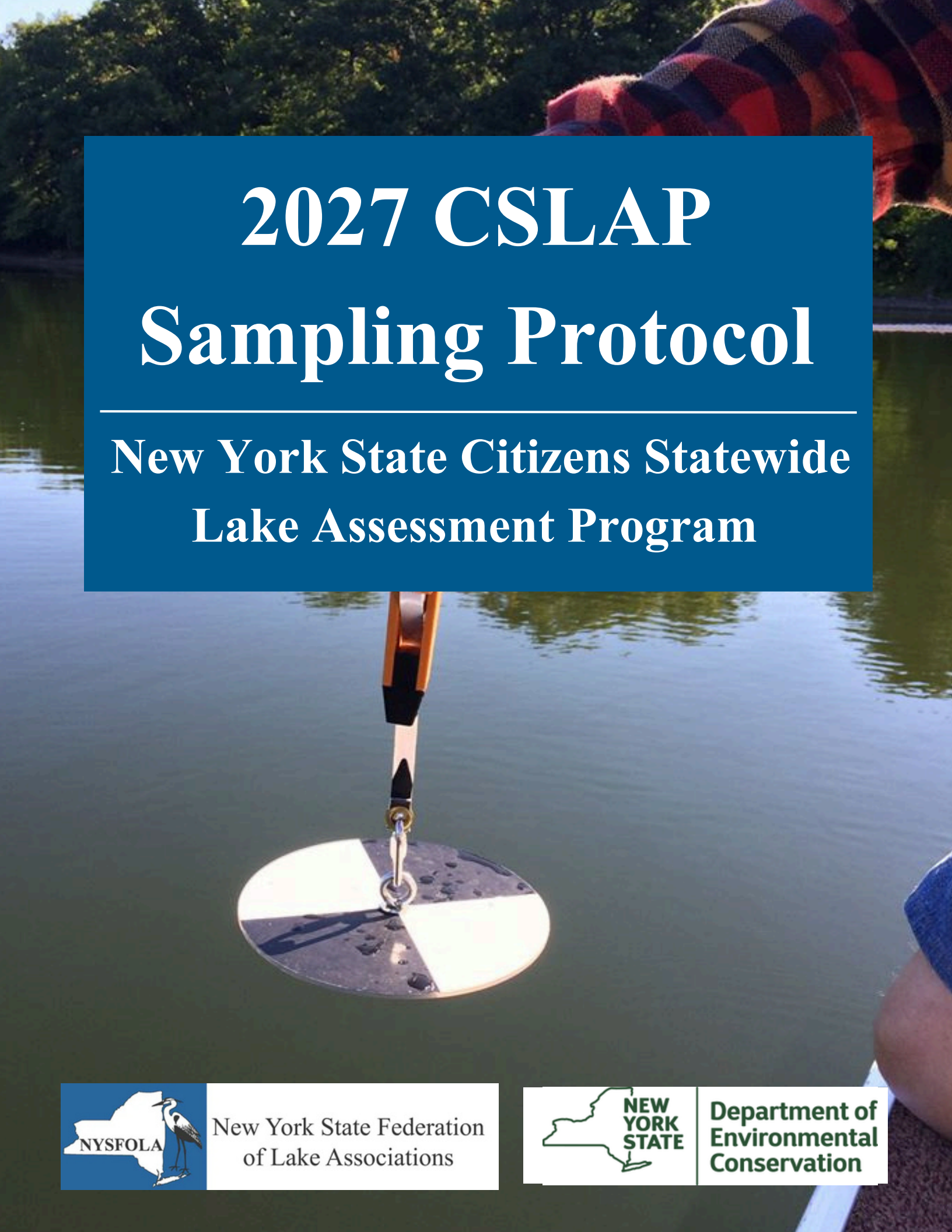


2027 CSLAP Sampling Protocol

New York State Citizens Statewide Lake Assessment Program

NYSFOLA

New York State Federation of Lake Associations

NEW YORK STATE

Department of Environmental Conservation

Citizens Statewide Lake Assessment Program



Funding for the Citizens Statewide Lake Assessment Program is provided from the New York State Environmental Protection Fund as administered by the New York State Department of Environmental Conservation.



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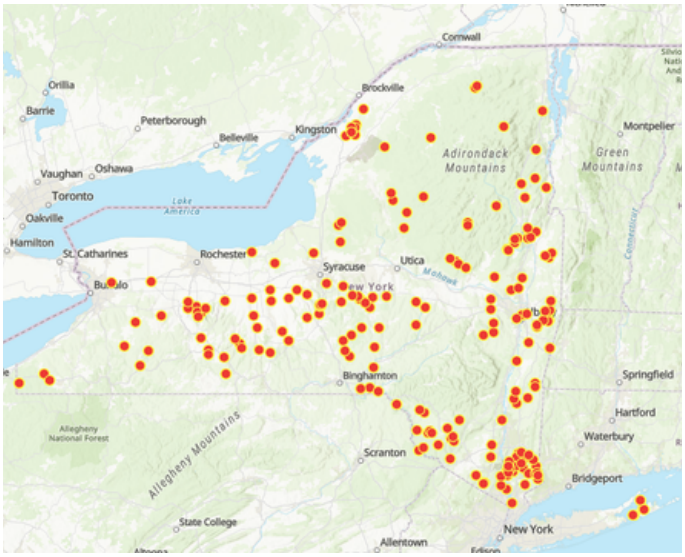
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General Background and Program Introduction

New York State is home to more than 7000 lakes, ponds, and reservoirs. Many of these waters are used by the public for recreation and as a source of drinking water. As water quality continues to decline in many of our state's lakes, there is a need for lake management strategies to help minimize the adverse impacts of landscape alteration and climate change.



2026 Citizens Statewide Lake Assessment Program

Image from Arc GIS

The tremendous number and diversity of waterbodies, and the problems associated with these waters, makes statewide lake management a difficult task. A single statewide management plan cannot possibly address every lake's unique characteristics. Ideally, management decisions should consider available historical and current chemical, physical, and biological data, how each waterbody is used, and any use impairment. Reliable information, however, is either sparse or non-existent for many waterbodies in New York State.

What is CSLAP?

The Citizens Statewide Lake Assessment Program (CSLAP) is a cooperative effort between the New York State Department of Environmental Conservation (NYSDEC) and the New York State Federation of Lake Associations, Inc. (NYSFOLA). Initiated in 1985, as a pilot project on 25 lakes, the program has grown to

Standard CSLAP Sampling Parameters

Water Temperature (°C) - Water temperature affects many lake activities, including the rate of biological growth and the amount of dissolved oxygen. It also influences the length of the recreational season.

Transparency (meters) - Determined by measuring the depth at which a black and white disk disappears from sight, which estimates the clarity of the water. In lakes with low color and rooted macrophyte (aquatic plant) levels, it is related to the productivity of the lake.

Conductivity (µmhos/cm) - Specific conductance measures the electrical current that passes through water and is used to estimate the number of ions (charged particles). It is somewhat related to the hardness of the water and may influence the degree to which nutrients remain in the water column.

pH - pH is a measure of the (free) hydrogen ion concentration in solution. Most clearwater lakes must maintain a pH between 6 and 9 to support most types of plant and animal life. Low pH waters (<7) are acidic, while high pH waters (>7) are basic. Rapid fluctuations in pH can be stressful to many organisms.

Color (true) (platinum color units) - The color of dissolved materials in water usually consists of organic matter, such as decaying macrophytes or other vegetation. It is not necessarily indicative of water quality but may significantly influence water transparency or phytoplankton (algal) growth.

Phosphorus (total) (mg/l) - Phosphorus is one of the major nutrients needed for plant growth. It is often considered the "limiting" nutrient in NYS lakes since biological productivity is often limited If phosphorus inputs are limited. Many lake management plans focus on reducing phosphorus inputs.

Nitrogen (total, ammonia and nitrate) (mg/l) - Nitrogen is another nutrient necessary for plant growth and can act as a limiting nutrient in some lakes, particularly in the spring and summer. In high concentrations, ammonia and nitrate can result in ecological impairment. Total nitrogen is comprised of ammonia, nitrate (+nitrite), and organic nitrogen.

Chlorophyll a (µg/l) - The measurement of chlorophyll a, the primary photosynthetic pigment found in green plants, provides an estimate of phytoplankton productivity, which may be strongly influenced by phosphorus.

Calcium (mg/l) - Calcium is usually a major component of lake buffering capacity (the ability of a lake to neutralize acidic inputs) and is required for some aquatic invertebrates to build shells.

Chloride (mg/l) - Use of chloride compounds in brine, road salt, and water softeners can increase chloride ions in water potentially impacting aquatic life and lake mixing.

Field Observation Forms - Link recreational use and health and safety perceptions to the water quality data.

include several hundred waterbodies. Throughout the 40+ years of the program, CSLAP data has been used by lake associations to develop management strategies. There are several objectives that are considered fundamental to the successful implementation and evaluation of these plans. These include:

1. the collection of reliable data on individual waters to provide baseline information and document trends in water quality.
2. the identification and assessment of specific problems on individual waters and recommendations to deal with these problems; and
3. the education of lake residents, users, and interested citizens in the collection and implementation of water quality data, lake ecology, and management practices.

How to Participate in CSLAP

CSLAP is a program for lake organizations, and participation is limited to lake organizations that are members of NYSFOLA. Participating associations must pay annual NYSFOLA membership dues. Each association must also provide volunteers to collect samples. The number of participating associations depends on available funding.

More information can be found on the NYSFOLA (**www.nysfola.org**).
and NYS DEC **(dec.ny.gov/environmental-protection/water/water-quality/monitoring)** websites.

Questions?

Abby Hullihen,
CSLAP Coordinator, NYSFOLA
Email: cslap@nysfola.org
Phone: (315) 632-5993

Alene Onion,
CSLAP Coordinator, NYS DEC
Email: alene.onion@dec.ny.gov
Phone: (518) 402-8166



Volunteer Training

Volunteers are essential to CSLAP. New volunteers must attend an official training session in order to learn how to collect, process, and preserve samples, complete and submit the necessary paperwork and data, and ship samples to the laboratory. Due to the large number of new volunteers each year, staff cannot visit every lake before the sampling season begins. Your lake association will receive information about training opportunities before the season begins, starting with the training at the NYSFOLA annual conference in late April or early May.

Accurate and consistent sampling is essential for assessing a lake's water quality. Volunteers must therefore commit to a strict adherence to standard sampling procedures.

In addition to the standard physical and chemical measurements and user perception surveys described in this document, CSLAP volunteers are welcome to collect additional data about aquatic plants, invasive species recreational boating capacity, lake level, ice on/off dates,

and fish populations. The guidance for this additional data collection can be found on the NYSFOLA website at: www.nysfola.org.

Safety First!

Volunteers should never go out on the lake alone. Safety is crucial, and all CSLAP participants are expected to adhere to NYS boating laws and obtain any required boater safety training when operating a watercraft. https://parks.ny.gov/boating/.

