

List of parameters measurable using the upcoming (Q1 2025) Spectromarine sensor system (Spectromarine One).

Parameter	Possible	Tested	Description	State	Range	Calibration	Calibration ETA
Chlorophyll α	Y	Y	Photopigment found in most photosynthetic organisms, can signify the growth rate of photosynthetic organisms	-Lab tested -Field tested -Tested in industrial environments Measurements are fluorescence and absorbance-based so the size of the organism is not important	The tested range of detection is 0.01 - 30 g/l of biomass containing CHL α (spirulina, chlorella), i.e. 10 g/l of biomass is deemed unsafe for humans to swim in.	No calibration has been performed as of yet for ug/l of CHL α . Requires laboratory grade regular measurements of CHL α ug/l from an environment tested by the sensor at the same time to calibrate with multiple data points at high data ranges	Q2 2025
Chlorophyll β	Y	Y	Photopigment found in most photosynthetic organisms, can signify the death rate of photosynthetic organisms	Same as CHL α	No identified range, a signal detected at 0.01 g/l biomass spirulina, chlorella	Same as CHL α	Q2 2025
Phycocyanin (and its supporting pigment groups)	Y	Y	Photopigment found in cyanobacteria	Same as CHL α , except in industrial environments	No identified range, signal detected at 0.01 g/l biomass spirulina	Same as CHL α	Q2 2025
Total organic carbon (TOC)	Y	Y	Parameter showing the presence of organic material	-Lab tested (sugar, river water)	No identified range	Same as CHL α	Q3 2025
Hydrocarbons	Y	N	Petroleum products, oils, solvents, and polymers, etc.	Requires lab testing	Many different signals at different ranges	Same as DOM	-

Dissolved organic matter (DOM / TDS)	Y	Y	Dead microorganisms, fecal matter, organic salts, organic material smaller than microscales	-Lab tested -Field tested -Tested in industrial environments	No identified range, multiple components	Same as CHL α . Consists of multiple signals and is extremely hard to calibrate due to the nature of this signal, if it is even possible.	-
Water temperature	Y	Y	The temperature of the water the device is present in	-Lab tested -Field tested -Tested in industrial environments	-5 to 80 °C	2 different probes with accuracies up to ± 0.01 °C, commercially tested sensors. Externally routed probes isolated from the sensor body can perform measurements in the range of -20 to 600 °C	-
Position/wave propagation/GNSS	Y	Y	The surrounding flow of water currents moving the sensor (i.e. on a buoy), and the position of the sensor	-Lab tested -Field tested	Depending on satellite presence and GNSS availability	Commercial devices	-
Salinity/Conductivity	Y	N	Water salinity signifies the presence of dissolved salts, turbidity of the water, etc.	Early stage of lab testing	Currently expected range is 1-100 mS/cm, which can be adjusted due to end-user needs	Requires further lab testing and calibration	Q2 2025
Turbidity (TSS)	Y	N	Parameter showing the amount of undissolved particulates within the water but at larger than microscopic ranges	We have the data to validate it but it has been a low priority and not done as of now	-	-	-
Carotenoids	Y	N	Specific identifiers of many different organisms	This will most likely need concentrated carotenoid samples with lab tests to identify their presence but is only required if some	No identified range, multiple components	Same as DOM	-

				specific species of an organism containing carotenoid signals are expected to be monitored in a given environment			
Presence of surface oil	Y	Y	If the sensor is positioned close to the water surface and facing it, the presence of any surface oil is measurable	-Lab tested -Field tested	No identifiable range	present/not present condition	-