................................................. 7
coordinatize ............................................................ 11
display_names .......................................................... 12
epi_nutr ................................................................. 13
info_table ............................................................... 15
lagoslakes ............................................................ 15
lagosne_compile ........................................................ 17
lagosne_get ............................................................ 18
lagosne_load ........................................................... 18
lagosne_select .......................................................... 19
lagosne_version .......................................................... 20
lagos_get_collins_2017 .................................................. 21
lagos_get_oliver_2015 ...................................................... 21
lagos_ingest ............................................................... 22
lagos_load_collins_2017 .................................................. 23
lagos_load_oliver_2015 ..................................................... 23
lagos_path ................................................................. 24
lagos_source_program ..................................................... 25
lakes_limno ............................................................... 26
lake_info ................................................................. 26
load_lagos_txt ............................................................. 27
locus ................................................................. 28
lulc ................................................................. 29
query_column_keywords .................................................... 31
query_column_names ....................................................... 31
query_lagos_names ........................................................ 32

\textbf{Index} 33

\begin{table}[h]
\centering
\begin{tabular}{ll}
LAGOSNE-package & \textit{R interface to the LAGOSNE lakes database} \\
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\end{table}

\textbf{Description}

Interface to the LAGOSNE lakes database

\textbf{Author(s)}

<stache12@msu.edu>
Climate, Hydrology, Atmospheric, and Geologic (CHAG) Datasets

Description

Datasets containing information on climate, hydrology, atmospheric deposition, and surficial geology characteristics calculated at hu12, hu8, hu4, edu, county and state spatial classifications (see ?scales).

Format

Data frames with all or a subset of the following variables. Number of observations is equal to the number of zones in each spatial scale (see Details below). Wildcard options include a subset of the LAGOSNE spatial scales (* = hu12, hu8, hu4, edu, county, state), years of measurement (** = 1985, 1990, 1995, 2000, 2005, 2010), and summary statistic or units (*** = min, max, mean, std for atmospheric deposition and hydrology; *** = ha, pct for surficial geology)

- *_zoneid: unique zone identifier
- *_dep_no3_**_***: nitrate ion wet deposition (kg/ha) in zone during specified year
- *_dep_so4_**_***: sulfate ion wet deposition (kg/ha) in zone during specified year
- *_dep_totaln_**_***: total inorganic nitrogen ion wet deposition (kg/ha) in zone during specified year
- *_baseflowindex_***: ground-water discharge into streams in the zone (baseflow/totalflow *100)
- *_groundwaterrecharge_***: mean annual natural groundwater recharge (mm/yr) in zone - Baseflow multiplied by mean annual runoff
- *_runoff_***: average annual runoff (in/yr) in the zone, 1951-80
- *_prism_ppt_30yr_normal_800mm2_annual_***: 30-yr long-term (normal) annual mean precipitation (mm/yr) for zone
- *_prism_tmax_30yr_normal_800mm2_annual_***: 30-yr long-term (normal) annual maximum temperature (deg C) for zone
- *_prism_tmean_30yr_normal_800mm2_annual_***: 30-yr long-term (normal) annual mean temperature (deg C) for zone
- *_prism_tmin_30yr_normal_800mm2_annual_***: 30-yr long-term (normal) annual minimum temperature (deg C) for zone
- *_surficialgeology_alluv_***: alluvial of all ages
- *_surficialgeology_beach_***: beach deposits of Holocene age
- *_surficialgeology_colluv_***: colluvium of all ages
- *_surficialgeology_dec_resid_***: decomposition residuum of all ages
- *_surficialgeology_eolian_***: silt (loess), sand of all ages
- *_surficialgeology_gf_out_***: glaciofluvial (outwash) deposits of all ages
- *_surficialgeology_grus_***: glaciated, granitic grus of Quaternary and Tertiary age
• *surficialgeology_ice_***: ice-contact depositives of lake Wisconsin and Holocene age

• *surficialgeology_lac_***: combination of: Glacial-lake clay and silt lake deposits of pre-Illinoian and Illinoian age; Glacial and postglacial lake deposits (delta, clay, silt and sand, sand and gravel, density-current underflow-fan) of Holocene and late Wisconsin age; Beach sand and dune sand deposits of Holocene age; and Lake slack-water and alluvium deposits of pre-Illinoian, Illinoian, and late Wisconsin ages

• *surficialgeology_lac_clay_***: glacial and postglacial lake deposits (clay and silt) of Holocene and late Wisconsin age

• *surficialgeology_marine_***: coastal-plain marine deposits of Pleistocene and Pliocene ages, and glaciomarine deposits of late Wisconsin age

• *surficialgeology_open_water_***: open water

• *surficialgeology_other_***: surficial deposits, surficial materials, and bedrock masses that were deformed and (or) transported intact by glacial ice

• *surficialgeology_peat_marsh_***: coastal or inland deposits of freshwater, brackish-water, peat and muck or freshwater swamps of Holocene and late Wisconsin age

• *surficialgeology_saprol_***: saprolite of quaternary and tertiary age on crystalline igneous and metamorphic rocks mostly

• *surficialgeology_solif_***: solifluction deposits of Holocene and late to middle Pleistocene age, and Lake Wisconsin age

• *surficialgeology_solut_***: solution residuum of Quaternary and tertiary age

• *surficialgeology_till_clay_***: till, clay of pre-Illinoian age, late Wisconsin and Holocene(?) age

• *surficialgeology_till_loam_***: till, loam of pre-Illinoian, Illinoian, and late Wisconsin and Holocene(?) age

• *surficialgeology_till_oth_***: till, complex depositions of lake Wisconsin and Illinoian age

• *surficialgeology_till_sand_***: till, sand of pre-Illinoian age, late Wisconsin and Holocene(?) age

Details

Original data sources and layers from which each metric was derived can be found in additional file 5 of Soranno et al. (2015). Briefly, climate data came from the PRISM climate group, hydrology metrics were derived from United States Geologic Survey (USGS) data, atmospheric deposition was from the National Atmospheric Deposition program, and surficial geology were derived from layers USGS data.

References

Soranno et al. (2017) Gigascience 6:12
Description

Data frames containing metadata for each spatial classification at which ecological context data are derived in LAGOSNE. The spatial classifications include 100m buffers (buffer100m), 500m buffers (buffer500m), interlake watersheds (iws), hydrologic units (hu12, hu8, hu4), ecological drainage units (edu), counties (county), and states (state). Each abbreviation is the name of the data frame, with all or a subset of the following variables. For more information about derivation of each spatial classification, see Details below or Additional file 7 from Soranno et al. 2015.

Format

Data frames with all or a subset of the following variables. Number of observations is equal to the number of zones in each spatial classification (see Details below).