Sampling Time and Days

The ideal time of day to sample is between 8:00AM and 12:00PM, when the lake is usually calm and there is available sunlight. Since water quality characteristics fluctuate slightly with the time of day, a regular sampling time will improve the ability to compare readings throughout the season and year to year. Choose a time that you can usually repeat, but don't go out in rough or inclement conditions just to stick to the sampling schedule.

Getting the samples to the laboratory in a timely manner is also crucial to the integrity of the data. To allow for timely shipment and analysis of samples, samples should be collected early in the week, processed and preserved immediately, and shipped no later than Wednesday. Weekend sampling on Sunday, with shipping on Monday is ideal. Plan your sampling schedule in advance to avoid conflicts. Volunteers should keep Memorial Day, Juneteenth, July 4th, and Labor Day in mind to avoid conflicts with holiday shipping and laboratory schedules.

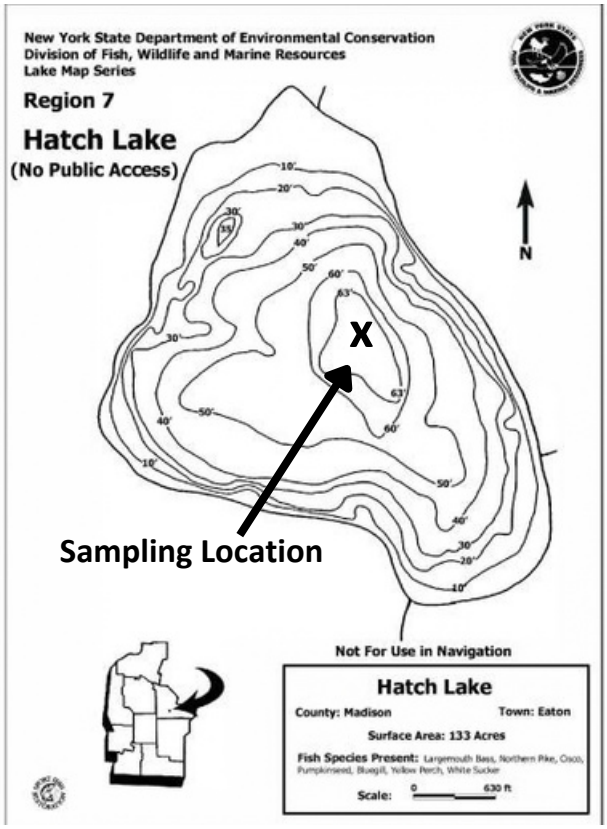
4x sampling option

Samples should be collected **once per month**, approximately 4 weeks apart, in each of June, July, August, and September.

8x sampling option

Four additional samples (sampling twice a month) are available to CSLAP volunteers through NYSFOLA at an additional cost. For details on this supplementary program and pricing, please reach out to cslap@nysfola.org

No matter how many samples you are collecting, **no samples will be accepted if they are collected before June 1st or after September 30th**. If we receive samples collected in October, they will not be analyzed.



Sampling Location

Collect samples from the deepest part of the lake, as it is usually the most representative location for assessing overall water quality. If your lake thermally stratifies (most lakes deeper than about 20 ft do), the deepest location also allows the sampling of the deep, cold waters. If you are not sure where the deepest spot is, check bathymetry maps (available for some lakes on the NYS DEC website at https://www.dec.ny.gov/ outdoor/9920.html., ask local anglers, or use a fish finder to locate the spot. It is very important to return to the same location for every sampling round.

You can use the following methods to help you return to the same location for sampling:

- **GPS** - If you have a Global Positioning System (GPS) unit, or smartphone with GPS capability, take a GPS reading to obtain latitude and longitude coordinates and return to that point each sampling round.

- **Buoy** - On some lakes, you may be able to mark the spot with a buoy. It must not impede navigation or cause safety issues, and you may need a **Floating Object Permit**. You should always check with NYS OPRHP to be certain before placing a buoy in the lake. **(https://staffportal.parks.ny.gov/boating/floating-objects.aspx)**

- **Triangulation** - You can also triangulate the sampling spot using permanent landmarks on the shore. From the deep spot, find landmarks that line up at 0, 90, 180, and 270 degrees. Record those landmarks to find the sampling location each time.

Sampling Equipment

CSLAP provides volunteers with the equipment needed for sampling. Volunteers must supply a few items, such as aluminum foil and distilled water. You may keep the equipment while your lake participates in the program. You are expected to properly take care of equipment, and return it if your lake association stops participating. If anything is missing from your sampling kit, contact Abby Hullihen at cslap@nysfola.org.



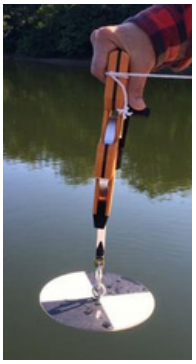
Lab Dial Thermometer (degrees Celsius)
Used to take air and water temperatures. CSLAP program measurements are collected using the metric system. Most water temperature readings should be between 6°C and 30°C.

The thermometer should be calibrated at the beginning of each sampling season (at a minimum). To do this:

1. place the thermometer in an ice bath (or in conditions as close to freezing 32°F as possible). The thermometer should read approximately 0°C.
2. Now, read the thermometer in a 70°F room. The thermometer should read approximately 21°C.

Adjustments can be made to the thermometer by turning the small nut on the underside of the dial.

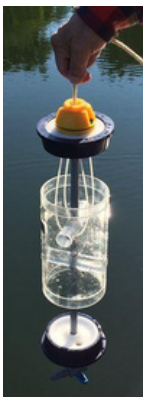
Secchi disk and measuring tape



The Secchi disk is used to measure water clarity (the transparency of the water). If your lake is shallow, you caalso lower the Secchi disk to the bottom to get the sounding depth (total depth of the water column at your sampling location). Most volunteers will have a Secchi disk attached to a measuring tape, although some may have a rope with measured lines. **The Secchi depth is measured in meters.** If you have a measuring tape marked in feet on one side, and meters on the other, use the meter side for your measurements. You will be recording this measurement to the nearest 0.1 meter. Detailed directions on how to use a Secchi disk are in the on-lake procedures (pp 15-19).

Kemmerer bottle





The Kemmerer bottle is used to collect water from a specified depth in the lake. Some of the bottles used in CSLAP are clear acrylic, while others are white PVC. The Kemmerer bottle is attached to a rope that is marked in meters to allow easy measurement of the depth of the water. Make sure that the rope is firmly attached to the Kemmerer bottle every time you take it on the lake. There is a metal weight on the rope called a **"messenger"**. When the bottle is at the correct depth, the messenger is released, triggering the bottle to close at depth to collect the sample.

- **Surface samples-** Most lakes will be sampled at a depth of **1.5** meters. If your lake is shallower than 1.5 meters, you will be given an appropriate sampling depth at the training session. This sampling depth is called the "surface sample" even though it is collected 1.5 meters beneath the water surface. Never skim water from the top of the lake for a surface sample.
- **Deep samples** - In thermally stratified lakes, generally those deeper than 20 feet (6 meters), you will also collect a deep samples. These samples will be collected 1.5 meters above the bottom of the lake.

Sample Collection Containers



All sampling kits will have a collapsible container with a spigot for storing the shallow water sample when it is collected using a Kemmerer. Volunteers that are taking a deep sample will have a second collapsible container. Those collecting both a shallow and a deep sample should mark their containers"S" for the shallow sample and "D" for the deep sample.

On Shore Equipment

CSLAP volunteers will also receive equipment to use on shore for processing water samples. You should have:

- Gloves (bagged)
- Filtration apparatus
- Hand pump
- Graduated cylinder
- Filters (shipped each year with the bottles)
- Tweezers (forceps)
- Wash bottle
- Squeeze bottle containing magnesium carbonate ($MgCO_3$) - a milky white substance used to preserve the chlorophyll a sample.



Sampling Kits

Before each sampling season, NYSFOLA and its laboratory partner, Upstate Freshwater Institute (UFI) in Syracuse, will send sampling kits to participating lakes. Lakes new to the program will receive the equipment described above, along with a cooler, 1-liter bottles to fill and freeze for use as ice packs, sample bottles, filters, and gloves. Lakes that participated the previous year will keep their equipment and coolers and receive new bottles, filters, gloves, and any approved replacements.

Caring for your Kemmerer Bottle*

The Kemmerer bottle is the most expensive piece of CSLAP equipment (now over $400) and must be treated with care in order to keep it working properly.

Before Sampling:

- Inspect the bottle before use. Make sure the line and cable are securely connected.
- Do not use your Kemmerer out of the water.

During Sampling:

- Do not use a messenger heavier than 11 ounces, as this may damage the trip mechanism.
- Protect the bottle from impacts, especially at the cylinder ends. Impacts can cause leaks or crack the main tube or acrylic body.
- Always lower the bottle slowly into the water
- Do not pull forcefully when opening the bottle. Doing so can cause the cables to snap.

After Sampling and Storage:

- Do not store the bottle with the valves closed. They may become stuck in the ends of the bottle and could be damaged when opened. Store the bottle so the end seals do not touch the cylinder.
- Rinse the bottle with clean, fresh water after sampling, and allow it to dry completely.
- Never store the bottle when it is wet, damp, or dirty. Moisture and dirt can cause mold, mildew, corrosion, or plastic deterioration.
- Once dry, store the bottle in a cool, dark place away from extreme temperatures, preferably in a protective case.
- Transport your Kemmerer in a carrying case or box to avoid damage.

*"A Comprehensive Guide to Wildco® Water Bottle Samplers".Wildlife Supply Company®, 86475 Gene Lasserre Blvd, Yulee, FL 32097 USA.

What you need to provide:

- aluminum foil
- distilled water
- clipboard and pen
- boat with anchor
- life jackets
- a cell phone to record the time and/ or take pictures of algal blooms
- any other safety equipment and/or boater safety training as required by NYS Boating Regulations https://parks.ny.gov/recreation/boating/education.aspx.

Sampling Bottles



The bottles will come in 4 plastic bags that look similar to the picture above. Deep lakes will have bottles with blue labels for the deep samples.

Each bag will be labeled with the number of the sampling round and will contain labeled sample bottles along with important paperwork for each sampling round.

Important!! Your bottles are bagged by the sampling round (Bag 1 corresponds to Round #1, etc.) and are bar coded to that particular round. Please use them in the correct numeric order and with the corresponding Chain of Custody Form. Double check the number before you head out to the lake. Failure to do so will cause issues at the lab. Never use bottles left over from a prior year!

Meet the Paperwork

CSLAP Field Observation Form - Lake Perception & Health and Safety (pages 10-11)
This is a two-sided form that should be filled out by the volunteers based on their observations of lake conditions as well as any additional information that may have been received. This form should always be filled out **first** so that actual measurements don't influence your perception of the conditions. There are no right or wrong answers on this form.

CSLAP Sampling Record Form (page 12)
This form is used during sampling to record the physical observations during the sample period, to record weather, and to document any conditions on the lake.

Chain of Custody/Request for Analysis Form (page 13)
This form is part of the laboratory record of the key information associated with the samples. It records all samples that were collected, by whom and when, where the sample bottles came from, and when these samples were delivered to the shipping company.

