

Lakes, Landscape, and R:

**A framework for open research on
freshwater cyanobacteria**

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(USEPA)**

US-IALE 2018

Twitter?



hashtag: #usiale2018 #rstats #cyanobacteria

me: @jhollist

Who, what, why, and how?

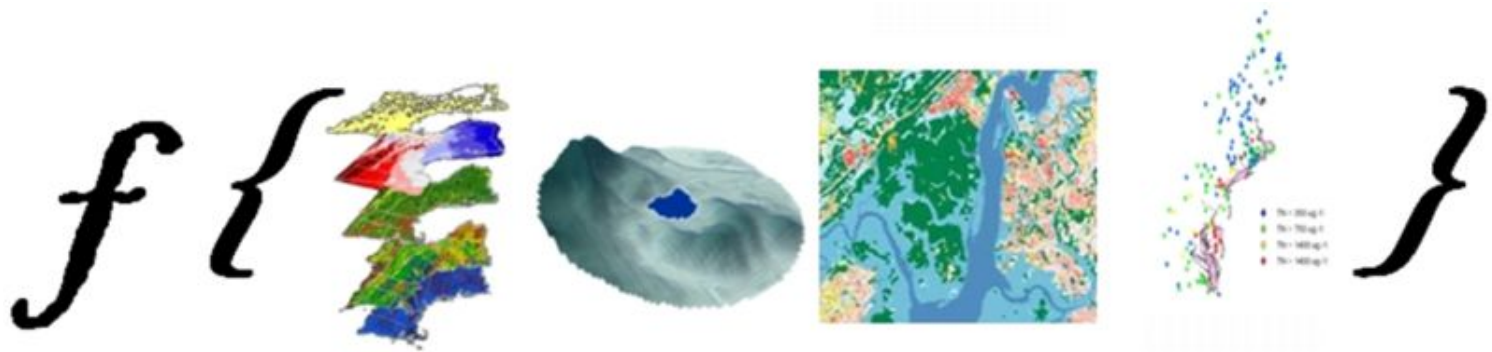
Who are we?

- Ecologists
- Computational focus
 - Enough to be dangerous
- 3 FTE
 - Myself
 - Betty Kreakie
 - Bryan Milstead
- 1 Post-doc
 - Stephen Shivers
- Alum
 - Farnaz Nojavan



What do we do?

- Apply computational approaches to understand water quality impacts in lakes
- Open Science



R Packages

Why R Packages

- Useful structure
- Infrastructure for sharing
 - GitHub
 - CRAN
- We are an R shop!



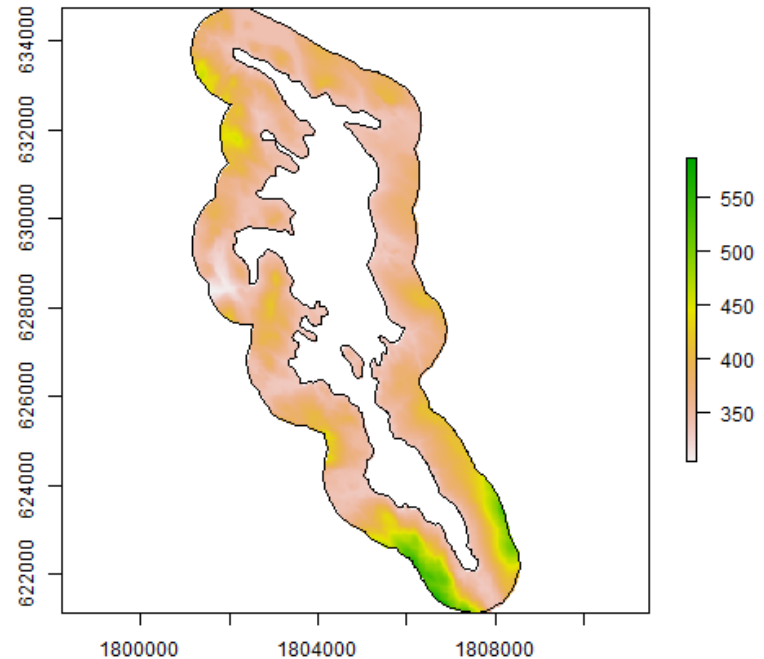
Packages to solve common problems

- lakemorpho
- elevatr
- goatscape (in development)

