



GENERIC LAKE MONITORING INSTRUCTIONS

1. PREPARE FOR MONITORING

- Check monitoring calendar to confirm monitoring activities and dates
- Check weather and lake conditions; DO NOT monitor in bad weather
- Monitor between 9:00 am and 4:00 pm (Secchi readings after 5:00 pm cannot be accepted)
- Ensure that you have all equipment for the monitoring to be performed that day

Basic Monitoring		Water Sampling	Dissolved Oxygen
<input type="checkbox"/> Instruction Sheet	<input type="checkbox"/> Life jacket	<input type="checkbox"/> Water sampler	<input type="checkbox"/> YSI meter
<input type="checkbox"/> Data Sheet	<input type="checkbox"/> Anchor	<input type="checkbox"/> 1 TP/TPN bottle	<input type="checkbox"/> DO Instructions
<input type="checkbox"/> Clipboard	<input type="checkbox"/> Hat (optional)	<input type="checkbox"/> 1 TP bottle	Algae Screening
<input type="checkbox"/> Pencil & Sharpie	<input type="checkbox"/> Towel (optional)	<input type="checkbox"/> 1 Chl- <i>a</i> bottle	<input type="checkbox"/> Algae Screen bottle
<input type="checkbox"/> Thermometer	<input type="checkbox"/> Boat (not optional)	<input type="checkbox"/> Cooler with ice	<input type="checkbox"/> Gloves
<input type="checkbox"/> Secchi Disk		<input type="checkbox"/> Extra Bottle Set	<input type="checkbox"/> Camera (optional)

2. LABEL SAMPLE BOTTLES (IF MONITORING ON A WATER SAMPLING DATE)

- Before heading out label the water sample bottles with date, collection time, and sample ID as follows

Sample Type	Sample ID	Bottle Description
Chlorophyll <i>a</i>	Lake Name - 1 meter	Large Brown bottle
TP/TPN	Lake Name - 1 meter	Clear 125 mL bottle
TP	Lake Name - X meters (varies by lake)	Clear 125 mL bottle

3. LOCATE YOUR MONITORING SITE

- Find the monitoring location at the deepest part of the lake using your bathymetric map
- Always anchor your boat and monitor in the same location

4. RECORD WEATHER CONDITIONS

- Record air temperature to nearest ½ °C by holding the thermometer in the shade for 2 minutes
- Record water temperature to nearest ½ °C by holding the thermometer or a DO probe 6-12 inches under the water surface for 2 minutes (read thermometer quickly)
- Select method used to take water temperature – thermometer or DO probe
- Choose the cloud cover percentage that best describes conditions at the time of the Secchi reading
- Choose the wind conditions that best describe conditions at the time of the Secchi reading
- Choose the amount of rain that best describes the recent rainfall in the area

5. MEASURE WATER CLARITY

- Remove sunglasses and use shady side of boat
- Lower the Secchi 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 the Secchi disk to the nearest 0.1 meter at the vanishing point
- Repeat until you get two readings within 0.1 meters (data cannot be accepted if more than 0.1 m apart)
- If the Secchi disk hits the lake bottom or enters weeds, check the appropriate box

6. EVALUATE ALGAE CONDITIONS

- Lower the Secchi disk 6 inches below the water on the sunny side of the boat and observe the small particles (the algae) over the disk. If there are too many particles to count in an area the size of a half dollar, select “Yes” for Heavy Algae
- Look for mats of stringy filamentous algae throughout your monitoring trip and note if observed
- Look for algae scums throughout your monitoring trip especially along the shoreline. If a scum is present
 - Choose the term that best describes the algal scum type

- Label your algae screening sample bottle and collect a sample of the scum while wearing gloves
- Take a photo of the scum if possible
- If you take a sample, please call 425-388-3464 to arrange a pick-up if not a scheduled pick-up date

7. RECORD LAKE LEVEL

- Record the lake level at your established fixed point at shoreline or dock and include unit used (inches or feet)
- Record lake level at County staff plate after your fixed point reading 2-3 times per season (if applicable)

8. IDENTIFY WATER COLOR AND ODOR

- Lower the Secchi Disk to ½ the Secchi depth taken that day (e.g. if Secchi was 4 meters, lower disk to 2 meters)
- Choose the Intensity and Tint that best describes the color of the water over the white portion of the disk

9. RECORD OTHER OBSERVATION

- Record the lake level at the lake staff gage or a pre-determined location and circle inches or feet
- Record the numbers of ducks, geese, and other waterfowl seen throughout monitoring trip
- Record the number of boats, people fishing, and swimmers/waders seen throughout monitoring trip
- Select the option that best describes your perception of the lake recreational suitability (1 = best; 5 = worst)
- Note other observations: aquatic plants, odors, wildlife, pollution, land clearing, equipment issues, etc

10. COLLECT WATER SAMPLES (IF WATER SAMPLING DATE)

COLLECT 1 METER SAMPLE(S)

- Open the sampler and rinse three times with lake water
- Obtain a water sample from 1 meter depth
- Collect the TP/TPN Sample:
 - Rinse the 1 meter TP/TPN bottle and cap three times with water from the sampler, being careful not to touch the inside of the cap or bottle with your hands or the sampler tube
 - Fill the 1 meter TP/TPN bottle to the shoulder, being careful not to touch the inside of the cap or bottle with your hands or the sampler tube
- Collect the Chlorophyll a sample:
 - DO NOT RINSE the Chl-a sample bottle - it has a small amount of preservative - DO NOT POUR OUT
 - If by accident you rinse it, use your extra Chl-a bottle instead and return rinsed bottle with samples
 - Fill the bottle to the shoulder (obtain more water if needed)
- Immediately place the samples in the cooler – keep cold and dark

COLLECT BOTTOM SAMPLE

- Obtain a water sample from «X» meters (1 meter from the bottom)
- If the water sample is cloudy with sediments, dump it out and sample again on other side of the boat.
- Collect the TP Sample
 - Rinse the bottom TP sample bottle and cap three times with water from the sampler, being careful not to touch the inside of the cap or bottle with your hands or the sampler tube
 - Fill the bottom TP sample bottle to the shoulder, being careful not to touch the inside of the cap or bottle with your hands or the sampler tube
- Record if there is a rotten egg odor in the remaining sample water (means no oxygen at bottom)
- Immediately place the sample in the cooler – keep cold and dark

11. CONDUCT DISSOLVED OXYGEN PROFILE MONITORING

- If you have volunteered to take dissolved oxygen profiles, refer to Dissolved Oxygen Profile Instructions.

12. SUBMIT DATA SHEET AND SAMPLES

- Store water samples in fridge
- Sign and date the Chain of Custody section on the data sheet and submit with samples
- Place samples in cooler with ice and set on porch or at end of driveway by 8:30 am Monday.
- Submit the original data sheet with water samples, email to lakes@snoco.org or mail with the provided envelope