

2024 CSLAP Sampling Protocol

New York State Citizens Statewide Lake
Assessment Program



Department of
Environmental
Conservation



New York State Federation
of Lake Associations, Inc.

Citizens Statewide Lake Assessment Program



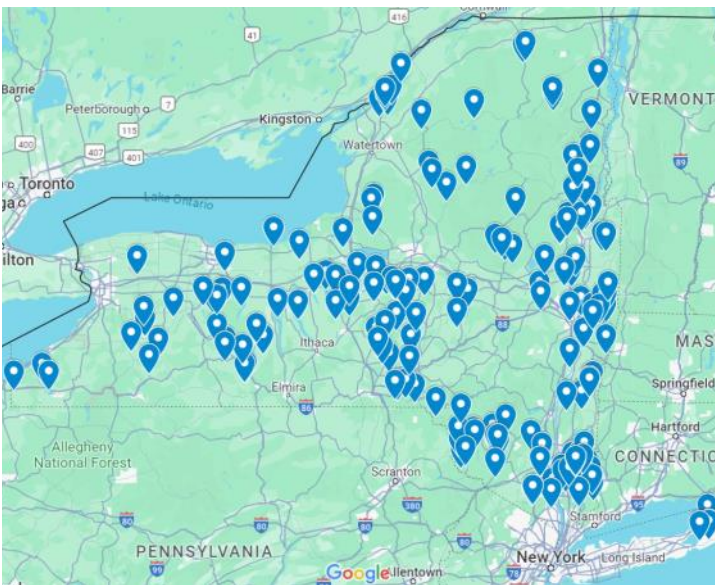
Funding for the Citizens Statewide Lake Assessment Program is provided from the New York State Environmental Protection Fund as administered by the New York State Department of Environmental Conservation.

Table of Contents

General Background and Program Introduction.....	1
Authorizing Legislation.....	1
How to Participate in CSLAP.....	2
Standard CSLAP Sampling Parameters.....	2
Volunteer Training and Safety.....	3
Sampling Days and Times.....	3-4
Sampling Location.....	4
Sampling Equipment.....	4-6
Sample Kits and Bottles.....	6-7
Meet the Paperwork: CSLAP Forms.....	7-14
On-Lake Sampling	15-19
On-Shore Sample Processing.....	20-22
Online Field Data Entry and HAB Reporting.....	22 and Appendix B
Shipping Procedures.....	22-23
On-Lake Sampling Equipment Checklist.....	24
On-Shore Sampling Equipment Checklist.....	25
Shipping Materials Checklist.....	26
Appendix B - The CSLAP Dashboard.....	27

General Background and Program Introduction

New York State is blessed with 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. Many of our state's lakes continue to experience declining water quality, and there is a paramount need for lake management strategies to help minimize the adverse impacts of landscape alteration and climate change.



2024 Citizens Statewide Lake Assessment Program

Created by Google Maps, 2024

However, 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 account for the characteristics and nuances unique to each lake. Ideally, management decisions are based on an evaluation of available information, including historical and current chemical, physical, and biological data, levels of use, and use impairment. Unfortunately, reliable information 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,

NYS Environmental Conservation Law §17-305

Establishment of a program to monitor water quality by private citizens under the direction of the department.

1. The commission shall establish a program which shall be known as the "citizens statewide lake assessment program". The purpose of this program is to establish a network of volunteers belonging to lake associations throughout the state to monitor the condition of their respective lakes under the guidance and direction of the department. The volunteers, designated by the commission, will sample the assigned lakes on a weekly basis between May and September. Water quality information will be obtained by measuring water transparency and taking samples for water chemistry. Samples shall be processed by volunteers and forwarded to a contract chemistry laboratory for analysis.
2. The commissioner shall establish and fill a new permanent position of program coordinator for the monitoring program within the division of water.
3. The commissioner shall establish a training program for the purpose of providing the volunteers with the skills necessary to accomplish their monitoring tasks. Quality control checks will be carried out on a regular basis by the program coordinator, and through the lake classification and inventory survey.
4. The commissioner will provide the volunteers with all of the equipment and materials necessary to accomplish the monitoring.
5. Chemistry parameters shall include, but are not limited to, tests for total phosphorus, nitrate, color and chlorophyll. Additional survey data shall include, but not be limited to, aquatic vegetation surveys, angler surveys and questionnaires/surveys for water users concerning problems, issues, and use impairment.
6. The program coordinator shall prepare an annual report which will include a summary of the information collected on the monitored waters during the previous season. This information shall be distributed to the program participants and other interested parties.

the program has grown to include several hundred Throughout the 35+ years of the program, CSLAP data has been used by lake associations to develop management strategies, and several objectives are considered that are 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

If you are reading this manual, it is likely that your lake association is already participating in CSLAP. CSLAP is a program for lake associations, and participation is limited to lake associations that are members of NYSFOLA. Budgetary considerations determine the number of participants each year, and lake associations need to identify volunteers to conduct the sampling and make a minimum 5 year commitment to the program in order to make the data meaningful.

To stay informed of lake related issues and CSLAP events, lake associations are required to pay annual NYSFOLA membership dues. An annual CSLAP participation fee is also required.

More information can be found on the NYSFOLA (www.nysfola.org) and NYS DEC (<https://www.dec.ny.gov/chemical/81576.html>) websites.

Questions?



Contact: Nancy Mueller, CSLAP Coordinator,
NYS Federation of Lake Associations, Inc. Email:
fola@nysfola.org Phone: (315)677-9987 or



Department of
Environmental
Conservation



Alene Onion, CSLAP Coordinator,
NYS DEC

Email: cslapinfo@dec.ny.gov Phone: (518) 402-8166

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, the Secchi disk transparency 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.

Volunteer Training

Volunteers are the most critical element of CSLAP. New volunteers are required to attend an official training session in order to learn how to collect, process, and preserve the 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, it is impossible for staff to get to every lake individually before the start of the season. Your lake association will be informed about training opportunities before the season gets underway starting with the training at the NYSFOLA annual conference in late April or early May.

In order to obtain the data necessary to accurately assess a lake's water quality, and to allow for a comparison of data over time, it is imperative that water samples be collected accurately and consistently. This involves a complete commitment from volunteers and a strict adherence to outlined standard procedures.

In addition to the standard physical and chemical parameters 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. Boating 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. Information: <https://parks.ny.gov/boating/>.

