Field Measurements in Fresh and Marine Water

Table 1: Quality Control: Field Measurements in Fresh and Marine Water

Water Quality Parameter	Recommended Device	Units	Resolution	Instrument Accuracy Specs	Points per Calibration	Pre-Sampling Calibration Check Frequency[2]	Post-Sampling Calibration Check Frequency[2]	Allowable Drift[3]
Dissolved Oxygen	Polarographic or luminescence quenching probe	mg/L	0.01	±0.2	1	Before every monitoring day on-site (re-calibrate if change of elevation is ≥500 m or barometric pressure > 2mmHg)	After every monitoring day (within 24 hours)	±0.5 or 10%
pH	Electrode	pH	0.01	±0.2	2	Per manufacturer	Per manufacturer	±0.2 units
Salinity	Refractometer or conductivity cell	ppt	0.01	±2%	Per manufacturer	Per manufacturer	Per manufacturer	Per manufactur
Secchi Depth	Stadia rod (top setting)/staff gauge	m or decimal ft	0.01	n/a	2	n/a	n/a	n/a
Specific Conductance	Conductivity cell	µS/cm*	1	±0.5%	Per manufacturer	Per manufacturer	Per manufacturer	±10%
Temperature	Thermistor or bulb	°C	0.1	±0.15	Per manufacturer	Per manufacturer	Per manufacturer	±0.5
Total Chlorophyll[4]	Optical fluorescence chlorophyll probe	µg/L	0.1	n/a	2	Per manufacturer	Per manufacturer	±10%

Water Quality Parameter	Recommended Device	Units	Resolution	Instrument Accuracy Specs	Points per Calibration	Pre-Sampling Calibration Check Frequency[2]	Post-Sampling Calibration Check Frequency[2]	Allowable Drift[3]
Turbidity	Portable turbidimeter or optical probe	NTU	0.1	±1% up to 100 NTU; ±3% from 100-400 NTU; and ±5% from 400-3000 NTU	2	Per manufacturer	Per manufacturer	±0.2 or 10%
Velocity	Flow meter[5]	ft/s	0.1	Per manufacturer	Per manufacturer	Per manufacturer[6]	Per manufacturer[6]	Per manufacturer

[2] SWAMP requires daily pre- and post-sampling calibration checks when the manufacturer or documented procedure (e.g., standard operating procedure) do not provide calibration instructions

* mS/cm for marine water

[3] Unit or percentage, whichever is greater

[4] Water columns only

[5] Electromagnetic meters should undergo periodic maintenance according to manufacturer instructions

[6] Price AA meter: spin test>2 minutes; pygmy meter: spin test>45 seconds; electromagnetic meter: zero check

Table 2: Corrective Action: Field Measurements in Fresh and Marine Water

Corrective Action
The instrument should be recalibrated following manufacturer cleaning and maintenance procedures. If measurements continue to fail measurement quality objectives, affected data should not be reported and the instrument should be returned to the manufacturer for maintenance. All troubleshooting and corrective actions should be recorded in calibration and field data logbooks.

Terms appearing in the tables are defined in the *Surface Water Ambient Monitoring Program Quality Assurance Program Plan*, which contains a glossary (Appendix E), as well as a list of abbreviations and acronyms (Appendix F).