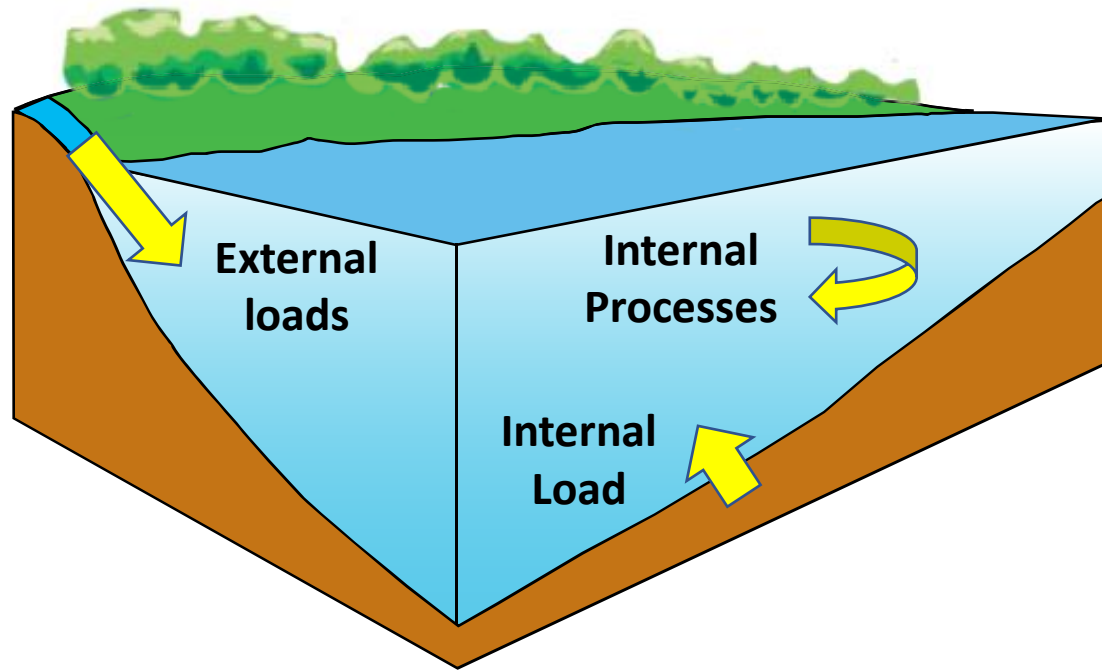




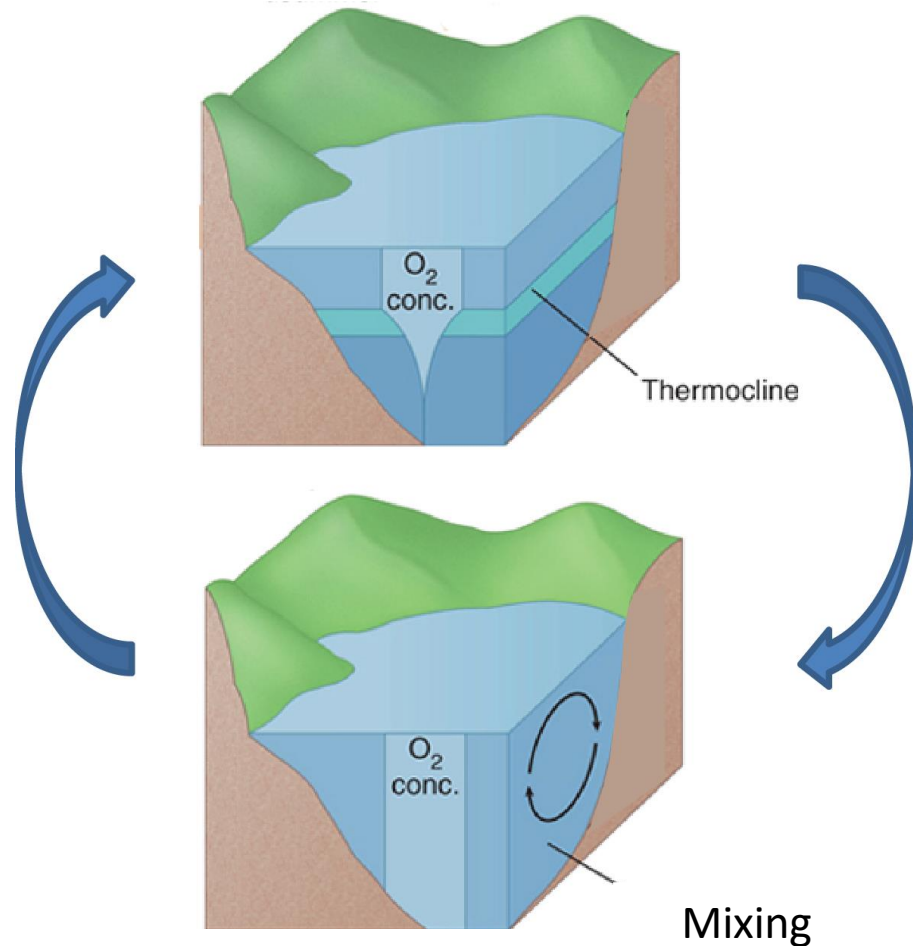
Is there a Nutrient Flux from the Sediments in Clear Lake?