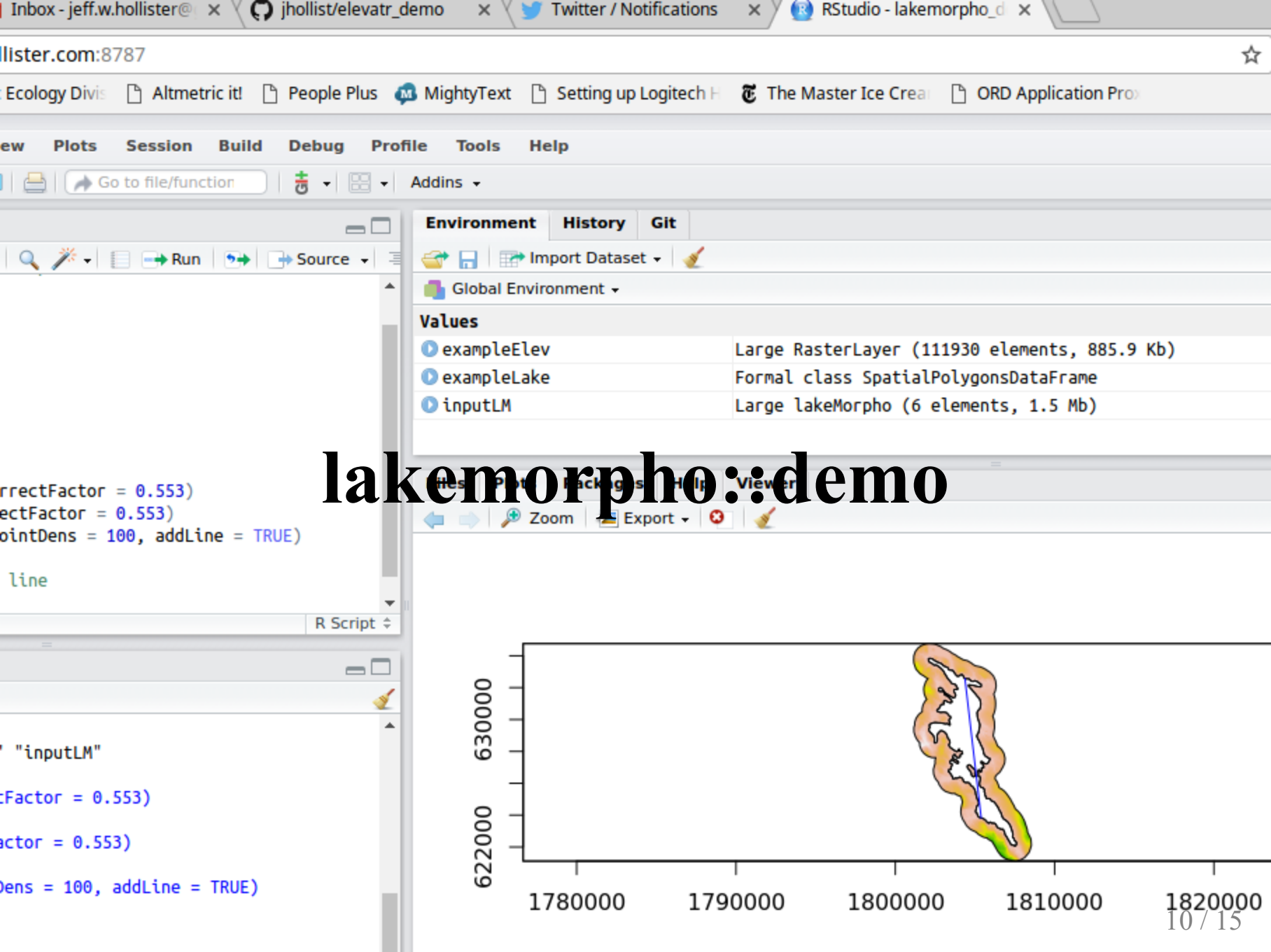


lakemorpho

- Lake morphometry metrics in R
- Version 1.0
 - August 2014
- Version 1.1.0
 - December 2016
- `sf` support to be added
- [National Lake Morphometry](#)
- [Hollister and Milstead \(2010\)](#)
- [Hollister *et. al.* \(2011\)](#)
- [Hollister and Stachelek \(2017\)](#)

