

CHAMP Survey Guidance

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Recommended materials

- Aquatic species rake
- Phone or other device - for filling in your survey and taking photos
- Plastic gallon freezer bags – for collecting a QA Sample and/or potential Watchlist AIS specimens
- Frisbee or white bin – for photographing specimens
- Identification resources

Optional materials

- Boat, paddle(s), and PFD (if surveying from a boat)
- Printed survey data sheets
- Cooler for storing samples
- Loupe
- View scope
- Sunscreen, polarized sunglasses, other sun protection measures
- Pocket knife

Choosing a CHAMP Site

You can choose your own survey site or work with LCC to find a site to survey near you.

CHAMP prioritizes:

- high-traffic, public-access sites such as boat launches, marinas, and beaches
- wetlands and river/stream outlets
- sites at the southern and northern terminuses of the lake.

If possible, we encourage volunteers to survey multiple sites throughout the season.

Survey areas should be less than 0.25 miles long along the shoreline; however, every site is different so report the start and end points of the area that works best for you to survey.

The start and endpoints in the survey refer to the length of shoreline you surveyed within.

- **If surveying from the *shore***, the survey should extend roughly **25 feet from the shore into the water** (the length of the rope on the provided AIS rake). If you survey from a dock, part of your survey will run perpendicular into the water – note this in the Survey Area Description line of your survey sheet.
- **If surveying from a *boat***, the survey should extend to the **end of the littoral zone** (where plant growth is inhibited by a lack of sunlight reaching through deeper water and plants are no longer visible underwater). This is a subjective parameter and should be applied as is reasonable. Many bays in Lake Champlain are shallow enough for plants to grow for hundreds of meters past the shoreline. In these cases, survey what is reasonable to cover in 10 rake tosses and report an estimated distance from shore in the survey data sheet. Littoral zone distance from shore varies throughout Lake Champlain—if your site is shallow for a long distance, keep the distance from shore within approximately 1,000 feet. The distance from shore you survey will vary depending on site.
Please estimate the distance from shore you surveyed out to and record it in the Survey Area Description.

Tips on rake tosses

- Wrap the end of the rope around your non-dominant hand and firmly grasp it.
- With your dominant hand, toss the rake the length of the 25-foot rope or as far as you can throw it within that range while still holding the other end of the rope. Let the rake sink to the lakebed.
- Pull the rake back toward you at a slow to moderate consistent pace, allowing the rake to collect biomass as it is pulled.
- When you've pulled the rake back to you, use the white frisbee or bin provided with your CHAMP Toolkit with some water to examine individually what you collect from each rake toss. *Be thorough—small clams and mussels can attach to plants.*

Tips on photographing specimens

At least one clear photo of each reported AIS is required for each CHAMP survey. The photo should be taken with the specimen on a **white background floating in water**—you can use the white frisbee or bin provided in your CHAMP Toolkit. The white background makes it easier to see specimen features, and floating the specimen in water allows plants with fine or feathery leaves to flare out, making them easier to see. If you take just one photo of each reported AIS, make sure they follow these guidelines. It is encouraged to take multiple photos of each reported AIS—feel free to also submit photos of the specimen at different angles, as well as photos of the population in the water as it looks at your site.

Quality Assurance Sample Collection

For at least one of your surveys over the course of the season, you must collect a Quality Assurance (QA) Sample for review by LCC and LCBP personnel. To do this:

1. Label a plastic, sealable, gallon-sized freezer bag (provided by LCC) using a permanent marker with full name, the date, the name of the survey site, and “QA SAMPLE”.
2. During the survey, bag the entire biomass (or what fits in the bag) of a single rake toss that is representative of the AIS reported in the survey (if Eurasian watermilfoil and zebra mussels are reported in the survey, the rake toss used for the QA Sample should contain both).
3. Seal the bag and store the QA Sample in a cooler or refrigerator until sample exchange.
4. Coordinate QA Sample exchange, options including:
 - a. Dropping off or mailing to LCC’s office;
 - b. Dropping off with a LCBP Boat Launch Steward, who will deliver the sample to LCBP Project Officer;
 - c. Coordinating a pickup time and location with LCC personnel.