Sampling Time and Days

The ideal time of day to sample is between 8:00AM and noon, 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. Safety should always be a factor. 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.

The sampling day should be convenient for the volunteers, but 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, July 4th, and Labor Day in mind to avoid conflicts with holiday shipping and laboratory schedules.

8x Sampling Option

It is important to be consistent in the choice of sampling days, and sampling should be conducted approximately every two weeks as weather/lake conditions allow. All eight rounds of sampling should ideally occur between June 1st and September 30th but can begin once bottles and supplies have been shipped to you.

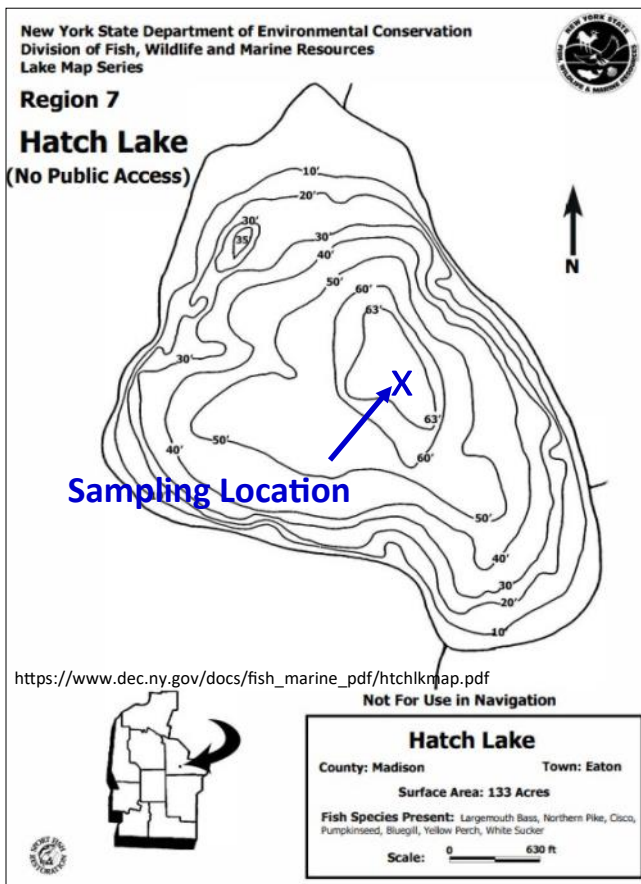
4x Sampling Option

Samples should be collected once per month, approximately 4 weeks apart, in each of June, July, August, and September. With the reduced sample frequency, it is very important to collect all four rounds.

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

Sampling Location

Take samples from the deepest location on your lake since that location is most representative of water quality



conditions throughout the lake. If your lake thermally stratifies (as do most lakes deeper than about 20 ft), 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

location for every sampling round.

You can use the following methods to help you:

- **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** from NYS OPRHP <https://parks.ny.gov/documents/recreation/boating/FloatingObjectPermitApplication.pdf> to place a buoy at the sampling site. You should always check with NYOPRHP to be certain before placing a buoy in the lake.
- **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: imaginary lines from the four landmarks will cross at the deepest location. Record those landmarks to find the sampling location each time. You will verify the location depth during the first part of each sampling round to be certain that you have returned to the proper location.

Sampling Equipment

CSLAP volunteers are provided with the equipment required to conduct the sampling. Volunteers will need to provide some incidentals such as aluminum foil and distilled water. You may keep your equipment for the duration of time that your lake is in the program. You are expected to take care of it and return it when your lake association no longer plans to participate. If the equipment in your sampling kit is missing something, please contact Nancy Mueller at nysfolanancy@verizon.net.



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, 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.

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

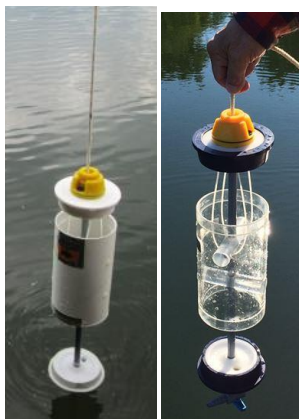


The Secchi disk is used to measure water clarity and (in shallower lakes) sounding depth (total depth of the lake at the sampling location.) Most volunteers will have a Secchi disk attached to a measuring tape although some of you may still have older, measured lines without a winding reel. The **Secchi 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.

You will use the Secchi disk to measure the transparency of the water. Directions are in the on-lake procedures (pp 15-19). If your lake is not deeper than the length of the measuring tape, you can also lower the Secchi disk to the bottom to get the sounding depth (See page 16).

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, others are white PVC. The bottle is attached to a line which is marked to measure the depth.

Surface samples - Most lakes will be sampled at a depth of **1.5 meters**. If your lake is very shallow, 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 1.5m beneath the water surface. Never skim water from the top of the lake for a surface sample.

Deep samples - Thermally stratified lakes, generally those deeper than 20 feet (6 meters) will also be sampled 1.5 meters above the bottom of the lake.

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.

- Do not use a messenger heavier than 11 ounces, as this may damage the trip mechanism.
- Do not use out of the water.
- Perform a preliminary inspection prior to using the bottle. Make sure the line and cable are tightly connected.
- Guard the sampler from blows to the cylinder ends. This may knock them out of round, which could cause leakage during sampling. Dropping or impacting the sampler can crack the main tube. A blow to an acrylic body can cause it to crack or shatter.
- Always lower the bottle slowly, without dropping it.
- Transport in a carrying case or box to avoid damage.
- Do not store the bottles with the valves closed as this may cause them to “set” tightly in the end of the bottle, resulting in damage when pried open. Store the bottle so the end seals do not touch the cylinder.
- After sampling, rinse the sampler in fresh, clean water. Allow the sampler to completely dry.
- Do not store the sampler when wet, damp, or dirty. This can cause mold, mildew, metal corrosion, or plastic surface deterioration.
- When fully dry, store the sampler in a dark, cool location that is not subject to extreme temperatures, preferably in some kind of protective case.

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

The Kemmerer bottle is attached to a rope that is marked in meters to allow easy measurement of the depth of the bottle in 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, as marked on the rope, the messenger is released, triggering the bottle to close at depth to collect the sample.

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 the Kemmerer.



Sampling kits for volunteers at stratified lakes that are taking a deep sample, will have a second collapsible

container. These should be marked “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 (MgCO₃) - a milky white substance used to preserve the chlorophyll *a* sample.