- \texttt{*_nhdid}: permanent lake-specific identifier from the National Hydrography Dataset (\texttt{* = buffer100m, buffer500m, iws})
- \texttt{*_name}: text name of the zone (\texttt{* = iws, hu12, hu8, hu4, county, state})
- \texttt{hu*}: unique zone identifier (\texttt{* = 12, 8, 4})
- \texttt{*_ha}: area of spatial classification in hectares (\texttt{* = buffer100m, buffer500m, hu12, hu8, hu4, edu, county})
- \texttt{*_areaha}: area of spatial classification in hectares (\texttt{* = iws, )}
- \texttt{*_perimkm}: perimeter of spatial classification in kilometers (\texttt{* = iws, )}
- \texttt{*_lat}: latitude of centroid of polygon in decimal degrees (NAD83) (\texttt{* = iws, hu12, hu8, hu4, edu, county, state})
- \texttt{*_long}: longitude of centroid of polygon in decimal degrees (NAD83) (\texttt{* = iws, hu12, hu8, hu4, edu, county, state})
- \texttt{*_lakeareaha}: lake area (ha) of focal lake associated with polygon (\texttt{* = iws, )}
- \texttt{*_country}: whether the polygon lies within the US ("US") or the US and Canada (US_CA) (\texttt{* = hu12, edu})
- \texttt{*_pct_in_usa}: percent of polygon within the US boundary (\texttt{* = iws, hu12, edu})
- \texttt{*_ha_in_usa}: area (ha) of polygon within the US boundary (\texttt{* = iws, hu12, edu})
- \texttt{*_pct_in_nwi}: percent of polygon within the USFWS National Wetland Inventory (NWI) boundary (\texttt{* = iws, hu12, hu8, hu4, edu, county, state})
- \texttt{*_ha_in_nwi}: area (ha) of polygon within the USFWS National Wetland Inventory (NWI) boundary (\texttt{* = iws, hu12, hu8, hu4, edu, county, state})
- \texttt{*_zoneid}: a unique identifier for each IWS in LAGOSNE, numbered 1:n with classification prefix (e.g., \texttt{HU12_1}) (\texttt{* = iws, hu12, hu8, hu4, edu, county, state})
- \texttt{lagoslakeid}: LAGOSNE unique identifier for focal lake
- \texttt{hu4_states}: states that intersect hu4 zone polygon
- \texttt{state}: 2-letter state abbreviation
- \texttt{county_state}: state where county is located
Details

The nine LAGOSNE spatial classifications were used to summarize the ecological context of each lake. Ecological context themes include land use/land cover (LULC), connectivity (CONN), and climate, hydrology, atmospheric deposition, and groundwater (CHAG). Not all themes were derived at all classifications due to data availability. Briefly:

• iws: a dataframe with 51065 observations of 12 variables. The area of land that drains directly into a lake, and into all upstream-connected, permanent streams to that lake exclusive of any upstream lake watersheds for lakes greater than 10 ha that are connected via permanent streams. For details on how the watersheds were delineated, see additional file 8 in Soranno et al. (2015). Themes derived at the iws classification include LULC and CONN.

• buffer100m: a dataframe with 51065 of 3 variables. Buffers are a 100 m equidistant buffer of the land that is 100 m from the lake shoreline, calculated using the ArcGIS Buffer tool. Themes derived at the 100m buffer classification include LULC.

• buffer500m: a dataframe with 51065 of 3 variables. Buffers are a 500 m equidistant buffer of the land that is 500 m from the lake shoreline, calculated using the ArcGIS Buffer tool. Themes derived at the 500m buffer classification include LULC and CONN.

• hu12: a dataframe with 20257 observations of 11 variables. The Watershed Boundary Dataset defines boundaries based on surface water drainage and creates nested Hydrologic Units (sometimes abbreviated and referred to as HUCs, which are hydrologic unit codes) that are georeferenced to the USGS 1:24,000 topographic base map. HUC12s are the sixth level of classification. HUC12s are defined along natural hydrologic breaks based on land surface and surface-water flow and they have a single flow outlet except in frontal, lake, braided-stream, or closed-basin hydrologic units. Themes derived at the HUC12 classification include LULC, CONN and CHAG.

• hu8: a data frame with 511 observations of 9 variables. HUC8s are the fourth level of classification. Sometimes called ‘watersheds’, a HUC8 is a geographic area representing part or all of a surface drainage basin, a combination of drainage basins, or a distinct hydrologic feature. Themes derived at the HUC8 classification include LULC, CONN, and CHAG.

• hu4: a data frame with 65 observations of 9 variables. HUC4s are the second level of classification, called a ‘subregion’. A subregion includes the area drained by a river system, a reach of a river and its tributaries in that reach, a closed basin(s), or a group of streams forming a coastal drainage area. Themes derived at the HUC4 classification include LULC, CONN, and CHAG.

• edu: a data frame with 91 observations of 10 variables. Ecological drainage units (EDUs) follow the WBD boundaries, and are of roughly similar size to HUC6s. EDUs were delineated by grouping the HUC8 watersheds based on common zoogeographic history, and physiographic and climatic characteristics. Themes derived at the EDU classification include LULC, CONN, and CHAG.

• county: a data frame with 955 observations of 8 variables. Counties (political boundary) within the 17-state region of LAGOSNE. Themes derived at the county classification include LULC, CONN, and CHAG.

• state: a dataframe with 17 observations of 7 variables. Themes derived at the state classification include LULC, CONN, and CHAG.
References

Soranno et al. (2017) Gigascience 6:12

See Also

conn lakes.geo chag lulc

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**Connectivity Datasets**

**Description**

Datasets containing lake, stream, and wetland abundance and connectivity metrics calculated at the 500m buffer (buffer500m.conn), HUC12 (hu12.conn), HUC8 (hu8.conn), HUC4 (hu4.conn), EDU (edu.conn), county (county.conn) and state (state.conn) classifications.

**Format**

Data frames with all or a subset of the following variables. Number of observations is equal to the number of zones in each spatial classification (see ?classifications). Wildcard options include a subset of the LAGOSNE spatial classifications (* = buffer500m, iws, hu12, hu8, hu4, edu, county, state) and additional wildcards described below.

- **Identifiers and Zone Metadata**
  - *_zoneid: unique zone identifier
  - *_nwiexclusions: zones that are not completely covered by the National Wetlands Inventory