CHAMP Survey Directions *from shore*

1. Fill in the Background section on Survey123 or on your survey data sheet.
2. At the starting point, do the first rake toss.
3. Do another eight rake tosses spread out as evenly as possible over the survey area. Using the white bin or frisbee provided in your CHAMP Toolkit, photograph at least one example of each AIS you report. If you're filling in the Survey123 form from your device in the field, you can take and upload photos for each AIS in the form.
 - Make sure to also observe the water from shore between your rake tosses and include AIS you find from these visual observations. Pay attention to AIS density and distribution, as you will include this information in your species inventory and survey notes. You can take notes in the *Survey Notes* section as you go.
4. The tenth and final rake toss should be done at the endpoint of the survey area. Fill in the Target and Watchlist AIS Survey sections on Survey123 or on your survey data sheet. Check to make sure you have at least one representative photo for each reported AIS.
5. Fill in the Quality Assurance (QA) Sample section on Survey123 or your survey data sheet. You should collect and submit at least one QA Sample over the course of the season.
6. Still standing at the end point, record your Survey End Point and Survey End Time in the Background section on Survey123 or your survey data sheet. Add in any relevant survey notes.
7. Review your survey to ensure completion and accuracy. You can either submit the survey directly from the field (if you have cell service) or go back to the survey to submit it when you have cell service. If you are filling in a paper survey data sheet, transcribe your data from the sheet into Survey123 from your browser. Make sure the data you enter when transcribing reflects what is on your data sheet.

CHAMP Survey Directions *from a boat*

1. Fill in the Background section on Survey123 or on your survey data sheet.
2. With PFD and other safety measures, enter the water. Starting as close to where you marked your starting point within boat draft limitations, take your first rake toss.
3. After your first toss, meander from the shallows to the end of the littoral zone (generally a point where the lake bottom is no longer visible). Navigate in a snake-formation back and forth from shallower to deeper water. Intersperse another eight rake tosses as you go. Try to evenly space out rake tosses within the survey area—that means some tosses close to shore, some closer to the edge of the littoral zone, and plenty in-between as you paddle between the start and end points.
 - Make sure to also observe the water from shore between your rake tosses and include AIS you find from these visual observations. Pay attention to AIS density and distribution, as you will include this information in your species inventory and survey notes. You can take notes as you go.
4. The tenth and final rake toss should be done at the endpoint of the survey area. Fill in the Target and Watchlist AIS Survey sections with an inventory and distribution for each species on Survey123 or on your survey data sheet. If you do not observe any Watchlist AIS, you can leave that part blank. Check to make sure you have at least one representative photo for each reported AIS.
5. Fill in the Quality Assurance (QA) Sample section on Survey123 or your survey data sheet. You should collect and submit at least one QA Sample over the course of the season.
6. Still standing at the end point, record your Survey End Point and Survey End Time in the Background section on Survey123 or your survey data sheet. Add in any relevant survey notes.
7. Review your survey to ensure completion and accuracy. You can either submit the survey directly from the field (if you have cell service) or go back to the survey to submit it when you have cell service. If you are filling in a paper survey data sheet, transcribe your data from the sheet into Survey123 from your browser. Make sure the data you enter when transcribing reflects what is on your data sheet.

Submitting Data with Survey123

CHAMP Surveys are collected through ArcGIS Survey123, which is a software for data collection and analysis created by ESRI. You can fill in your CHAMP Survey on Survey123 directly onto your smart phone or tablet while in the field (recommended) or fill in a paper data form and transcribe your data onto Survey123 on a desktop. There is a Survey123 app for [Androids](#) and for [iOS](#); however, you do not need an account or the app to fill in your survey—you can use your device's or your desktop's browser.



Scan for the CHAMP Survey Form on Survey123

<https://arcg.is/0n4H8H0>

If you have any technical issues using Survey123 – contact Eileen at eileenf@lakechamplaincommittee.org and transcribe your survey data onto LCC's webform: <https://www.lakechamplaincommittee.org/get-involved/volunteers/ais-work/champ-survey-data-submission-form>

1. Navigate to the **CHAMP Survey Form**: <https://arcg.is/0n4H8H0>
2. Unless you have the Survey123 app, select **Open in browser**



3. Background section

- a) Fill in **Surveyor Name(s)**; an **Email Address** to contact if follow-up is needed, and surveyor **Affiliation**.

Note that fields marked with a **red asterisk*** are required – you will not be able to submit the survey without filling in that information.

LCC Champlain Aquatic Invasive Monitoring Program (CHAMP)...

Contact Eileen at eileen@lakechamplaincommittee.org / (802) 658-1461 with any questions about CHAMP or your survey.

Background

Surveyor Name*
Please list the first and last names of all surveyors.
Jane Doe, John Smith

Email Address*
email@email.com

Affiliation*
If you attended an in-person training session with the Lake Champlain Committee, please select "LCC Volunteer."

