

6.11 PROCEDURES FOR PHOTOSYNTHETICALLY-ACTIVE RADIATION (PAR) SENSING

Overview

PAR is a slightly narrower band of radiation (400 – 700 nm) than visible light, and is the area of the spectrum used by plants. The measurement of PAR profiles is undertaken to measure PAR attenuation with water depth. The euphotic zone extends to the depth where the PAR meter records 1% incident radiation.

Sources

Alberta Environment (2006 a)

At a glance

*consistent
light
conditions*

For best results, PAR should be conducted in consistent light conditions. Ensure that the sun and cloud condition of the sample day is recorded in the field sheet/book. In rough weather, take the 2.5 cm readings just below the trough of the waves. If the waterbody is exceptionally green, stained or turbid (recorded by a Secchi at less than 1 m) take extra light readings at 0.5 m intervals to aid in accurate calculation of extinction coefficients. Sensors should be rinsed with distilled/de-ionized/reverse osmosis water at regular intervals throughout the season and should be periodically sent in to the manufacture for calibration.

- 1** Read the manual and ensure the data logger/display has the proper sensor calibration multiplier stored for the sensor in use.
- 2** Ensure all connections are properly made, remove protective cap from sensor and turn instrument on.
- 3** Take light readings from sunny side of boat and leave sensor at each depth for at least 15 seconds or until stable.
- 4** Record and store readings at 2.5 cm, 10 cm and 1 m intervals to 1 m below the euphotic zone depth (1% of the 2.5 cm reading). If the initial readings drop by more than 50%, use 0.5 m intervals. Readings are in $\mu\text{m}/\text{sec}/\text{m}^2$.
- 5** Accurately determine the euphotic zone depth by raising the sensor to 1% of the 2.5 cm reading. Record this depth and sensor number in the lake field sheet.
- 6** Retrieve sensor and carefully repack in the storage case: do not kink the cable.
- 7** Transfer stored data to disk using a communications package.