Processes Affecting the Lake Water Quality



Understanding the **dominant processes** in the lake watershed and in the lake itself that are negatively impacting lake water quality and ecosystem health.

Internal Loading and Anoxia



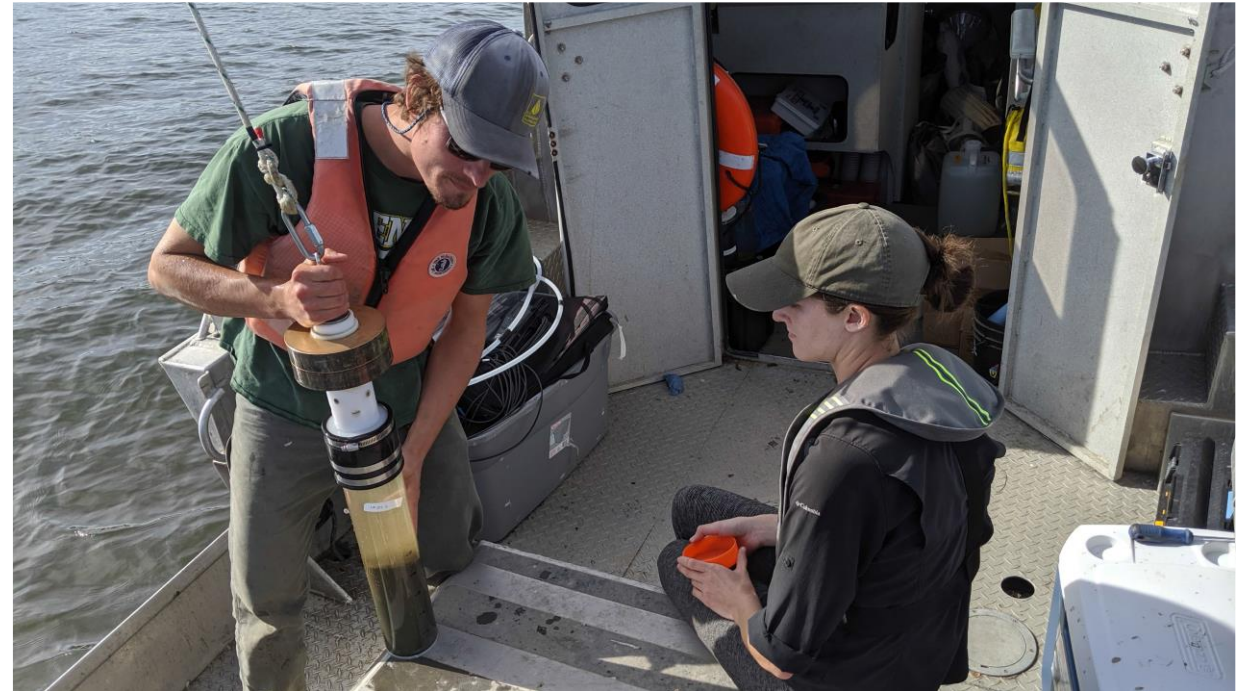
Under **anoxic** conditions
 PO_4^{3-} is released from
the lake sediments