Sample Kits

Before the start of each sampling season, NYSFOLA and our laboratory partners at Upstate Freshwater Institute (UFI) in Syracuse will send out the sampling kits.

For new lakes, that will include all of the equipment mentioned previously, a cooler, 1L bottles to fill, freeze and use as ice packs

for transporting samples, sample bottles, filters, and gloves. Lakes that have been in the program the previous year, will have kept their equipment and



coolers. They will be sent new bottles, filters, gloves, and any items that they have requested for replacement.

What you need to provide: aluminum foil, distilled water, clipboard, pen, boat with anchor, life jackets and any other safety equipment and/or boater safety training as required by NYS Boating Regulations <https://parks.ny.gov/recreation/boating/education.aspx>. You will also need a watch or cellular phone to record the time and/or take pictures of algal blooms.

Sample Bottles

Depending on the number of samples you are collecting, the bottles will come in either 4 or 8 plastic bags that look similar to the picture above. Deep lakes will have blue labeled bottles 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 8-9)

Note that 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.

The **CSLAP Sampling Record Form** (page 10) - is used during sampling to record the physical observations during the sample period, to record weather, and to document any conditions on the lake.

You can also use the **HABS Visual Observation Reference Sheet** (page 11) 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). No sample is required.

The **Chain of Custody/Request for Analysis** form (page 15) helps ensure quality control. It records the samples that were collected, by whom, and when, where the sample bottles came from, and when these samples were

delivered to the shipping company. This form is part of the laboratory record of the key information associated with the sample - the name of the lake, the sample ID numbers, and the sample date.


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** 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.

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.

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 start with bag #1 and end with bag #8 since the bottle labels are coded to specific sampling rounds. Using them out of order makes things a little difficult on this end because the bottles are coded to a particular round.

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

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:

- 1) Filter 100 ml of water. Put the water in the bottle marked COLOR and freeze the bottle.
- 2) Put 6-10 drops of MgCO₃ 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. Even if you don't have an algae bloom, we want to know that, too! "No evidence of a bloom" is one of the options you can check on the form.

Other: _____

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

CSLAP Field Observation Form—Lake Perception & Health and Safety

Lake Name _____ Date _____

CSLAP FIELD OBSERVATIONS FORM- LAKE PERCEPTION

(A) PLEASE CIRCLE THE ONE NUMBER THAT BEST DESCRIBES 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 lake or washed up on shore, strong foul odor, fish kills

(B) PLEASE CIRCLE THE ONE NUMBER THAT BEST DESCRIBES 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 to 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 DESCRIBES 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 the 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 skiers, other)
8. Other _____

TURN OVER FOR HEALTH AND SAFETY QUESTIONS

CSLAP Field Observation Form—Lake Perception & Health and Safety

Lake Name _____ Date _____

CSLAP FIELD OBSERVATIONS FORM- HEALTH AND SAFETY

(F) DO YOU OBSERVE OR HAVE YOU BEEN MADE AWARE OF ANY OF THE FOLLOWING PROBLEMS AT THIS TIME (PLEASE CIRCLE ALL THAT APPLY)?

0. None of the below
1. Complaints about 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 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

HAB Visual Observation Reference Sheet

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.**

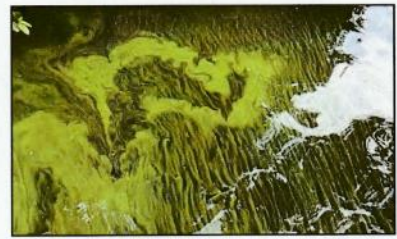
Harmful Algal Bloom



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

Do Not Collect a HAB Sample



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

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

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

1. Collection Date: ___/___/___ 2. Sampling by: _____

Sampling Location: Field ID No.		Pretend Lake 23-999-01							
Collection Time	Matrix	Total Phosphorus (TP)	Total Nitrogen (TN)	NO ₃ /NH ₃	Color	Chl. a filter w/ MgCO ₃ blue-capped vial	pH/Specific Conductance unfiltered 125mL plastic bottle DO NOT FREEZE/ NO HEADSPACE	Chloride Unfiltered 125mL plastic bottle	Calcium Unfiltered 60mL plastic bottle
Surface (1.5m)		Unfiltered 125mL plastic bottle	Unfiltered 60mL plastic bottle	125mL plastic bottle	field filtered 125mL plastic bottle	X	X	X	X
Bottom	Water	Unfiltered 125mL plastic bottle	NH ₃ 125mL plastic bottle			X	X	X	X

SAMPLING VOLUNTEERS - PLEASE PROVIDE INFORMATION IN WHITE BOXES:

1. Collection Date
2. Sampling by (Printed)
3. Collection Time (Military Hours)
4. Relinquished by (Signature, Date, & Time)

Comments (LAB USE ONLY): _____

By signing this form, I certify that the samples enclosed were collected in accordance with CSLAP protocols.

4. Relinquished by: _____ Date: ___/___/___ Time: ___:___:___

(LAB USE ONLY)
 Sample Bottles Prepared by: *Gina Kehoe* Date: ___/___/___ Time: ___:___:___
 Received by: _____ Date: ___/___/___ Time: ___:___:___
 Temperature at Receipt: _____
 Temp: _____ °C

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.

BARCODE:

CSLAP Field Sample Collection Checklist

I. Pre-departure Equipment Check - Complete the following checklist *before departing the dock*

<input type="checkbox"/>	CSLAP Field Observation Form; Sampling Record Form	<input type="checkbox"/>	Pen or pencil to fill out forms
<input type="checkbox"/>	Thermometer	<input type="checkbox"/>	Watch, phone, etc. to get time of day, GPS
<input type="checkbox"/>	Secchi disk and tape measure	<input type="checkbox"/>	Boat, anchor and line, appropriate safety equipment
<input type="checkbox"/>	Kemmerer sampling bottle and marked line	<input type="checkbox"/>	Camera or phone for photos of algal blooms
<input type="checkbox"/>	Collapsible water sample container and cap with spigot (For stratified lakes – deep collection container also), and a cooler to store samples	<input type="checkbox"/>	Supplemental surface water collection container (or replacement large container)
<input type="checkbox"/>	Plastic gloves for surface and deep sample collection		