If you lose a form, they are available on the NYSFOLA website at: https://nysfola.org/cslap-protocol-forms/ with the exception of the Chain of Custody forms which are unique and cannot be duplicated.

A CSLAP Field Sample Collection and On-Shore Sample Processing Checklist (page 15-16)
This is included with your bottles and is a useful reference sheet to ensure adherence to the Sampling Protocol. If you read this guide, and use the checklist, you should have a problem-free sampling round.

HABS Visual Observation Reference Sheet (page 14)
This form is used to help you identify any Harmful Algal Blooms (HABs) on your lake. You can report blooms using DEC's CSLAP Dashboard to link to DEC's NYHABs Website (see page 22 and Appendix B).

CSLAP Oops Sheet!
When the laboratory staff unpack your samples and paperwork, they may notice issues that warrant your attention for the next round. In that case, you will be introduced to the CSLAP Oops Sheet. Please pay attention to the items that need correcting . This will ensure the best quality of data possible for your lake. (page 17)



Lake Name _____ **Date** _____

CSLAP FIELD OBSERVATIONS FORM-LAKE PERCEPTION

(A) PLEASE CIRCLE THE ONE NUMBER THAT BEST DESCRIBED THE PHYSICAL CONDITION OF THE LAKE WATER TODAY:

1. Crystal clear water
2. Not quite crystal clear- a little algae visible
3. Definite algae greenness, yellowness, or brownness apparent
4. High algae levels with limited clarity and/or mild odor apparent
5. Severely high algae levels with one or more of the following: massive floating scums or streaks on the lake or washed up on shore, strong foul odor, fish kills

(B) PLEASE CIRCLE THE ONE NUMBER THAT BEST DESRCIBES THE AQUATIC PLANT POPULATIONS IN AREAS WHERE PEOPLE SWIM AND BOAT TODAY:

1. No plants visible from the lake surface
2. Some plants are visible underwater, but do not grow on the lake surface
3. Some plants grow to the lake surface
4. There is dense plant growth at the lake surface
5. Dense plant growth completely covers the lake surface except in the deepest areas

(C) PLEASE CIRCLE THE ONE NUMBER THAT BEST DESRCIBES YOUR OPINION OF THE SUITABILITY OF THE LAKE FOR RECREATIONAL ENJOYMENT TODAY:

1. Beautiful, could not be nicer
2. Very minor aesthetic problems- excellent for swimming, boating, and overall use
3. Swimming and aesthetic enjoyment slightly impaired
4. Desire to swim and enjoy the lake substantially reduced, although lake can be used
5. Swimming and aesthetic enjoyment of the lake impossible

(D) PLEASE CIRCLE ALL NUMBERS THAT AFFECT YOUR OPINION OF RECREATIONAL USE OF THE LAKE TODAY:

0. No problems observed
1. Poor water clarity and/or water color, including turbid water
2. Excessive weed growth (circle all that apply: emergent plants, floating plants, submergent plants)
3. Too much algae and/or odor
4. The lake looks bad
5. Poor weather (windy, overcast, water too cold, etc.)
6. Litter, surface debris, other beached or floating material, including foam and pollen
7. Too many lake users (circle all that apply: boaters, swimmers, jet skiiers, other)
8. Other _____

TURN OVER FOR HEALTH AND SAFETY QUESTIONS

Lake Name _____ **Date** _____

CSLAP FIELD OBSERVATIONS FORM-HEALTH AND SAFETY

(F) PLEASE CIRCLE ALL NUMBERS THAT AFFECT YOUR OPINION OF RECREATIONAL USE OF THE LAKE TODAY?

0. None of the below
1. Complaints about the taste or odor in the drinking water (if the lake is used for drinking)
2. Lake residents who use the lake for drinking or swimmers complaining of gastrointestinal (stomach) illness or animals showing signs of illness from drinking lake water
3. Swimmers complaining of itching or redness, particularly in the lower extremities (swimmers itch), or hay fever-like symptoms
4. Observations of algae blooms or other water discoloration (describe _____)
5. Dead fish (approximate number _____)
6. Unusual wildlife occurrence (leeches, bryozoans, etc) or behavior (fish gasping for air at surface, etc.) (Describe (_____)
7. Other _____

Lake location of these occurrences

_____

_____

(G) DO YOU OBSERVE OR HAVE YOU BEEN MADE AWARE OF ANY OF THE FOLLOWING PROBLEMS SINCE YOUR LAST SAMPLING SESSION (PLEASE CIRCLE ALL THAT APPLY)?

0. None of the below
1. Complaints about the taste or odor in the drinking water (if the lake is used for drinking)
2. Lake residents who use the lake for drinking or swimmers complaining of gastrointestinal (stomach) illness or animals showing signs of illness from drinking lake water
3. Swimmers complaining of itching or redness, particularly in the lower extremities (swimmers itch), or hay fever-like symptoms
4. Observations of algae blooms or other water discoloration (describe _____)
5. Dead fish (approximate number _____)
6. Unusual wildlife occurrence (leeches, bryozoans, etc) or behavior (fish gasping for air at surface, etc.) (Describe (_____)
7. Other _____

Lake location of these occurrences

_____

_____

Date/Time of observation _____

TURN OVER FOR LAKE PERCEPTION QUESTIONS

CSLAP SAMPLING RECORD FORM

PLEASE PRINT LEGIBLY

SECTION 1 - GENERAL

LAKE NAME	SITE# (IF APPLICABLE)	COUNTY	CSLAP ROUND#	DATE

SAMPLER NAME(S) Sample Collection: _____

Secchi Readings: _____

NAMES OF OTHERS WHO ASSISTED TODAY (Note - A current CSLAP Waiver Form must be on file for each person)

SECTION 2 - SECCHI DEPTH & LAKE INFORMATION

SOUNDING DEPTH _____meters

(The depth from the surface to the bottom of the lake at your sampling location)

LAKE LEVEL ☐ High ☐ Normal ☐ Low

READING 1: (Secchi disk lowered until it disappears) _____ meters On bottom? Yes ☐ ☐ No

READING 2: (Secchi disk raised until it reappears) _____ meters On bottom? Yes ☐ ☐ No



NOTE: The Secchi readings should never be deeper than the Sounding Depth!

SECTION 3 - SAMPLE TIME & TEMPERATURE

TIME (Military Preferred)	AIR TEMPERATURE	WATER SAMPLING DEPTH		WATER TEMPERATURE
AM ☐		Surface Sample* _____meters	* usually 1.5m except in very shallow lakes	Surface Sample _____°C
_____PM ☐	_____ °C	Deep Sample (if applicable) _____meters		Deep Sample _____ °C

SULFUR ODOR IN DEEP SAMPLE: **If applicable, is there a sulfur odor in your deep sample? Yes** ☐ **N o** ☐

SECTION 4 - HARMFUL ALGALBLOOMOBSERVATIONS (See HAB Reference Image Sheet)

CONDITIONS OBSERVED AT CSLAP SAMPLING SITE

(**Report lakewide or shoreline blooms online using the NYS DEC HABs Notification Page)**

(**Circle all that apply)** A. Spilled Paint B. Pea Soup C. Streaks

D. Green Dots or Clumps E.Bubbling Scum F. Slight Green or Brown Tint

G. Duckweed or Watermeal(not a HAB) H. Other _____ I. No Bloom

SECTION 5 - WEATHER

CURRENT WEATHER CONDITIONS (circle)	**WIND TODAY**:	Calm	Moderate	Windy	
	SKY TODAY:	Clear	Partly Cloudy	Overcast	Rainy
PAST WEEK WEATHER CONDITIONS	**WIND PAST WEEK:**	Calm	Moderate	Windy	
	SKY PAST WEEK:	Clear	Partly Cloudy	Overcast	Rainy

UNUSUAL WEATHER CONDITIONS? (major storms, record temperatures, etc.)_____

SECTION 6 - Comments

Please describe unusual water quality issues, invasive species observations, and any management activities taking place on the lake (harvesting, aeration, herbicide applications, etc.). We encourage you to take a digital photograph of any unusual conditions , plants, etc. and email the photo to fola@nysfola.org . (Use back of page if more room is needed.)

_____Initials

Sample Chain of Custody Form - For illustration only - Do not copy!

(Note: This sample form is for a deep lake and includes calcium and chloride)

CSLAP CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Collection Date: ___/___/___ Sampling by: _____

Sampling Location: Pretend Lake Field ID No. Surface: **27-999-01** Bottom: **27-999-11**

	Collection Time	Total Phosphorus (TP)	NO_x/NH_3	Total Nitrogen (TN)	Color	Chl.a	pH/ Specific Conductance	Chloride	Calcium	Fluoroprobe
Surface (1.5m) Matrix: Water	___:___	Unfiltered 125mL Plastic Bottle	125mL plastic Bottle	Unfiltered 125mL plastic Bottle	Field Filtered 125mL Plastic Bottle	Filter w/ $MgCO_3$ Blue-Cap Vial	Unfiltered 125mL Plastic **DO NOT FREEZE/ NO HEADSPACE**	Unfiltered 125mL Plastic Bottle	Unfiltered 60mL Plastic Bottle	Unfiltered 125mL Glass Aber Bottle
		X	X	X	X	X	X	X	X	
		Total Phosphorus (TP)	NH_3							
Bottom Matrix: Water	___:___	Unfiltered 125mL Plastic Bottle	125mL plastic Bottle							
		X	X							

SAMPLING VOLUNTEERS – PLEASE PROVIDE INFORMATION IN WHITE BOXES:

- *Collection Date*
- *Sampling by* (Printed)
- *Collection Time* (Military Hours)
- *Relinquished by* (Signature, Date, & Time)

When a container type is listed it is understood that proper preservation techniques and the appropriate containers are being used. Be advised that the field sampler is responsible for the care of the samples collected until they are transferred or dispatched properly.

Comments (LAB USE ONLY):

Relinquished by:

Date: ___/___/___ Time: ___:___ By signing this form, I certify that the samples enclosed were collected in accordance with CSLAP protocols.