Internal
Loading

Under **oxic** conditions ...
 Fe_3PO_4 prevails insoluble
in the lake sediments

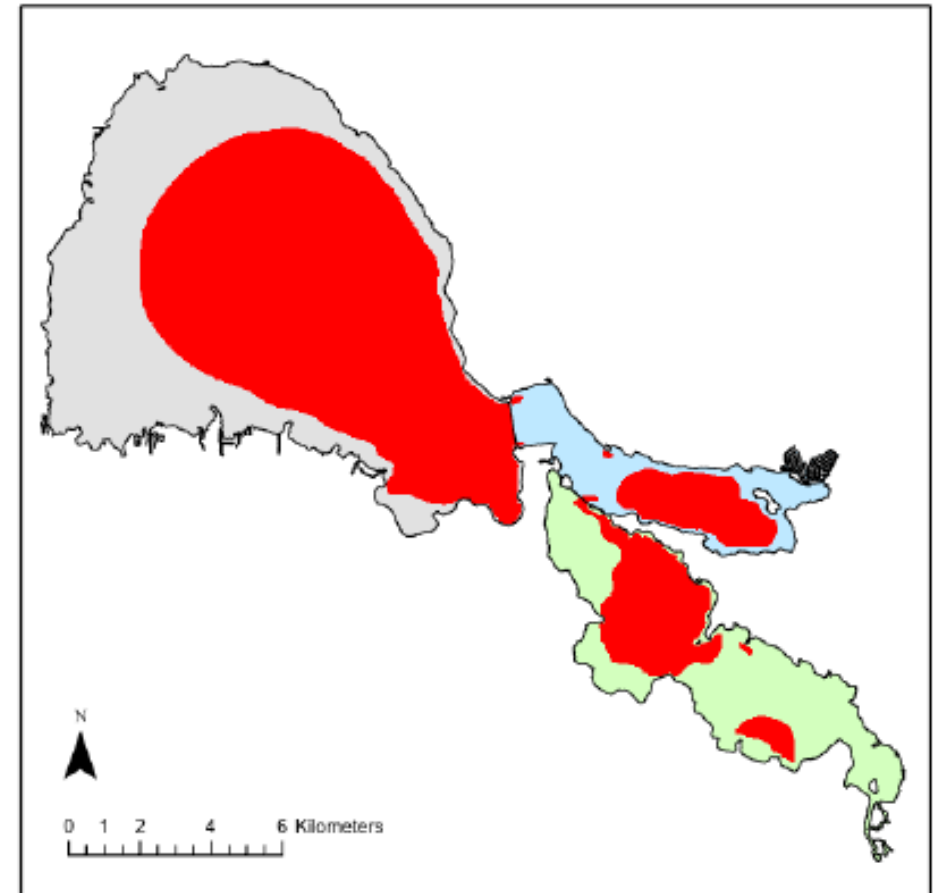
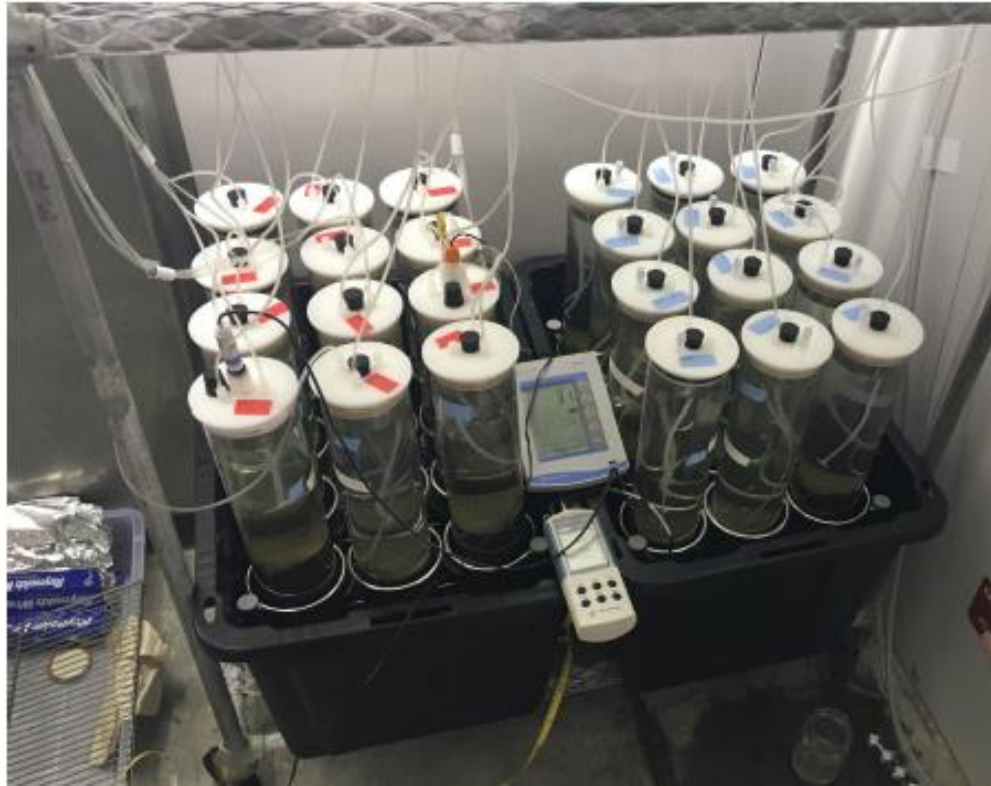
Quantifying Internal Loading in Clear Lake