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. ___ Fill out both sides of the *CSLAP Field Observation Form – Lake Perception and Health and Safety* before collecting any other data
3. Fill out the *CSLAP Sampling Record Form*
 - ___ Record the lake name, county, Round #, date, and volunteer names.
 - ___ Determine water depth with Secchi disk or depth finder and record to the nearest 0.1 meter.
 - ___ Record lake level (High, Normal, Low).
 - ___ Record Secchi disk depth off the shady side of boat to the nearest 0.1 meter – *do not use aids or sunglasses*.
 - ___ Record the sampling time.
 - ___ Record the air temperature, using the provided thermometer, to nearest °C.
 - ___ Assess and record today's wind and sky conditions.
 - ___ Record weather conditions that have occurred over the past week.
 - ___ Briefly note any unusual weather conditions, if applicable, in the comments section.
 - ___ Include a brief summary of any lake management activities taking place (herbicide applications, harvesting, oxygenation, etc.) in the comments section, if necessary

III. Sample Collection, Water Temperature, and Odor Observations

Important Tips:

1. ___ Put on gloves.
2. ___ Keep the Kemmerer line as straight as possible.
3. ___ Avoid touching inside the Kemmerer while setting the tripping mechanism.
4. ___ Avoid touching the spigot/sample while discharging from container.
5. ___ Rinse the collapsible container with sample water (fill ¼ full, shake, and discard completely) before filling container with sample water.
6. ___ Using the Kemmerer, collect **Surface Sample** water at 1.5 m depth, unless otherwise instructed. Record collection depth.

Make sure to collect enough water! (At least 2 full kemmerers full for the surface sample and 1 for the deep sample).

7. ___ Immediately measure and record water temperature from the container to the nearest °C.
8. ___ Put collapsible container in a cooler (preferable), or in the shade to keep cool.

For those collecting a Deep Sample (using procedures above)

1. ___ Record deep sample collection depth (~1.5 m from the bottom).
2. ___ Measure water temperature from the deep sample to the nearest 1° C, note if there is a sulfur odor.

IV. Shoreline Algae and Aquatic Plant Observations

Assess for shoreline bloom conditions. Take photos of any HAB accumulations and report through NYHABS.

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

CSLAP On-Shore Sample Processing Checklist

Remember to wear gloves throughout sample processing!

___ Before processing, label the bottles with the sample date with waterproof ink and organize based on parameter

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

Note: ml is short for milliliters, which is a measurement of volume and is marked on the graduated cylinder

I. Surface Sample: Fill the following bottles *without filtration from the surface water collapsible container*

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

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

___ Fill white labeled Total Phosphorus (TP), Total Nitrogen (TN), and Nitrogen Oxides/Ammonia (NO_x/NH₃) bottles to the shoulder with surface water, and freeze.

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

II. Surface Sample: Filter water from the collapsible container for the following samples

Prepare by rinsing the entire filtration apparatus with distilled water.

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

Color Sample:

1. Using forceps, place 1 filter paper in the filter holder.
2. Secure filter to holder by gently threading the upper cup onto the holder. Attach handpump.
3. Filter 100 mL water – apply a slight vacuum (a few pumps) to avoid rupturing the filter, and discard the filter.
4. Pour the filtered water into the Color bottle and freeze. Note: These are 125ml bottles and will not be full.
5. Rinse equipment with distilled water

Chlorophyll *a* (Chl-*a*) Sample:

1. Using forceps, place a second filter into the filter holder
2. Shake the MgCO₃ bottle well and cover the filter paper with 6-10 drops of MgCO₃.
3. Filter 100 mL of water. Rinse down graduated cylinder and walls of upper apparatus with distilled water; filter to capture all Chl-*a* (algae)
4. Remove the filter with forceps, fold in quarters; place in pointed end of vial labeled Chl-*a* (do not add water).

5. Wrap entire vial with aluminum foil and **freeze**.

6. Discard any remaining surface sample water and rinse equipment with distilled water

III. Deep Sample (if applicable): Fill the following bottles *without filtration from the collapsible container*

1. Mix deep sample by gently inverting the collapsible container.
2. Fill the blue labeled TP and NH₃ bottles to the shoulder with deep sample water and **freeze**.

IV. Finish Processing, Online Data Entry, Prepare samples for shipping

1. Verify paperwork is complete, all bottles are labeled and dated correctly.
2. Enter field data and report HABs, if applicable, using the CSLAP Dashboard: on.ny.gov/cslap_dashboard (case sensitive). **Make sure paper field data recordings and online data entry match!!**
3. Refrigerate pH bottle.
4. Freeze all other bottles and Chl-*a* vial. Place ice pack bottle (filled with water to shoulder) in freezer with samples to freeze solidly.
5. Rinse equipment with distilled water and set aside to dry. Hang Kemmerer open to dry completely.
6. The following day, completely fill out and sign the Chain of Custody form and compare the bottle list to the ones you are shipping.
7. Ship all samples ASAP (samples have “holding times”).
8. Pack all samples in the big cooler box with the frozen water ice pack bottle to remain cold.
9. Place paperwork on top of cooler inside cardboard box. Use a separate sheet on top to request any needed supplies (**Do not write notes on COC or Sampling Record Form**).
10. Close and seal the cooler box. Apply prepaid label. Take to the nearest FedEx facility for shipment. <https://local.fedex.com/en-us/ny/new-york>

Don't forget to enter your field data and report HABs at:

on.ny.gov/cslap_dashboard

On-Lake Sampling

1. Use the equipment checklist (see page 24) 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 you have drifted, please note this on the Sampling Record Form.

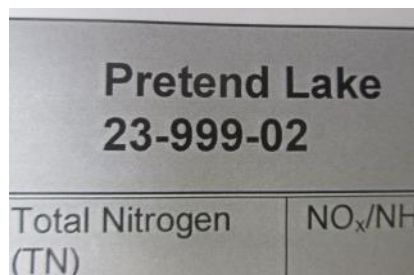
CSLAP Field Observation Form - Lake Perception and Health and Safety (Note that this is a two-sided form.) Fill out both sides of the form with your observations of the lake today.

- **Question A** - describing the **physical conditions** of the lake today - refers to the overall conditions of the lake, particularly in the open water away from the shoreline. Select one answer to best describe conditions.
- **Question B** - describing the **aquatic plant populations** - refers to the overall conditions in places where people swim, fish, boat, or generally recreate near the shoreline. Aquatic plant populations should be evaluated in areas where the plants are not actively managed by hand pulling or matting. If the entire lake, or large areas of it, are being managed through the use of herbicides, harvesting operation, drawdown, etc. then this should be noted on the Sampling Record Form under "comments". Select one answer to best describe conditions.
- **Questions C and D** - describing the **recreational use** of the lake today— should include recreational assessments for both the shoreline and the open water. For question C, select one answer to best describe conditions. For question D, you may select as many options as needed and add "other" items not listed.
- **Questions F and G** - on 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.