- **Lake Connectivity Metrics.** Lake abundance metrics are derived for all lakes, isolated lakes ("isolated" - no inflow or outflow streams), headwater lakes ("headwater" - no inflowing streams), stream drainage lakes ("drstream" - lakes with inflowing stream(s), with or without outflows, and no upstream lakes greater than 10 ha), and lake drainage lakes ("drlakeStream" - lakes with inflowing stream(s) and at least one upstream lake greater than 10 ha).
  - *_lakes_**_***: all lakes that are within or intersect the zone boundary and are in a particular size class (** = lakes4ha, lakes4to10ha, lakes10ha), expressed as average lake area (** = avgsze_ha) or count (** = count)
  - *_lakes_**_overlapping_***: all lakes that are clipped to the zone boundary and are in a particular size class (** = lakes4ha, lakes4to10ha, lakes10ha), expressed as sum of lake area (** = area_ha) or percent of zone area (** = area_pct)
  - *_lakes_**_contributing_area_ha: all lakes that are within or intersect the zone boundary, and are in a particular size class (** = lakes4ha, lakes4to10ha, lakes10ha), expressed as sum of lake area
  - *_lakes_**_isolated_***: all isolated lakes that are within or intersect the zone boundary, and are in a particular size class (** = lakes4ha, lakes4to10ha, lakes10ha), expressed as average size in hectares (** = avgsze_ha) or count (** = count
- *_lakes_**_isolated_overlapping_***: all isolated lakes that are clipped to the zone boundary and are in a particular size class (** = lakes4ha, lakes4to10ha, lakes10ha), expressed as sum of lake area (*** = area_ha) or percent of zone area (*** = area_pct)
- *_lakes_**_isolated_contributing_area_ha: all isolated lakes that are within or intersect the zone boundary, and are in a particular size class (** = lakes4ha, lakes4to10ha, lakes10ha), expressed as sum of lake area
- *_lakes_**_headwater_***: all headwater lakes that are within or intersect the zone boundary, and are in a particular size class (** = lakes4ha, lakes4to10ha, lakes10ha), expressed as average size in hectares (*** = avgsize_ha) or count (*** = count)
- *_lakes_**_headwater_overlapping_***: all headwater lakes that are clipped to the zone boundary and are in a particular size class (** = lakes4ha, lakes4to10ha, lakes10ha), expressed as sum of lake area (*** = area_ha) or percent of zone area (*** = area_pct)
- *_lakes_**_headwater_contributing_area_ha: all headwater lakes that are within or intersect the zone boundary, and are in a particular size class (** = lakes4ha, lakes4to10ha, lakes10ha), expressed as sum of lake area
- *_lakes_**_drstream_***: all drstream lakes that are within or intersect the zone boundary, and are in a particular size class (** = lakes4ha, lakes4to10ha, lakes10ha), expressed as average size in hectares (*** = avgsize_ha) or count (*** = count)
- *_lakes_**_drstream_overlapping_***: all drstream lakes that are clipped to the zone boundary and are in a particular size class (** = lakes4ha, lakes4to10ha, lakes10ha), expressed as sum of lake area (*** = area_ha) or percent of zone area (*** = area_pct)
- *_lakes_**_drstream_contributing_area_ha: all drstream lakes that are within or intersect the zone boundary, and are in a particular size class (** = lakes4ha, lakes4to10ha, lakes10ha), expressed as sum of lake area
- *_lakes_**_drlakestream_***: all drlakestream lakes that are within or intersect the zone boundary, and are in a particular size class (** = lakes4ha, lakes4to10ha, lakes10ha), expressed as average size in hectares (*** = avgsize_ha) or count (*** = count)
- *_lakes_**_drlakestream_overlapping_***: all drlakestream lakes that are clipped to the zone boundary and are in a particular size class (** = lakes4ha, lakes4to10ha, lakes10ha), expressed as sum of lake area (*** = area_ha) or percent of zone area (*** = area_pct)
- *_lakes_**_drlakestream_contributing_area_ha: all drlakestream lakes that are within or intersect the zone boundary, and are in a particular size class (** = lakes4ha, lakes4to10ha, lakes10ha), expressed as sum of lake area
- *_latewisconsinglaciation_glaciation: zone glaciation status during the late Wisconsin glaciation (Glaciated, Not_Glaciated, Partially)

• Stream Connectivity Metrics
- *_streamdensity_streams_**: all streams (NHDFlowline minus artificial lines through lakes) within the zone expressed as sum of length in meters (** = sum_lengthm) or density in meters per hectare (** = mperha)
- *_streamdensity_headwaters_*: headwater streams (1st-3rd Strahler order) within the zone expressed as sum of length in meters (** = sum_lengthm) or density in meters per hectare (** = mperha)
- *_streamdensity_midreaches_*: Midreach streams (4th-6th Strahler order) within the zone expressed as sum of length in meters (** = sum_lengthm) or density in meters per hectare (** = mperha)
- *streamdensity_rivers_*: large river-streams (>6th Strahler order) within the zone expressed as sum of length in meters (** = sum_lengthm) or density in meters per hectare (** = mperha)
- *canalditchdensity_*: canals within the zone, expressed as sum of length in meters (** = sum_lengthm) or density in meters per hectare (** = mperha)

### Wetland Connectivity Metrics
- *wl_allwetlandsdissolved_*: all wetlands (regardless of vegetation, connection, or regime), expressed as average size in hectares (** = avgsize_ha), total area of wetlands that is contained within or partially intersect the border of this zone (** = overlapping_area_ha), total land area of this zone that is covered by all wetlands (** = contributing_area_ha), or percent of land area of this zone that is covered by all wetlands (** = overlapping_area_pct). Before calculating this value, contiguous patches of different types of wetlands were first dissolved to represent a single patch.
- *wl_allwetlandsundissolved_*: all wetlands (regardless of vegetation, connection, or regime), expressed as count (** = count), average size in hectares (** = avgsize_ha), total area of wetlands that is contained within or partially intersect the border of this zone (** = overlapping_area_ha), total land area of this zone that is covered by all wetlands (** = contributing_area_ha), or percent of land area of this zone that is covered by all wetlands (** = overlapping_area_pct). Before calculating this value, contiguous patches of different types of wetlands were first dissolved to represent a single patch.
- *wl_isolatedwetlandsundissolved_*: isolated wetland patches (no intersecting streams within a 30 m buffer of the wetland patch) in this zone.all wetlands (regardless of vegetation, connection, or regime), expressed as count (** = count), average size in hectares (** = avgsize_ha), total area of wetlands that is contained within or partially intersect the border of this zone (** = overlapping_area_ha), total land area of this zone that is covered by this wetland type (** = contributing_area_ha), or percent of land area of this zone that is covered by this wetland type (** = overlapping_area_pct). The patches were left as delineated by the National Wetlands Inventory ("undissolved") for calculating this variable.
- *wl_singlewetlandsundissolved_*: single wetland patches (intersected within a 30 m buffer by a single first order stream) in this zone, expressed as count (** = count), average size in hectares (** = avgsize_ha), total area of wetlands that is contained within or partially intersect the border of this zone (** = overlapping_area_ha), total land area of this zone that is covered by this wetland type (** = contributing_area_ha), or percent of land area of this zone that is covered by this wetland type (** = overlapping_area_pct). The patches were left as delineated by the National Wetlands Inventory ("undissolved") for calculating this variable.
- *wl_connectedwetlandsundissolved_*: connected wetland patches (intersected within a 30 m buffer by a higher order stream or by multiple streams) in this zone, expressed as count (** = count), average size in hectares (** = avgsize_ha), total area of wetlands that is contained within or partially intersect the border of this zone (** = overlapping_area_ha), total land area of this zone that is covered by this wetland type (** = contributing_area_ha), or percent of land area of this zone that is covered by this wetland type (** = overlapping_area_pct). The patches were left as delineated by the National Wetlands Inventory ("undissolved") for calculating this variable.
- *wl_forestedwetlandsundissolved_*: forested wetland patches (dominated by woody vegetation 6m or taller) in this zone, expressed as count (** = count), average size in
hectares (** = avgsize_ha), total area of wetlands that is contained within or partially intersect the border of this zone (** = overlapping_area_ha), total land area of this zone that is covered by this wetland type (** = contributing_area_ha), or percent of land area of this zone that is covered by this wetland type (** = overlapping_area_pct). The patches were left as delineated by the National Wetlands Inventory ("undissolved") for calculating this variable.