- UCD – TERC
 - Collected **Lake Sediment Cores** in Clear Lake
 - Conducted **Lab Nutrient Release Experiments**
- First Measurements of **Internal Phosphorous-Release** from the Lake Sediments in Clear Lake



(Nick Framsted, MS Student)

Is there a Phosphorus Flux from the Sediments?

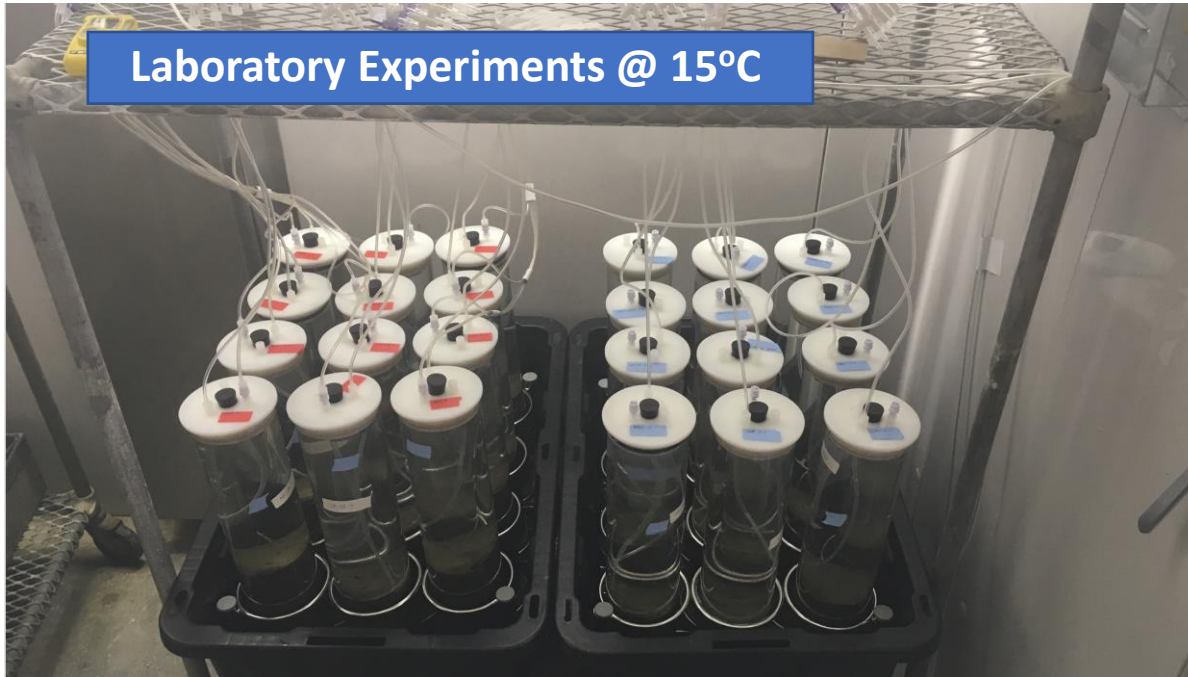


Red represents *anoxia* during the stratified period in 2019

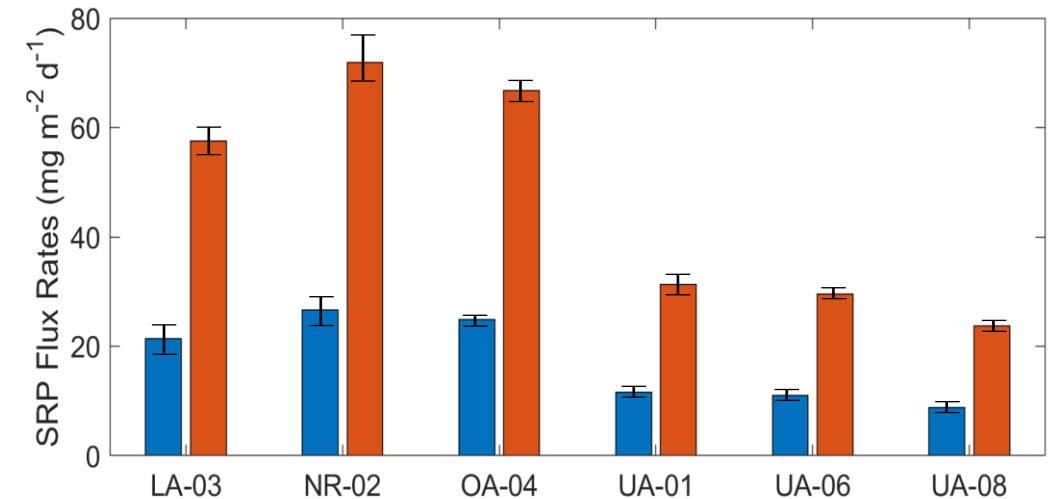
(Nick Framsted, MS Student)

P-Loading Source	P-Species	Annual Load (MT yr ⁻¹)	% Annual SRP load
External	SRP	37.1 - 51.4 ¹	59-67%
Internal	SRP	25.6	33-41%

Magnitude of Phosphorous Flux from the Sediments Under Different Ambient Conditions



Temperature correction @ 24°C



Annual Internal Load			
P-Loading Source	P-Species	Annual Load (MT yr ⁻¹)	% Annual SRP load
External	SRP	37.1 - 51.4 ¹	59-67% 35-43 %
Internal	SRP	25.6 68.9	33-41% 57-65 %

(Nick Framsted, MS Student)

Happening this Summer!

- Second Lab Nutrient Release Experiment under Warm (summer) Conditions
- **Goal:** Validate our theoretical estimates of corrected P-release rates from the sediments