CSLAP Sampling Record Form - Section 1 - General

- **Lake name** - It might seem obvious, but please don't forget to write this down so we know whose paperwork it is.
- **Site # or location** - For lakes with multiple sites, especially the large Finger Lakes, this is particularly important.
- **County** - This is particularly necessary when we have multiple lakes with the same name in the program (Forest, Silver, Pleasant, e.g.).
- **CSLAP Round #** - Bottle bags must be used in numeric order. To find the sampling round number, look at the Chain of Custody form. They each have a unique number coded to your lake. In the "Pretend Lake" example to the left, the Round 2 CSLAP Number is 23-999-02. The 23 is for the 2023 sampling year. Pretend Lake is number 999 in the CSLAP program, and 02 means that bottles and Chain of Custody form are for Round #2.
- **Date** - This should be the date of sampling, and 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.



5. CSLAP Sampling Record Form - Section 2 - Secchi

Depth & Lake Information

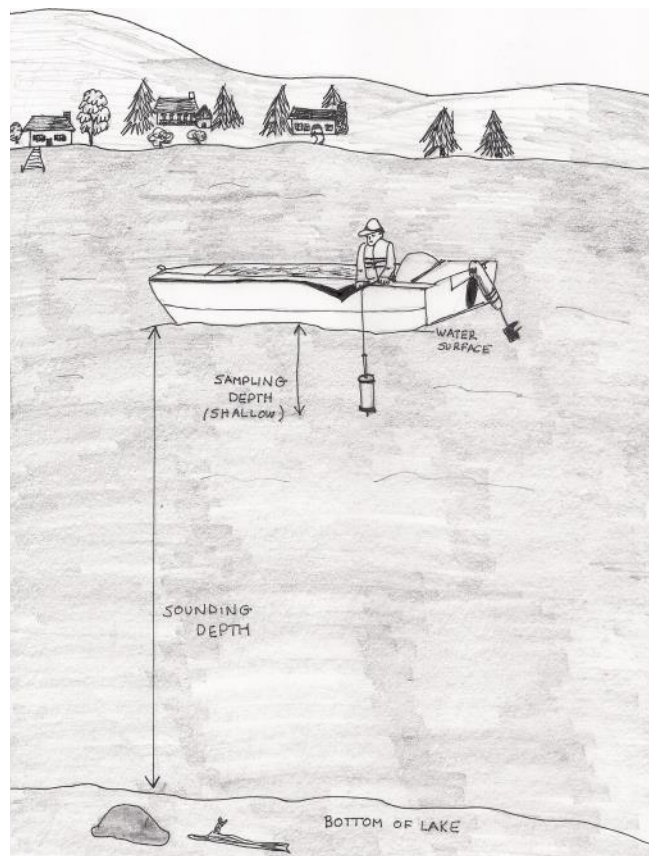
- **Sounding Depth** - The Sounding Depth is the depth of the lake (water surface to bottom) at your sampling location. If your Secchi disk is long enough to reach the bottom, you can use it to measure the depth to the bottom of the lake. Let the Secchi disk line down until the tape goes slack. Then pull it gently until the slack goes out. Put your fingers where the measuring tape enters the water. Raise the tape, and read it to the closest tenth of a meter where your fingers are on the tape. Enter this depth on the Sampling Record Form in **meters**. If your lake is very deep, you can use a depth finder, bathymetric map (if available), or fish finder. You can also give us an estimate. For example, it is better to write "about 30m" or ">15m" than to leave the space 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 in general, 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.

- **Lake Level** - How does the lake level appear to you today? High/Normal/Low
- **Secchi Depth** - The Secchi depth is a measure of water clarity. You will have two readings, first recording the depth at which the disk disappears when lowered and then the depth at which when it reappears when raised.

Do not use dark glasses or polarizing lenses while observing the Secchi disk. While they might improve the reading in your lake, it reduces the accuracy of comparing your reading with previous measurements from your lake, or readings from other lakes. Note: If you are on a pontoon boat, always take the reading in a consistent manner—(either standing or kneeling on all fours).

Slowly lower the disk into the water on the shady side of boat, watching it continually.



When the disk completely disappears from sight, use the tape measure to obtain the depth from the surface of the water. Record the depth to the nearest tenth of a meter as Secchi Reading 1. If the disk is on the bottom, check YES, otherwise, check NO.

Let out a small additional length of tape so that the disk won't reappear immediately. Then slowly raise the disk and measure when the disk appears again as you are pulling it up. Record the depth on the tape to the nearest tenth of a meter as Secchi Reading 2 on the sampling form.

Secchi Reading 1 and Secchi Reading 2 may not be the same number, but they should not be far apart. These readings should be within a meter of each other. You can repeat the procedure to double check, but only record one set of readings.

Practicing Secchi disk measurements can be very helpful and should improve the repeatability of the results. The Maine Volunteer Lake Monitoring

Program has a website with a simulation that you can use to gauge the correct sighting. <https://www.lakestewardsofmaine.org/secchi-simulator/>. Note, however, that the Maine simulator only imitates measuring the Secchi disk as it goes down, and you will also take a reading as you pull the disk up.

Note: 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.

CSLAP Sampling Record Form - Section 3 - Sampling Time & 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 (H₂S) by marking “Yes” or “No”.

CSLAP 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.

CSLAP 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 (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.



CSLAP Sampling Record Form - Section 6 - Comments

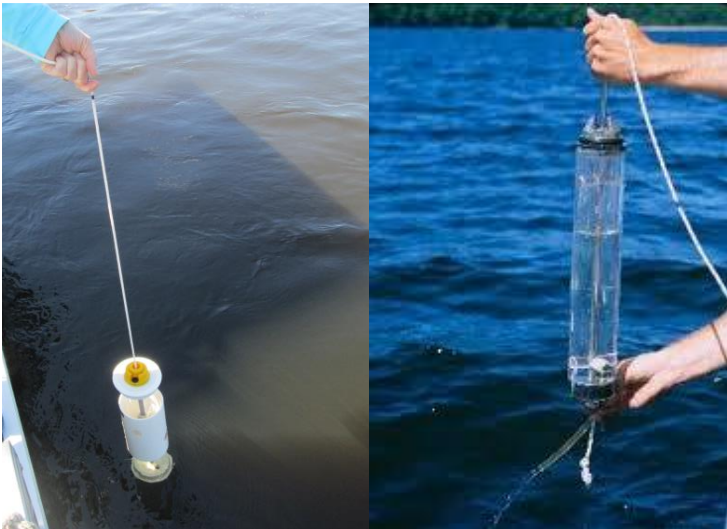
Please describe unusual water quality issues, invasive species observations, aquatic plant (or other) management activities taking place on the lake (harvesting, herbicide applications, aeration, etc.). We also encourage you to submit photos to fola@nysfola.org.

