



Chlorophyll and Nutrients Sample Collection SOP

Sample collection and filtering for chlorophyll is done biweekly (every other week) on water from a 1-meter depth. Sample collection for laboratory water and nutrient analyses is generally three times during the sampling season (known as tri-season water collection dates.) These dates are listed on your monitoring schedule. Equipment and instructions marked with an asterisk (*) are for triseason water sampling only. **It is very important to keep the water samples in an insulated bag and out of the light until you are ready to begin the chlorophyll filtration.**

Equipment

- ❑ insulated cooler bag with freezer pack
- ❑ 2 white plastic bottles (labeled for chlorophyll) of sample water
- ❑ chlorophyll filtering apparatus
 - 60 ml plastic syringe, marked at 50 ml
 - 2 round white plastic filter holders
 - small filter circles (stored in 35 mm film canister)
 - wrapping paper, coffee filters or paper toweling (provided by you)
 - tweezers or large safety pin
 - 4" squares of aluminum foil (your own)
 - sheet of chlorophyll labels
 - squeeze bottle containing magnesium carbonate ($MgCO_3$)
 - resealable plastic bag containing blue desiccant chips
- ❖ *brown glass bottle with a yellow label "filtered" (for tri-season collection only)

B. Instructions

1. **Before you go out on the water, set out your filtering apparatus**, making sure you have everything you need, including paper toweling for wrapping filters and aluminum foil for sealing them.
2. **Collect two separate 1-meter water samples** using your water sampler. After rinsing your plastic chlorophyll bottle, fill the one bottle with your first sample, and the second bottle with your second sample. Cap the bottles and put them into your insulated bag. They *must* be kept out of sunlight.
3. **Finish your other monitoring activities and return to shore.**

When you are back on shore and in subdued light:

4. **Open one round white filter holder assembly.** Next, using tweezers, remove 1 small filter from its container (35 mm film canister). **Center the filter** rough side up, gridded side down, on the metal screen on the bottom of the filter assembly. Handle the filters with your tweezers, not your fingers. **Place the black rubber gasket on top of the filter and screw the filter holder back together.**

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5. **Thoroughly shake one of the plastic bottles** containing your water sample. Use your syringe to draw up approximately 20 ml. of water from the bottle. Push this water back and forth in the syringe, then out, discarding it. This **rinses the syringe**.
6. **Take apart your syringe** by pulling the plunger all the way out.
7. **Attach the round white filter holder to the syringe by twisting it on.** You will see that there is only one way in which it will fit.
8. Cap your sample bottle and shake well again. Hold the syringe with filter holder attached VERTICALLY. **Pour your water sample to the 50-ml line marked on the syringe.**
9. Shake the flip top bottle of magnesium carbonate. Squeeze **four drops of magnesium carbonate** into the water sample in the syringe.
10. **Attach the syringe plunger and slowly push the water through the filter apparatus with even pressure. Take your time!** Usually you will discard the filtered water. On triseason sampling days you will save the filtered water in the brown glass bottle with the yellow-label that says “filtered.”

CAUTION: *On some lakes with intense algal blooms the algae will completely clog the filter before you have filtered all 50 ml of water. **You should not have to push with all your strength to filter the water sample.** If this is the case or if you see water drops coming out from between the top and bottom of the white plastic filter holder **the filter has become clogged (either with algae or sediment.) You must start over with a fresh filter and water sample.** Use less water, say 25 ml, and record the amount used on your postcard and on the filter label itself.*

