

UC Davis Clear Lake Restoration Project

Pilot Oxygenation Study for Restoration Goals



January 13, 2026

Clear Lake

Beauty and Challenges

- Clear Lake is a beautiful and culturally significant freshwater resource, but there are challenges:
 - An increasing number of Harmful Algal Blooms (HABs)
 - Fish kills
 - Historical contamination issues
- Blue Ribbon Committee was established in 2018 to initiate and coordinate work into understanding and mitigating these issues



UCD's Involvement at Clear Lake

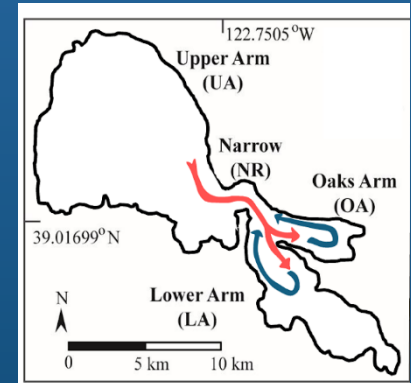
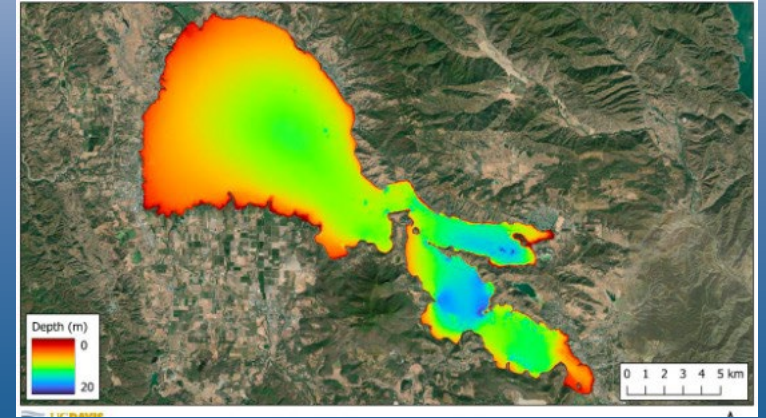
- UC Davis is part of the larger Blue Ribbon Committee
- UCD's Tahoe Environmental Research Center (TERC) partnered with United States Geological Survey (USGS) to study root causes of the water quality issues at Clear Lake
 - TERC studied in-lake conditions
 - USGS studied input from streams that feed the lake



The Research

Interdisciplinary team - holistic approach

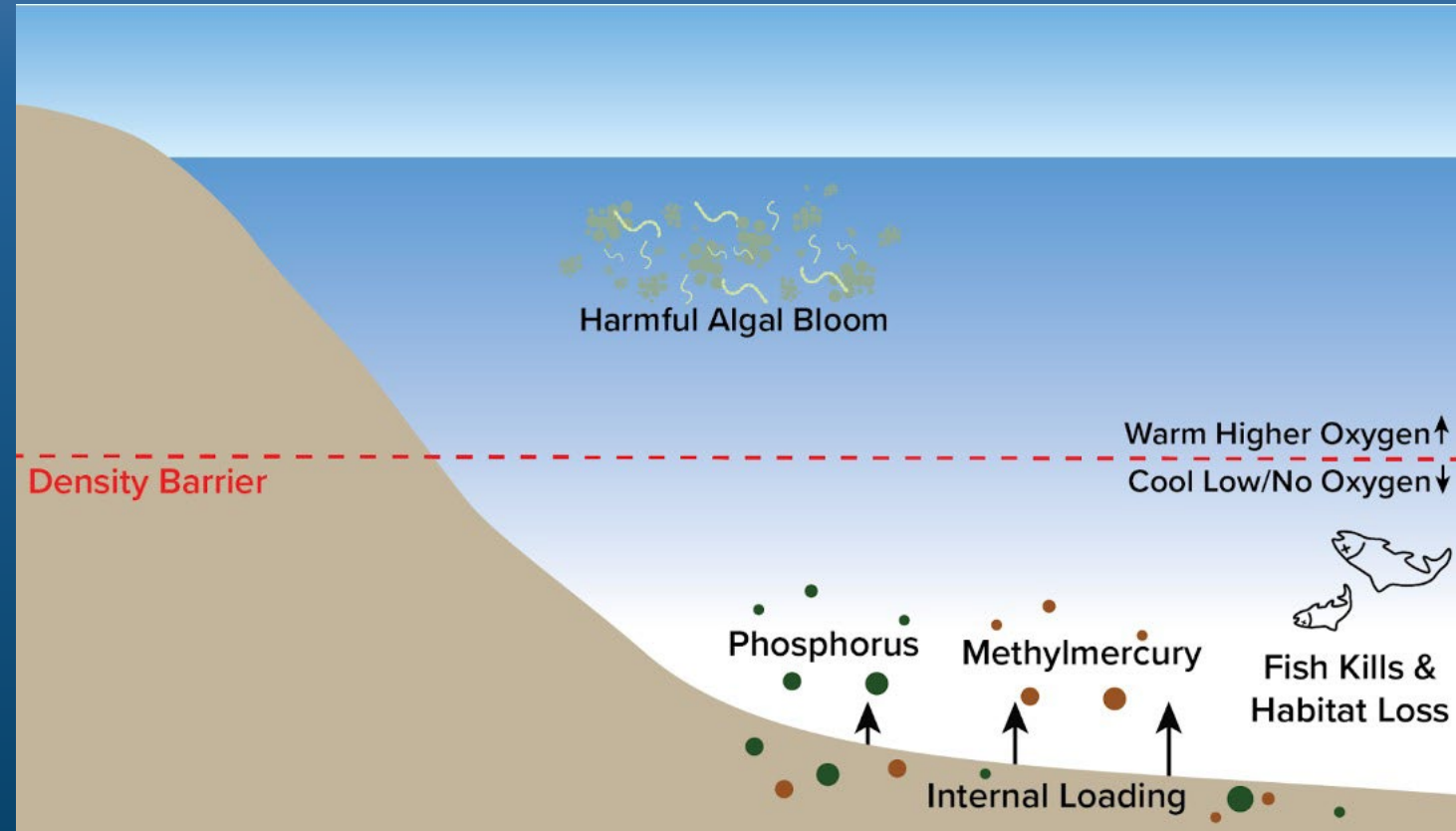
- UCD TERC's team worked for three years to understand:
 - Physical Conditions: Bathymetry, currents, water temperature
 - Chemistry: Nutrient (P,N) load in the water and soil
 - Biology: What types of algae are growing under what conditions do they become toxic



