All lakes were equipped with a high frequency monitoring platform or small lake buoy (OMC-7012 data-buoy) for a 6 to 12 full day period. Continuous monitoring of DO concentration, water temperature and pH was performed by an automated station equipped with a multiparametric sonde (Yellow Springs Instruments (YSI) 6600 V2–4) at one-meter depth (in Mullutu Suurlaht at 0.5m). Additional sensors for dissolved CO2 concentration (AMT Analysenmesstechnik GmbH; Võrtsjärv at 1.0m) and DO (OPTOD Ponsel) were placed at 0.5 m and 1.5m depth.

Membrane covered optical CO2 sensors (AMT Analysenmesstechnik GmbH) with measuring ranges of 30 mg L−1 and 80 mg L−1 were used to record dissolved CO2 partial pressure (pCO2) values in lakes. According to the sensors' manual (http://www.amt-gmbh.com/), the inner sensor volume is separated from the sample by means of a gas permeable silicone membrane, non-passable for liquids and solids. If the sensor is immersed into a sample, a pCO2 equilibration is achieved between the inner sensor volume and the sample. A Single-Beam Dual Wavelength nondispersive infrared (NDIR) optical sensor mounted inside the sensor detects the dissolved CO2 gas, but is insensitive to carbonate and bicarbonate. Measurement of pCO2 is accompanied by water temperature and air pressure measurements to calculate CO2 concentrations in the lakes. Increases in water temperature cause a decrease in sensor output, while increases in atmospheric pressure cause an increase in sensor output. All sensors had a fixed measuring depth, therefore we could do the depth correction for each measurement time interval once for all.

According to the YSI multiparametric YSI 6600 V2-4 sonde manual the accuracy and the resolution of measure parameters are:

temperature: accuracy +/- 0.15 C, resolution = 0.01C

do %: accuracy +/- 2%, resolution = 0.1%

do mg/L: accuracy +/- 2% or 0.2mg/L, resolution = 0.01mg/L

salinity: accuracy +/- 0.1ppt, resolution = 0.01ppt

pH: accuracy +/- 0.2 units, resolution = 0.01units

Additional DO and temperature values collected with Ponsel OPTOD sensor have an accuracy and resolution as fallows:

temperature: accuracy +/- 0.1 C, resolution = 0.01C

do %: accuracy +/- 1%, resolution = 0.01%

do mg/L: accuracy +/- 0.1mg/L, resolution = 0.01mg/L