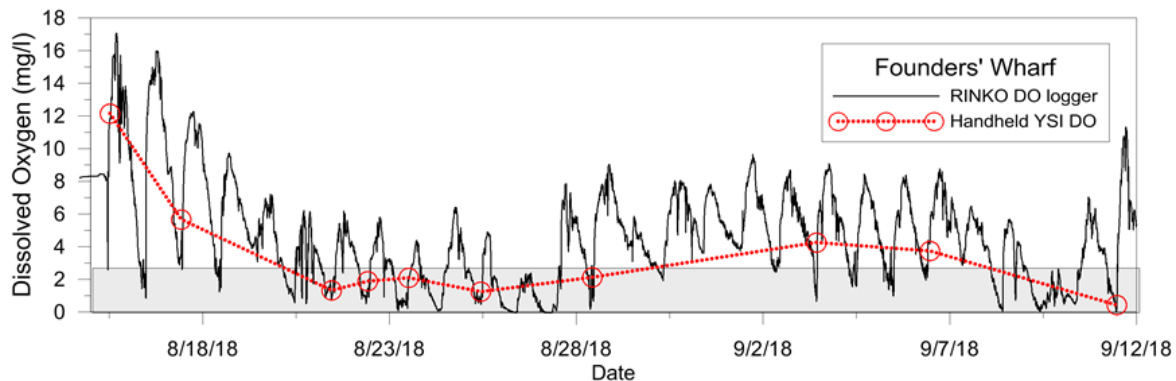




Swan Lake, Victoria, BC

Dissolved oxygen (DO) concentrations and their fluctuations are vital to the aquatic health of eutrophic lakes. As oxygen production through aquatic plant-based photosynthesis is largely dependent on the sun, DO concentrations, especially in the upper water column, vary significantly over a 24-hour period. Because of these variations, spot measurements, if taken on a daily or weekly interval, could be misleading depending on where the measurement occurs on the diurnal cycle.

Last year, Rob Bowen of [Diversified Scientific Solutions](#) deployed one of [ASL Environmental Sciences'](#) DO loggers to examine the finer details of the DO diurnal cycle at Swan Lake in Victoria, BC. This nine-hectare lake set in an urban landscape is subject to algal blooms and fish kill due to hypoxia (DO less than 2 mg/l). In the figure below, the DO logger, sampling every 10 minutes, illustrates the high amplitude swings related to photosynthesis (daylight) and respiration (night). Other factors that played a significant role in these swings were algal blooms and the depletion of available phosphorous. Draped over the logger data are periodic handheld spot measurements. The handheld data were collected between 10 am and 1 pm and appear on the rise of the sinusoidal curve. If these values were taken later in the day, a very different curve would result. This year Rob is using two ASL Environmental DO loggers from the [ASL lease pool](#) to examine DO levels in an area where a bubbler system was installed. One logger was installed adjacent to the bubbler and the other logger was placed outside of the influence of the bubbler.



DO logger showing dynamic diurnal cycle with handheld DO data overlay.