

LAKE MONITORING PROCEDURES

Step 1. PREPARE FOR MONITORING

- Check monitoring calendar to confirm monitoring activities & dates.
- Monitor between 10:00 am and 2:00 pm for accurate secchi readings.
- Check weather & lake conditions, forgo monitoring in bad weather.
- Ensure that you have all equipment for the monitoring to be performed that day.

Basic Monitoring	Water Sampling	Advanced Monitoring
<input type="checkbox"/> Clipboard	<input type="checkbox"/> Vertical Sampler	<input type="checkbox"/> DO test kit
<input type="checkbox"/> Data Sheet	<input type="checkbox"/> 2 TP bottles	<input type="checkbox"/> DO bottles
<input type="checkbox"/> Pencil	<input type="checkbox"/> 1 Chl <i>a</i> bottle (public)	<input type="checkbox"/> Gloves
<input type="checkbox"/> Secchi disk	<input type="checkbox"/> 1 Algae bottle	<input type="checkbox"/> Safety Goggles
<input type="checkbox"/> Thermometer	<input type="checkbox"/> Cooler with Ice	Or
<input type="checkbox"/> Anchor	<input type="checkbox"/> Sharpie	<input type="checkbox"/> YSI meter

Step 2. PREPARE SAMPLE BOTTLES (IF WATER SAMPLING DATE)

- You should have four sample bottles – 2 Total Phosphorus (TP), 1 Chlorophyll *a* (Chl- *a*) - for public lakes only, and 1 algae screening bottle.
- Using a Sharpie or waterproof marker, label all sample bottles with the date, approximate time, l, and sample depth.
 - Chl-*a* samples are taken at 1 meter
 - Algae samples are taken at the surface
 - TP samples are taken at 1 meter and 1 meter from the bottom (refer to guide).

Step 3. LOCATE YOUR MONITORING SITE

- Find the monitoring location at the deepest part of the lake using the bathymetric map provided to you. Always monitor in the same location.
- Anchor your boat if possible.

Step 4. CONDUCT BASIC MONITORING ACTIVITIES

TEMPERATURE

- Record air temperature to nearest ½ degree C; (before putting thermometer in water).
- Hold thermometer 6"-12" under water surface **for 2 minutes**.
- Record water temperature to nearest ½ degree C (read temperature quickly)

MEASURE THE SECCHI DEPTH (WATER CLARITY)

- Remove sunglasses and use shady side of boat.
- Lower the disk until it just disappears; raise disk until it re-appears; move disk slowly up and down until you find the exact vanishing point.
- Measure and record depth of disk to nearest 0.1 meter.
- Repeat the measurement until you get two readings within 0.1 meters.

ASSESS WATER CONDITONS

- Describe water color by holding the Secchi disk in water about ½ the Secchi depth. Choose the color that best described the water color or write in your own description.
- Record severity of the algae in the water. Submerge the Secchi disk about 6 inches to use as a background to make the algae particles more visible.

CONDUCT ADVANCED MONITORING

- If you have volunteered for advanced monitoring – proceed with measuring temperature and dissolved oxygen profiles. Refer to Advanced Monitoring Field Instructions.

RECORD WEATHER & WATERSHED CONDITIONS

- Record cloud cover, recent rain, and wind conditions at time of sampling.
- Describe algal scum density (found along the shoreline). If you see a moderate to heavy green or blue scum and are not collecting a sample – call to report at 425-388-3464.
- Describe abundance of aquatic plants relative to typical conditions.
- Record numbers of ducks, geese, and other waterfowl seen throughout monitoring trip.
- Make notes of any other observations: wildlife, land clearing, foam etc.

Step 6. COLLECT WATER SAMPLES (IF WATER SAMPLING DATE)

COLLECT CHLOROPHYLL *a* SAMPLES (IF ON PUBLIC LAKE)

- Open the sampler and rinse 3X with lake water, then collect water sample from 1 meter.
- **DO NOT RINSE** the 1 L Chl *a* sample bottle. The bottle contains a small amount of liquid preservative (magnesium carbonate). **DO NOT POUR OUT** the liquid. If by accident you empty or dilute this preservative, discard the sample bottle and use another.
- Fill the bottle to about ¼ to ½ inch from the top with the 1 meter water, being careful not to touch the inside of the cap or bottle with your hands.
- **Immediately place the sample in the cooler – keep cold and dark.** Readings can change dramatically from even a few minutes of exposure to light or room temperature.

COLLECT TOTAL PHOSPHORUS SAMPLES

- Open the sampler and rinse 3X with lake water, then collect water sample from 1 meter.
- **Rinse the 1 meter sample bottle and the cap 3 times with the 1 meter water**, being careful not to touch the inside of the cap or bottle with your hands.
- Fill the 1 meter bottle with remaining water (obtain more if needed)
- Collect a water sample from 1 meter from the bottom (refer to guide). If the sample is cloudy with sediments, try again on the other side of the boat.
- **Rinse the second bottle and the cap 3 times with water from the specified lower depth** and fill. Note any lake odors you observe from the deeper water.
- Check that bottles are labeled and place samples in cooler.

COLLECT ALGAE SCREENING SAMPLE

- The algae screening sample should be taken from the area of the lake with the thickest algae that you observe as you travel to and from your site. You can also paddle around the lake looking for scums if algae appear to be thick – but it is not required.
- If you have not observed any algae scums, take the sample from the middle of the lake by dipping the bottle into the lake near the surface and then place it in the cooler.
- If you had observed or later find an area of heavier algae or scum anywhere on the lake, take a surface sample collecting as much scum as possible and place in cooler. It's O.K. to dump the water and re-sample if you find a heavier scum area.

Step 7. MEASURE LAKE LEVEL

- Record lake level in inches from the fixed point on your dock down to the water surface.

Step 8. STORE EQUIPMENT AND SUBMIT DATA

- Copy your data onto a colored data sheet and keep the copy for your records (optional).
- Mail in the white Rite-in-Rain sheet with the provided envelope. You can also enter the data on the website, but still mail in the white sheets.
- If water samples are collected:
 - Store water samples in refrigerator
 - Complete the Chain of Custody Form with date/time and submit with samples.
 - Put cooler with ice and samples on front porch or end of driveway by 8:00 am Mon.

