

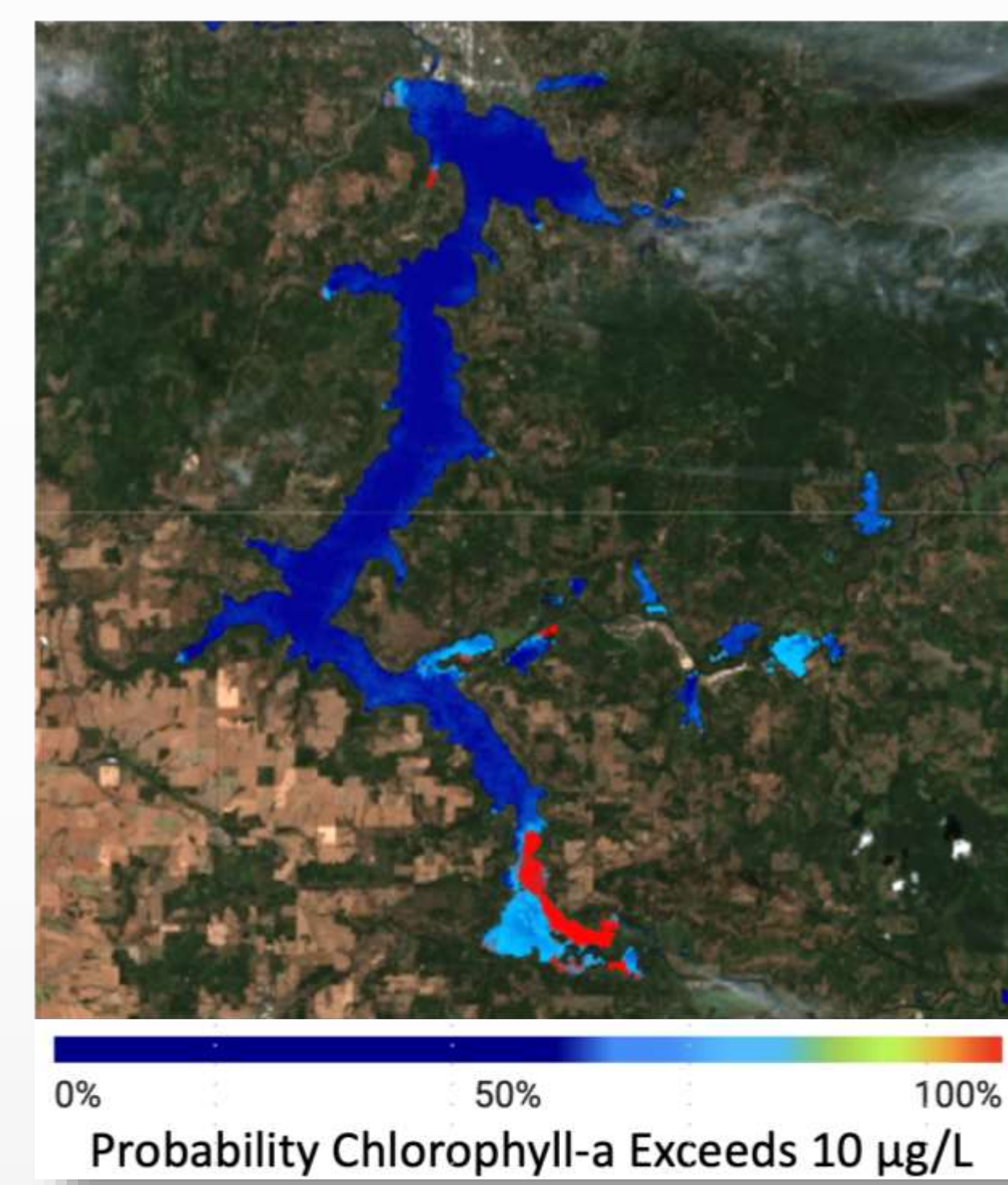
Coeur d'Alene Lake Water Analysis and Protection

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Mentors: Meg Wolf, PhD and Mary Everett, PhD

