Q1: Are lake and terrestrial primary productivity coherent?

Jonathan Walter, Grace Wilkinson, Rachel Fleck, Michael Pace

4/17/2019

This document organizes for openness and reproducibility analyses of the temporal coherence of interannual variation in lake primary productivity with terrestrial primary productivity in the landscape surrounding the lake.

Data important and formatting

```
##updated cleanAnnualts on 5/5/19

lakes_to_get<-read.csv("~/GitHub/AquaTerrSynch/AnalysisCode/lakes20yrs_chla.csv")$x

lagoslakes.raw<-makeLAGOSannualts(lakes_to_get, infovars=c("lake_area_ha", "lake_perim_meters", "nhd_fty
                                                           "hu12_zoneid", "state_zoneid", "elevation_m"
                                  minmos=3, minobs=3, timespan=c(1989,2018))
lagoslakes.cln<-cleanAnnualts(lagoslakes.raw)

rm(lakes_to_get)

MNMPCAlakes.raw<-makeMNMPCAannualts(dir="/Users/jonathanwalter/Box Sync/NSF EAGER Synchrony/Data/LAGOS
                                    infovars=c("lake_area_ha", "lake_perim_meters", "nhd_ftype", "nhd_fc
                                               "state_zoneid",
                                               "elevation_m"), minmos=3, minobs=3, timespan=c(1989,2018)
MNMPCAlakes.raw<-fixNamestoLAGOS(MNMPCAlakes.raw,"Minnesota MPCA")
MNMPCAlakes.cln<-cleanAnnualts(MNMPCAlakes.raw)

WIDNRlakes.raw<-makeWIDNRannualts(dir="/Users/jonathanwalter/Box Sync/NSF EAGER Synchrony/Data/LAGOS Ex
                                  infovars=c("lake_area_ha", "lake_perim_meters", "nhd_ftype", "nhd_fco
                                             "state_zoneid",
                                             "elevation_m"), minmos=3, minobs=3, timespan=c(1989,2018))
WIDNRlakes.raw<-fixNamestoLAGOS(WIDNRlakes.raw, "Wisconsin DNR")
WIDNRlakes.cln<-cleanAnnualts(WIDNRlakes.raw)

#IowaALMlakes<-makeIowaALMannualts(almdat="/Users/jonathanwalter/Box Sync/NSF EAGER Synchrony/Data/Iowa

analysislakes<-list(lakeinfo=rbind(lagoslakes.cln$lakeinfo,MNMPCAlakes.cln$lakeinfo,WIDNRlakes.cln$lake
                    lakedata=c(lagoslakes.cln$lakedata, MNMPCAlakes.cln$lakedata, WIDNRlakes.cln$lakeda

any(duplicated(analysislakes$lakeinfo$lagoslakeid)) #no duplicates
```

```
## [1] FALSE
```