LAB USE ONLY — Sample Bottles Prepared by Gina Kehoe and UFI Laboratory Staff

Received by: _____

Date: ___/___/___ Time: ___:___ Temperature at Receipt (°C): _____

Order ID:

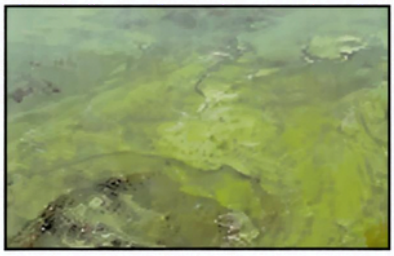
Upstate Freshwater Institute, Inc.
NYS ELAP ID # 11462
224 Midler Park Dr, Syracuse, NY 13206
(315)431-4962
ufilab@upstatefreshwater.org

HAB Visual Observation Reference Sheet

Use the following images to identify harmful algal bloom (HAB) conditions on your lake:

- If you see a bloom on your lake, take a picture and be sure to report the bloom to the NYSDEC via the NY- HABs website. Use the link on the CSLAP Dashboard where you enter your field data. You can upload the photos there as well. **Do not submit a sample.**

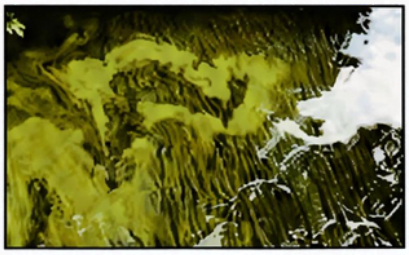
Harmful Algal Bloom



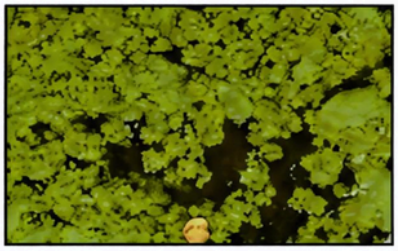
A. Spilled paint appearance on surface



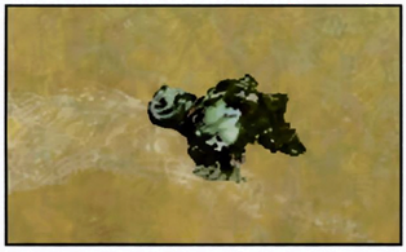
B. Pea soup appearance within the water



C. Streaks (usually green) on the water



D. Green dots or clumps on or in the water



D. Green dots or clumps on or in the water

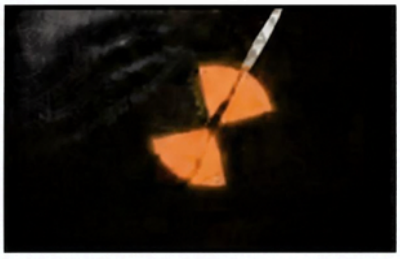


A, B, C and D. Multiple conditions present at once

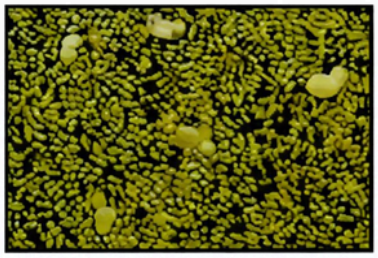
Not a Harmful Algal Bloom



E. Bubbling scums on or below the lake surface



F. Slight greenish or brownish tint to the water



G. Duckweed or watermeal

H. Other

I. No evidence of bloom

CSLAP Field Sample Collection Checklist

I.Predeparture Equipment Check: Complete the following checklist **before departing** the dock.

◯	CSLAP Field Observation Form (Lake Perception, and Health and Safety Form); Sampling Record Form	◯	Supplemental shallow water collection container (or replacement large container)
◯	Secchi disk and tape measure	◯	Boat, anchor and line, and appropriate safety equipment
◯	Thermometer	◯	Pen or pencil to fill out forms
◯	Kemmerer sampling bottle and marked line	◯	Camera or phone for photos of algae blooms
◯	Plastic gloves for surface and deep sample collection	◯	Watch, phone, etc. to get time of day, GPS
◯	Collapsible water sample container and cap with spigot (For stratified lakes – deep collection container also)	◯	Boat, anchor and line, and appropriate safety equipment

II. On-Lake Observations, Secchi, and Air Temperature Readings

① Go to your sampling site by using GPS or triangulation and anchor (if possible)

② Determine sounding depth (lake depth) with Secchi disk or depth finder and record in meters.

③ Fill out **both sides** of the "**CSLAP Field Observation Form – Lake Perception and Health and Safety**"

④ Fill out "**CSLAPSampling Record Form**"

___ Record the lake na me, county, sampling round #, date, and names of volunteers .

___ Determine the Sounding Depth using the secchi disk or a depth finder and record to the nearest 0.1 meter.

___ Record lake level (high, normal, low).

___ Collect Secchi Disk measurement off the shady side of boat to the nearest 0.1 meter – **do not use aides or sunglasses.**

___ Record sampling time.

___Take the air temperature reading using the provided thermometer, and record to nearest 1 degree Celsius.

___ Assess and record today's wind and sky conditions.

___ Reco rd average weather conditions that have occured over the past week.

___ In the comments section, briefly note any unusual weather conditions, and include a brief summary of lake management activities taking place (herbicide applications, harvesting, oxygenation, etc.)

III.SampleCollection,WaterTemperature,andOdorObservations

① Collect Surface sample (at 1.5 m depth). Remember to:

- o **Wear gloves throughout the sample collection process!**
- o Keep the Kemmerer line as straight as possible.
- o Avoid touching inside the Kemmerer while setting the tripping mechanism.
- o Rinse the collapsible container with sample water- fill ¼ full, shake, and discard completely before filling.
- o Avoid touching the spigot/sample while discharging from container.
- o Collect additional samples if needed until the surface collapsible container is filled.

② RecordHydrogenSulfide("rotten egg") odor ifapplicable

③ Put collapsible container(s) in a cooler or in the shade to keep cool, out of sunlight prior to on-shore pro cessing

④ **If collecting a Deep sample, repeat steps ①-③ ~1.5 meters from the bottom**

IIV. Shoreline Algae and Aquatic Plant Observations

①Assess shoreline for bloom conditions. Take photos of any HABS and report to NYHABS

② Complete aquatic plant observations in the comments section. Collect specimens for photographing and ID if needed.

◯ **Enter Field Data to Online System (on.ny.gov/cslap_dashboard)**

CSLAPOn-Shore Sample Processing Checklist

I.On Shore Process for the Surface Sample

Important Tips:

o Samples should be processed immediately! Failure to do so will impact the integrity of the data.

o **Remember to wear gloves throughout the sample processing!**

o Before processing, label the bottles with sample date and organize based on parameter, and date the chain of custody.

o Open bottle caps 1 at a time, as you fill them; avoid touching the inside of the bottle caps or bottles.

1. Fill the following bottles *without* filtration from the shallow collapsible container:

① Mix the surface sample by gently inverting the collapsible container.

② Completely fill the pH bottle to the top with water, leaving no air gap, and **refrigerate.**

③ Fill the fluoroprobe sample bottle (amber glass bottle) to the shoulder with water and **refrigerate.**

④ Fill Total Phosphorus (TP), Total Nitrogen (TN), and Nitrogen Oxides/Ammonia (NO_X/NH_3) bottles to the shoulder with surface water and **freeze.**

⑤ Fill the calcium and chloride bottles (not in every round) with water to the shoulder and freeze.

2. For samples *with* filtration (Filtered Color Water and Chl-*a* Samples)

Color sample:

①Rinse entire filtration apparatus with distilled water and discard water.

②Using forceps, place 1 filter paper in the filter holder.

③ Secure filter to holder by gently threading the cup onto the holder.

④ Measure 100 ml water using the graduated cylinder, then filter– **apply a slight vacuum (a few pumps) to the sample to avoid rupturing the filter.**

⑤ Discard the filter.

⑥ Pour filtered water into the **color** bottle and **refrigerate**

⑦ Rinse equipment with distilled water

Chlorophyll a (Chl-a) sample:

① Using the forceps, place a second filter into the filter holder.

② Cover Filter Paper with 6-10 drops of $MgCO_3$ from bottle (shake well)

③Measure 100ml of water using the graduated cylinder and filter. Rinse down graduated cylinder and walls of upper apparatus with distilled water and filter to capture all Chlorophyll *a*

④ Remove the filter with the forceps, fold filter paper in quarters and place in vial labeled **Chl-a.**

⑤ Wrap entire Chl-*a* vial with aluminum foil and **freeze** -

⑥ Discard remaining water and rinse equipment with distilled water.

II. On Shore Processing for the Deep Sample (if applicable)

①Mix deep sample by gently inverting the collapsible container.

②Fill the TP and NO_X/NH_3 bottles to the shoulder with deep sample water and **freeze**.

III. Finish Processing

① Verify all paperwork is complete and all bottles are labeled and place paperwork in return cooler

② Enter field data and report HABs, if applicable using the CSLAP dashboard: **on.ny.gov/cslap_dashboard** (case sensitive) ③ Place pH, color, and fluoroprobe (amber glass bottle) samples to Place in **Refrigerator – DO NOT FREEZE!!**

④ Place all other bottles, including Chl-a into the **freezer.** Place freezer packs in freezer with samples.

⑤ Rinse equipment with distilled water and set aside to dry until next session. Hang Kemmerer inside and open to dry completely

⑥ Completely fill out Chain of Custody form and compare the bottle list to the ones you are shipping.

⑦ Ship samples the following day to UFI:

o Retrieve samples from the refrigerator and freezer. Pack all samples in the big cooler box with sufficient ice packs to remain cooled.

o Place paperwork on top of cooler inside cardboard box. Use a separate sheet on top to request supplies or send notes (Do not write notes on the COC or Sampling Record Form)

o Place pre-paid label on top of cooler and take to the nearest FedEx facility for shipment

◯ **Enter Field Data to Online System (on.ny.gov/cslap_dashboard)**

Oops Sheet



We noticed a few things with your last round of samples that need your review. When in doubt, please double check the CSLAP Sampling Protocol at www.nysfola.org under the CSLAP tab.

[ ] **Sample bottles were used out of order.** Please use the bottles in numerical order - starting with bag #1 and ending with bag #4 (if doing four rounds of sampling) or bag #8 (if doing 8 rounds of sampling). The bottle labels are coded to specific sampling rounds. Using them out of order complicates sample check in, and we want to be sure your results are tied to the correct sample.

[ ] **Sample bottles were not dated.** Please remember to write the date of sampling (not shipping) on the sample bottle – use permanent/waterproof ink please. It's best to do it while the label is still dry - before you fill the bottle.

[ ] **Samples were received warm.** Please use more ice and/or ship promptly after removing the samples from the freezer.

[ ] **Samples were received later than recommended.** Samples have "holding times" and must be shipped promptly. Please remember to process them immediately after collection and ship after they have frozen overnight.

[ ] **Don't forget to wrap the chlorophyll a vial in aluminum foil.**

[ ] **OOPS! We received: [ ] a filter instead of water [ ] water instead of a filter.** Please review the filtering process below:

> Filter 100 ml of water. Put the water in the bottle marked COLOR and freeze the bottle.
> Put 6-10 drops of $MgCO_3$ on the second filter. Filter 100 ml of water. (Use your wash bottle with distilled water to rinse the graduated cylinder and to wash down any drops of sample that may be on the upper portion of the filter apparatus. You want to get all of the chlorophyll from the sample onto the filter.) Discard the water, and put the filter in the chlorophyll a vial. Wrap the vial in aluminum foil and place in the freezer.

[ ] **We're missing paperwork.** Please be sure to fill out all of the forms in the bag each time you sample. You should have included: Your Sampling Record Form, CSLAP Observations Form, and the Chain of Custody Form. We use the hard copies of the data for quality assurance purposes.

[ ] Other:_____

Questions? Call Nancy Mueller (315)677-9987 or refer to the CSLAP Sampling Protocol.