The Findings

Lakebed soils are the source of the phosphorus

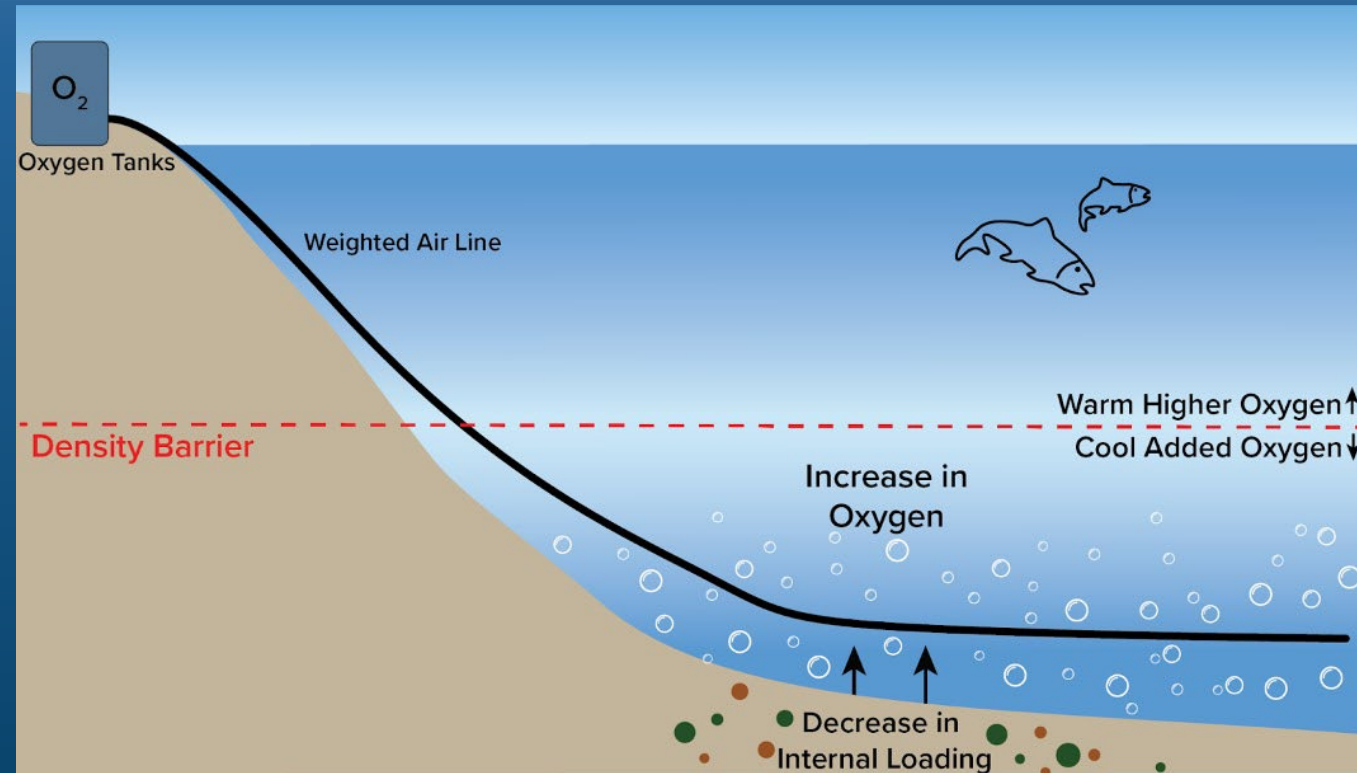
- An excess of phosphorus in the water column is causing negative water quality issues like HABs and fish kills
- The excess of phosphorus is coming from the soil at the lake's bottom, a process called internal loading
- Up to 70% of the total phosphorus load is coming from lake soils



The Proposed Solution

Prevent Internal Loading

- Address the root cause of the internal loading by adding oxygen to the lake bottom when oxygen levels drop
- Install a Hypolimnetic (bottom of the lake) Oxygenation System
- Install permanent monitoring buoys to monitor the water temperatures and oxygen levels
- Remotely turn on the oxygenation system when oxygen levels are low



The Project

Your support will help the Oaks Arms Prototype

- Budget: Secured 5 million + in funding for the planning, installation, and operation of this system for three years
- Progress: Working on necessary permits, environmental approvals, and the design of the system
- Goal Timelines: Installed and operational by summer 2026
- Operation plans: We have the funds to operate the system for three years to collect data and measure impact



Goals for Clear Lake Community

- Have a way to monitor oxygen levels in Clear Lake
- Avoid HABs and fish kills in the Oaks Arm
- Deliver water quality improvements that support the local economy and cultural uses of the Oaks Arm lake.
- Potentially develop solution for the broader lake.



Questions and Thanks to our Partners