- *_wl_scrubshrubwetlandsundissolved_**: scrub-shrub wetland patches (dominated by woody vegetation < 6m tall) in this zone, expressed as count (** = count), average size in hectares (** = avgsize_ha), total area of wetlands that is contained within or partially intersect the border of this zone (** = overlapping_area_ha), total land area of this zone that is covered by this wetland type (** = contributing_area_ha), or percent of land area of this zone that is covered by this wetland type (** = overlapping_area_pct). The patches were left as delineated by the National Wetlands Inventory ("undissolved") for calculating this variable.

- *_wl_openwaterwetlandsundissolved_**: open water wetland patches (dominated by woody vegetation < 6m tall) in this zone, expressed as count (** = count), average size in hectares (** = avgsize_ha), total area of wetlands that is contained within or partially intersect the border of this zone (** = overlapping_area_ha), total land area of this zone that is covered by this wetland type (** = contributing_area_ha), or percent of land area of this zone that is covered by this wetland type (** = overlapping_area_pct). The patches were left as delineated by the National Wetlands Inventory ("undissolved") for calculating this variable.

- *_wl_regimefwetlandsundissolved_**: regime f (semipermanently flooded) wetland patches where surface water persists throughout the growing season in most years, expressed as count (** = count), average size in hectares (** = avgsize_ha), total area of wetlands that is contained within or partially intersect the border of this zone (** = overlapping_area_ha), total land area of this zone that is covered by this wetland type (** = contributing_area_ha), or percent of land area of this zone that is covered by this wetland type (** = overlapping_area_pct). The patches were left as delineated by the National Wetlands Inventory ("undissolved") for calculating this variable.

- *_wl_regimegwetlandsundissolved_**: regime g (intermittently exposed) wetland patches where surface water persists throughout the growing season in most years, expressed as count (** = count), average size in hectares (** = avgsize_ha), total area of wetlands that is contained within or partially intersect the border of this zone (** = overlapping_area_ha), total land area of this zone that is covered by this wetland type (** = contributing_area_ha), or percent of land area of this zone that is covered by this wetland type (** = overlapping_area_pct). The patches were left as delineated by the National Wetlands Inventory ("undissolved") for calculating this variable.

- *_wl_regimeawetlandsundissolved_**: regime a (temporarily flooded) wetland patches where surface water persists throughout the growing season in most years, expressed as count (** = count), average size in hectares (** = avgsize_ha), total area of wetlands that is contained within or partially intersect the border of this zone (** = overlapping_area_ha), total land area of this zone that is covered by this wetland type (** = contributing_area_ha), or percent of land area of this zone that is covered by this wetland type (** = overlapping_area_pct). The patches were left as delineated by the National Wetlands Inventory ("undissolved") for calculating this variable.

- *_wl_regimecwetlandsundissolved_**: regime c (seasonally flooded) wetland patches where surface water persists throughout the growing season in most years, expressed...
as count (** = count), average size in hectares (** = avgsize_ha), total area of wetlands that is contained within or partially intersect the border of this zone (** = overlapping_area_ha), total land area of this zone that is covered by this wetland type (** = contributing_area_ha), or percent of land area of this zone that is covered by this wetland type (** = overlapping_area_pct). The patches were left as delineated by the National Wetlands Inventory ("undissolved") for calculating this variable.

- *_wl_regimehwetlandsundissolved_*: regime h (permanently flooded) wetland patches where surface water persists throughout the growing season in most years, expressed as count (** = count), average size in hectares (** = avgsize_ha), total area of wetlands that is contained within or partially intersect the border of this zone (** = overlapping_area_ha), total land area of this zone that is covered by this wetland type (** = contributing_area_ha), or percent of land area of this zone that is covered by this wetland type (** = overlapping_area_pct). The patches were left as delineated by the National Wetlands Inventory ("undissolved") for calculating this variable.

References

Soranno et al. (2017) Gigascience 6:12

See Also

lakes.geo

---

coordinatize

*Convert a LAGOSNE flat file into a spatial object*

Description

This function turns a data.frame into a spatial object using a reasonable default projection.

Usage

coordinatize(dt, latname = "nhd_lat", longname = "nhd_long", crs = 4326)

Arguments

- **dt**: data.frame
- **latname**: character name of latitude column; default is "nhd_lat"
- **longname**: character name of longitude column; default is "nhd_long"
- **crs**: numeric epsg code; default is 4326 WGS84-lat-long
## Examples

```r
## Not run:
dt <- lagosne_load("1.087.3")
res <- coordinatize(dt$locus)

library(maps)
map("state", xlim = c(-97.90363, -66.99892), ylim = c(34.61761, 49.41941))
plot(res$geometry, add = TRUE, pch = 19, cex = 0.05)

## End(Not run)
```

---

display_names  
*Convert table names for display*

---

### Description

Convert table names for display

### Usage

```r
display_names(nms_raw)
```

### Arguments

- `nms_raw`  
  character vector of column names

### Examples

```r
## Not run:
lg <- lagosne_load("1.087.3")
cbind(names(lg$iws), display_names(names(lg$iws)))
cbind(names(lg$county.chag), display_names(names(lg$county.chag)))
cbind(names(lg$county.conn), display_names(names(lg$county.conn)))
cbind(names(lg$county.lulc), display_names(names(lg$county.lulc)))
cbind(names(lg$hu4), display_names(names(lg$hu4)))
cbind(names(lg$locus), display_names(names(lg$locus)))
cbind(names(lg$epi_nutr), display_names(names(lg$epi_nutr)))
cbind(names(lg$lakes_limno), display_names(names(lg$lakes_limno)))
cbind(names(lg$lakes.geo), display_names(names(lg$lakes.geo)))

## End(Not run)
```
**Description**

A dataset containing physical and chemical observations in the epilimnion (surface waters). Each row is a sampling event, and lakes can have multiple sampling events.

