

# Landscape scale risk assessment of cyanobacteria blooms in California lakes

Marcus W. Beck<sup>1</sup>, Martha Sutula, Meredith Howard, Eric Stein

<sup>1</sup>Southern California Coastal Water Research Project, Costa Mesa, CA  
marcusb@sccwrp.org, Phone: 714-755-3217

May 24<sup>th</sup>, 2018



## Streams, endpoints and objectives



# California lakes

Types, distribution, reservoirs



# California lakes

Cyanohabs as endpoint to meet objectives for drinking water, recreation  
Goal: evaluate the relative risk of lakes in California that are at risk of exceeding a eutrophication endpoint that is related to bloom occurrence



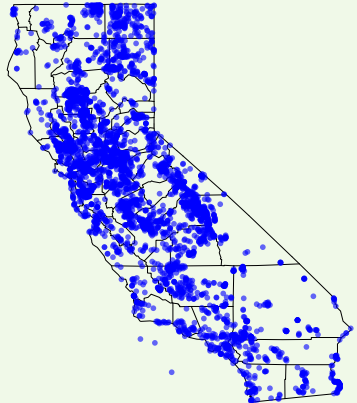
# Data and approach

Limited *in situ* data for California, tons of watershed data

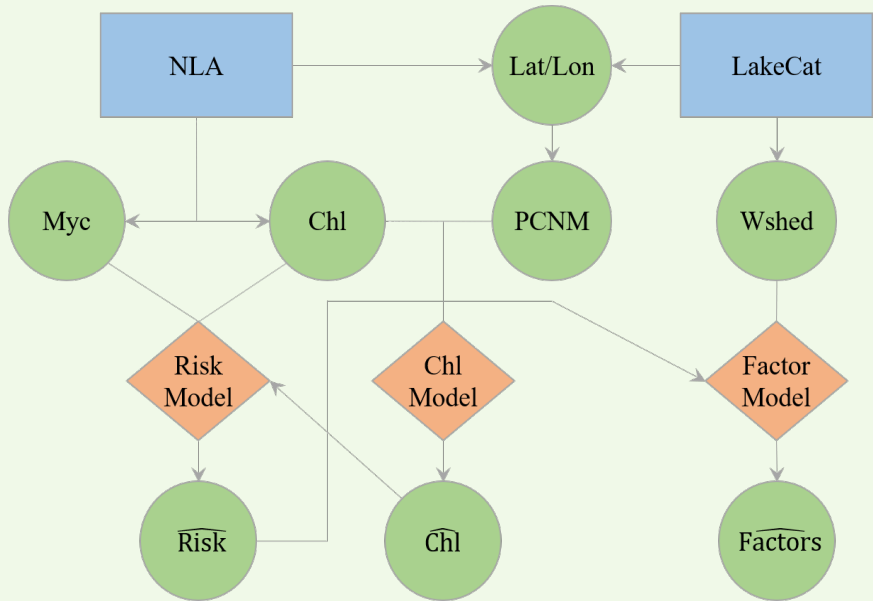
**NLA07, NLA12: 59 lakes**

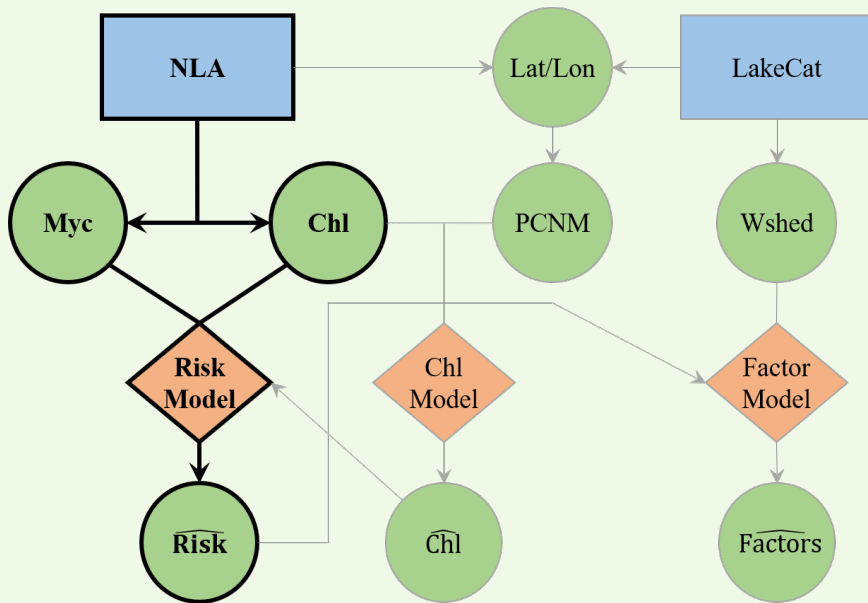


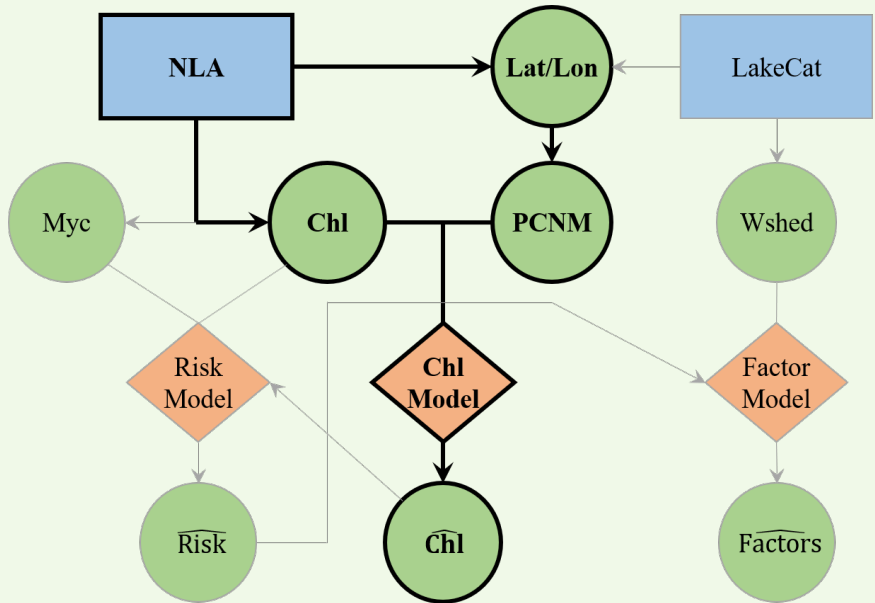
**LakeCat: 4924 lakes**



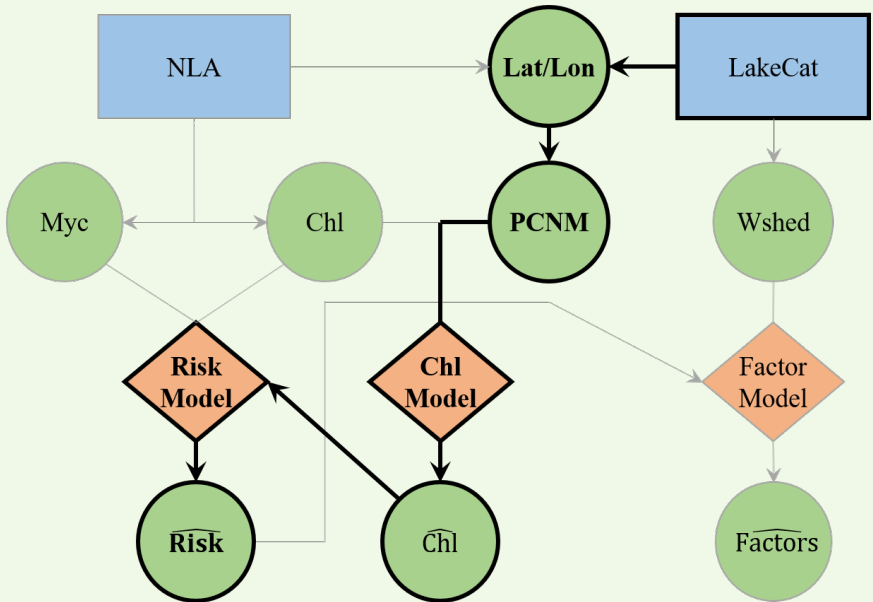
[USEPA (US Environmental Protection Agency), 2009,  
USEPA (US Environmental Protection Agency), 2017, Hill et al., 2018]

