



Lake Connectivity Effects on Phosphorus in 1,000s of Lakes:

A prospective talk

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MSU Fisheries and Wildlife Graduate Symposium

Where does phosphorus come from?



Natural Sources



Mining



Agriculture



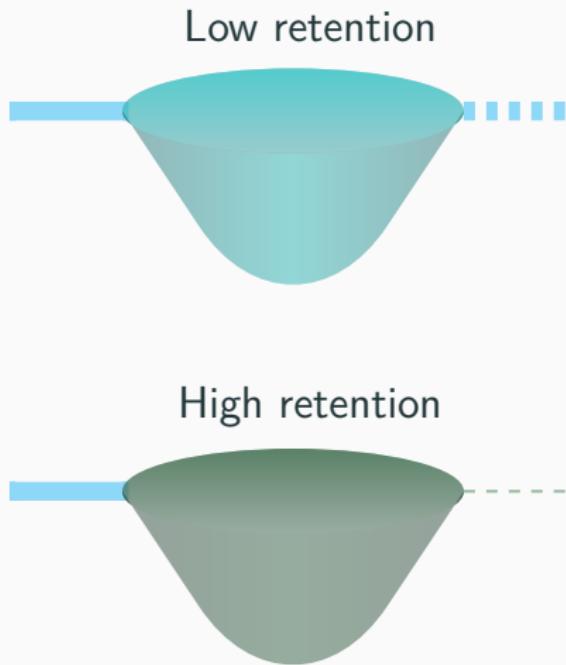
Stormwater runoff

Where does phosphorus go?

- Plant and animal biomass
- Particle settling
- Outflow / Export

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Why do we care?

- Watershed sensitivity to loading



- Too broad? Too narrow? How to target?

