ION WORKS INC

Safe, Cleaner, Lake Water

OXYBOT Pro

Self-navigating multiparameter lake water profiler

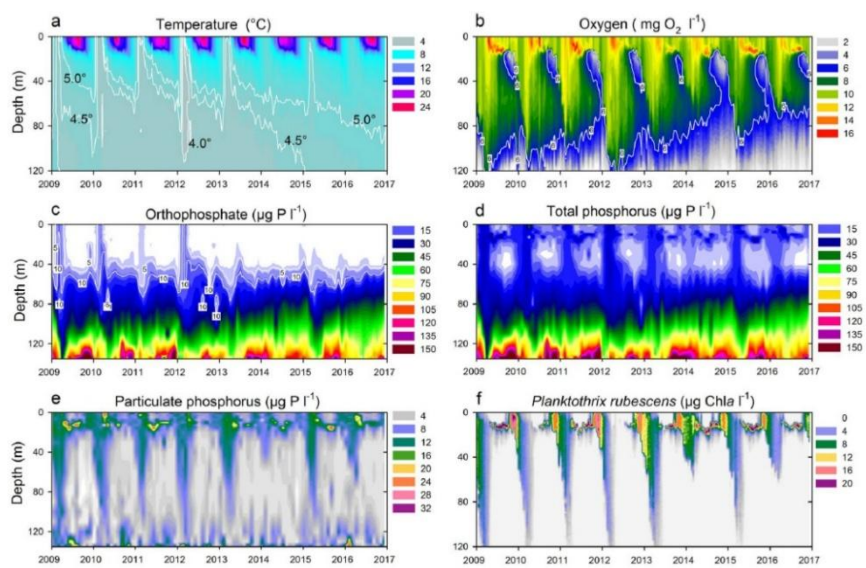
OXYBOT Pro by Ion Works is an autonomous, AI-driven robotic profiling buoy developed for whole-lake and reservoir water quality monitoring. Equipped with an advanced multiparameter sensor suite and a precision Wi Fi-controlled instrument winch, OXYBOT Pro navigates user-defined grid patterns with pinpoint accuracy, delivering continuous, autonomous, multiparameter vertical water profiles—harmonized with leading research data standards as demonstrated by the published LakeBeD-US benchmark dataset.

Data Architecture and Interoperability

- Each deployment produces machine learning–ready, QAQC-validated time series and vertical profiles, structured to global environmental monitoring best practices and the LakeBeD-US standard.
- Outputs are "analysis-ready" and fully interoperable, designed for integration into national and scientific water quality databases. This approach supports findable, accessible, interoperable, and reusable data, aligning with the recommended publication and stewardship guidelines (see Wilkinson et al., 2016; **https://www.nature.com/articles/sdata201618).[1**]

Technical Features

- Advanced Grid Mapping: Systematically profiles every grid point and depth layer, creating high-resolution spatiotemporal records for researchers, water managers, regulators, and machine learning analytics.
- AI Forecasting Ready: Data is structured for direct modelling, risk forecasting, and automated reporting, supporting predictive management of algal blooms, oxygen deficits, and ecosystem changes.
- Validated by Science: OXYBOT Pro builds on the LakeBeD-US approach, enabling contributions to global comparative datasets and the advancement of ecological intelligence.



Courtesy: https://essd.copernicus.org/articles/17/3141/2025/

Autonomous Lake Robotics
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Reference to the published LakeBeD-US dataset establishes comparative benchmarking and ensures transparency and traceability, consistent with open science principles.

OXY**BOT** Pro Lake Parameter Sensor Suit

A multiprobe that measures your choice of parameter, all in one package, that will deliver data in the toughest field conditions.

- **BOD, COD, DOC, TOC**
- **Coliforms (Total, E. coli, Fecal)**
- **TAN (Total Ammonia And Nitrogen)**
- **Ortho-phosphate**
- **Total phosphate**
- **Temperature**
- **Dissolved Oxygen**
- **Pressure**
- **pH**
- **ORP/REDOX**
- **EC/Salinity/TDS**
- **Turbidity/TSS**
- **Ammonium**
- **Nitrate**
- **Chloride**
- **Sodium**
- **Calcium**
- **Bromide**
- **Chlorophyll a (red excitation)**
- **Chlorophyll a (blue excitation)**
- **Rhodamine**
- **Blue Green Algae (freshwater)**
- **Blue Green Algae (marine)**
- **CDOM (Color Dissolved Organic Matter)**
- **Optical Brighteners**
- **Tryptophan**
- **Fluorescein Dye**
- **Refined Oil**
- **Crude Oil**
- **Depth**

**proven real-time sensor for measuring BOD

Who Should Use OXY**BOT** Pro

- Limnologists and aquatic researchers studying lake processes, stratification, or nutrient cycling
- Environmental consultants and monitoring firms engaged in lake, reservoir, or watershed health assessments
- Drinking water managers responsible for source water protection and compliance reporting
- Fisheries managers monitoring habitat, dissolved oxygen, and nutrient status for healthy fish populations
- Municipalities and conservation groups aiming to detect, monitor, and mitigate harmful algal blooms
- Regulators and agencies conducting baseline and ongoing water quality monitoring for environmental oversight.

Imagine the difference: while traditional lake profiling often gets bogged down in endless studies, costly engineering surveys, and piecemeal, reactive interventions, OXY**BOT** Pro brings a game-changing solution—autonomous, continuous, and targeted mapping for your lake. OXY**BOT** Pro not only profiles aquatic health at its source but also delivers actionable insights into nutrient loading and bloom risks with industry-leading sensor results that aren't just immediate but enduring. With OXY**BOT** Pro patrolling and profiling the waters 24/7, every dollar is invested in real, decisive data—not paperwork. Instead of pouring resources into outdated sampling methods or costly infrastructure, OXY**BOT** Pro delivers measurable knowledge, slashes operational expenses, and eliminates the cycle of 'study today, sample tomorrow, repeat next season. For lakefront property owners, researchers, and communities determined to understand and protect their lakes—and their budgets—OXY**BOT** Pro is not just a smarter choice, but the only one that truly turns intent into impact.