LCC Volunteer
 LCBP Boat Launch Steward
 Other

- b) Fill in the **Survey Date** by selecting the box, navigating to the month of your survey using the arrows in the top-right of the calendar, and selecting the correct date.

Survey Date*

7/1/2026

July 2026

| Su | Mo | Tu | We | Th | Fr | Sa |
|----|----|----|----|----|----|----|
| 28 | 29 | 30 | 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 |

- c) Fill in the **Survey Start Time** by selecting the box and scrolling to the time in which you

Survey Start Time*

12:12 PM

12 : 12 PM

began your CHAMP survey using the arrows on the pop-up box. Make sure you have the correct AM or PM selection.

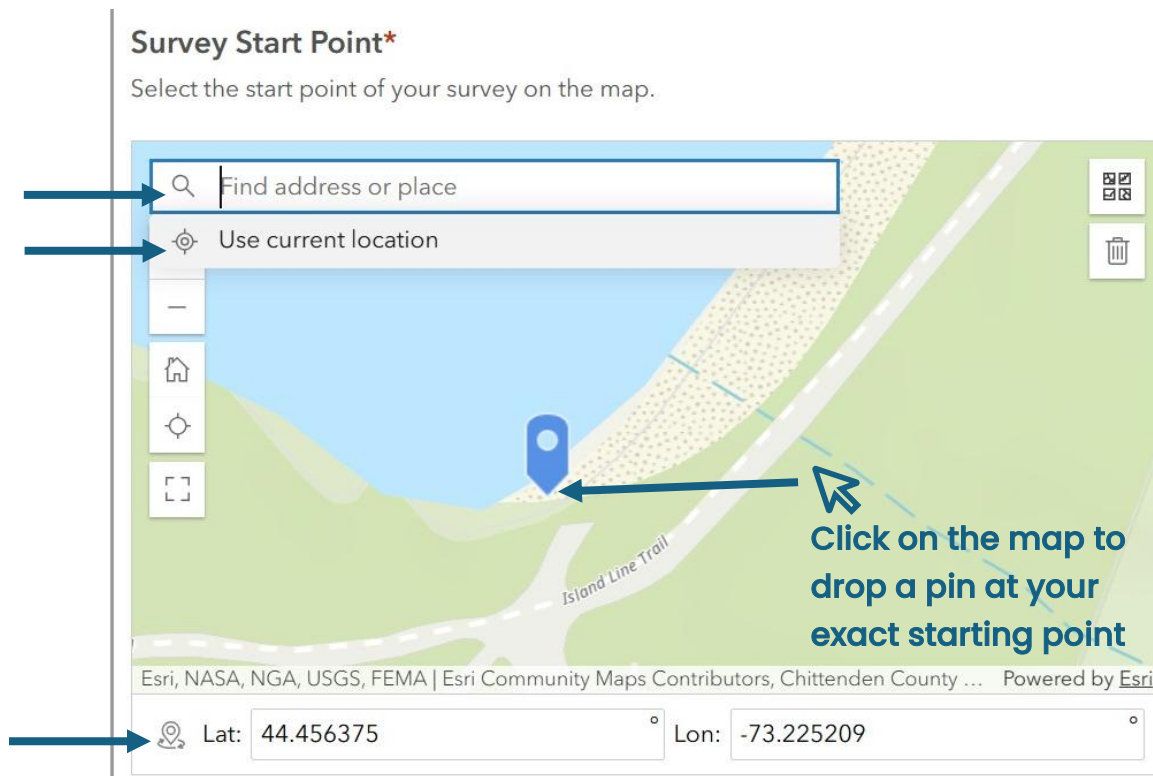
d) Enter your **Site Name** and **Town/City of Survey Site**

Site Name*

Town/City of Survey Site*

e) Survey start and end points show the area within which you surveyed. On the map, select your **Survey Start Point** using one of these methods:

- enter the address of your site in *Find address or place*,
- select *Use current location* if GPS services are on and you're at the start point,
- enter the GPS coordinates in the *Lat* and *Lon* boxes,
- zooming in and scrolling on the map to navigate to your site.



Click on the map and move the blue pin to your **exact** start point as needed. If filling in the Survey123 form from your device in the field – leave **Survey End Point** for the end.

f) Enter the **Survey Area Description**.

Survey sites should be within the *littoral zone*, which is defined by where sunlight reaches the lake bottom sediments and enables aquatic plants to grow. If surveying from a boat, Include an estimate of how far out your survey extended from land.