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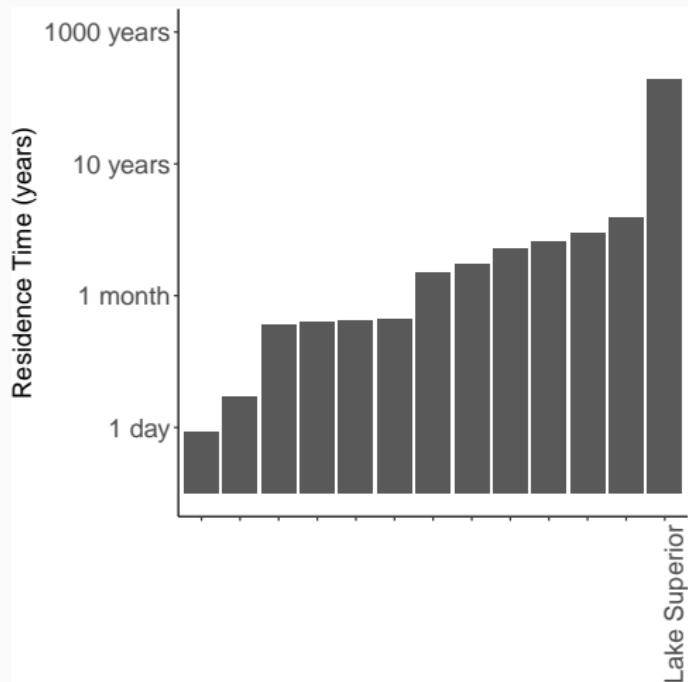
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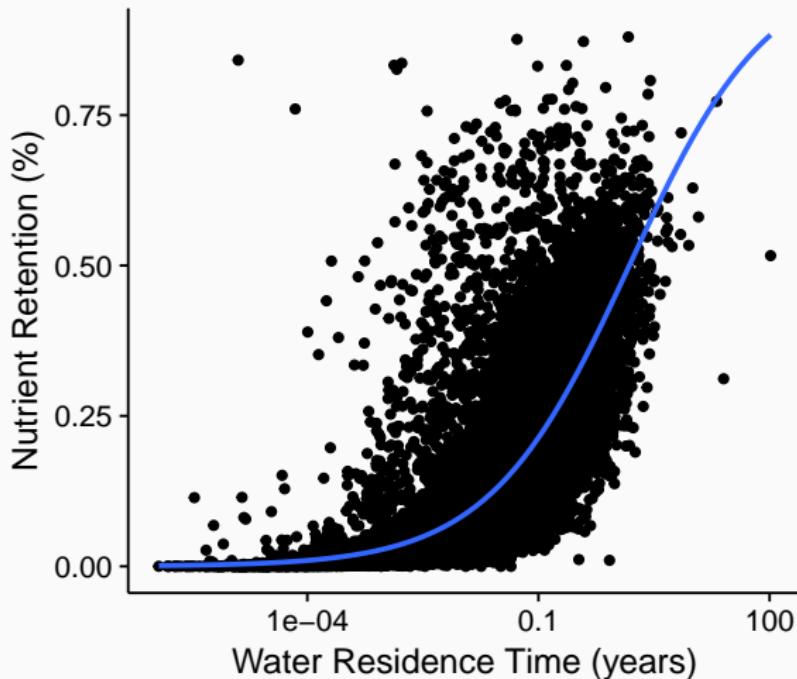
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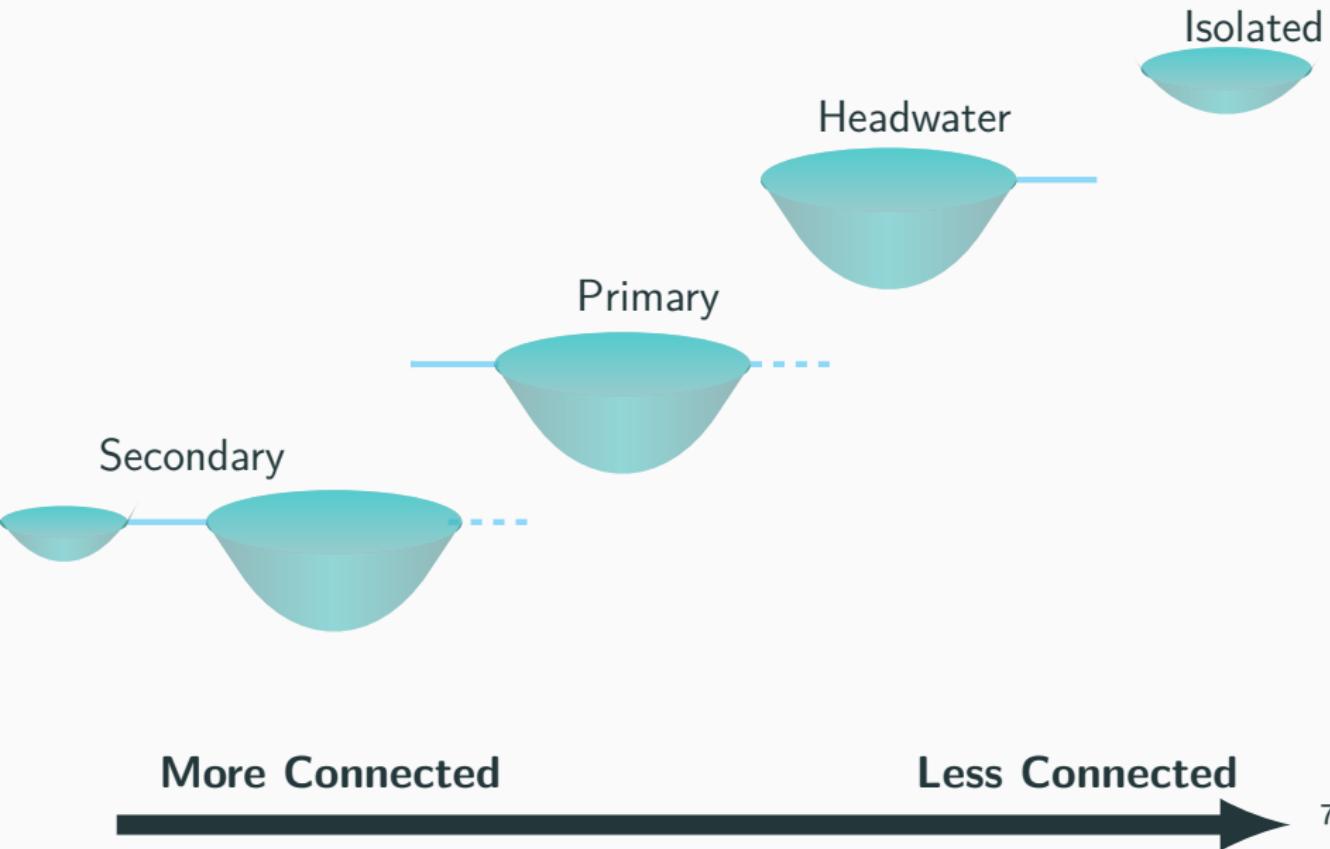