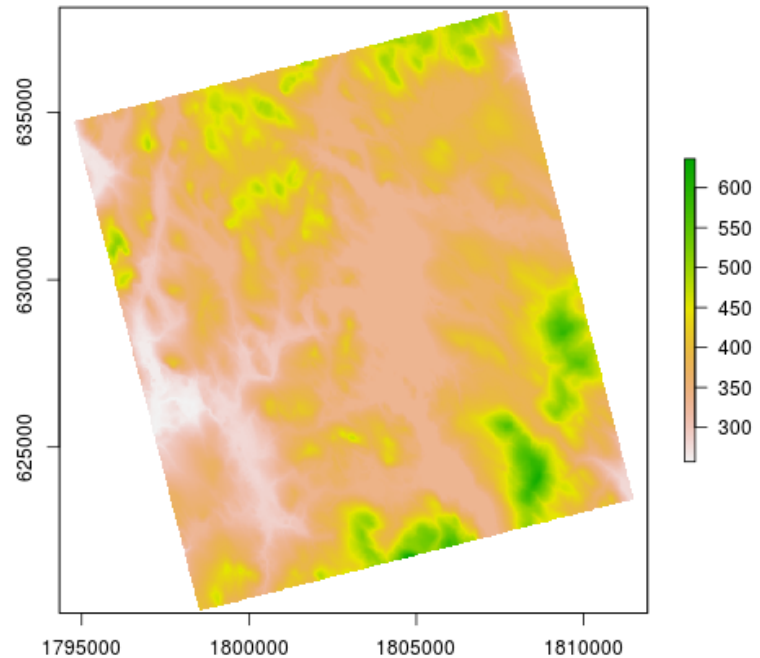


Package URL: <https://cran.r-project.org/package=lakemorpho>

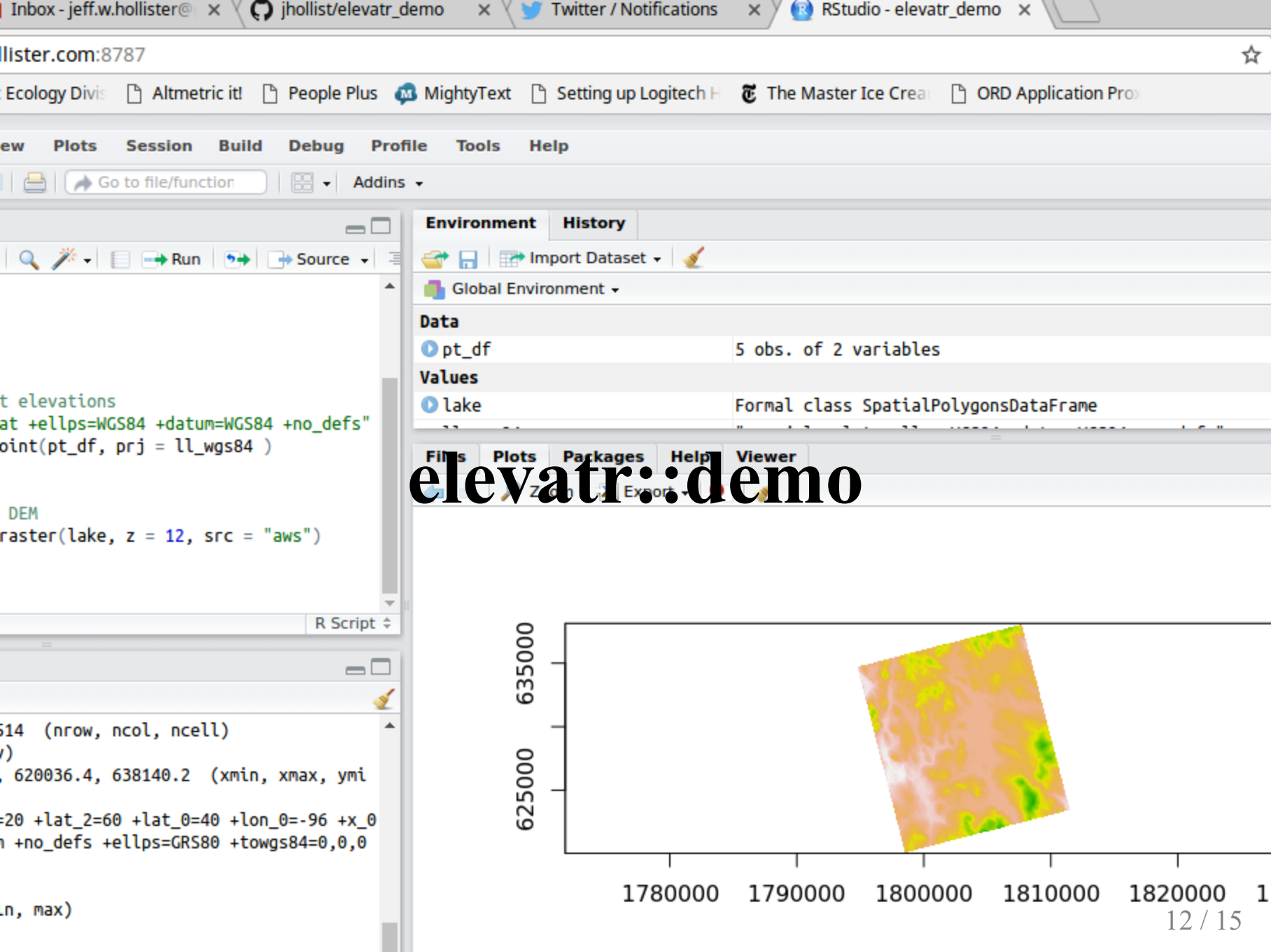


elevatr

- Access elevation data in R
 - Mapzen
 - AWS
 - USGS
- Version 0.1.1
 - January 2017
- Version 0.1.3
 - March 2017
- Will be paired with `lakemorpho`
- `sf` support to be added



Package URL: <https://cran.r-project.org/package=elevatr>



goatscape

- New effort with Bryan Milstead
- What's in a name?
- Summarizes ancillary data for a user-defined landscape polygon
 - Census (via `censusapi`)
 - Landcover
 - Impervious
- Accepts arbitrary spatial data for the landscape
- Based on `sf` and `tidy` by design
- <https://github.com/usepa/goatscape>



Plug for other landscape packages

Thanks!

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Slides created via the R package [xaringan](https://github.com/jhollist/xaringan).