Survey Area Description*

Indicate the edges of your survey area by describing a landmark or providing an address. Aim to choose permanent and easily identifiable edges to your survey area, so they are easy to find the next time you survey, and so the reviewer can locate your survey area. Include an estimate of how far out your survey extended from land.

Example: facing land, the left (west) boundary is where West Shore Road intersects with Hathaway Point Road. The right (east) boundary is where land slightly juts out into the lake, about 100 feet beyond the end of the right (east-pointing) dock. I surveyed the entire area from east to west; my survey extended approximately 400 feet from shore.

Starting from the southern end of Blanchard Beach near the stairs from the bike path. Ten rake tosses from shore with a visual inspection of the water in-between. Ended at the northern end of the beach by the Burlington Earth Clock where the sand ends.

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g) Select your **Survey Method**.

h) Select the **Relative Water Level** and **Relative Water Clarity**. These are relative to normal conditions at your site given the time of year. If you do not know, give your best estimate.

i) Select the **Light Conditions** that best describe the weather during your survey and the **Surface Conditions** that best describes wave action in the water.

Survey Method*

Rake tosses from shore

Rake tosses from boat

Relative Water Level

High

Normal

Low

Relative Water Clarity

Good

Fair

Poor

Light Conditions

Clear

Partly Cloudy

Overcast

Surface Conditions

Calm

Rolling

White Caps

4. Target AIS – species already present in Lake Champlain

a. Indicate if you have detected any of the Target AIS in your survey. If you're filling in the Survey123 form from your device in the field – fill this in after you cover your survey area. If you select *No*, the inventory table and photo upload sections will not appear.

b. If you select *Yes*, select the **distribution** (Not present, Trace, Sparse, Moderate, or Dense) that describes each of the eight Target AIS in the CHAMP survey on the inventory table.

- Not Present – zero individuals detected.
- Trace – one to two individuals detected.
- Sparse – under ten individuals; a small patch of zebra mussels.
- Moderate – over ten individuals; a medium sized or a few small patches of mussels.
- Dense – well over twenty or an uncountable population; a large or several small and medium sized patches of mussels.

If you detect golden clam in your survey, collect a sample and contact Eileen at LCC with details.

Target AIS - species already present in Lake Champlain

Did you detect any Target AIS?

The CHAMP Target AIS are species that are known to exist to varying extents in Lake Champlain. They include:

- Brittle naiad (*Najas minor*)
- Curly-leaf pondweed (*Potamogeton crispus*)
- Eurasian watermilfoil (*Myriophyllum spicatum*)
- European frogbit (*Hydrocharis morsus-ranae*)
- Golden clam (*Corbicula fluminea*)
- Water chestnut (*Trapa natans*)
- Variable-leaf watermilfoil (*Myriophyllum heterophyllum*)
- Zebra mussel (*Dreissena polymorpha*)

If you are unsure if something you observed is a Target AIS, please still report it below with photos and LCC will follow-up to confirm species identification.

Yes

No

Target AIS Inventory

Characterize the distribution of each Target AIS:

- Not present - zero individuals.
- Trace - one to two individuals.
- Sparse - under ten individuals; a small patch of zebra mussels.
- Moderate - over ten individuals; a medium sized or a few small patches of zebra mussels.
- Dense - over twenty or an uncountable population; a large or several small and medium sized patches of zebra mussels.

| | Not Present | Trace | Sparse | Moderate | Dense |
|-----------------------------|----------------------------------|-----------------------|----------------------------------|-----------------------|----------------------------------|
| Brittle Naiad* | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Curly-leaf Pondweed* | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Eurasian Watermilfoil* | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| European Frogbit* | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Golden Clam* | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Variable-leaf Watermilfoil* | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Water Chestnut* | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Zebra Mussel* | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |

c. Target AIS

Photos

For each AIS reported, attach at least one photo showing an example of the AIS from your survey (see p. 28 for tips on photographing specimens).

Select *Drop image here* or *select image* to upload a photo from your device or desktop.

Select the three horizontal dots to the right of an uploaded photo to rename, download, or delete the photo. If filling in the Survey123 form in the field, you can take and attach photos without exiting the form by selecting the camera icon.

You can attach multiple photos for each reported species. We also welcome photos of your site and photos of the surveying process, which you can attach under the *Additional Photos* section.

Target AIS Photos

Please attach at least one photo of each reported Target AIS to its corresponding section. Float plants in water with a white backdrop to aid in identification. Attach photos of the Target AIS population at the site or other informative photos to "Additional Photos" if applicable.

Eurasian Watermilfoil*



2026-0701_JS_OakledgeParkBlanchardBeach_Eurasian... .jpg 7.2MB ...

