



# How to collect water samples

Water samples are gathered in order to measure the concentration of phosphorus in a lake. Phosphorus is an important measure of water quality, because too much phosphorus encourages the growth of algae and makes the water cloudy and unappealing.

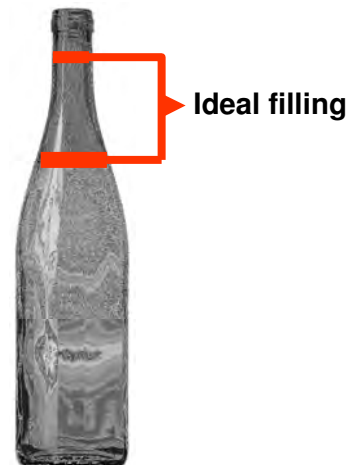
## How to assemble a collection bottle

1. Wash and rinse thoroughly with boiling water a one litre bottle. Glass bottles are preferred over plastic (ex: wine bottle).
2. Fix a heavy object (ex: weight or hammer) to the bottle with strong adhesive tape (ex: Duct Tape).
3. Strongly attach a line of at least five meters to the bottle (you can use Duct Tape). Mark the line at five meters from the bottle neck.



## Steps for sample collection

1. Choose one or more sites, depending on the shape and the size of the lake. Go to where the lake is the deepest and away from islands, docks and peninsulas. We usually use the same sites every year.
2. Note the date, time, atmospheric conditions, participants and site description on your field sheet.
3. Rinse the collection bottle with lake water three times.
4. Lower the bottle at a constant speed until you reach the five meters mark on the line. Immediately pull up the bottle with the same constant speed.
5. Make sure that the bottle is almost full, but not completely, when it breaks the surface. There should still remain a few centimetres of air at the top of the bottle. If the bottle is full or there is too much free space remaining, repeat the step 4.
6. Pour some water of the collection bottle into a sample bottle without overflowing it. Be very careful not to touch the water or the bottle necks. A partner is really useful for this step.
7. Identify each sample bottles with the name of the lake, the number of the sample and a letter to designate the sampling site (ex: Blue Lake, 1A).
8. Since we need three samples of every site, repeat the steps 3, 4, 5, 6 and 7 twice.
9. Keep the samples cold until you take them to the laboratory as soon as possible. If you intend to gather the samples on the weekend, it is best to do it on Sunday to minimize the storage time.
10. Complete the lab sheet with the name of your lake, your name and address.
11. Bring the samples to a laboratory that will analyse the TOTAL PHOSPHORUS with a method detection limit of 0.002 milligram per litre (mg/L). The Federation uses *Caduceon Environmental Laboratories*, 2378 Holly Lane in Ottawa. Refer to quote # **YD080326\_PF**.
12. Sample results and the invoice (10\$/sample) will be sent to the Federation and forwarded to you.



## Frequency

1. The most important measurement time for water quality is at the spring turnover, which is during the week following the ice melt.
2. Another good occasion to test the water quality is in November, just before the ice takes shape.

## Security

- Personal Flotation Device (PFD)
- Team of two or more





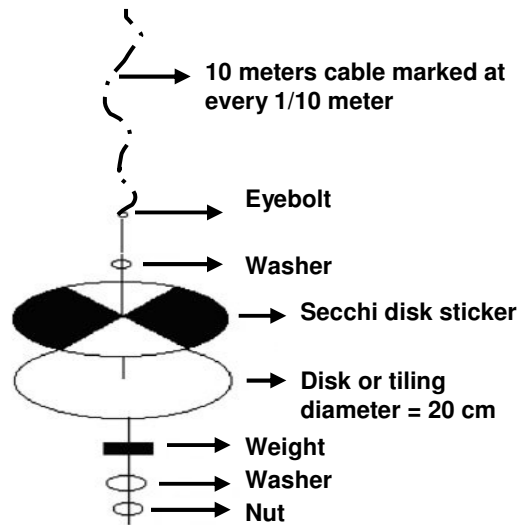
# How to measure water transparency



The Secchi disk measures the degree of light penetration in the lake. It allows you to indirectly evaluate the quantity of suspended solids in the water. This gives an indication of the quantity of microscopic alga in the lake.

## How to fabricate a Secchi disk

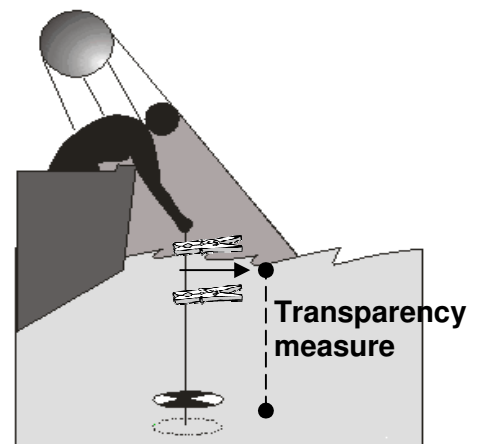
1. Apply a Secchi disk sticker on a metal or heavy plastic disk of 20 centimetres diameter. Two pieces of tiling glued with contact cement might do a great base.
2. Drill a hole at the center of the disk and the weight in order to insert an eyebolt and fix it with washers and nuts, as illustrated.
3. Mark every 1/10 meter on a 1/4" line using a waterproof felt-tip pen. The line should be at least 10 meters long.



- Ideal conditions:**
- All summer, at regular intervals
  - Sunny or partially sunny day
  - Calm day without too many waves on the lake
  - Between 10am and 4pm

## Steps

1. Reach the site where the water quality tests are done. In the spring and fall, you can combine those two activities
2. Note the date, time, atmospheric conditions, participants and site description on your field sheet.
3. Position yourself on the shaded side of the boat (sun in the back), above the lake and as close as possible to the water surface. Don't wear sun glasses.
4. Lower the Secchi disk slowly until it disappears. Note this spot on the cable at water surface with a clothespin.
5. Lower the disk of approximately one meter and then pull it up until it reappears. Note this spot on the cable at water surface with a clothespin.
6. The transparency measure is at the point midway between the two clothespins. Note this measure on your field sheet.



## Frequency

1. Take a first reading in the week following the ice melt at the same time that you collect samples for the water quality test.
2. If possible, repeat this operation at every two weeks of the summer, or at least monthly, and always at the same site. The operation is relatively short and simple, so bring the Secchi disk with you when you go fishing or for a boat ride.

## Security

- Personal Flotation Device (PFD)
- Team of two or more

