



# vertical profiling systems



**Automated water quality monitoring and telemetry systems**

providing 24/7 water column profiling  
and remote data delivery for  
freshwater and marine environments

# vertical profiling for continuous monitoring

Simultaneously monitor water quality, water velocity, and meteorological data 24/7 with an automated Vertical Profiling System, the most comprehensive environmental monitoring system available.

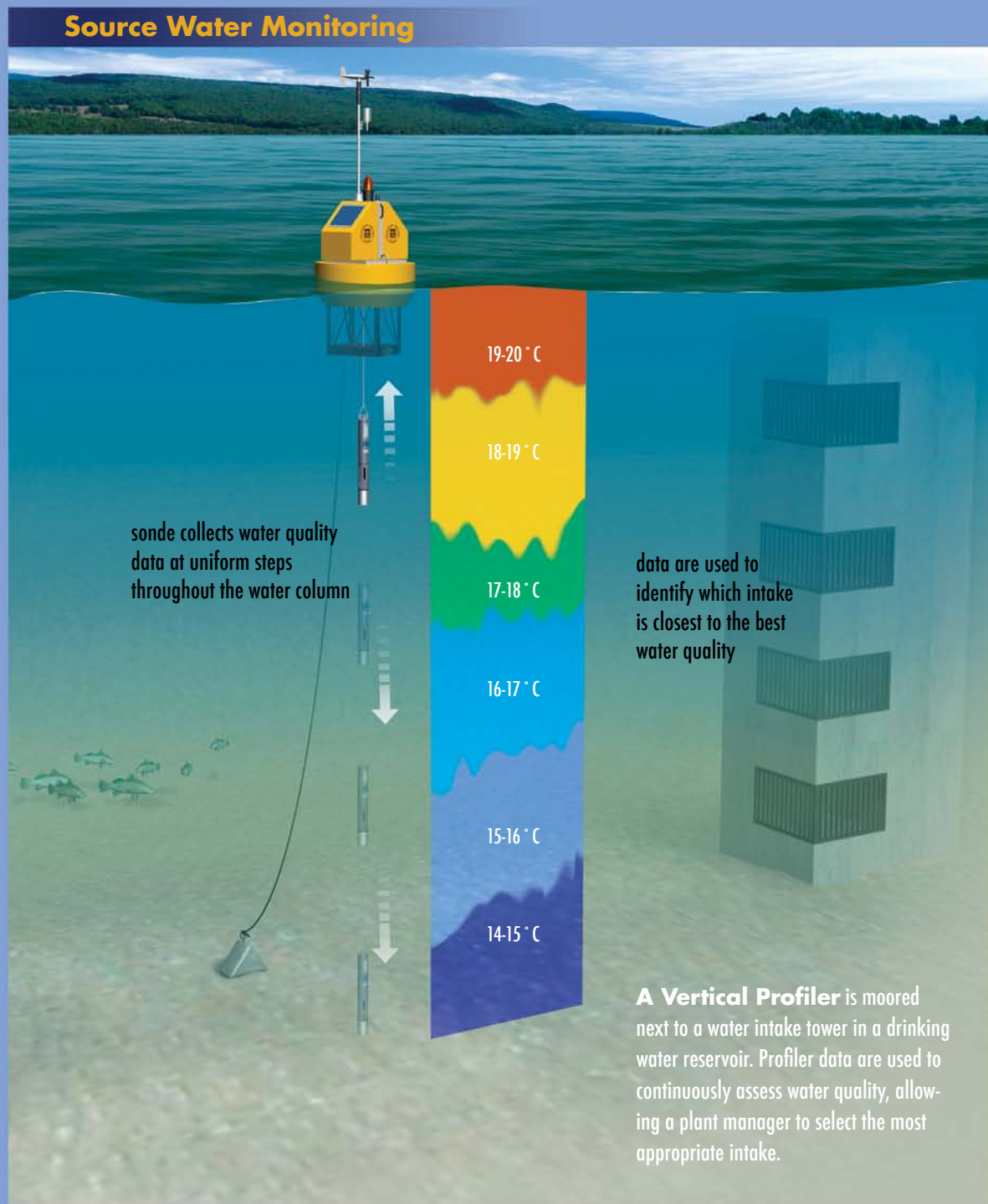
## Why Profile?

Water quality assessment is best conducted through a **complete time series** that monitors physical, chemical, and biological parameters.