Project Overview and Lake Description

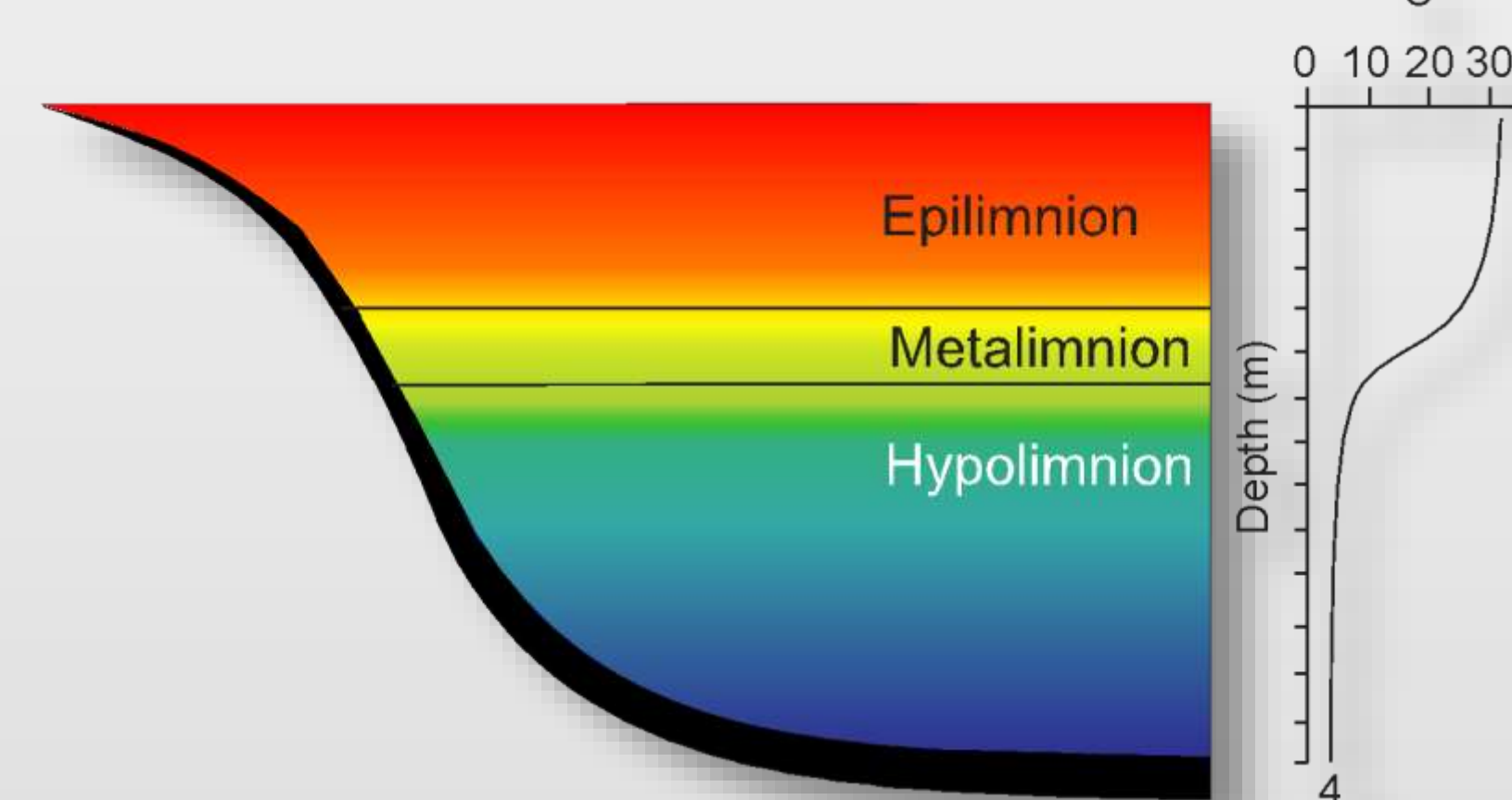
Lake Coeur d'Alene is a vital freshwater resource supporting ecological, recreational, and economic activities throughout northern Idaho. Through an internship with the Idaho Water Resources Research Institute (IWRRRI), I contribute to long-term lake monitoring while exploring technologies that can improve freshwater data collection. This project combines field monitoring, environmental data management, and engineering design to support long-term water quality monitoring and future freshwater research.