How does residence time relate to nutrient retention?

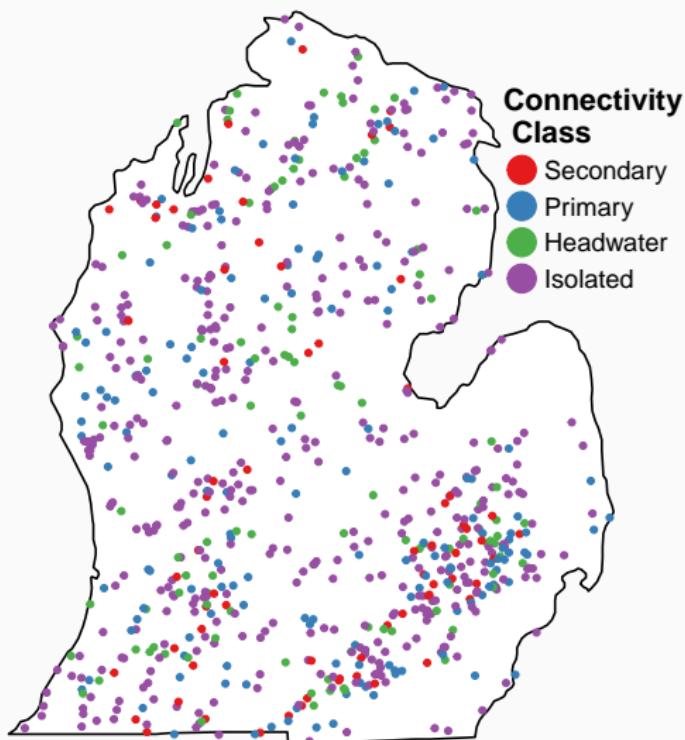
Milstead et al. (2013)