**Format**

A data frame with observations of 93 variables:

- `eventida1087`: unique combination of programid, lakeid, and date for each sampling event in LAGOSNE
- `lagoslakeid`: unique integer identifier for each lake in LAGOSNE
- `programname`: name of the sampling/monitoring program that collected the data
- `lagosversion`: current version of LAGOSNE that the data record belongs to
- `sampledate`: date at which the sample was collected, stored in date format (YYYY-MM-DD)
- `chl`: chlorophyll a (µg/l)
- `colora`: color, apparent (PCU)
- `colort`: color, true (PCU)
- `dkn`: nitrogen, dissolved Kjeldahl (µg/l as N)
- `doc`: carbon, dissolved organic (µg/l as C)
- `nh4`: nitrogen, ammonium NH4 (µg/l as N)
- `no2`: nitrogen, nitrite NO2 (µg/l as N)
- `no2no3`: nitrogen, nitrite NO2 + nitrate NO3 nitrogen (µg/l as N)
- `srp`: phosphorus, soluble reactive (µg/l as P)
- `tdn`: nitrogen, total dissolved (µg/l as N)
- `tdp`: phosphorus, total dissolved (µg/l as P)
- `tkn`: nitrogen, total Kjeldahl (µg/l as N)
- `tn`: nitrogen, total (µg/l as N)
- `toc`: carbon, total organic (µg/l as C)
- `ton`: nitrogen, total organic (µg/l as N)
- `tp`: phosphorus, total (µg/l as P)
- `secchi`: Secchi disk transparency (m).
• *_qual: data flags (qualifiers) from the source program for each water quality parameter (\(\ast\) = all water quality parameters listed above). For example, "chla_qual" is the variable name for the data flag for chlorophyll a observations.

• *_censorcode: identifies whether a data value is censored and the censor type for each water quality parameter (\(\ast\) = all water quality parameters listed above). For example, "chla_censorcode" is the variable name for censor information regarding chlorophyll a observations.
  
  – NC1: has detection limit and data value is above detection limit and has no qualifier or comments
  – NC2: has detection limit and data value is above detection limit, and has qualifier or comments
  – NC3: has no detection limit and has qualifier or comments
  – NC4: has no detection limit and has no qualifiers or comments
  – LE1: has detection limit, data value is less than or equal to detection limit, has qualifier or comments
  – LE2: has detection limit, data value is less than or equal to detection limit, has no qualifier or comments
  – LE3: has no detection limit, \(<\) than comes from source program, has qualifier or comments
  – LE4: has no detection limit, \(<\) than comes from source program, has no qualifier or comments

•*_detectionlimit: the detection limit used by the source program for each water quality parameter (\(\ast\) = all water quality parameters listed above). For example, "chla_detectionlimit" is the name of the variable that reports detection limits for chlorophyll a observations.

• *_labmethodname: analytical procedure, from a standards body if available for each water quality parameter (\(\ast\) = all water quality parameters listed above). For example, "chla_labmethodname" is the variable name for lab methods associated with each chlorophyll a observation.

• chla_methodinfo: flag to indicate variable was sampled using different methods. "CHLA_UNFILTERED" means that a sample was

• secchi_methodinfo: flag to indicate variable was sampled using different methods. "SEC-CHI_VIEW" means that Secchi depth was measured using a viewer box, whereas "SEC-CHI_VIEW_UNKNOWN" reports observations where it is unclear if a Secchi viewer box was used. A secchi observation without a methodinfo code means the Secchi depth was made without the viewer box.

• sampleyear: year (4-digit) in which sample was collected

• samplemonth: month in which sample was collected

References

Soranno et al. (2017) Gigascience 6:12
### info_table

**Description**

Generate table summary statistics for all LAGOSNE data frames.

**Usage**

```r
info_table(lg)
```

**Arguments**

- `lg`: list output of lagosne_load

**Author(s)**

Masrour Farzan

**Examples**

```r
## Not run:
lg <- lagosne_load("1.087.3")
LAGOSNE:::info_table(lg)
## End(Not run)
```

---

### lagoslakes

**Lake Geospatial Metadata**

**Description**

A dataset containing geospatial identifiers, upstream lake connectivity, and wetland connectivity of all lakes in LAGOSNE >1 hectare.

**Format**

A data frame with 141271 observations and 31 variables:

- `lagoslakeid`: unique lake identifier in LAGOSNE
- `lakes_nhdid`: unique lake identifier from the National Hydrography Dataset (NHD)
- `iws_zoneid`: zone ID of interlake watershed (IWS) in which focal lake is located
- `hu4_zoneid`: zone ID of HUC4 in which focal lake is located
- `hu6_zoneid`: zone ID of HUC6 in which focal lake is located
- `hu8_zoneid`: zone ID of HUC8 in which focal lake is located
• hu12_zoneid: zone ID of HU12 in which focal lake is located
• edu_zoneid: zone ID of ecological drainage unit (EDU) in which focal lake is located
• county_zoneid: zone ID of county in which focal lake is located
• state_zoneid: two-letter abbreviation of state in which focal lake is located
• upstream_lakes_4ha_count: count of lakes >= 4 ha upstream of the focal lake, connected via the NHD network of all surface flow connections (defined as ephemeral, intermittent, or permanent streams, or any other connections)
• upstream_lakes_4ha_area_ha: total area of lakes >= 4 ha upstream of the focal lake, connected via the NHD network of all surface flow connections (defined as ephemeral, intermittent, or permanent streams, or any other connections)
• upstream_lakes_10ha_count: count of lakes >= 10 ha upstream of the focal lake, connected via the NHD network of all surface flow connections (defined as ephemeral, intermittent, or permanent streams, or any other connections)
• upstream_lakes_10ha_area_ha: total area of lakes >= 10ha upstream of the focal lake, connected via the NHD network of all surface flow connections (defined as ephemeral, intermittent, or permanent streams, or any other connections)
• latewisconsinglaciation_glacial: glaciation status during the Late Wisconsin glaciation, where 'Glaciated' where the whole zone was glaciated, 'Not_Glaciated' where the whole zone was not glaciated, and 'Partially_Glaciated' where a part of the zone was glaciated
• wlconnections_allwetlands_*: the wetland polygons that intersect or are within 30 m buffer around a lake shoreline, measured as count, area (ha), or sum of shoreline length (km) that intersects or touches wetland polygons (* = count, contributing_area_ha, shoreline_km).
• wlconnections_forestedwetlands_count: the forested wetland polygons that intersect or are within 30 m buffer around a lake shoreline, measured as count, area (ha), or sum of shoreline length (km) that intersects or touches wetland polygons (* = count, contributing_area_ha, shoreline_km).
• wlconnections_scrubshrubwetlands_count: the scrub-shrub wetland polygons that intersect or are within 30 m buffer around a lake shoreline, measured as count, area (ha), or sum of shoreline length (km) that intersects or touches wetland polygons (* = count, contributing_area_ha, shoreline_km).
• wlconnections_openwaterwetlands_count: the open water wetland polygons that intersect or are within 30 m buffer around a lake shoreline, measured as count, area (ha), or sum of shoreline length (km) that intersects or touches wetland polygons (* = count, contributing_area_ha, shoreline_km).
• wlconnections_otherwetlands_count: the other-wetland polygons that intersect or are within 30 m buffer around a lake shoreline, measured as count, area (ha), or sum of shoreline length (km) that intersects or touches wetland polygons (* = count, contributing_area_ha, shoreline_km).
• lakeconnection: connectivity of focal lake to upstream features (DR_LakeStream = drainage lake with an upstream lake, DR_Stream = drainage lake with upstream stream, Headwater = lake with outlet but no inlet, Isolated = lake with no inlets or outlets)

References

Soranno et al. (2017) Gigascience 6:12
Description

Compile LAGOSNE data from component flat files. This function should rarely be called directly outside of manual updating of source data.