USGS satellite imaging of Lake Coeur d'Alene (August 2024)

Chlorophyll-a is a key component of photosynthesis and indicates potential algal blooms.

Thermocline



Why collect samples throughout the water column? The thermocline separates the lake into distinct thermal zones, making multi-depth sampling essential to capture changing water conditions.

Field Monitoring and Data Management

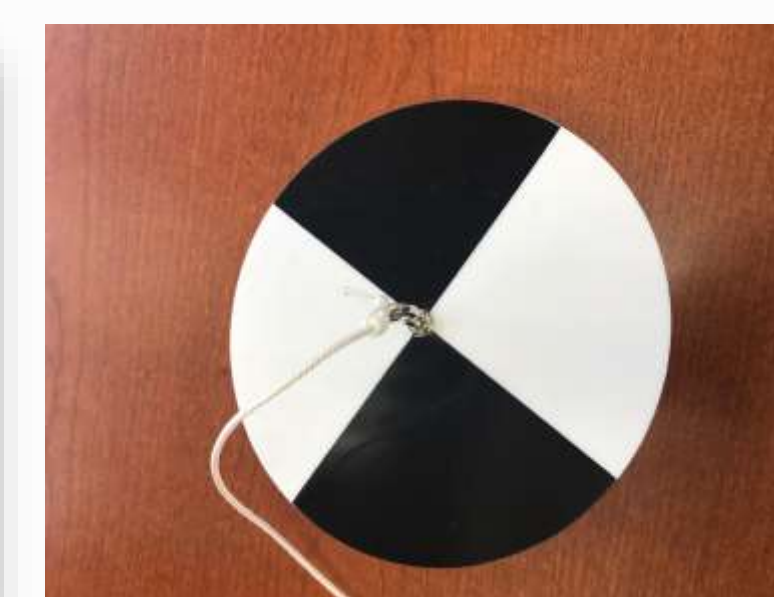
My work includes monthly field monitoring alongside the Bay Watchers citizen science program, where I travel by boat to sampling sites across Lake Coeur d'Alene. At each location, a YSI multiparameter probe measures water quality, while a Van Dorn sampler collects water for laboratory analysis. I also organize, validate, and upload monitoring data into the IDAH2O database, helping maintain long-term water quality records and support future analysis.