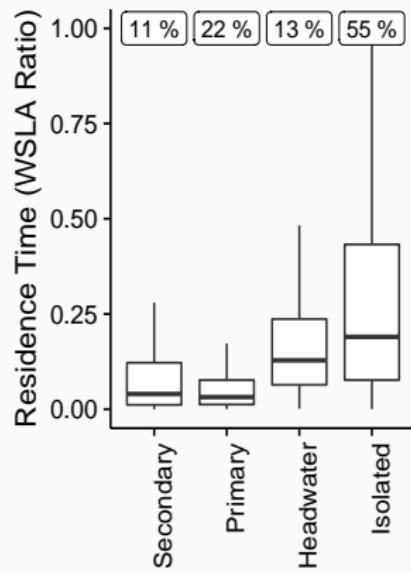
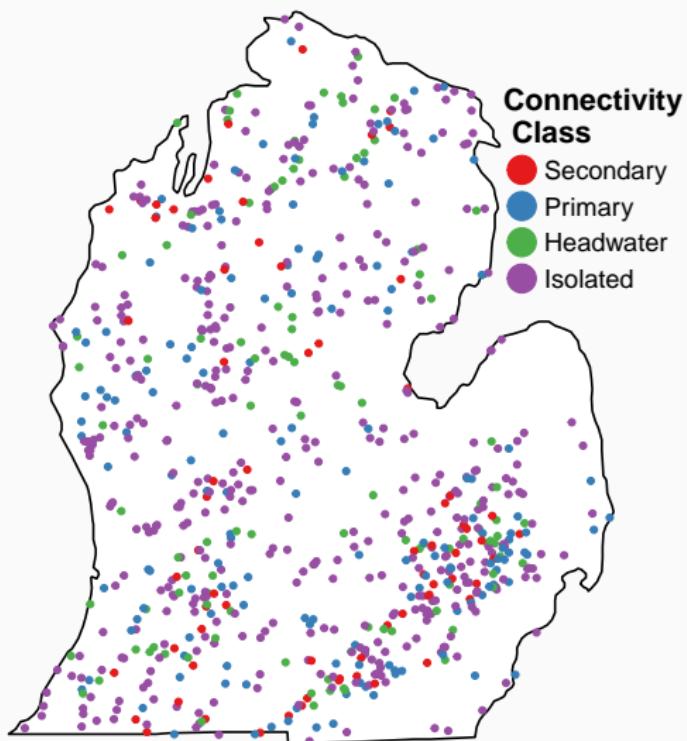
What is lake connectivity?



