

## Grab Sampling

The most common use for multi-parameter water quality monitoring equipment is for grab sampling. As the name implies this is a means of obtaining a set of measurements or readings of a



multiple number of parameters at a single point in time. The reasons for obtaining these measurements may be as a quality control check for another instrument or as a supplement to a water chemistry sampling program.

There are now up to fifteen different parameters that can be measured. Some parameters may act as an indicator of something else. Table 1 lists a few of the most common parameters and possibilities. Grab samples should be taken in an area of the lake or river that is well mixed and representative of the conditions. The instrument should be in about 1-meter deep water (if possible) and oriented so that the sensors are facing into the flow. For parameters such as Turbidity the instrument may have to be in deeper water if possible. Sampling staff should

try to avoid disturbing the sediment or substrate in the area where the instrument will be taking the measurement.

## Profile Sampling

When profile sampling in the ocean, estuaries, lakes or large rivers the instrument is lowered from a stationary boat or other platform and a complete set of measurements are taken usually at one meter intervals from just below the surface to within one meter of the bottom. This is usually done with a Datasonde or Minisonde 4a, an underwater cable and a Surveyor 4a (S4a) in the deepest, well-mixed part of the lake but depends on the project. Parameters such as temperature, dissolved oxygen and chlorophyll a can vary greatly over the depth and area of a



lake. Some of the options available for the Surveyor 4a are designed around making profile sampling easier than ever before. With the GPS option the S4a can direct you back to the exact same spot on a lake where you did your profile sampling last month or even last year. With the memory option the S4a can store all the data from your profile sampling and then you can download



to your favorite spreadsheet or database when you've returned to your office.

For more information on this or any Hydrolab application please contact Campbell Scientific (Canada) Corp. at (780) 454-2505.

**Table 1. Parameters That Indicate What's Happening**

<b>Parameter</b>	<b>What's Happening</b>	<b>Could Indicate</b>
Water Temperature	Increasing	Thermal Pollution, Hot Weather, Low Flow/Level
	Decreasing	Cooler Weather, Groundwater Inflow
pH	Increasing	Productivity Increasing, Industrial Pollution,
	Decreasing	Acid Rain, Rainfall or Snow melt, Industrial Pollution
Specific Conductance	Increasing	Groundwater, Industrial Pollution
	Decreasing	Rainfall or Snow Melt
Dissolved Oxygen	Increasing	Photosynthesis, Aeration
	Decreasing	Transpiration, Biological or Chemical Oxygen Demand