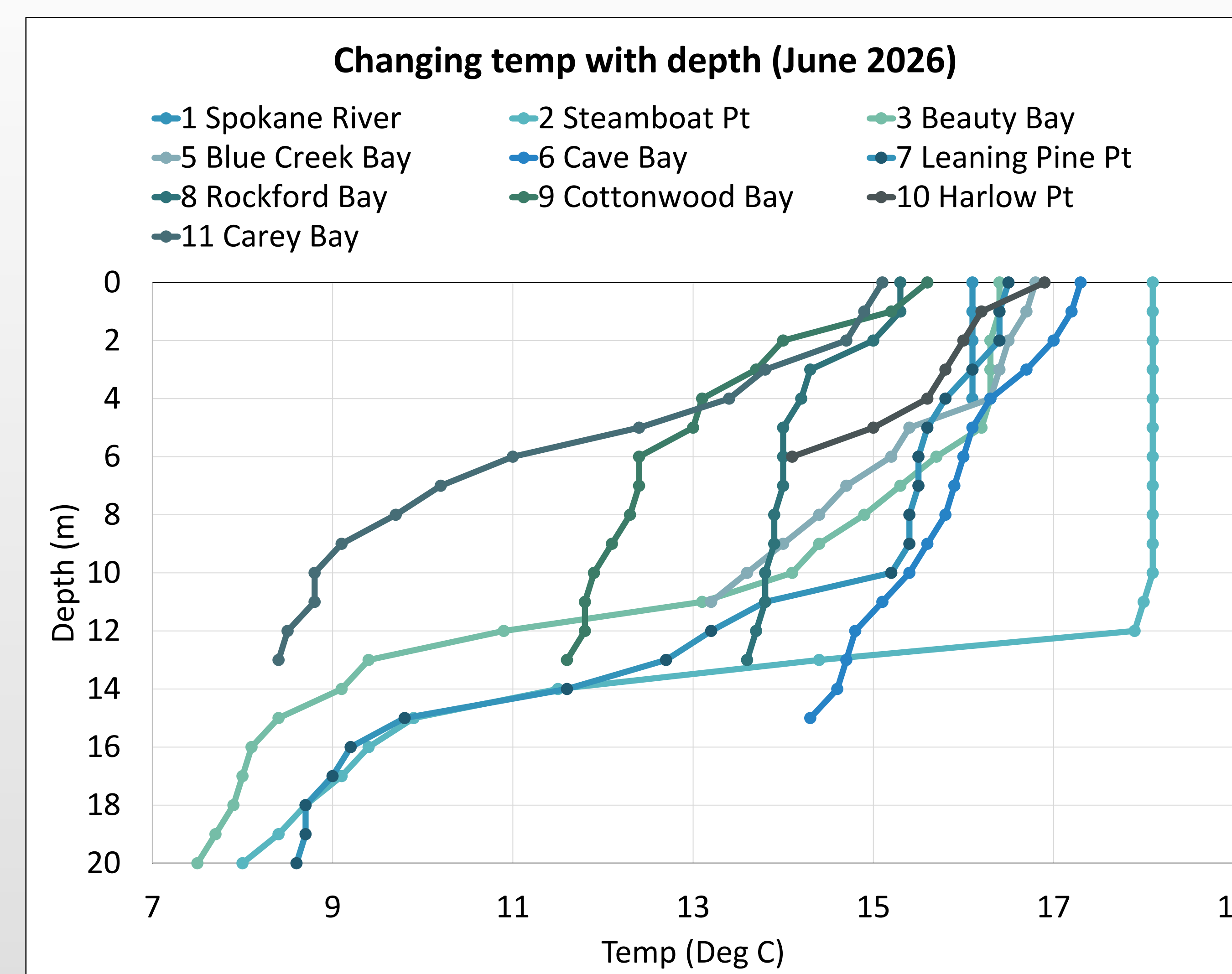
YSI Multi-Probe
Measures water temp, dissolved oxygen, conductivity, and pH.



Van Dorn Sampler
Collects water samples from specific depths within the lake.