2 Drop image here or select image (minimum number of files required: 1)



Zebra Mussel*



2026-0701_JS_OakledgeParkBlanchardBeach_ZebraMu... .jpg 6.2MB ...



2026-0701_JS_OakledgeParkBlanchardBeach_ZebraM... .jpg 71.4KB ...

3 Drop image here or select image (minimum number of files required: 1)



Additional Photos



2026-0701_JS_OakledgeParkBlanchardBeach_Surveyi... .jpg 555.8KB ...

2 Drop image here or select image (minimum number of files required: 1)



5. Watchlist AIS- species not yet detected in Lake Champlain

a. Indicate if you have detected any of the Watchlist AIS in your survey.

If you select *No*, the inventory table and photo upload sections will not appear; If you select *Yes*, they will appear.

b. If you **do** detect a potential Watchlist AIS:

- Fill in the inventory table and the photo upload sections following the same guidance provided for Target AIS in Step 4 (p. 35 & 36).
- **Collect a sample of the potential Watchlist AIS:** carefully wrap one or a few individuals in a wet rag or paper towel and seal in one of the gallon bags provided in your CHAMP Toolkit.
- Provide details on your observation in the *Watchlist AIS Notes* section and contact LCC to coordinate sample exchange.

Watchlist AIS Notes

Please provide details on your Watchlist AIS observation (approximate number of individuals/size of population, description of the spot along your survey you detected the species, and any other details that would help AIS managers follow-up on the report.) Please also share your availability for passing on the sample you collected to LCC or LCBP personnel.

Three individuals that I suspect to be Hydrilla. Encountered on the second rake toss, about 20 feet north of the Survey Start Point. Four leaves whorled around the stem rather than the three seen on native look-alikes.
All three specimens were collected and bagged. I will contact Eileen to coordinate sample drop-off at LCC office for tomorrow (7/2).

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6. Quality Assurance Sample

- a. Indicate if you collected a QA Sample.
- b. If you select Yes and have a QA Sample ready to submit, indicate your plan for submitting the QA Sample to LCC or LCBP personnel.

7. Survey Notes, End Point and Time, and Form

Submittal

- a. Provide any relevant details about your site, survey conditions, survey process, native species, questions about CHAMP, or any contextual information you see fit to the **CHAMP Survey Notes** section.
- b. Fill in the **Survey End Point** indicating where you finished your survey. The start and end point should show the space between which you surveyed. Fill in the **Survey End Time** last.
- c. Scroll through the entire survey form to check that you've accurately filled in all the sections. Once you've

Did you collect a Quality Assurance Sample?*

For at least one survey over the course of the season, collect a Quality Assurance (QA) Sample for review by LCC and LCBP personnel.

1. Label a plastic, sealable, gallon-sized freezer bag (provided by LCC) using a permanent marker with your full name, the date, the name of the survey site, and "QA SAMPLE". Place a wet paper towel or rag in the bag for storing the sample.
2. During the survey, set aside 1-5 specimens of each unique plant and mollusk collected in your rake tosses and put them in your QA Sample bag. Record the AIS in your survey form and attach photos.
3. Once the bag contains a representative sample of the plants and mollusks at your site, seal the bag and store the QA Sample in a cooler or refrigerator until sample exchange.
4. Coordinate QA Sample exchange, options including dropping off or mailing to LCC's office, dropping off with a LCBP Boat Launch Steward, or coordinating a pickup time and location with LCC personnel.

Yes

No - I have already collected and submitted a QA Sample this season.

No - I will collect and submit a QA sample during a different CHAMP survey.

CHAMP Survey Notes

Hundreds of zebra mussel shells washed ashore. Sparse aquatic plant populations including Eurasian watermilfoil, as well as native species (clasping-leaf pondweed).

Survey End Point*

Select the end point of your survey on the map. The end point should show the outer limit of your survey area where you finished surveying.

Find address or place

Harborwatch Rd

Blanchard Beach

Burlington Earth Clock

141 ft

Esri, NASA, NGA, USGS, FEMA | Esri Community Maps Contributors, Chittenden County ... Powered by Esri

Lat: 44.457897 Lon: -73.223855

Survey End Time*

Submit

confirmed your survey is complete and accurate, select **Submit**. You should get a confirmation pop-up that your survey was successfully submitted.

LCC Champlain Aquatic Invasive Monitoring Program (CHAMP)...



Your CHAMP survey was submitted successfully.

Please contact Eileen at eileen@lakechamplaincommittee.org / (802) 658-1461
with any questions.

Thank you!