Usage

lagosne_compile(
  version,
  limno_folder = NA,
  geo_folder = NA,
  locus_folder = NA,
  dest_folder = NA
)

Arguments

version character LAGOSNE database version string
limno_folder file.path to limno export folder
geo_folder file.path to geo export folder
locus_folder file.path to locus export folder
dest_folder file.path optional will default to the location returned by user_data_dir

Examples

## Not run:
lagosne_compile("1.087.3",
  limno_folder = "/Downloads/LAGOS-NE-LIMNO-EXPORT",
  geo_folder = "/Downloads/LAGOS-NE-GEO-EXPORT",
  locus_folder = "/Downloads/LAGOS-NE-LOCUS-EXPORT",
  dest_folder = lagos_path())

## End(Not run)
lagsne_get

Retrieve LAGOSNE flat files

Description

Retrieve LAGOSNE flat files from EDI.

Usage

lagsne_get(
  version = lagosne_version(),
  overwrite = FALSE,
  dest_folder = tempdir()
)

Arguments

version character LAGOSNE database version string
overwrite logical overwrite existing data for the specified version
dest_folder file.path to save data. Default to a temporary folder. Recommended to set to
LAGOSNE:::lagos_path() so that data persists between R sessions.

Examples

## Not run:
# default to latest version
lagsne_get(dest_folder = LAGOSNE:::lagos_path())

# get previous version(s)
# - recommended to install corresponding package version
# - See 'Legacy Versions' section of the README for instructions

## End(Not run)

lagsne_load

Load LAGOSNE data

Description

Load LAGOSNE data from local system files

Usage

lagsne_load(version = NULL, fpath = NA)
lagosne_select

Arguments

version character LAGOSNE database version string. Defaults to `lagosne_version`

`fpath` file.path optionally specify custom location of LAGOSNE rds file

Examples

```r
## Not run:
dt <- lagosne_load("1.087.3")

## End(Not run)
```

### Description

Select and filter LAGOSNE data with keyword helpers.

### Usage

```r
lagosne_select(
  table = NULL,
  vars = NULL,
  categories = NULL,
  dt = lagosne_load(lagosne_version())
)
```

### Arguments

- **table** character name of a dt table
- **vars** character vector of specific column names to select from table
- **categories** what type of variables should be kept. Note not all scale-category options are available. Variable categories include:
  - "waterquality" - includes all in-situ chemistry, chlorophyll, and water clarity measurements from the epi_nutr table.
  - "deposition" - all atmospheric deposition variables from the .chag tables
  - "hydrology" - baseflow, groundwater, runoff, and overland flow variables from the .chag tables
  - "climate" - 30-year normal precipitation and temperature variables from the .chag tables
  - "geology" - all surficial geology variables from the .chag tables
  - "topography" - Terrain Roughness Index and slope variables from the .lulc tables
  - "lulc1992" - all 1992 land use/land cover variables from the .lulc tables
  - "lulc2001" - all 2001 land use/land cover variables from the .lulc tables
• "lulc2006" - all 2006 land use/land cover variables from the .lulc tables
• "lulc2011" - all 2011 land use/land cover variables from the .lulc tables
• "lakes" - all lake connectivity metrics from the .conn tables
• "wetlands" - all wetland connectivity metrics from the .conn tables
• "streams" - all stream/river connectivity metrics from the .conn tables

dt data.frame of local copy of LAGOSNE data. Can be loaded with `lagosne_load` and will use version as specified in `lagosne_version`.

### Examples

```r
## Not run:
dt <- lagosne_load("1.087.3")

# specific variables
head(lagosne_select(table = "epi_nutr", vars = c("tp", "tn")))
head(lagosne_select(table = "iws.lulc", vars = c("iws_lulc2011_pct_95")))

# categories
head(lagosne_select(table = "epi_nutr", categories = "waterquality"))
head(lagosne_select(table = "county.chag", categories = "hydrology"))
head(lagosne_select(table = "hu4.chag", categories = "deposition"))

# mix of specific variables and categories
head(lagosne_select(table = "epi_nutr", vars = "lagoslakeid", categories = c("waterquality")))

## End(Not run)
```

---

**Description**

Latest LAGOSNE version

**Usage**

`lagosne_version()`

**Examples**

`lagosne_version()`
lags_get_collins_2017

Get LAGOSNE snapshot from Collins et al. 2017

Description
Get LAGOSNE snapshot from Collins et al. 2017

Usage
lags_get_collins_2017(dest_folder, overwrite = FALSE)

Arguments

dest_folder       file.path not implemented yet
overwrite         logical overwrite existing data?

References

Examples
## Not run:
lags_get_collins_2017()
## End(Not run)

lags_get_oliver_2015  Get depth data from Oliver et al. 2015

Description
Get depth data from Oliver et al. 2015

Usage
lags_get_oliver_2015(dest_folder, overwrite = FALSE)

Arguments

dest_folder       file.path not implemented yet
overwrite         logical overwrite existing data?
References


Examples

```r
## Not run:
lagos_get_oliver_2015()

## End(Not run)
```

```r
lagos_ingest

Ingest LAGOSNE flat files

Description

Ingest LAGOSNE data from component flat files

Usage

```r
lagos_ingest(version, limno_folder = NA, geo_folder = NA, locus_folder = NA)
```

Arguments

- **version**: character LAGOSNE database version string
- **limno_folder**: file.path to limno export folder. optional.
- **geo_folder**: file.path to geo export folder. optional.
- **locus_folder**: file.path to locus export folder. optional.

Examples

```r
## Not run:
lagos_ingest("1.087.3",
  limno_folder = "~/Downloads/LAGOS-NE-LIMNO-EXPORT",
  geo_folder  = "~/Downloads/LAGOS-NE-GEO-EXPORT",
  locus_folder = "~/Downloads/LAGOS-NE-LOCUS-EXPORT")

## End(Not run)
```
**lags_load_collins_2017**

Load LAGOSNE snapshot from Collins et al. 2017.

**Description**

Load LAGOSNE snapshot from Collins et al. 2017.

**Usage**

```r
lags_load_collins_2017(fpath = NA)
```

**Arguments**

- `fpath`: file.path optionally specify custom location of csv data file

**References**


**Examples**

```r
## Not run:
lg <- lags_load_collins_2017()
## End(Not run)
```

---

**lags_load_oliver_2015**

Load depth data from Oliver et al. 2015.

**Description**

Load depth data from Oliver et al. 2015.

**Usage**

```r
lags_load_oliver_2015(fpath = NA)
```

**Arguments**

- `fpath`: file.path optionally specify custom location of csv data file

**Examples**