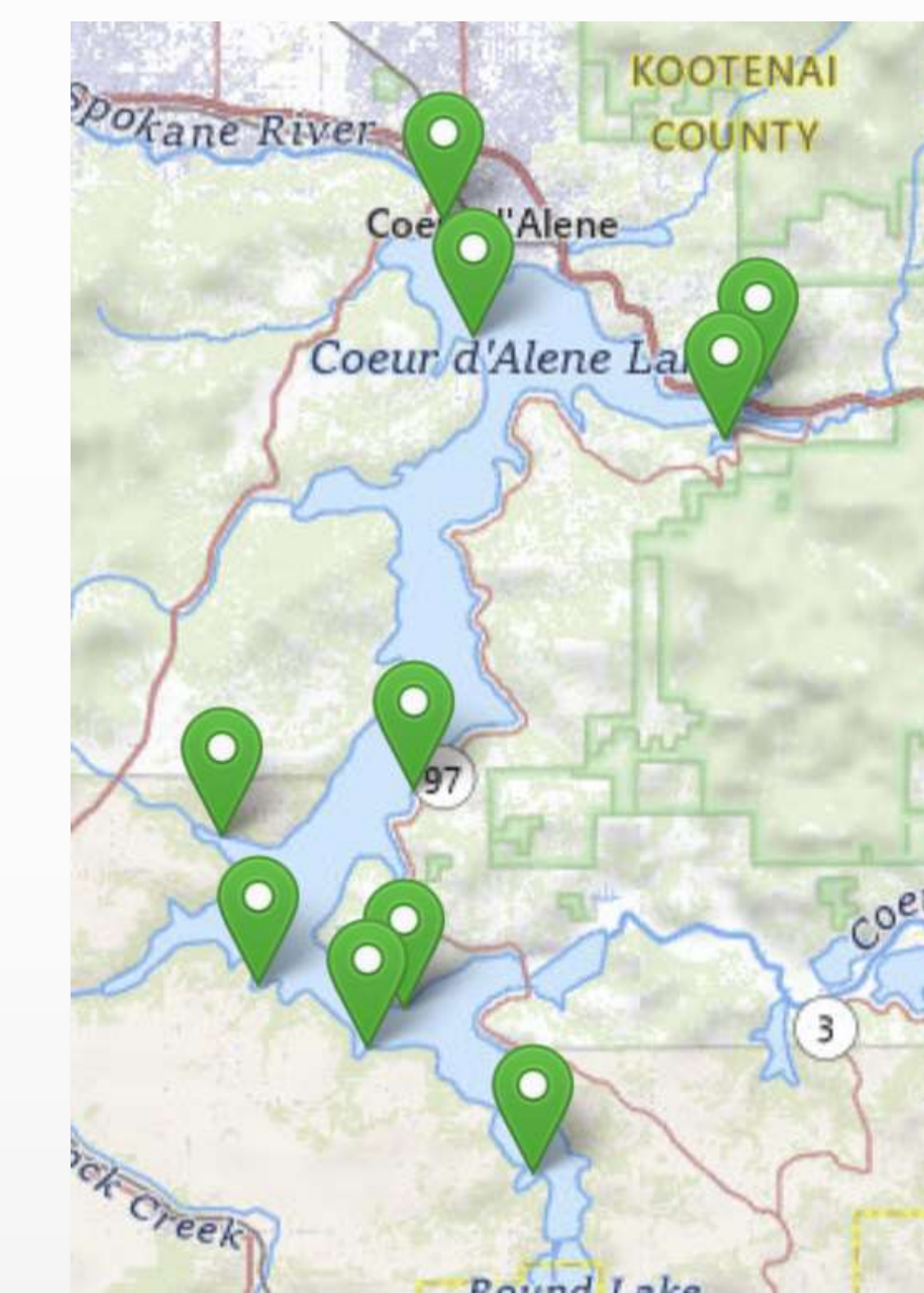


Secchi Disk
Measures water clarity to help assess lake health & algae growth.



Sunfish Development and Research Findings

I also contribute to the Sunfish project at CIIR, which aims to restore a BlueROV2 underwater robot for freshwater research. Current engineering efforts focus on developing a remote water sampling attachment capable of collecting samples comparable to the Van Dorn method. Preliminary evaluation suggests manual sampling remains cost-effective, reliable, and adaptable, while automated sampling offers greater consistency, reduces personnel risk, and may improve access to difficult sampling locations.



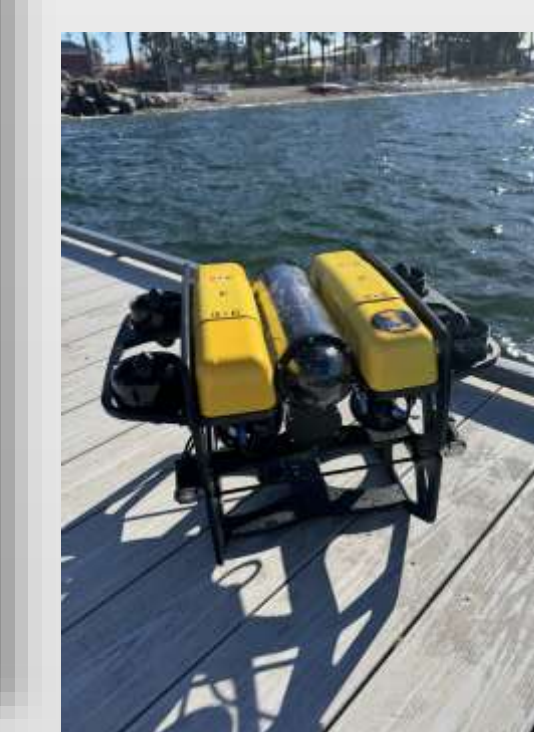
IDAH2O mapping of Lake Coeur d'Alene (June 2026)

IDAH2O is the University of Idaho's open-access environmental data platform.

Each green pin marks a lake site where I collected water quality data.



Conclusion



Accurate, long-term datasets are essential for understanding and protecting Lake Coeur d'Alene (far left). By contributing to IDAH2O and exploring autonomous sampling with the Sunfish ROV (close left), this project supports current monitoring efforts while advancing future freshwater data collection.

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