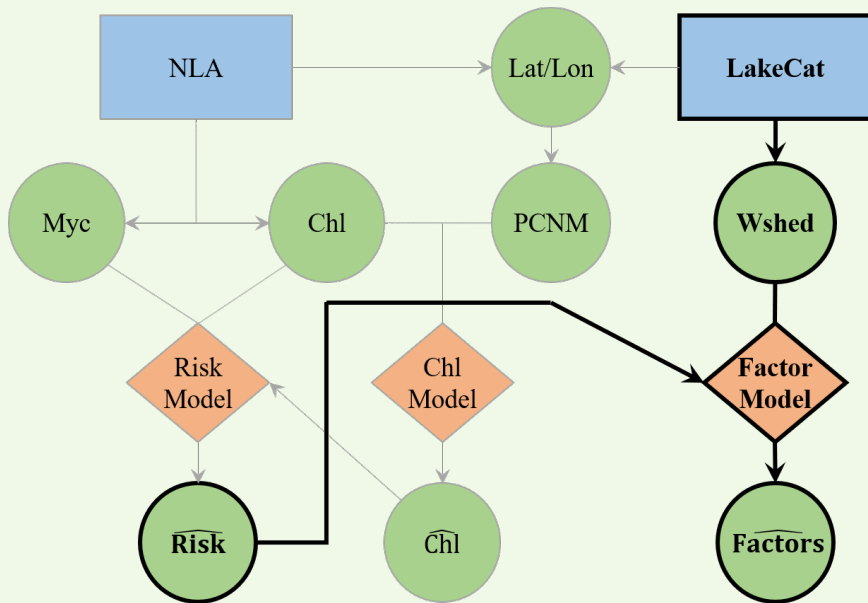














# Data and approach



# Data and approach



# Results



# Results



# Results



# Issues and future work

## Assumptions and limitations





# Issues and future work

Alternative data acquisition

## *Acknowledgments:*

Research staff and employees at Southern California Coastal Water Research Project


Blake Schaeffer (USEPA, ORD) for CyAN data

Ryan Hill (USEPA, ORISE) for LakeCat data


## *Funding sources and contact:*



marcusb@sccwrp.org, 7147553217

 GitHub (project):  
[https://github.com/fawda123/cali\\_lake](https://github.com/fawda123/cali_lake)

 GitHub (presentation):  
[https://github.com/fawda123/SFS\\_2018](https://github.com/fawda123/SFS_2018)

 Twitter: @fawda123

# References

- Hill RA, Weber MH, Debbout R, Leibowitz SG, Olsen AR. 2018.  
**The Lake-Catchment (LakeCat) dataset: Characterizing landscape features for lake basins within the conterminous USA.**  
Freshwater Science, pages 1–14.
- USEPA (US Environmental Protection Agency). 2009.  
**National Lakes Assessment 2007: a collaborative survey.**  
Technical Report EPA-841-R-09-001, Washington, DC.
- USEPA (US Environmental Protection Agency). 2017.  
**National Lakes Assessment 2012: technical report.**  
Technical Report EPA-841-R-16-114, Washington, DC.