

# Water Quality Monitor



## Water Quality Monitor (WQM)

Addressing the need for routine, robust and accurate water quality measurements, Satlantic and WET Labs have integrated their state-of-the-art sensors into a single easy to use package. The Water Quality Monitor (WQM) measures key physical, biological and chemical constituents of both marine and other aquatic environments and provide the necessary data for accurate water quality assessments.

- **Physical** measurements include temperature, depth, salinity (optional), and turbidity.
- **Chemical** sensors include chromophoric dissolved organic matter (CDOM), the key nutrients nitrate and phosphate, pH and dissolved oxygen.
- **Biological** measurements include chlorophyll fluorescence with options for additional ancillary pigments.

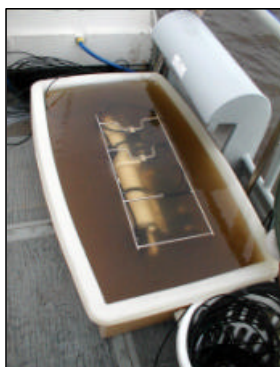
The system has been extensively tested in a wide range of conditions including tropical oceans, polar oceans, turbid estuaries, high CDOM wetlands, lakes, rivers and wells. The system features both integrated passive and active anti-biofouling technology to assure high quality data throughout long term deployments.

The WQM features onboard data storage suitable for moored deployments, and can be purchased with a wireless transmission system (wireless modem or cellular) for near-real time data collection. Direct connection to a computer allows data collection for profiling or other real-time applications. The data is transmitted (and/or stored) in an integrated, ready to use text format in physical units. For deployments from vessels or other platforms real time profiles can be obtained; system software includes data logging, display, and processing modules.



### Nutrient Data from Nutrient Limited and Eutrophic Waters

Water quality and critical predictive capability is increasingly dependent on knowing the available and limiting nutrient concentrations. This problem has been addressed by including the successful Satlantic ISUS-X Nitrate sensor and the new WET Labs single channel PO4 CYCLE sensor.



The ISUS-X is a combination of the Satlantic MBARI-ISUS solid-state nitrate sensor with the STOR-X data logger system. The MBARI-ISUS is a robust, proven technology that provides real time *in-situ* nitrate concentration using chemical-free UV absorption technology. The sensor has been field proven in a wide range of challenging conditions and is available with an effective anti-biofouling probe cover for moored applications. In mooring mode, the ISUS-X provides the WQM with power, sensor and telemetry control as well as data processing and storage.



The WET Labs PO4 CYCLE is a state-of-the-art, compact wet chemistry system. Completely self contained, the PO4 CYCLE system provides accurate phosphate readings every 30 minutes.

### Physical and Optical Measurements

The basic WQM package uses the WET Labs ECO FLNTU to provide accurate chlorophyll fluorescence and turbidity data and an ECO CDOM fluorometer to measure this critical parameter in the microbial loop. The integrated bio-wipers of the ECO line are available to provide robust anti-biofouling protection. This technology has proven itself in long term deployments where biofouling is severe, yielding remarkable baseline stability.

The WQM uses the exceptional quality of SeaBird CTDs and auxiliary sensors for reliable base-line data. The SeaBird CTD and auxiliary sensors have long been the preferred instruments for oceanographic research world-wide where accuracy and stability is demanded.

The WQM system is an adaptable platform and has been validated on profilers, towed vehicles, flow through systems and moorings. As a complete water quality system, the WQM provides the **most accurate and reliable sensors** on the market. Satlantic invites you to call us to us about your applications and how this exciting new sensor combination can help you solve your monitoring problems.

Sensor	Manufacturer	Parameter	Range	Accuracy	Resolution	Sample Interval (max)
ISUS-X	Satlantic	Nitrate	0-2000 $\mu$ M (0-28 mg/l)	2 $\mu$ M (0.03 mg/l) or 10% of reading	0.05 $\mu$ M (0.7 $\mu$ g/l)	2 sec
PO4 CYCLE	WET Labs	Phosphate	0-20 $\mu$ M (0-620 $\mu$ g/l)	1 $\mu$ M (31 $\mu$ g/l)	0.05 $\mu$ M (1.8 $\mu$ g/l)	30 min
ECO FL-NTU	WET Labs	Chlorophyll Fluorescence, Turbidity	0.02- 60 $\mu$ g/l, 0-25 NTU	0.02 $\mu$ g/l 0.1 NTU	0.02 $\mu$ g/l, 0.01 NTU	0.13 sec
ECO CDOM	WET Labs	CDOM Fluorescence	0-120 QSU	0.05 QSU	0.05 QSU	0.17 sec
SBE19plus* (profiling)	Sea-Bird	Conductivity, Temperature, Pressure	0-9 S/m, -5 to +35 C, various	0.0005 S/m, 0.005 C, 0.1% FS	0.00005 S/m 0.0001 C, 0.002% FS	0.25 sec
SBE37-SIP (moored)	Sea-Bird	Conductivity, Temperature, Pressure	0-7 S/m, -5 to +35 C, various	0.0003 S/m, 0.002 C, 0.1% FS	0.00001 S/m 0.0001 C, 0.002% FS	3 sec
SBE43	Sea-Bird	pH	0-14	0.1	0.001	0.25 sec
SBE18	Sea-Bird	Dissolved Oxygen	0-120%	2%	0.1%	0.25 sec

\*Includes SBE5T pump

Specifications are subject to change