```r
## Not run:
lg <- lags_load_oliver_2015()
## End(Not run)
```
Format

A data frame with 50607 observations of 8 variables:

- lagoslakeid: unique identifier for each lake in LAGOS-NE. For each row of data in this table, the lagoslakeid identifies the focal lake for which other measures are calculated
- nhdid: the 'Permanent_identifier' from the NHD, but is called the NHDID in LAGOS-NE
- hu4id: the unique ID of the HU4 zone that the focal lake is located within
- lat_decimal: latitude geographic coordinate in decimal degrees
- long_decimal: longitude geographic coordinate in decimal degrees
- area: lake area in hectares
- zmaxobs: observed maximum lake depth (meters)
- zmaxpredict: predicted maximum lake depth (meters)

References


Examples

```r
## Not run:
lagos_load_oliver_2015()

## End(Not run)
```

### Description

Return the cross-platform data path designated for LAGOSNE.

### Usage

```
lagos_path()
```
LAGOSNE sources

Description

A dataset identifying the sources of limnological data in LAGOSNE.

Format

A data frame with observations of 19 variables:

- programid: unique LAGOSNE program identifier
- programname: name of the sampling/monitoring program that collected the data
- metadataid: unique metadata identifier associated with
- sourceid
- sourcename
- composite
- programtype: categorical description of the type of sampling /monitoring effort
- fundingsource
- labtype
- programlink
- programstatus
- dataprovider
- organization
- sourcedescription
- beg_yr
- end_yr
- state_name
- lakecount
- variable_list

References

Soranno et al. (2017) Gigascience 6:12
Description

A dataset containing depth and names for lakes included in the limno module.

Format

A data frame with observations of 8 variables:

- lagoslakeid: unique lake identifier developed for LAGOS-NE
- nhdid: the 'Permanent_identifier' from the NHD, but is called the NHDID in LAGOS-NE
- lagosname1: name of lake from source dataset used as the authoritative lake name for LAGOS-NE
- meandepth: mean lake depth (meters)
- meandepthsource: source of mean depth data, see "lagos_source_program" for definitions
- maxdepth: maximum lake depth (meters)
- maxdepthsource: source of maximum depth data, see "lagos_source_program" for definitions
- legacyid: unique lake identifier from the original water quality source dataset, this is not standardized and each source dataset has its own system

References

Soranno et al. (2017) Gigascience 6:12

See Also

lakes.geo

Description

Get a summary of lake attribute information

Usage

lake_info(lagoslakeid = NA, name = NA, state = NA, dt = lagosne_load(), ...)


load_lagos_txt

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>lagoslakeid</td>
<td>numeric lake id</td>
</tr>
<tr>
<td>name</td>
<td>character lake name not caps sensitive</td>
</tr>
<tr>
<td>state</td>
<td>character state name not caps sensitive</td>
</tr>
<tr>
<td>dt</td>
<td>list of data.frames. output of lagosne_load.</td>
</tr>
<tr>
<td>...</td>
<td>arguments passed to agrepl to fuzzy match lake name</td>
</tr>
</tbody>
</table>

Examples

```r
## Not run:
lake_info(lagoslakeid = 4314)
lake_info(lagoslakeid = 7441)
lake_info(lagoslakeid = 244)
lake_info(lagoslakeid = 4686)
lake_info(lagoslakeid = 8016)
lake_info(lagoslakeid = c(21864, 2317))
lake_info(lagoslakeid = c(1441))
lake_info(lagoslakeid = c(125428, 1441))
lake_info(lagoslakeid = c(4686, 8016))

# fuzzy matching to lake name
lake_info(name = "Duck Lake", state = "Michigan")
# exact matching to lake name
lake_info(name = "Duck Lake", state = "Michigan", max.distance = list(all = 0))