On-Lake Sampling

1. Use the equipment checklist (see page 27) and load everything you need into the boat. Make sure that you have appropriate boating safety equipment with you.
2. Go to the sampling site that you have chosen—the deepest spot on the lake and anchor so that you don't drift from the sampling point. If you believe that believe that you have drifted, please note this on the Sampling Record Form.

CSLAP Field Observation Form – Lake Perception and Health and Safety

(Note that this is a two-sided form.)

- **Question A** - asks about the lake's overall **physical conditions** today, particularly in the open water away from the shore-line. Select one answer to best describe conditions.

- **Question B** - asks about the a**quatic plant populations** in areas near the shoreline where people swim, fish, boat, or otherwise recreate. Aquatic plant populations should only be evaluated in areas where the plants are not actively managed by hand pulling or matting. If herbicides, harvesting, drawdown, or other management methods are used throughout the lake or in large areas, note this in the "Comments" section of the Sampling Record Form. Select one answer to best describe conditions.

- **Questions C and D -** asks about the lake's **recreational use.** Volunteers should consider both the shoreline and the open water for these questions. For Question C, select one answer to best describe conditions. For Question D, you may select as many options as needed and add any items not listed under "Other".

- **Questions F and G** - the Health and Safety side of the form ask you to answer questions about the current conditions as well as anything that may have been observed or reported since your last sampling date. Question F and G, you may select as many options as needed and add any items not listed under "Other".

Sampling Record Form – Section 1 –(General)

- **Lake name** - this is essential so that the paperwork can be matched to the correct lake.

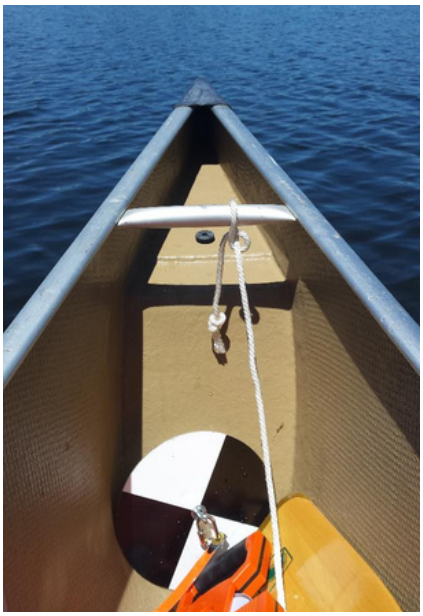
- **Site # or location** - this is especially important for lakes with multiple sampling sites, particularly the larger Finger Lakes.

- **County** - This is particularly necessary to distinguish between lakes with the same name in the program (e.g., Forest, Silver, Pleasant).

- **CSLAP Round # -** Use the bottle bags in numeric order. You can find the sampling round number on the Chain of Custody form. Each bottle bag and Chain of Custody form has a unique number coded to your lake.

- **Date** - This should be the date of sampling. You will also write this on the bottles in permanent ink.

- **Samplers** - Please tell us who collected the water sample and who performed the Secchi disk reading (if different). You may list the names of others who assisted. Remember that only trained volunteers should be collecting the data, and a signed waiver form must be on file with the NYSFOLA office prior to sampling.



Sampling Record Form – Section 2 – Secchi Depth & Lake Information Safety

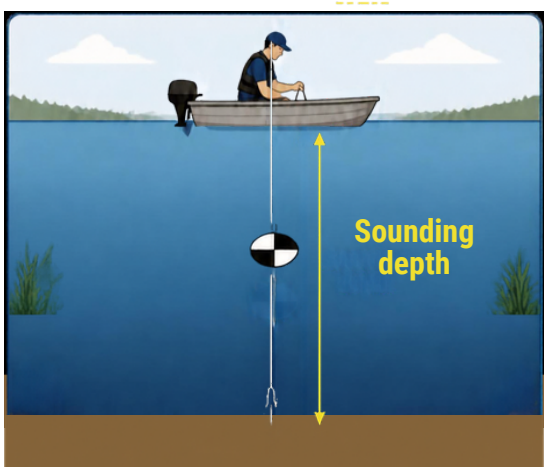
- **Sounding Depth**- Sounding depth is the distance from the water's surface to the lake bottom at your sampling location. Record the depth in meters, to the nearest tenth of a meter.

If the Secchi disk line is long enough to reach the bottom, you can use it to measure the sounding depth:

1. Lower the Secchi disk slowly until it reaches the bottom and the line becomes slack.
2. Pull the line up gently until the slack is removed. Do not lift the disk off the bottom.
3. Place your finger on the line where it enters the water.
4. Raise the line and read the measurement at your finger to the nearest 0.1 of a meter.
5. Record the sounding depth on the Sampling Record Form.

If the lake is too deep for the Secchi disk line, use a depth finder, fish finder, or bathymetric map, if available. You may also provide an estimate. For example, write 'about 30 m' or '>15 m' rather than leaving the field blank.

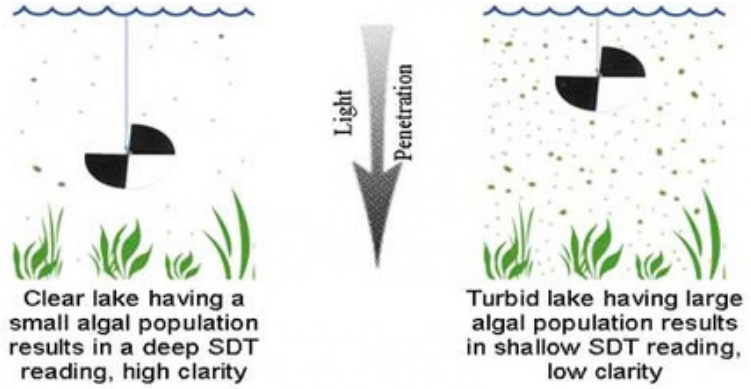
Check: Is this close to the depth you expect at your sampling spot? The acceptable amount of variation will change by lake (and sometimes) extreme weather conditions), but the sounding depth each time should not vary by more than 10-15%. Check to be sure that the Secchi disk went straight down and that you have not drifted from the sampling location.



AI Generated

- **Lake Level -** How does the lake level appear to you today? High/Normal/Low

- **Secchi Depth** - Secchi disk depth is a measurement of water clarity using the visibility of a black-and-white Secchi disk. Water clarity affects how far sunlight penetrates the water column, influencing the growth of aquatic plants, which are an essential part of a healthy lake ecosystem.



Graphic Credit: Lake Stewards of Maine

Before you begin sampling

- Remove dark or polarized sunglasses. Although they may improve visibility, they reduce the
- comparability of your measurements with previous CSLAP data and readings collected by other volunteers.
- If you are on a pontoon boat, always conduct readings the same way (either standing or kneeling on all fours).

Secchi Reading 1:

1. On the shady side of the boat, lower the Secchi disk slowly into the water, watching it continuously.
2. When the Secchi disk disappears from sight completely, use the tape measure to obtain the depth from where the measuring tape meets the surface of the water. Record the depth to the nearest 0.1 meter on the Sampling Record Form as Secchi Reading 1.
3. If the disk reaches the bottom before disappearing from view, check YES on your sampling sheet. Otherwise, check NO.

Secchi Reading 2:

- Lower the Secchi disk slightly (10-20 cm) deeper so it does not immediately reappear.

- Slowly raise the Secchi disk while watching it continuously. When the disk first reappears, read the depth from where the measuring tape meets the water's surface. Record it to the nearest 0.1 meter on the Sampling Record Form as Secchi Reading 2.
- Repeat this procedure as needed to ensure readings are accurate, but only record one set of readings on your sampling sheet.

Note: Secchi disk reading 1 and 2 may be different numbers but should be within 1 meter of each other. The Secchi disk readings can never be deeper than the sounding depth. Please make sure that you are recording the proper depths on the correct line of the Sampling Record Form.

Sampling Record Form – Section 3 – Sampling Time and Temperature

- **Time (Military)** - Record the time of your sample collection in military time, and check AM or PM.

- **Air Temperature (°C)** - Use the dial thermometer, and record the air temperature at the sampling site to the nearest degree Celsius. Do not leave the thermometer in the sun or on a hot surface before you take your reading.

- **Water Sampling Depth (m)** - Record the depth at which you collected the surface sample. For the majority of lakes, this will be 1.5m. For some very shallow lakes, it will be 1m. If you are taking a deep sample, record the depth of that sample. Usually, it is 1.5m off the bottom of the lake (i.e. 1.5m less than the sounding depth). For some very deep lakes, such as the larger Finger Lakes, a sampling depth will be provided to you.

- **Water Temperature (°C)** - After you have collected your shallow sample, place the thermometer in the collapsible container, and record the water temperature. Repeat the procedure for the deep water sample.

- **Sulfur Odor in Deep Sample** - Indicate whether or not the deep sample has the "rotten eggs" smell of hydrogen sulfide (H_2S) by marking "Yes" or "No".

Sampling Record Form – Section 4 – Harmful Algal Bloom Observations

Document the HAB conditions at the **CSLAP sampling site** using the HAB Visual Observation Reference Sheet as a guide. Do not record information about shoreline HABs in this section.

Sampling Record Form – Section 5 – Weather

- Record the current weather conditions (wind and sky).
- Record any weather conditions over the past week that lasted **at least two days**.
- Record any unusual weather in the comments section (high winds, rain, major storms, etc.) that may be impacting water clarity or quality. Record rainfall amounts if you have a rain gauge at the lake.



Sampling Record Form – Section 6 – Comments

Please briefly describe unusual water quality issues, invasive species observations, aquatic plant (or other) management activities taking place on the lake (harvesting, herbicide applications, aeration, etc.). We also encourage you to submit photos to fola@nysfola.org.

Water Sampling Procedures – Shallow Sample

Before you begin sampling:

1. Check that the knot on the bottom of the Kemmerer bottle is tight.
2. Open your Kemmerer by holding the bottom stopper in your right hand and the top stopper in the left. Do not touch the inside of the bottle or either stopper. While holding the top stopper, give a short pull to the bottom stopper. You should hear a **click**. Slide the messenger up the rope.
3. Rinse the Kemmerer in the lake water with the valve open.
4. Return the valve to the closed position. (valve is at right angles to the spout.)

Collect the shallow sample:

1. Lower the Kemmerer to the 1.5m marking on the rope (unless instructed otherwise).
2. Release the messenger. This will close the top and bottom stopper and entrap the water sample.

- **Caution**: Do not yank or tug on the line or gray shaft to get the Kemmerer bottle to close. This can cause damage to the bottle.

3. Slowly bring the Kemmerer bottle out of the water and onto the boat. Hold it by the rope or gray shaft so that it remains closed.

Rinse and fill the sample container:

1. Remove the cap and spigot of the collapsible container. Pour a small amount of water into the collapsible container marked Shallow and gently "swish" it around to acclimate the container. Put the spigot cap back on the container, and empty the water through the spigot cap to rinse.
2. Fill the collapsible container with the rest of the water from the Kemmerer bottle. Do not touch the inside of the collapsible container. If you need more water, repeat the water collection with the Kemmerer bottle at the 1.5m depth.