Water Sampling Procedures - Shallow Sample

- Check that the knot on the bottom of the Kemmerer bottle is tight.
- Hold the Kemmerer bottle bottom stopper in your right hand, and the top stopper in the left. Avoid touching the inside of the stopper or bottle.
- While holding the top stopper; give a short pull to the bottom stopper. You should hear a “click”. This cocks the bottle open. Slide the messenger up the rope.
- Before taking a sample, rinse the Kemmerer in the lake water with the valve open.
- Return the valve to the closed position. (When closed, the valve is at right angles to the spout.)
- Lower the Kemmerer bottle into the water and down to the 1.5m marking on the rope (unless instructed otherwise). Release the messenger. This will close the

top and bottom stopper and entrap the water sample. 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.

- Slowly bring the Kemmerer bottle out of the water and into the boat. Hold it by the rope or gray shaft so that it remains closed.
- Remove the cap and spigot of the collapsible container. Pour a small amount of the shallow sample from the Kemmerer bottle into the collapsible container



marked Shallow (if you are also collecting deep samples) and gently “swish” it around to acclimate the container. Put the spigot cap back on the container. Empty the water from the collapsible container through the spigot cap to rinse that too.

- 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.
- Take the temperature of the water with the dial thermometer. The temperature should stabilize within a minute or two. Cap the container, and place it in the shade or (preferably) in a cooler.
- Record the temperature and the sampling depth.



On-Lake 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.

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

- Repeat the steps used for collecting the shallow sample using the markings on the Kemmerer line to get to the proper depth.
- Acclimate the deep collapsible container by rinsing and emptying the collection container as described for the shallow sample.
- Empty the water from the Kemmerer bottle into the deep sample collapsible container.
- Use the thermometer to determine the water temperature to the nearest 1°C.
- Record the sampling depth and the temperature on the Sampling Record Form.
- Indicate whether or not there is a hydrogen sulfide odor. If the deep water is colored, note this in the comments area of the form.
- Place the sample in the shade or (preferably) in a cooler for transport back to the shore.

Double Check Your Sampling Record Form

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 page 22 and Appendix B) and to resolve any questions about the data that may arise.

- Are all of the sections complete?
- Is it legible?

CSLAP SAMPLING RECORD FORM				
PLEASE PRINT LEGIBLY				
SECTION 1 - GENERAL				
LAKE NAME <i>PRETEND LAKE</i>	SITE# (IF APPLICABLE) <i>2</i>	COUNTY <i>WARREN</i>	CSLAP ROUND# <i>2</i>	DATE <i>06/28/2021</i>
SAMPLER NAME(S) Sample Collection: <i>JOHN DOE</i>		Secchi Readings: <i>JANE DOE</i>		
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 <i>5.8</i> meters	LAKE LEVEL <input type="checkbox"/> High <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Low			
(The depth from the surface to the bottom of the lake at your sampling location)				
READING 1: (Secchi disk lowered until it disappears) <i>2.9</i> meters	On bottom? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
READING 2: (Secchi disk raised until it reappears) <i>2.8</i> meters	On bottom? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
NOTE: The Secchi readings should never be deeper than the Sounding Depth!				
SECTION 3 - SAMPLE TIME & TEMPERATURE				
TIME (Military Preferred) <i>14:00</i> AM <input type="checkbox"/> PM <input checked="" type="checkbox"/>	AIR TEMPERATURE <i>33</i> °C	WATER SAMPLING DEPTH Surface Sample* <i>1.5</i> meters Deep Sample (if applicable) <i>4.3</i> meters	* usually 1.5m except in very shallow lakes WATER TEMPERATURE Surface Sample <i>24</i> °C Deep Sample <i>22</i> °C	
SULFUR ODOR IN DEEP SAMPLE: If applicable, is there a sulfur odor in your deep sample? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
SECTION 4 - HARMFUL ALGAL BLOOM OBSERVATIONS (See HAB Reference Image Sheet)				
CONDITIONS OBSERVED AT CSLAP SAMPLING SITE (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</i>				
SECTION 5 - WEATHER				
CURRENT WEATHER CONDITIONS (circle)	WIND TODAY:	<i>Calm</i>	Moderate	Windy
	SKY TODAY:	Clear	<i>Partly Cloudy</i>	Overcast
PAST WEEK WEATHER CONDITIONS	WIND PAST WEEK:	Calm	<i>Moderate</i>	Windy
	SKY PAST WEEK:	Clear	Partly Cloudy	Overcast
UNUSUAL WEATHER CONDITIONS? (major storms, record temperatures, etc.) <i>STRONG T-STORMS YESTERDAY</i>				
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 foia@nyfda.org . (Use back of page if more room is needed.) <i>AGUATHOL K TREATMENT 06/25 FOR CURLY LEAF PONDWEED</i>				

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

Harmful Algal Bloom (HAB) Visual Observation Reference Sheet

The HAB Visual Observation Reference Sheet will be utilized 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.

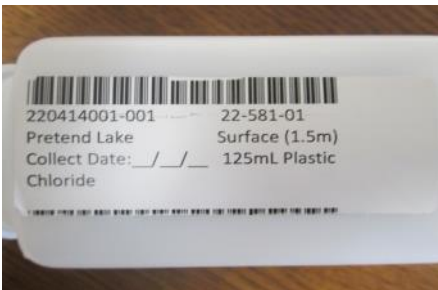
Return to the shore to begin sample processing. **Processing must be done immediately after sample collection in order to maintain the sample integrity. The chemistry will change over time if the sample is not properly preserved!**

On-Shore Sample Processing - Non-filtered Shallow Samples

Gather the equipment from the on-shore checklist on page 25, and find a clean, sheltered place to work, preferably indoors.