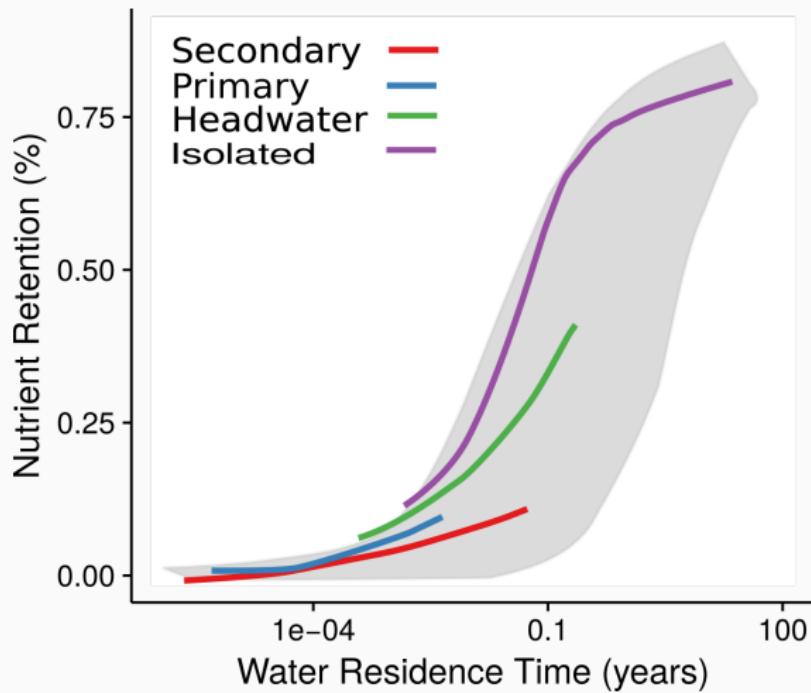
Connectivity versus residence time



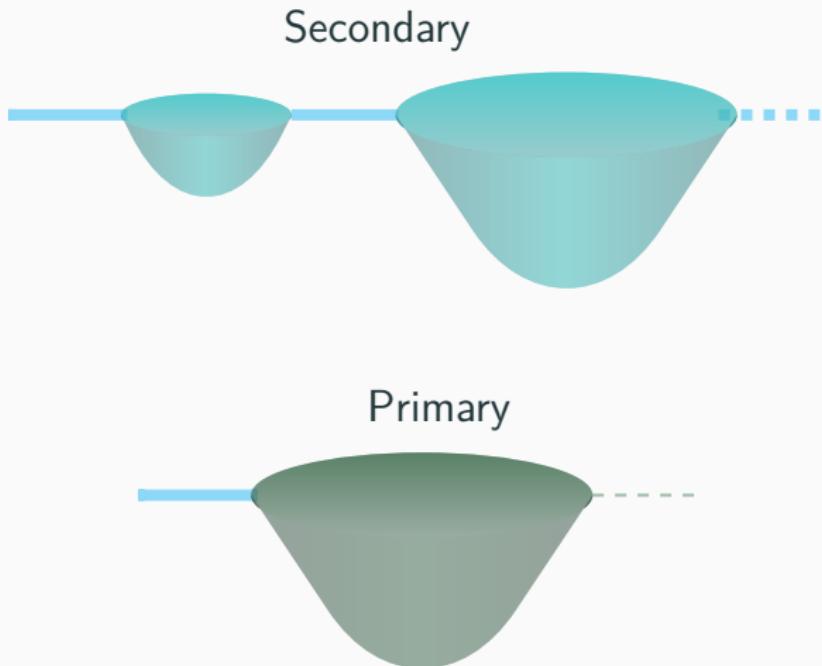
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How does connectivity influence retention?



Nutrient retention predictions



How I will test my predictions

Calculate water residence time in 50,000 lakes

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Calculate nutrient retention

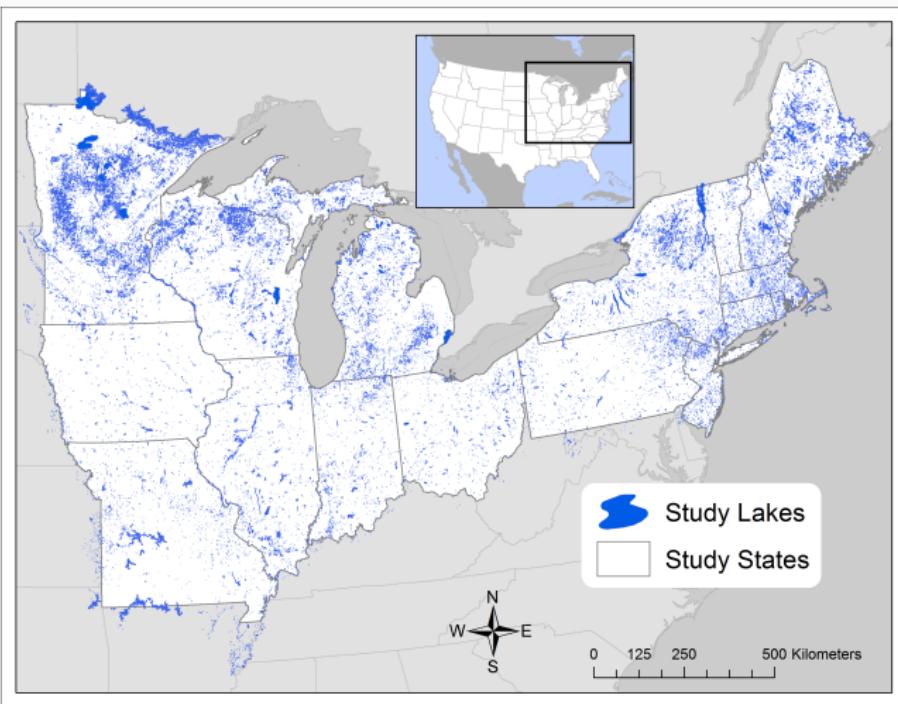
How I will test my predictions

Calculate water residence time in 50,000 lakes

Calculate nutrient retention

Relate retention, residence time, and connectivity

Testing predictions with LAGOS-NE



Contact

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LAGOS

<http://csilimnology.org/>

References

-  Milstead, W.B., Hollister, J.W., Moore, R.B. and Walker, H.A., 2013. Estimating summer nutrient concentrations in northeastern lakes from SPARROW load predictions and modeled lake depth and volume. *PLoS one*, 8(11).