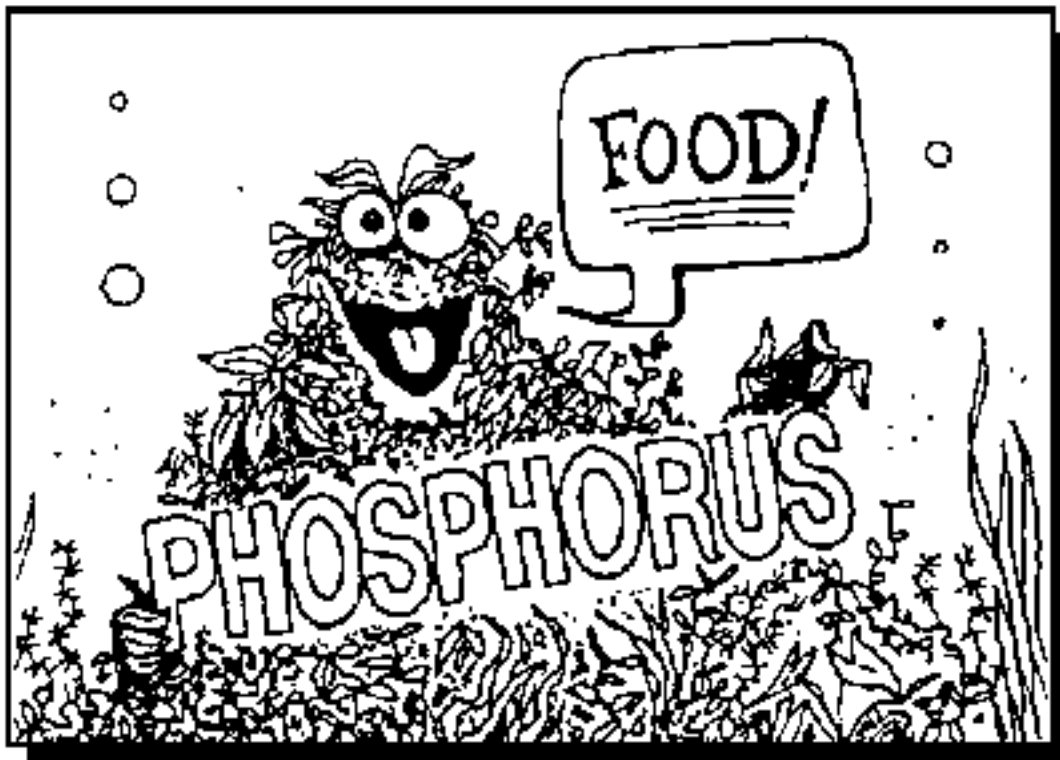
11. When you have finished filtering your water sample, **remove the filter holder from the syringe and unscrew the two halves.** Using tweezers lift out the black rubber gasket. Make sure you are out of direct sunlight.
12. Again using tweezers (or the tip of a large safety pin), **lift out the filter circle by an edge**, placing it on a piece of blotting/wrapping paper (paper towel/coffee filter). If the filter breaks while you are removing it, try to get all the pieces onto the blotting/wrapping filter paper.
13. **Fold the blotting/wrapping paper over the filter, folding the filter in half with the rough sides together. BE SURE TO FOLD THE FILTER CIRCLE SO THAT THE CHLOROPHYLL SAMPLE IS ON THE INSIDE.** Then place the folded filter paper on a piece of aluminum foil. Cover it loosely with foil.
14. Shake your first water sample in white plastic bottle again. Repeat from step 4 to **filter a second sample of water from the first chlorophyll bottle.**
15. **Now repeat these steps twice with the water from the second chlorophyll sample bottle.**

✓ YOU WILL HAVE FILTERED A TOTAL OF 4 SAMPLES OF WATER!

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16. **Securely fold a piece of aluminum foil around the four filters**, attach a sticky label, filling in your name, the date, the amount of water you filtered, and the number of filters. **Place in the resealable plastic bag containing desiccant chips and then into your freezer.**
17. **TRISEASON ONLY. Save the filtered water in the brown bottle with the yellow label.** Add the filtered water from second - fourth chlorophyll samples to that from the first sample. You will have more than enough water to rinse and fill your bottle.
18. Take apart the syringe and filter assembly. Rinse all apparatus with tap water - **DO NOT USE DETERGENTS.** Place upside down on a paper towel to dry. Reassemble loosely when dry.





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