Record the sample depth and temperature:

1. Take the temperature of the water with the dial thermometer (the temperature should stabilize within a minute or two).
2. Cap the container, and place it in the shade or (preferably) in a cooler.
3. Record the temperature to the nearest 1°C and the sampling depth to the nearest 0.1 meter



Water Sampling Procedures – Deep Sample

If your lake thermally stratifies during the summer months, you will be collecting a deep sample using the Kemmerer bottle. For the Finger Lakes, the sample depth will be assigned to you depending on the sample location. For all other lakes, obtain the deep sampling depth by subtracting 1.5m from the sounding depth (the total depth of the lake at the sampling site). We want you to be above the bottom to avoid filling the Kemmerer and sample with sediment.

Sounding Depth - 1.5m = Deep Sample Depth (unless otherwise instructed)

Collect the deep sample:

1. Repeat the steps used for collecting the shallow sample using the markings on the Kemmerer line to get to the proper depth.

Rinse and fill the sampling container:

1. Rinse and empty the deep collection container as described for the shallow sample.
2. Empty the water from the Kemmerer bottle into the deep sample collapsible container.
3. Cap the container, and place it in the shade or (preferably) in a cooler.

Record the sample depth, temperature, and sample odor:

1. Use the thermometer to determine the water temperature to the nearest 1°C and the record the sample depth to the nearest 0.1 meter.
2. Indicate whether or not there is a hydrogen sulfide (rotten egg)odor. If the deep water is colored, note this in the comments area of the form.

Harmful Algal Bloom (HAB) Observation Reference

The HAB Visual Observation Reference Sheet will be used to report HABs along the lakeshore. If your lake is large, and you plan to conduct a complete survey, you should do this before sampling at the CSLAP site so that your samples don't sit too long.

If a bloom is observed, take some digital photographs. You can report the bloom to the NYS DEC NYHABs website using the link on the CSLAP Dashboard.



Double Check Your Sampling Record Form

To avoid receiving an "Oops Sheet"! It's important to fill out the Sampling Record Form completely and accurately. It will be used to compare your online data entries (see Appendix B) and to resolve any questions about the data that may arise. Double check that all of the sections complete and that your writing is legible.

CSLAP SAMPLING RECORD FORM

PLEASE PRINT LEGIBLY

SECTION 1 - GENERAL

LAKE NAME	SITE# (IF APPLICABLE)	COUNTY	CSLAP ROUND#	DATE
PRETEND LAKE	2	WARREN	2	06/25/2021

SAMPLER NAME(S) Sample Collection: JOHN DOE
Secchi Readings: JANE DOE
NAMES OF OTHERS WHO ASSISTED TODAY (Note - A current CSLAP Waiver Form must be on file for each person)

SECTION 2 - SECCHI DEPTH & LAKE INFORMATION

SOUNDING DEPTH 5.8 meters (The depth from the surface to the bottom of the lake at your sampling location)
LAKE LEVEL ☐ High ☒ Normal ☐ Low
READING 1: (Secchi disk lowered until it disappears) 2.9 meters On bottom? Yes ☐ ☒ No
READING 2: (Secchi disk raised until it reappears) 2.8 meters On bottom? Yes ☐ ☒ No
NOTE: The Secchi readings should never be deeper than the Sounding Depth!

SECTION 3 - SAMPLE TIME & TEMPERATURE

TIME (Military Preferred)	AIR TEMPERATURE	WATER SAMPLING DEPTH	WATER TEMPERATURE
AM ☐ 14:00 PM ☒	33 °C	Surface Sample* 1.5 meters (* usually 1.5m except in very shallow lakes)	Surface Sample 24 °C
		Deep Sample (if applicable) 4.3 meters	Deep Sample 22 °C

SULFUR ODOR IN DEEP SAMPLE: If applicable, is there a sulfur odor in your deep sample? Yes ☐ No ☒

SECTION 4 - HARMFUL ALGAL BLOOM OBSERVATIONS (See HAB Reference Image Sheet)

CONDITIONS OBSERVED AT CSLAP SAMPLING SITE (Report lakewide or shoreline blooms online using the NYS DEC HABs Notification Page)
(Circle all that apply) A. Spilled Paint B. Pea Soup C. Streaks D. Green Dots or Clumps E. Bubbling Scum F. Slight Green or Brown Tint G. Duckweed or Watermeal (not a HAB) H. Other _____ (I. No Bloom)

SECTION 5 - WEATHER

CURRENT WEATHER CONDITIONS (circle)	WIND TODAY:	(Calm)	Moderate	Windy	
	SKY TODAY:	Clear	(Partly Cloudy)	Overcast	Rainy
PAST WEEK WEATHER CONDITIONS	WIND PAST WEEK:	Calm	(Moderate)	Windy	
	SKY PAST WEEK:	Clear	Partly Cloudy	Overcast	(Rainy)

UNUSUAL WEATHER CONDITIONS? (major storms, record temperatures, etc.) STRONG T-STORMS YESTERDAY

SECTION 6 - Comments

Please describe unusual water quality issues, invasive species observations, and any management activities taking place on the lake (harvesting, aeration, herbicide applications, etc.). We encourage you to take a digital photograph of any unusual conditions, plants, etc. and email the photo to fola@nysfola.org. (Use back of page if more room is needed.)
AQUATHOL K TREATMENT 06/25 FOR CURLY LEAF PONDWEED JP Initials

A completed form should look something like the one above (filled out for a deep lake).

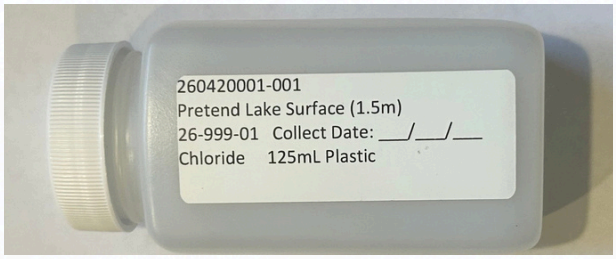
Return to the shore to begin sample processing. Processing must be done immediately after sample collection in order to maintain the sample integrity. The chemistry will change over time if the sample is not properly preserved!

On-Shore Sample Processing - Non-filtered Shallow Samples

Samples must be processed immediately after collection in order to minimize changes to the water chemistry.

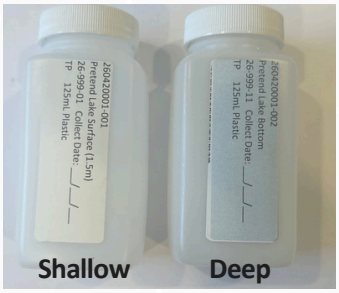
Gather the equipment from the on-shore checklist (page 28), and find a clean, sheltered place to work, preferably indoors.

1. **Find the right sample bottles.** Labeled sample bottles are provided for each of the sampling rounds. Double check that you are using the bags in the correct order!



The number underneath the lake name tells you the year of sampling, the lake number, and the sampling round. For example, on this bottle for a chloride sample from Pretend Lake, 26--999--01 indicates that the sample was collected in 2026. The unique lake ID number for Pretend Lake is 999. The 01 means that this is Round 1. If you have blue labeled deep bottles, they will have corresponding round numbers.

2. **Date the bottles** (before you process samples) with permanent ink. Date: mm/dd/yy



3. **Separate** the surface water bottles (white label) from the deep water bottles (blue label) if applicable.

4. **Set aside** the Color bottle and the pointed vial with the colored cap marked Chl a. These will be filled after sample filtration.



5. **Put on gloves**

6. **Gently mix the surface water sample.** Start with the collapsible surface water sample. Make sure that the spigot is closed. Mix the sample by gently inverting the collapsible container.

7. **Fill the pH/Specific Conductance (pH/Sc_L) bottle** to the top leaving no headspace. Contact with air will change the pH. Place this sample in the refrigerator. Do not freeze this sample!

7. **Fill the fluoroprobe sample bottle (amber glass bottle)** to the shoulder with water. Place this sample in the refrigerator. Do not freeze this sample!



9. **Fill the NOx/NH3, TP, and TN bottles (and some rounds Calcium and Chloride.** Pour off the shallow water sample into the NOx/NH TP, andTN bottles to the shoulder. (It is important to leave room for the water to expand as it freezes.) Put the filled bottles in the freezer. On some rounds, you will have **Calcium** and **Chloride** bottles. Fill these bottles to the shoulder and freeze.

On-Shore Sample Processing - Filtered Shallow Samples

Gather the filtration apparatus, hand pump, distilled water, and filters. The filtration apparatus consists of an upper funnel, lower receiver flask, and a two-piece centerpiece that holds the filter. Always use the water, and filters. The filtration apparatus consists of an upper funnel, lower receiver flask, and a two-piece centerpiece. The filter goes on the white gridded centerpiece insert with the "X" shape on it (shown above).





Filters are shipped in a plastic cup in the same box that your sample bottles were shipped in. The filter cup often settles down to the bottom of the box during shipping, so you may have to look under the bottle bags to find it.

1. **Put distilled water into the wash bottle, and rinse the entire filter apparatus.**

2. **Add a filter to the centerpiece.** Using the forceps, remove a single filter from the storage container, and set the filter on the top of the centerpiece. Ensure you only have one filter, since sometimes they are hard to separate. Make sure the filter lays flat on the centerpiece with no folds. The filter should fit inside the small raised guides around the outside edge of the centerpiece. Use the forceps on the edges of the filter rather than in the center where the filter may tear. There is no top or bottom to the filter, so either side can face up. (Note: Filters are white; do not use blue paper separators if present.)

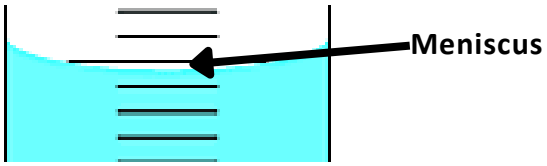
3. **Set up the filtration apparatus**. Attach the funnel to the receiver flask, making sure the funnel is securely threaded to the flask. Hold the flask with one hand, and attempt to rotate the funnel with the other. If the funnel moves easily, it is not threaded properly, and you must thread it again.



4. **Connect the vacuum pump to the filtration apparatus.** Connect the vacuum hose line to the vacuum pump and the filter apparatus. Make sure that the ports on the receiver flask are covered with rubber stoppers.

5. With the spigot closed, **gently mix the contents of the shallow sample** collapsible container.

7. **Measure the Color Sample.** Measure 100 ml of the shallow sample water using the graduated cylinder. Measure using the meniscus (see diagram below), or the lowest level of the water in the graduated cylinder at the 100 ml line. Pour the water into the funnel at the top of the filter apparatus.



7. **Filter the Color Sample.** Squeeze the vacuum pump handle (two or three times only). Over pumping may affect the sample results or tear the filter. The water should pass through the filter disc at a slow, steady drip rate. If the water slows, pump two or three more times. Repeat until water is completely filtered into the bottom receiving flask.

