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## WETStar Calibration and Repairs

**Date** March 4, 2010      **Customer** Sea-Bird Electronics

**S/N#** WS3S-652P      **Repair Order** 8506

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### Standard Service

- Performed noise test: 1 sample/sec for 60 sec
- Performed stability test: 1 sample/min for 12 hrs
- Performed temperature test: 25–2 °C
- Performed saturation test
- Shake-tested unit
- Pressure-tested unit
- Updated unit's calibration sheet

### Additional Repairs

Replaced Bulkhead Connector and O-Rings.

### Comments



## Chlorophyll WETStar Characterization

Date: March 4, 2010

S/N: WS3S-652P

Chlorophyll concentration expressed in  $\mu\text{g/l}$  can be derived using the equation:

$$\text{CHL}(\mu\text{g/l}) = \text{Scale Factor} \times (\text{Output} - \text{Clean Water Offset})$$

	Analog output
Clean Water Offset (CWO)	0.052 V @
Scale Factor (SF)	15.1 $\mu\text{g/l/V}$ @
Maximum Output	5.42 V @
Resolution	0.68 mV
Ambient Characterization Temperature	22 $\pm$ 1°C
Current Draw	40 mA @ 12V (typical)
12-hour Stability	0.34 mV/hr
Temperature Stability, 25–2 °C	0.32 mV/°C

### Definitions:

**CWO:** Clean Water Offset value obtained using pure filtered de-ionized water.

**SF:** Scale Factor is used to convert the fluorescence response of the instrument into chlorophyll-a concentration. Scale Factor is determined at WET Labs during a cross calibration using a solid fluorescent standard and a reference fluorometer whose chlorophyll fluorescence response has been characterized in a laboratory using a mono-species lab culture of *Thalassiosira weissflogii* phytoplankton.

**Maximum Output:** Maximum signal output of the fluorometer.

**Resolution:** Standard deviation of 1 minute of clean water data, sampled once per second.

**Ambient Characterization Temperature:** Room temperature at time of characterization.

**Current Draw:** The amount of current the instrument uses for operation.

**12-hour Stability:** Deviation of output averaged over 12 hours.

**Temperature Stability:** Measured output variation per degree.