lake_info(name = "Sunapee Lake", state = "New Hampshire")
lake_info(name = c("Sunapee Lake", "Oneida Lake"), state = c("New Hampshire", "New York"))
```

## End(Not run)
Value
data.frame

---

**locus**

*Metadata for all lakes > 1ha*

---

**Description**

A dataset containing identifying information for all lakes > 1ha. This includes lake name, lake size (area and perimeter), location (lat/long), elevation, and codes identifying zones in which the lake is located.

**Format**

A data frame with 141265 observations of 17 variables:

- **lagoslakeid**: unique identifier for each lake in LAGOS-NE. For each row of data in this table, the lagoslakeid identifies the focal lake for which other measures are calculated
- **nhdid**: the 'Permanent_idenfier' from the NHD, but is called the NHDID in LAGOS-NE
- **gnis_name**: lake name from the GNIS database
- **nhd_lat**: latitude of centroid of the NHD lake polygon in decimal degrees (NAD83)
- **nhd_long**: longitude of centroid of the NHD lake polygon in decimal degrees (NAD83)
- **lake_area_ha**: surface area (in hectares) of lake waterbody polygon from NHD
- **lake_perim_meters**: perimeter (in meters) of lake waterbody polygon from the NHD
- **nhd_fcode**: NHD five-digit integer code with feature code plus additional characteristics/values
- **nhd_ftype**: NHD three-digit integer code providing a unique identifier of feature type for the waterbody
- **iws_zoneid**: the unique ID of the IWS that is estimated for the focal lake in the row of data that is identified by the lagoslakeid.
- **hu4_zoneid**: the unique ID of the HU4 zone that the focal lake is located within
- **hu6_zoneid**: the unique ID of the HU6 zone that the focal lake is located within
- **hu8_zoneid**: the unique ID of the HU8 zone that the focal lake is located within
- **hu12_zoneid**: the unique ID of the HU12 zone that the focal lake is located within
- **edu_zoneid**: the unique ID of the EDU zone that the focal lake is located within
- **county_zoneid**: the unique ID of the county that the focal lake is located within
- **state_zoneid**: the unique ID of the state that the focal lake is located within
- **elevation_m**: the elevation of the lake centroid, in meters (referenced to the North American Vertical Datum of 1988 (NAVD88)) and obtained from the National Elevation Dataset

**References**

Soranno et al. (2017) *Gigascience* 6:12
Land Use Land Cover (LULC) Data Frames

Description

Datasets containing information on the land use and land cover (LULC) characteristics calculated at all LAGOSNE spatial classifications (see `?scales`) from the National Land Cover Dataset (NLCD).

Format

Data frames with all or a subset of the following variables. Number of observations is equal to the number of zones in each spatial scale (see Details below). Wildcard options include the 9 LAGOSNE spatial scales (`* = buffer100m, buffer500m, iws, hu12, hu8, hu4, edu, county, state`), year of measurement (`** = 1992, 2001, 2006, 2011`), and unit of measurement in hectares or percent of zone area (`*** = ha, pct` unless noted otherwise). Each variable is available at each scale, year, and unit unless otherwise noted.

- `_nhdid` (* = buffer100m, buffer500m, iws)
- `_canopy2001_***`: per pixel tree canopy percent measured 2001. Summary statistics include minimum, maximum, mean and standard deviation (`*** = min, max, mean, std`).
- `_damdensity_***`: dams in zone. Summary statistics include a point count, points per hectare, and points per square kilometer (`*** = pointcount, pointsperha, pointspersqkm`)
- `_nlcd**_***_0`: No data
- `_nlcd**_***_11`: Open water
- `_nlcd1992_***_21`: Residential, low intensity
- `_nlcd1992_***_22`: Residential, high intensity
- `_nlcd1992_***_23`: Commercial/industrial/transportation
- `_nlcd**_***_31`: Bare rock/sand/clay
- `_nlcd1992_***_32`: Quarries/strip mines/gravel pits measured in 1992
- `_nlcd1992_***_33`: Transitional (barren) measured in 1992
- `_nlcd**_***_41`: Deciduous forest
• *nlcd\_42: Evergreen forest
• *nlcd\_43: Mixed forest
• *nlcd\_71: Grasslands/herbaceous
• *nlcd\_81: Pasture/hay
• *nlcd\_82: Row crops
• roaddensity\_: Roads within the zone, calculated as sum of the length in meters, or sum of the length in meters divided by area of zone in hectares (** = sum_lengthm, density_mperha)
• slope\_: The slope at each cell is the slope with respect to its immediate neighbors (10m scale). Cells in zone summarized as either the minimum, maximum, mean, or standard deviation (** = min, max, mean, std)
• tri\_: Terrain ruggedness index (TRI) at each cell is the absolute difference in meters between the elevation of the focal cell and its immediate neighbors (10m scale). Cells in zone summarized as either the minimum, maximum, mean, or standard deviation (** = min, max, mean, std)
• zoneid: unique zone identifier (* = iws, hu12, hu8, hu4, edu, county, state)
• lagoslakeid: unique integer identifier for focal lake
• lakeconnection: connectivity class of focal lake. Only in iws.lulc table.
• borderiws: whether iws zone intersects Canadian border (1 = yes, NA = no). Only in iws.lulc table.

Details

Original data sources and layers from which each metric was derived can be found in additional file 5 of Soranno et al. (2015).

References

Soranno et al. (2017) Gigascience 6:12;
query_column_keywords

See Also

lakes.geo

query_column_keywords  Query column keywords

Description
Return a vector of column names, given a table name and keyword string.

Usage
query_column_keywords(dt, table_name, keyword_string)

Arguments
dt  data.frame
table_name  character
keyword_string  character

Examples
## Not run:
dt <- lagosne_load("1.087.3")
query_column_keywords(dt, "hu12.chag", "hydrology")
## End(Not run)

query_column_names  Query column names

Description
Return a vector of column names, given a table name and grep query string.

Usage
query_column_names(dt, table_name, grep_string)

Arguments
dt  data.frame
table_name  character
grep_string  character
query_lagos_names

Query LAGOSNE names

Description

Return a vector of table names whose associated tables have columns that grep to query.

Usage

query_lagos_names(grep_string, scale = NA, dt = lagosne_load())

Arguments

grep_string character search string to grep to table column names
scale character filter results by one of:
  • county
  • edu
  • hu4
  • hu8
  • hu12
  • state
dt data.frame output of lagosne_load

Examples

## Not run:
query_lagos_names("_dep_")
query_lagos_names("_dep_", "hu4")
query_lagos_names("chla")
query_lagos_names("secchi")
query_lagos_names("conn")

## End(Not run)
Index

* datasets
  chag, 3
  classifications, 5
  conn, 7
  epi_nutr, 13
  lagos_source_program, 25
  lagoslakes, 15
  lakes_limno, 26
  locus, 28
  lulc, 29
  agrepl, 27
  baseflow (chag), 3
  buffer100m (classifications), 5
  buffer100m.lulc (lulc), 29
  buffer500m (classifications), 5
  buffer500m.conn (conn), 7
  buffer500m.lulc (lulc), 29
  censorcode (epi_nutr), 13
  chag, 3
  chlorophyll (epi_nutr), 13
  classification (classifications), 5
  classifications, 5
  climate (chag), 3
  colora (epi_nutr), 13
  conn, 7, 7
  connectivity (conn), 7
  coordinatize, 11
  county (classifications), 5
  county.chag (chag), 3
  county.conn (conn), 7
  county.lulc (lulc), 29
  deposition (chag), 3
  depth (lakes_limno), 26
  detectionlimit (epi_nutr), 13
  display_names, 12
  doc (epi_nutr), 13
  edu (classifications), 5
  edu.chag (chag), 3
  edu.conn (conn), 7
  edu.lulc (lulc), 29
  epi_nutr, 13
  geology (chag), 3
  hu12 (classifications), 5
  hu12.chag (chag), 3
  hu12.conn (conn), 7
  hu12.lulc (lulc), 29
  hu4 (classifications), 5
  hu4.chag (chag), 3
  hu4.conn (conn), 7
  hu4.lulc (lulc), 29
  hu8 (classifications), 5
  hu8.chag (chag), 3
  hu8.conn (conn), 7
  hu8.lulc (lulc), 29
  hydrology (chag), 3
  info_table, 15
  iws (classifications), 5
  iws.conn (conn), 7
  iws.lulc (lulc), 29
  lagos.source (lagos_source_program), 25
  lagos.get_collins_2017, 21
  lagos.get_oliver_2015, 21
  lagos.ingest, 22
  lagos.load_collins_2017, 23
  lagos.load_oliver_2015, 23
  lagos.path, 24
  lagos_source_program, 25
  lagoslakes, 15
  LAGOSNE (LAGOSNE-package), 2
  LAGOSNE-package, 2
  lagosne_compile, 17
lagosne_get, 18  
lagosne_load, 18, 20, 27, 32  
lagosne_select, 19  
lagosne_version, 19, 20, 20  
lake_info, 26  
lakeareaha (classifications), 5  
lakes.geo, 7, 11, 26, 29, 31  
lakes.geo (lagoslakes), 15  
lakes_limno, 26  
legacyid (lakes_limno), 26  
load_lagos_txt, 27  
location (locus), 28  
locus, 28  
lulc, 7, 29  
maxdepth (lakes_limno), 26  
meandepth (lakes_limno), 26  
nitrogen (epi_nutr), 13  
nlcd (lulc), 29  
nutrients (epi_nutr), 13  
phosphorus (epi_nutr), 13  
programs (lagos_source_program), 25  
qualifiers (epi_nutr), 13  
query_column_keywords, 31  
query_column_names, 31  
query_lagos_names, 32  
read.table, 27  
runoff (chag), 3  
scales (classifications), 5  
secchi (epi_nutr), 13  
source_programs (lagos_source_program), 25  
state (classifications), 5  
state.chag (chag), 3  
state.conn (conn), 7  
state.lulc (lulc), 29  
topography (lulc), 29  
user_data_dir, 17  
waterquality (epi_nutr), 13