8. **Remove the filter and fill the color sample.**- Carefully unscrew the top funnel portion of the filtration apparatus. Discard the filter. Take off the filter assembly and pour the water in the receiving flask into the 125 ml square sample bottle labeled Color. The filtered water will not fill the bottle entirely. Place the color sample in the **refrigerator**. Do not freeze this sample!

9. **Rinse** the funnel, centerpiece, receiving flask and graduated cylinder with distilled water using the wash bottle. Place the centerpiece on top of the receiving

10. **Prepare to filter the Chlorophyll a sample.** Using the forceps, place a single filter on top of the centerpiece as you did with the Color sample.

11. **Add magnesium carbonate** to help preserve the sample. Shake the contents of the small MgCO3 dispensing bottle to mix the contents. The mixed solution should resemble dilute milk. Squeeze just enough MgCO3 from the dispensing bottle to cover the filter surface (approximately 6-10 drops).

12. Gently mix the shallow sample in the collapsible container again and measure out 100 ml for the Chlorophyll a sample (Chl a) in the same manner used for the Color sample.

13. F**ilter the Chlorophyll a sample** in the same manner as the Color sample. Once the sample has passed through the filter, rinse the graduated cylinder and sides of the funnel using the wash bottle to ensure that all of the chlorophyll a in the sample has reached the filter. Use the vacuum pump if necessary to ensure all the water from rinsing goes through the filter.

14. **Add the filter to the Chlorophyll a bottle.** Using the forceps, fold the filter in half, making sure you do not touch the algae that has collected on the filter. Then fold the filter in half again so that the filter can fit into the large chlorophyll a vial. This vial has a pointed bottom. No water should go in this vial, just the filter. Close the top of the chlorophyll a container, wrap the vial in aluminum foil so that light cannot penetrate it, and put it in the **freezer**. Discard the water in the bottom of the flask.

On-Shore Sample Processing - Deep Water Samples

If you are collecting a deep sample, you will have two blue labeled bottles for TP and NH_3.

1. Check that the spigot on the deep water collapsible container is closed, and mix the sample by gently inverting the collapsible container.

2. Fill the blue labeled TP and NH_3 bottles to the shoulder, cap tightly and **freeze.**

Fill The Ice Pack Bottle

lFill the ice pack bottle with water (to the shoulder) and freeze with your samples.

Double Check the Paperwork

Make sure that the Sampling Record Form and CSLAP Field Observations Form are filled out completely and accurately.

Clean and Store Equipment

Rinse collection containers and filtration apparatus with distilled water. Gently clean the Secchi disk . Store the collection containers in a clean location with the tops off to prevent the growth of bacteria or mold likely. Open the Kemmerer bottle and hang it to dry. Do not store the Kemmerer where it will be subject to extreme temperature changes, as this will cause the gaskets to wear out prematurely and leak. Make sure you have the equipment and supplies you will need to do the next sampling round.

Enter Your Field Data and Report Observed Harmful Algal Blooms Online

Submit your field data online and report HABs using the **CSLAP Dashboard**: **on.ny.gov/cslap_dashboard**.

Please save your original, hardcopies of all forms. You will submit these with your samples so that we can verify data submission accuracy. Your online data entry should be a perfect match for your field data.

Online data entry gets the information to us faster, alerts us to harmful algal blooms, and saves us a lot of time and
cost for data entry. In addition, when you enter the data, you can also have access to additional information about your lake. The system will allow you to plot your field data over the course of the season.

The Dashboard will also accept dissolved oxygen and temperature profiles, invasive species reports, ice on/ice off data, etc. You can also access your previous CSLAP reports and data. See Appendix B to learn more.

Chain of Custody Form

Completely fill out the Chain of Custody form.

1. Record sample collection date

2. Indicate who collected the sample.

3. In the white boxes under “Collection Time” (for both the shallow and the deep sample) record time that the sample was collected.

4. Sign the form, and indicate the date/time that you are taking the samples to the shipping facility.

Sample Shipping Procedures

Samples have "holding times" and need to be shipped as soon after collection as possible, preferably the day after sampling, to preserve sample and analytical integrity. Samples left in the freezer/refrigerator for an extended time period are no longer viable and should be discarded. Ship samples on Monday, Tuesday, or Wednesday to ensure they reach the laboratory before the weekend.

1. **Get the samples out of the freezer and refrigerator and compare to the Chain of Custody Form** - You should be shipping all of the bottles listed on the form. If not, explain why. (Dropped it and it broke, etc.)

2. **Place the samples and the 1L ice pack bottle in the cooler**. If there is extra space, use bubble wrap or other non-paper packing materials to prevent the bottles from shifting during transit. Place the top on the cooler.

3. Staple the CSLAP Sampling Record Form and the CSLAP Field Observation Form together. Do not staple the Chain of Custody Form to them. **Place all of the paperwork (3 forms) on top of the closed cooler.**

4. **Seal and label the cooler box -** Put your name, lake name, and address inside the cooler box if it's not already there. Close and seal the box with packing tape. Your first pre-paid FedEx mailing label will be in with your bottles. Do not use labels from prior years! Place the label on one of the flaps on top of the box. Do not place it over the center closing tape. Your next label will be sent with your return cooler.

5. **Transport the labeled box to the nearest FedEx shipping facility** or to a pre-arranged business location that has daily FedEx pickup. Samples should not sit overnight. FedEx will not pick up the cooler at your residence without charging a surcharge for which we cannot reimburse you. If you have made arrangements to deliver samples directly to the laboratory, please use the back entrance.

Ship on Monday, Tuesday, or Wednesday to ensure they reach the laboratory before the weekend.

Beware of Holidays! Remember that Memorial Day, Juneteenth (June 19th) , July 4th, and Labor Day weekends fall during the CSLAP sampling season. You will not be able to ship on those government holidays, and no one will be at the lab to receive samples on those days.

Need supplies? (gloves, magnesium carbonate, filters, equipment replacement etc.) Put a separate note with your name/lake name on top of the cooler lid indicating what you need. Please don't write requests on the CSLAP forms. If you need extra filters or magnesium carbonate, please send us the empty filter holder cup and/or the magnesium carbonate squirt bottle for a refill.

Plant samples and other items of "interest". If you would like something identified, please start with a digital photograph. For plants, include close up pictures of as many of the plant parts as possible (leaves, stems, flowers, seeds, etc.), preferably on a white background with something to reference for scale. Remember where you saw the plant in the lake in the event that we need a physical sample for further identification.

lease! Don't send clams, dead frozen animals (fish, salamanders, etc.), snails, or bryozoa. Send us pictures. You can email the photos to Abby Hullihen at cslap@nysfola.org

Cooler Return

When you get your cooler back after a sampling round, open it to see if there are any messages or an "Oops Sheet" that will help you correct errors for your next sampling round. Fill and place the filled 1L ice pack bottle in the freezer. If your cooler does not come back within a week please let us know and we can track it for you.

Need Assistance During the Season?

For all CSLAP related questions during the season, please call or email Abby Hullihen at cslap@nysfola.org or (315) 632-5993

Appendix A – Checklists

ON-LAKE SAMPLING EQUIPMENT CHECKLIST

Equipment to take on the boat

Paperwork

_____Sampling Record Form

_____CSLAP Field Observation Form – Lake Perception, and Health and Safety Form

_____HAB Visual Assessment Reference Sheet

Field Equipment:

_____Thermometer

_____Gloves

_____Secchi disk and tape measure

_____Kemmerer sampling bottle and marked line

_____Collapsible water sample container and cap with spigot

_____For stratified lakes – deep collection container

_____Pen or pencil for forms. Do not record anything in felt tip pen, which becomes unreadable when wet. This includes the sampling date on the bottles. Fine point sharpie pens work well.

_____Watch, phone, etc. to get time of day

_____Boat, anchor and line, and required boating safety equipment

_____Camera or phone for photos of algae blooms or other items of interest.

_____Cooler to keep sample chilled after collection and during transport back to shore.



ON-SHORE SAMPLING EQUIPMENT CHECKLIST

Equipment for on-shore processing

Sample Processing Equipment:

_____vinyl gloves
_____wash bottle with distilled water
_____filtration apparatus
_____funnel (large top piece)
_____centerpiece with removable plate – white grid
_____receiving flask with port holes
_____rubber hose
_____rubber stoppers
_____hand vacuum pump
_____forceps (tweezers)
_____filters
_____large graduated cylinder (100ml)
_____MgCO3 dispensing bottle
_____Sampling round bottles (check to make sure you are using bottles for the right round!)

Paperwork

_____CSLAP Sampling Record Form
_____CSLAP Field Observations Lake Perceptions / Health and Safety form
_____Chain of Custody / Request for Analysis form
_____HABs Shoreline Survey Form



SHIPPING MATERIALS CHECKLIST – CSLAP

Shipping Materials:

_____large styrofoam shipping boxes with lids and cardboard mailers

_____ pre-paid shipping labels (FedEx only) addressed to Upstate Freshwater Institute

_____filled and frozen 1L bottle to be used as an ice pack

_____aluminum foil

_____bubble wrap or other non-paper material for packing (supplied by lake association)

_____packing tape (supplied by lake association)

_____ sample bottles and filter vials

Paperwork

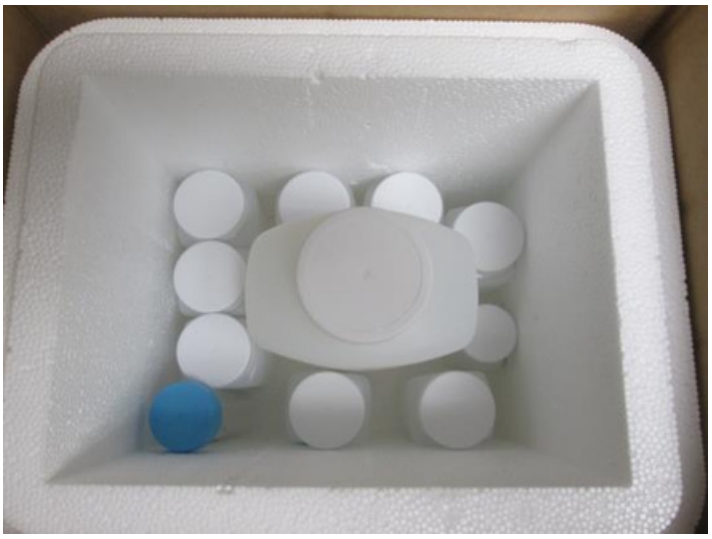
_____Chain of Custody / request for analysis form