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

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



The number on the right side of the bottle tells you the year of sampling, the lake number, and the sampling round. For example, on this

bottle for a shallow chloride sample from Pretend Lake, 22-581-01 indicates that the sample was collected in 2022. The unique lake ID number for Pretend Lake is 581. The 01 means that this is Round 1. If you have blue labeled deep bottles, they will have corresponding round numbers of 11 through 18.

- **Date the bottles** (before you get them wet) with permanent ink. Date: mm/dd/yy



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

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



- **Put on gloves**
- **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.
- **Fill the NO_x/NH₃/TP and TN bottles (and some**

rounds Calcium and Chloride)- Remove the bottle caps without touching the insides of the caps or bottles. Then pour off the shallow water sample into the **NO_x/NH₃, TP, and TN** bottles just 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.

- **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.

On-Shore Processing - Filtered Shallow Samples

Gather the filtration apparatus, hand pump, distilled wa-

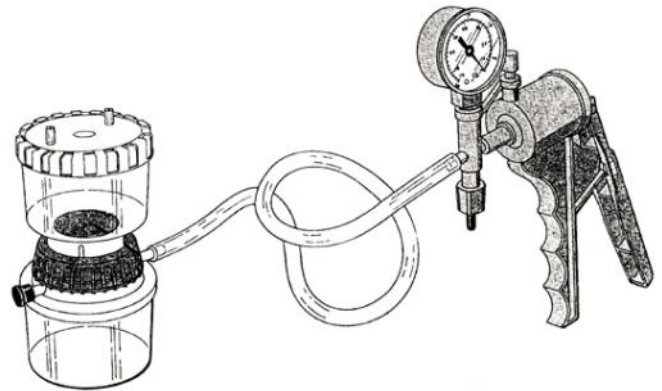


ter, and filters. The filtration apparatus consists of an upper funnel, lower receiver flask, and a two-piece centerpiece that holds the filter. Always use the white gridded centerpiece insert with the "X" shape on it (shown above).

- Put distilled water into the **wash bottle**, and rinse the entire apparatus. Put the center section on top of the receiving flask ensuring that the orange o-ring on the underside is properly seated.
- **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. Look under the bottle bags to find it. Filters tear easily so handle them gently to save program costs! Using the forceps, remove a single filter from the storage container, and set the filter on the top of the centerpiece. Be careful that you pick up only one filter, since sometimes they are hard to separate. If there is any moisture left on the centerpiece, you should be able to see the grids through the filter if you only placed one filter on the centerpiece. Make sure the filter lays flat on the centerpiece with no folds, so that the filter covers each of the grid openings on the centerpiece. The filter should fit inside the small raised guides around the outside



edge of the centerpiece. Try to 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.)



- **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, so remove it and try again.
- **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.
- With the spigot closed, **gently mix** the contents of the collapsible container that contains the shallow sample.
- **Measure the Color Sample** - For the color sample, a total of 100 ml of water should be filtered. First, measure **100 ml** of the shallow sample water using the graduated cylinder. The water in the graduated cylinder will rise at the edges and sink in the middle – that sunken part is called the meniscus. Measure using the meniscus, 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.
- **Filter the Color Sample** - Squeeze the vacuum pump 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.
- **Remove the filter and pour the Color sample** - Carefully unscrew the top funnel portion of the filtration apparatus. Discard the filter. You will have water in the receiving flask. Take off the filter assembly and pour the water into the 125 ml square sample bottle labeled Color. The filtered water will not fill the bottle. That's okay. Cap it securely and place it in the freezer.
- **Rinse** the funnel, centerpiece, receiving flask and graduated cylinder with distilled water using the wash bottle. Place the centerpiece on top of the receiving flask.
- **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.
- **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).
- Reattach the funnel to the receiving flask and connect the vacuum pump as you did for the Color sample.
- **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.
- Filter the **Chlorophyll a** sample in the same manner as the Color sample. Once the sample has passed through the filter you will now rinse the graduated cylinder and funnel to ensure that all of the chlorophyll a in the sample has reached the filter. Use distilled water to rinse the equipment, and then filter that water as well. Use the wash bottle to rinse down the graduated cylinder, and pour that water into the funnel to filter. When most of the water has gone from the top funnel into the bottom receiving flask, wash down the sides of the funnel with distilled water from the wash bottle, and continue to filter that water, gently pumping again if necessary. When the water has all gone through, wash down the slope at the bottom of the funnel with distilled water, and filter that water too.



- Carefully unscrew the funnel from the centerpiece so that you can see the filter. 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 Processing Deep Water Samples

If your lake is thermally stratified, you will have two blue-labeled bottles for TP and NH₃.

- Check that the spigot on the deep water collapsible container is closed, and mix the sample by gently inverting the collapsible container.
- Fill the blue labeled TP and NH₃ bottles to the shoulder, cap tightly and freeze.

Freeze the Ice Pack Bottle - Fill the 1 liter 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.

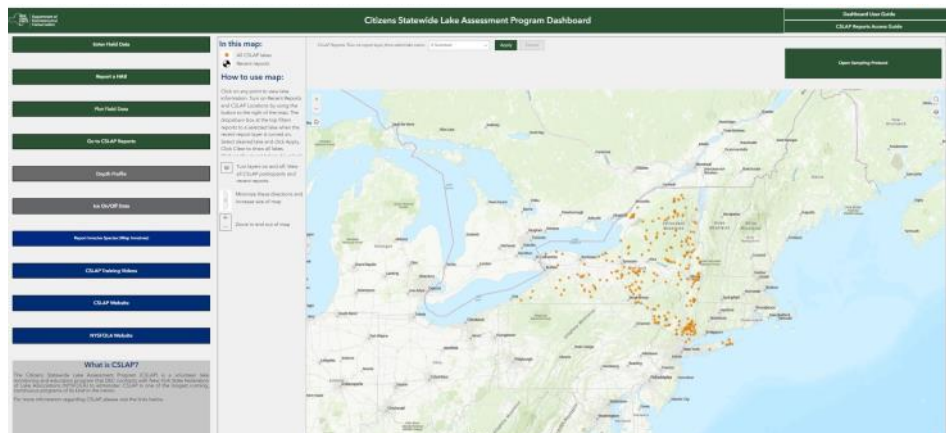
Clean Up and Store the Equipment - Rinse collection containers and filtration apparatus with distilled water. Gently clean the Secchi disk. Store the collection containers in a clean location with the tops off to prevent the growth of bacteria or mold likely. Discard trash. Open the Kemmerer bottle and 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

It's time to 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 still need them to submit with your samples so that we can verify data submission accuracy. **Don't change your mind!** Your online data entry should be a perfect match for your field data. Otherwise, we will change it back to the original field data as recorded in the field.

