



## Massachusetts Water Watch Partnership

### Standard Operating Procedure Lakes-7

### For Total Phosphorus

### Revision 1

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## Overview

This procedure describes how to collect a lake grab sample for later laboratory analysis of Total Phosphorus (TP).

### 0.0 References

This procedure was developed in concert with a site selection procedure (MassWWP Standard Operating Procedure Lakes-1 for Locating Sampling Site) and a lake depth finding procedure (MassWWP Standard Operating Procedure L-2 For Lake Depth Determination).

### 1.0 Surface Procedure Equipment List

- \_\_\_ One 250 ml or 125 ml Total Phosphorus sampling bottle
- \_\_\_ Field data sheet and pencils
- \_\_\_ Cooler
- \_\_\_ Ice
- \_\_\_ Frozen koolits
- \_\_\_ Zip-loc bag (1 gallon size)

### 2.0 Surface Sampling Protocol

- 2.1 Rinse the TP bottle and cap 3 times with lake water at the surface. Be sure not to put your fingers inside the bottle or the cap, and make sure you empty the rinse water on the other side of the boat. Try to avoid surface films or algae.
- 2.2 Uncap the sample bottle and dip it upside down in the water to elbow length.
- 2.3 Turn the bottle upside right and wait until there are no more air bubbles coming out of the bottle before removing it from the water.
- 2.4 Simultaneously squeeze the bottle and cap it.
- 2.5 On lake field sheet, write sample ID and depth taken and write 'TP' in Nutrients column.

### 3.0 Lake Bottom Procedure Equipment List

- \_\_\_ Wisconsin sampler
- \_\_\_ Calibrated line
- \_\_\_ One 125 ml Total Phosphorus pre-labeled bottle
- \_\_\_ Distilled water
- \_\_\_ Field data sheet and pencils
- \_\_\_ Cooler
- \_\_\_ Ice
- \_\_\_ Frozen koolits
- \_\_\_ Zip-loc bag (1 gallon size)

### 4.0 Lake Bottom Sampling Protocol

- 4.1 Just before sampling, use distilled water to rinse inside the Wisconsin sampler and outside the 125 ml bottle three times. Don't forget to rinse the sampler lid and the TP bottle cap with distilled water as well.
- 4.2 Place the TP bottle inside the Wisconsin sampler, with the long tube inserted in the TP bottle.
- 4.3 Lower the Wisconsin sampler to 0.3 m (1 ft) above lake bottom and pull ropes to fill TP bottle.
- 4.4 Retrieve sampler back into the boat.
- 4.5 Inspect water inside Wisconsin sampler for suspended sediment that may have been stirred by this or previous activity. If suspended sediment is present, the procedure needs to be repeated after conditions have returned to normal.
- 4.6 If water in sampler is clear, remove TP bottle from Wisconsin Sampler: use extreme care not to touch the inside of the TP bottle or its cap (if you do, rinse again and repeat procedure as described above).
- 4.7 Squeeze the TP bottle and cap it simultaneously.
- 4.8 Check 'TP sample taken' on lake field sheet and specify at what depth.

## **5.0 Transporting the Sample<sup>1</sup>**

- 5.1** Bottle should be pre-labeled with lake name, site, date, and analysis requested (TP).
- 5.2** Place sample in cooler with ice.
- 5.3** If you cannot put ice directly in your cooler because you store other materials in there, use a gallon-size zip-loc bag filled with ice. Put your sample in that zip-loc bag, zip shut and place in cooler with frozen koolit.
- 5.4** Back home, place sample in freezer.
- 5.5** Deliver frozen sample to lab. You can mail samples overnight in a small cooler, with insulation and frozen koolits, to: UMass EAL, Blaisdell House, UMass, Amherst, MA 01003
- 5.6** Holding time for frozen sample is 12 months.

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<sup>1</sup> Sample handling procedures are specific to the UMass EAL. If your samples will be analyzed by another lab, obtain that lab's handling procedures, as preservation methods vary with labs (e.g. acidifying rather than freezing samples).