YSI's automated Vertical Profiler offers further advancements by **sampling at different depths, allowing you to monitor an entire water column.**

Variations in temperature, wind, rainfall, salinity, and flow cause changes in the vertical structure of a water column, varying from highly stratified to well-mixed.

Users who apply data from a Vertical Profiler will see the impacts of the physical environment on their water resources—**without frequent trips to the field.**



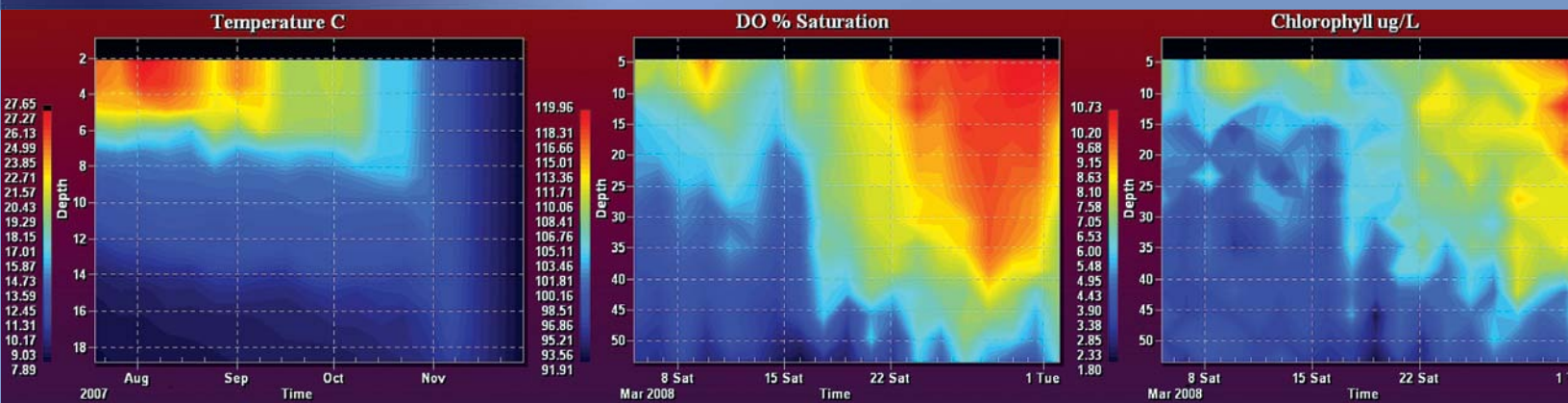
## Make informed decisions about:

- Water quality at different drinking water intakes
- Taste and odor issues
- Water quality in reservoirs, lakes, bays, estuaries, and near-coastal areas
- Impacts of nearby development and construction

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[www.ysi.com/profilers](http://www.ysi.com/profilers)

## Data



**Data sets show diurnal changes** in water column as well as gradual changes occurring throughout the time series.

Visual display of data by AQUARIUS® Time-Series software.

## What Are Your Concerns?

### Algae problems?

- Blanketing algae blocking filters
- Penetrating algae causing taste and odor events
- Toxic algae with public health implications

### Improve efficiency?

- Treatment decisions based on real-time raw water quality conditions
- Optimal flocculent choice
- Reduce filter/sludge waste with targeted treatments

### Energy costs?

- Control mixers and oxygenation systems with real-time stratification data
- Evaluate the effectiveness of aeration systems and control their use

### Understanding reservoir dynamics?

- Establish a 3-D baseline automatically across all seasons
- Predict turnover or blooms based on data trends
- Complement water quality with MET data to predict events and their propagation throughout reservoir

