

**BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT**

**CHLOROPHYLL A SAMPLING METHOD FOR LAKES**

**OCTOBER 2015**

**CHLOROPHYLL A SAMPLING METHOD FOR LAKES**

1. Anchor boat over sampling location and record the following information on the Lake/Reservoir Field Data Sheet (3800-FM-BPNPSM0050) (Appendix A).

Station Number Dissolved Oxygen profile (Hydrolab or equivalent)

Date Temperature profile (Hydrolab or equivalent)

Time Meteorological conditions

Water depth Air temperature

Water transparency (Secchi Disk) Wind speed/direction

Latitude and Longitude Percent cloud cover

1. Collect water sample with Kemmerer or Van Dorn or other similar grab sampling device at a depth of one meter below the surface.
2. Assemble the filtering device, rinse with DI water before placing filter. With forceps, place a 47 mm diameter glass fiber filter (GF/F) such as Whatman or Gelman Type A/E onto the unit, rough side up.
3. Vacuum filter 100 ml (50 ml or less during summer productivity) of sample water through the filter within 30 minutes of collection. Alternatively for filtration on shore, collect sample in a dark brown plastic pre-rinsed collection bottle, and place immediately on ice. Homogenize the sample by inverting or shaking the Van Dorn or collection bottle, measure the 100 ml or less in a graduated cylinder, then pour measured amount into the filtration funnel. Do not allow vacuum pressure to exceed 7 Hg. The filter does NOT need to be stained green or brown (EPA Method LG404). When the last 10 to 50 ml remains, add 10 drops (1/2 ml) of saturated MgCO3 solution to the sample and finish filtering. Rinse filtration funnel with DI water to wash down any remaining algal cells. Record volume of sample water filtered.
4. Each lake requires one filter blank at the beginning of the data set for the year.  Filter 100 ml of DI water through a clean filter, and finish filtering with 10 drops of MgCO3 in the last 10 to 50 ml.  Label as a unique sample.  Duplicates should be collected at the rate of one per 10 samples for that lake, or at least one per year’s set of samples for each lake.
5. Remove filter from unit with forceps. Fold filter in half, upon itself. Place filter in a plastic petri dish or small plastic vial, wrap in aluminum foil to shield from light; or, alternately, place filter in aluminum foil, careful not to fold the filter anymore. Place in a labeled envelope or small zip baggie, then in a whirl-pack bag. Immediately freeze on dry ice, freeze in a -20C degree freezer, or place on wet ice and deliver to the Lab within 8 hrs. Filters may be held in the freezer for 2 weeks, and sent as a batch to the Bureau of Labs.
6. Ensure proper labelling of samples, double bag on dry ice for shipping and use the Dry Ice shipping label on the cooler or shipping container. Forward to the DEP Bureau of Laboratories (BOL) in Harrisburg via courier service. Samples must be accompanied by a completed Lab “Sample Submission Sheet” with Chain of Custody information. Forms are available on the BOL website. The Standard Analysis Code (SAC) for the new chlorophyll-a method is B029. If you need phaeophytin results also, include SAC B019 on the Sample Submission Sheet as well.
7. Field observations, including the temperature and Dissolved Oxygen profile, should be recorded on the Field Data Sheet. Enter the field data into Sample Information System (SIS) within 14 days of collection.

Appendix A

Lake/Reservoir Field Data Sheet

**3800-FM-BPNPSM0050 Rev. 7/2013 COMMONWEALTH OF PENNSYLVANIA**

 **DEPARTMENT OF ENVIRONMENTAL PROTECTION**

 **BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT**

 **LAKE/RESERVOIR FIELD DATA SHEET**

Lake Name County

Station Lat. Long

Date Time Collectors

Weather

Cloud Cover (%) 0 25 50 75 100 Comments (Hazy/Foggy)

Wind Conditions: None Light Moderate Heavy Direction

Rain Conditions: None Drizzle Light Moderate Heavy

Surface Turbulence Air Temperature (ºC)

Station Depth (meters)

SECCHI DISK READING (TENTHS OF A METER)

**FIELD MEASUREMENTS**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **DEPTH (meter)** | **TEMP (ºC)** | **D.O. (ppm)** | **pH** | **Sp. Cond. (Umhos)** | **DEPTH (meter)** | **TEMP (ºC)** | **D.O. (ppm)** | **pH** | **Sp. Cond. (Umhos)** |
| surface |  |  |  |  | 11M |  |  |  |  |
| 1M |  |  |  |  | 12M |  |  |  |  |
| 2M |  |  |  |  | 13M |  |  |  |  |
| 3M |  |  |  |  | 14M |  |  |  |  |
| 4M |  |  |  |  | 15M |  |  |  |  |
| 5M |  |  |  |  | 16M |  |  |  |  |
| 6M |  |  |  |  | 17M |  |  |  |  |
| 7M |  |  |  |  | 18M |  |  |  |  |
| 8M |  |  |  |  | 19M |  |  |  |  |
| 9M |  |  |  |  | 20M |  |  |  |  |
| 10M |  |  |  |  |  |  |  |  |  |

**SAMPLES COLLECTED**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **TYPE/DEPTH** | **SAC**  | **VOLUME****FILTERED** | **TIME****COLL.** | **COLLECTION NUMBER** |
| WATER QUALITY (Top) |  |  |  |  |
| WATER QUALITY (Bottom) Depth of Sample: |  |  |  |  |
| CHLOROPHYLL A |  |  |  |  |
| OTHER (blank/dup.) |  |  |  |  |
| PLANKTON TOW (2x \_\_\_\_\_m net diameter =\_\_\_\_\_”) |  |  |  |  |

|  |
| --- |
| **COMMENTS:**  |