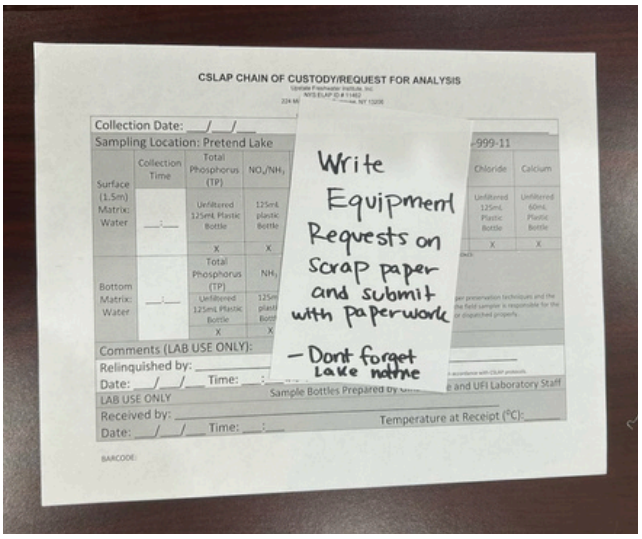
_____ Sampling Record Form stapled to Field Perception Form

_____ Request for any additional supplies if applicable – place separately on top of cooler

_____ Empty squirt bottle for refill of MgCO3 (if needed)

_____ Plastic filter container for extra filter replacements (if needed)

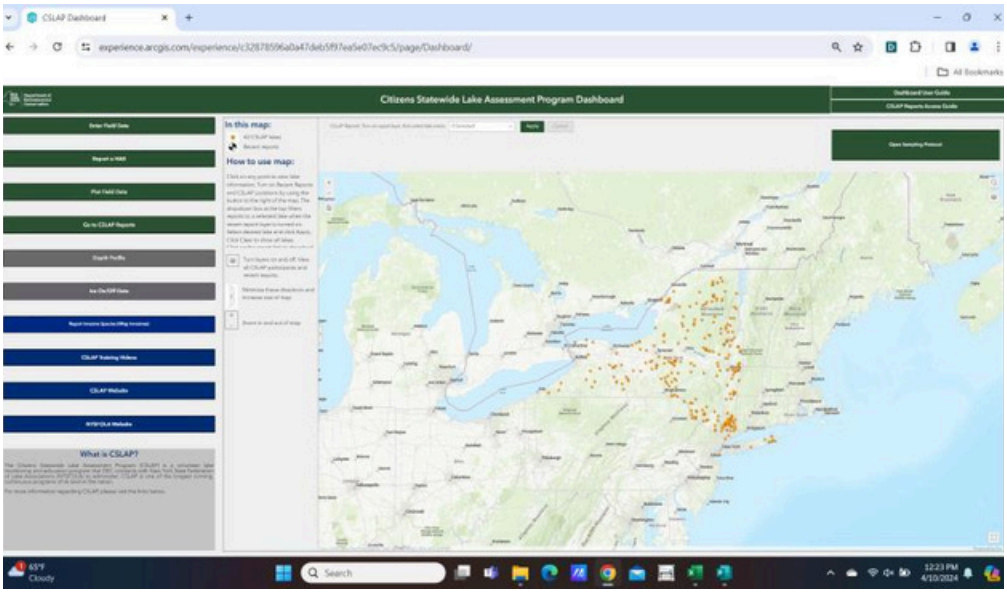




Thank you to all of our CSLAP volunteers.
This program is not possible without you.

Appendix B - The CSLAP Dashboard—on.ny.gov/cslap_dashboard

The New York State Department of Environmental Conservation has developed the CSLAP Dashboard to enable CSLAP participants to enter their field data, report harmful algal blooms, plot current field data, view/download the most current CSLAP reports, enter additional data (ice on/off and depth profile data), report aquatic invasive species, and learn more about the program.



1. You can find **instruction guides** by clicking on the green buttons in the top left corner. There is an additional button with a link to the CSLAP Sampling Protocol.
2. **Enter your current field data** by using the first green button on the right hand side of the page. Enter the data exactly as it appears on your form.

Record your data exactly as you observed while out on the lake. Do not change your answers while inputting your data.

3. Please **report all Harmful Algal Blooms** using the second green button. This will take you to the NYHABS reporting form

4. If you want to **plot your current season field data**, you can use the third green button.

5. The fourth green button will take you to the most current **CSLAP reports**.

6. The first gray button can be used to **plot depth profiles** (temperature/dissolved oxygen if you are collecting that information) (see appendix C).

7. The first blue button will link you to the NY iMapInvasives where you can report new aquatic invasive species observations

8. The rest of the blue buttons link you to more information about the Citizens Statewide Lake Assessment Program

After you enter your field data, please place the original hardcopies on top of the cooler when you ship your samples. We use them to correct typographical errors, compare to laboratory dates, and check for obvious field sampling errors. Thank you everyone.

Appendix B - The CSLAP Dashboard—on.ny.gov/cslap_dashboard

Common Error Codes

Duplicate Error Code

Failed to submit. {"id":0,"addResults":[{"objectId":-1,"uniqueId":-1,"globalId":"{E36936B2-68E6-474E-8D22-73EF3DB13BFE}","success":false,"error":{"code":1000,"description":"Cannot insert duplicate key row in object 'user_40876.service_1890bbb3fd5848bf822ada0a2e952ff3_CSLAP_FIELD' with unique index 'CSLAPFD_SAMPLE_NAME_Index'. The duplicate key value is (26-300-03).\r\nThe statement has been terminated."}}]}

This error code is for when you are entering is already in the system for the sampling round you have selected. Please ensure you have selected the correct sampling round, and make sure you did not already input the data you are trying to enter.

"Data will be truncated" Error Code

Failed to submit. [{"id":0,"addResults":[{"objectId":-1,"uniqueId":-1,"globalId":"{0876AAAB-394C-4FA2-8BC0-04728242FC5C}","success":false,"error":{"code":1000,"description":"String or binary data would be truncated.\r\nThe statement has been terminated."}}]}]

This error code means the sum of your comments has exceeded the total character limit. This is why it is important to keep comments brief when entering comments. Feel free to use abbreviations (e.g. EWS for Eurasian Water Milfoil).

Frequently Asked Questions

Q: When does the sampling season start? When does it end?
A: The sampling season is June 1st to September 30th. Samples collected before June 1st or after September 30th will not be analyzed.

Q: What if we miss a sampling round?
A: Please always follow the bottle numbers in sequential order. For example, if you miss round 2 of sampling, use the bottles labeled "round 2", NOT "round 3" the next time you sample. If you are unable to get all of your sampling rounds before the end of the season, that is okay.

Q: Do I have to be trained?
A: Yes, every volunteer that wants to participate in CSLAP must attend a training.

Q: My equipment needs replacing. What should I do?
A: Please leave us a note in your cooler when you ship back samples with your lake name, and what equipment you would like replaced, and send an email to Abby Hullihen at cslap@nysfola.org

Q: What do we do if we need to change the shipping address for our coolers mid-season?
A: Please leave us a note in your cooler when you ship back samples with your lake name, a note saying you need to change your shipping address, your new address, and send an email to Abby Hullihen at cslap@nysfola.org

Appendix C - Equipment Blank Protocol

EQUIPMENT BLANK SAMPLING

This year we are asking every lake to collect one equipment blank sample to assess whether your equipment is contributing any contaminating material to the samples. Many lakes are using equipment 20+ years old and therefore this is a possibility. That being said, we are asking you to please collect an equipment blank sample (even if your gear is brand new) so that we can comprehensively understand this issue across all CSLAP lakes. You only need to collect an equipment blank sample during one round of your choosing.

How to collect an equipment blank sample:

1. Complete a normal CSLAP sample according to the normal protocol
2. Rinse your equipment with distilled water, as you normally would after collecting a sample
3. Poor approximately 300 ml (approx. $1^{1}/_{3}$ cups) of distilled water into your Kemmerer with the bottom valve closed.
4. Discharge the distilled water directly from the Kemmerer into the equipment blank bottle (fill to the shoulder).
5. Freeze and ship this bottle with your other samples

Appendix D - Depth Profile Protocol

CSLAP Depth Profile Sampling Instructions

Depth Profile sampling is only available for select lakes. Priority for depth profile sampling is given to lakes that are stratified, lakes that are public water supplies, and lakes willing to share a probe with neighboring lakes in the same watershed. Depth profiles must be collected every two weeks which equates to 8 sampling events from June-September. The following instructions are only for volunteers who have been selected for depth profile sampling, but if your lake has not been selected and you would like to indicate interest, please fill out the survey at this link: **https://arcg.is/DCO4m1**

We created an informal training video that walks you through these operation/maintenance steps. The video can be accessed using the following QR code or web address.

https://photos.app.goo.gl/zbv5cFQFNsa94afp9

Equipment list

- Charger
- Handheld unit with attached float
- 10m or 30m cable
- Multiprobe in a sleeve **WITH A WET SPONGE**
  - This sponge must be wet at all times
  - Use tap water or lake water (not distilled) to wet the sponge
- ***DO NOT*** disconnect cable or buoy - we can't lose these expensive instruments to the bottom of a lake so

On Shore: calibrate multiprobe instrument (you MUST calibrate every sampling event)

- Pull the probe sleeve off and immediately put it back on (this is a good time to check that your sponge is wet)
- Hit calibrate button
- Select ODO (optical dissolved oxygen) and press ENTER
- Select % and press ENTER
- WAIT until the two lines on the graph on the bottom are paralel (~10 min)
- Select accept calibration by pressing ENTER

- The calibration is stored on the device. We download these records with the data at the end of the season. Data that is not associated with an accepted calibration cannot be used.

On Lake: collect a depth profile at your CSLAP sampling location

- Remove the protective sleeve
- Submerge the probe at the surface
- Press ENTER to start logging
- Select the sampling site (if the probe is used for multiple lakes/sites)
  - Toggle to the site and press ENTER
  - Toggle to the site you want to sample and press ENTER
- Press ENTER to select START NOW to start the logging process.
  - Measurements are automatically collected every 10 seconds(s)
  - Note the 10s countdown clock on the display
- Record a surface reading
  - Wait for the 10s countdown clock to reach 0 so a measurement is collected at the lake surface
- Lower the probe 1 meter (0.5m if your lake is <5m deep)
  - This depth does not have to be precise - 0.7m - 1m is fine.
  - Wait for the 10s countdown clock to reach 0 so a measurement is collected
  - Watch the temperature reading. If it changes by more than 0.5 degrees C over 10s, wait another 10s to collect a second reading
  - IT's OK if you collect a reading inadvertently between these depths as you are lowering the probe. We will keep the lowest reading in every meter and discard the rest.
- Repeat step 7 until you are 1.5 meters from the bottom of the lake
  - DO NOT let the probe touch the bottom of the lake because this will give artificially low readings. If you do so by mistake, that's ok. We can remove these readings during our data review process but you save us this step if you don't.
- After the final reading, press ENTER to stop logging
- Add a small amount of water to the probe sleeve to make sure that sponge is wet
- Insert the probe into the probe sleeve
- View your data to CHECK that it is recorded (an important step!!)
  - Press FILE button
  - Toggle to VIEW DATA
  - Toggle to Graph Data
  - See the plot of the data you collected to make sure it logged the entire profile.
- Put all the equipment back in the storage bag

Store the equipment in a cool, dry place between sampling events

As always, please feel free to contact me with any questions or concerns you have regarding sampling. Thank you! And happy sampling!

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