### Streamline operations?

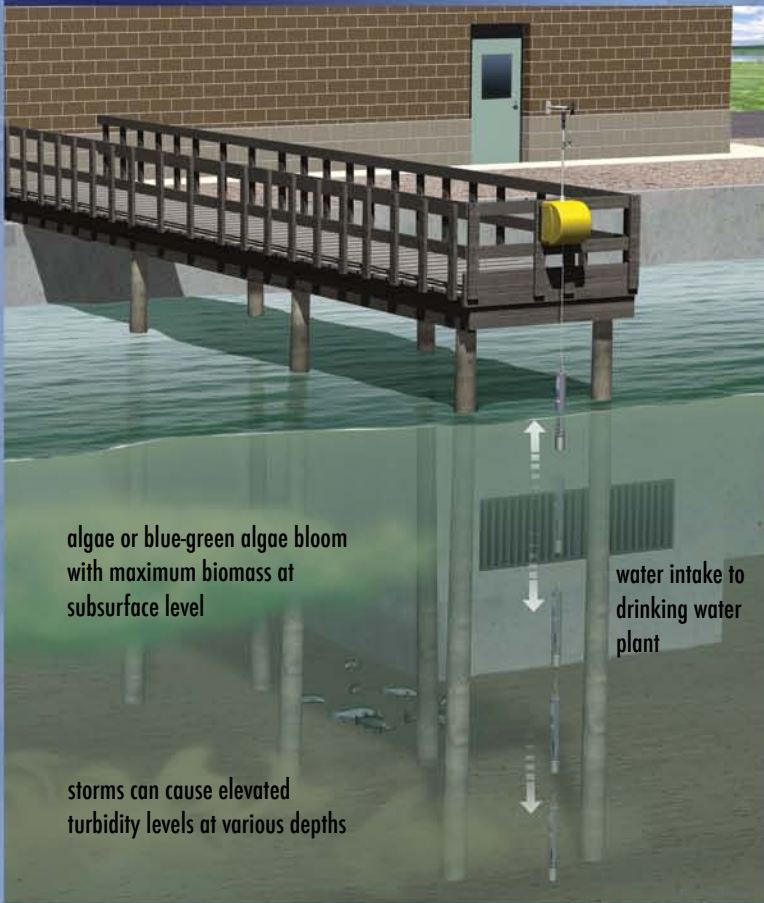
- Prevent slow-downs in output rate with real-time source water data
- Prevent overpressure on pumps due to filter clogging
- Avoid re-circulating water with early warning of influent conditions
- Reduce chemical and filter costs with targeted treatment
- Reduce trips to field for manual profiles

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## Raw Water Intake



## Why YSI?

YSI understands the true value of generating **continuous environmental data** because many of our employees were once our customers. We know that longer intervals between maintenance and fewer failures equal significant savings in time and money.

Our systems include water quality and velocity sensors, floating and fixed platforms, mounting hardware, flexible data collection platforms, and installation and maintenance services.

Every environment is unique. Talk with our hands-on applications specialists, who can assist you with your specific monitoring needs.



**An automated system provides a data set far superior to one generated through spot sampling.**

The system will detect short-term events routinely missed by traditional field sampling programs:

- Early identification of algal blooms
- Diurnal low-oxygen events
- High turbidity plumes
- Changes in thermocline and pycnocline

**YSI applications specialists** and customer set up a vertical profiler.



## Vertical Profiling Systems

Comprised of three components: **1)** a floating or fixed mounting platform, **2)** a profiling package, including a controller, winch, data logging and telemetry system, and meteorological sensor suite (optional), and **3)** an underwater sensor package that typically includes a YSI 6-Series water quality sonde and other sensors upon request.

To order or for more information, contact YSI

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Who's Minding  
the Planet?®



Fixed Profiling System can be attached to any fixed structure such as a bridge or pier



Pontoon-Mounted Profiling System with meteorological package provides a stable work surface and easy-to-deploy design for low-energy environments



Buoy-Based Profiling System for high-energy environments

### Anti-fouling technology

Integrated wipers and copper-alloy components for YSI sensors deter the growth of biofouling, prolong maintenance intervals, lower operating costs, and improve reliability.



### Adjust profile steps

As water levels fluctuate, data from optional fixed reference sonde or optional depth sounder automatically compensate for the changes. Alternately, a 50-point table entry may be used.



### Vertical Profiling System Specifications

Minimum Profile Depth	1 meter
Profile Depth	0-50 meters standard 0-100 meters optional
Depth Profile Setpoint Accuracy	±0.1 meter (±0.2 meter for fixed reference)
Recommended/Min. Step Size	1 meter/0.5 meter
Maximum Profile Frequency	~50% of duty cycle
Sensor Options	<u>Water Quality</u> : Conductivity, temperature, depth, dissolved oxygen, pH/ORP, turbidity, chlorophyll <i>a</i> , blue-green algae, PAR, and velocity <u>Meteorological</u> : Wind speed and direction, barometric pressure, rainfall, relative humidity, light, and air temperature
Sensor Step Modes	Table entry (50 steps max.) or computed
Power Requirement	12 VDC 18Ah (fixed), 120/240 VAC (fixed), 12 VDC 95Ah (floating)
Cable Options	50 meter or 100 meter