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.

Sample Shipping Procedures

- Samples have "holding times"** and need to be shipped as soon after collection/freezing/refrigerating 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 on Monday, Tuesday, or Wednesday** to ensure they reach the laboratory before the weekend.
- Beware of Holidays!** Remember that Memorial Day, 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.

- **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.
- **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.)

- Place the samples and the 1L ice pack bottle in the cooler. If there is extra space, use some bubble wrap or

other non-paper packing material to prevent the bottles from shifting during transit. Place the top on the cooler. (Photo shows a deep lake with a sampling round that includes the maximum number of bottles.)

- Staple the CSLAP Sampling Record Form and the CSLAP Field Observation Form together. Do not staple the Chain of Custody Form to them. That will be held at the lab while the rest will be picked up for use by NYS-FOLA and DEC. Place all of the paperwork (3 forms) on top of the closed cooler. **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. This cuts down costs.
- **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. We'll let you know.

Please! Don't send clams, dead frozen animals (fish, salamanders, etc.), snails, or bryozoa. Send us pictures. You can email the photos to Nancy Mueller at fo-la@nysfola.org.

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! The NYS DEC contract is no longer with United Parcel Service (UPS), and they will not be valid! 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.

Transport the labeled box to the nearest FedEx shipping facility or to a pre-arranged business location that has **daily** FedEx pickup. It is critical to know the time that pick-up occurs at that business. Samples should not sit at a facility overnight. FedEx will not pick up the cooler at your residence without charging a surcharge for which we cannot reimburse you.

Some of you who live in the Central NY area have made arrangements to deliver samples directly to the laboratory. Please use the entrance at the back of the building.

If your cooler does not come back within a week, we can track it for you. Please call or email Nancy Mueller at fo-la@nysfola.org or (315)677-9987.

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.

Assistance During the Season - For all CSLAP related questions during the season, please call or Nancy Mueller at NYSFOLA. Please **do not call Upstate Freshwater Institute (UFI)**. Nancy will coordinate with DEC and UFI to resolve any problems.

Nancy Mueller: nysfolanancy@verizon.net (315)677-9987

Appendix A – Checklists

ON-LAKE SAMPLING EQUIPMENT CHECKLIST

Equipment to take on the boat

- _____ 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

- _____ 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!)

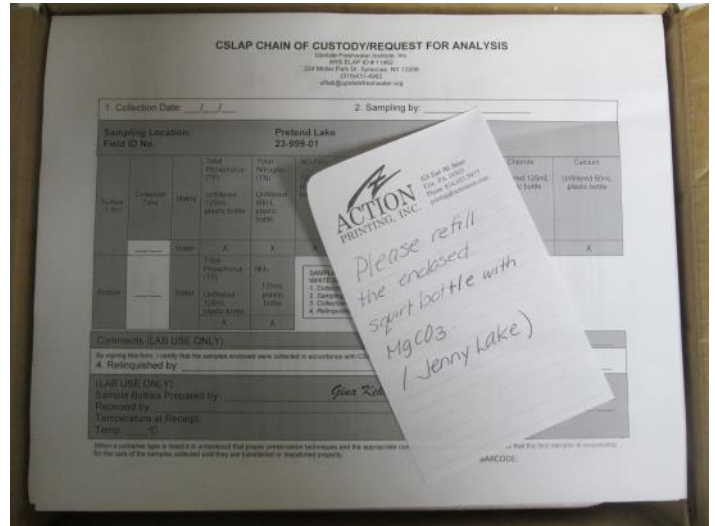
Paperwork

- _____ 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

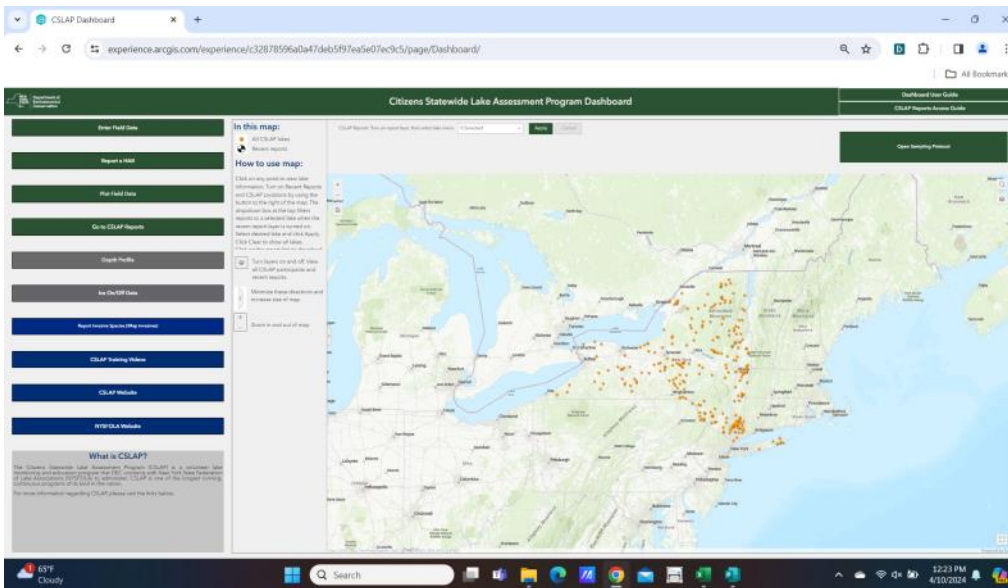
- _____ large styrofoam shipping boxes with lids and cardboard mailers- to send samples to UFI
- _____ pre-paid shipping labels (FedEx only) addressed to Upstate Freshwater Institute
- _____ filled and frozen 1L bottle to be used as an ice pack
- _____ aluminum foil
- _____ bubble wrap or other non-paper 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.

Don't change your mind about something you recorded on the lake! Your hardcopy will be compared to the electronic entry. They should match exactly. If they don't, you'll be hearing from us.

3. Please **report all Harmful Algal Blooms** using the second green button. This will take you to the NY-HAB 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**. The 2022 and 2023 reports have links that allow you to download all of the data available for your lake.
6. The first gray button can be used to **plot depth profiles** (temperature/dissolved oxygen if you are collecting that information).
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.

