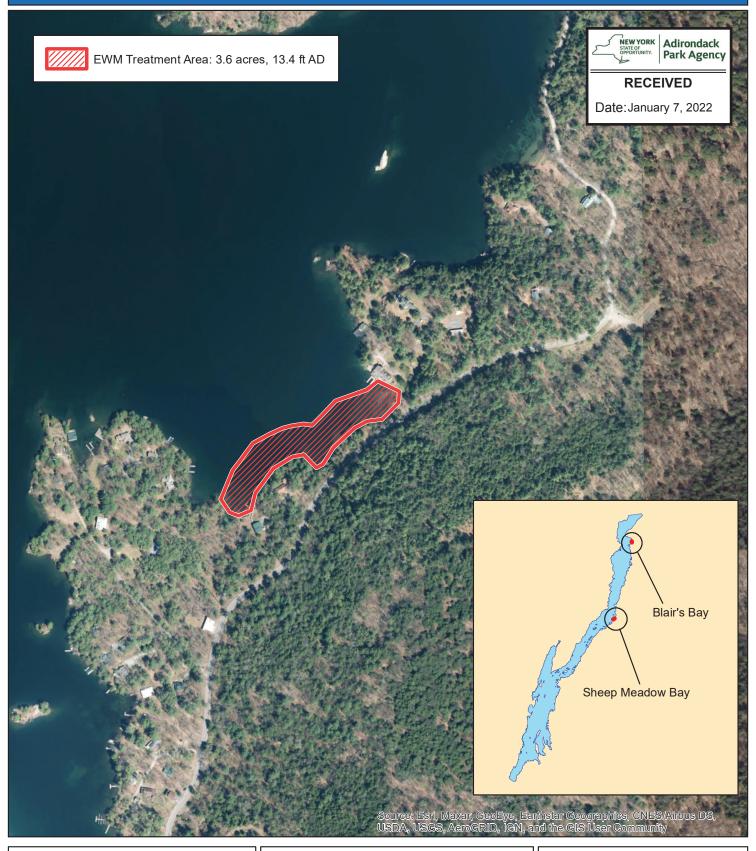
# SHEEP MEADOW BAY 2022 EURASIAN WATERMILFOIL CONTROL PLAN





Sheep Meadow Bay Lake George Warren County, New York 43.651930°, -73.497042°



# SHEEP MEADOW BAY LAKE GEORGE





Date: 11/18/2021 File: George\_SheepMeadow\_TA\_2022

Prepared by: KM Office: Washington, NJ



#### Sheep Meadow Bay Sampling Plan

#### Sample sites

The location and coordinates of the sample sites are shown on the attached map.

#### **Collection schedule**

After application, samples will be collected at each site on the following schedule:

1-3 hours

10-12 hours

24 hours

3 days

7 days

Samples at each site will continue to be collected every 7-14 days until lab analysis confirms that the ProcellaCOR EC concentration is below 1 ppb in all of the samples collected during a single sampling event. If results from all samples collected 3 days after application are below 1ppb, sampling will not be conducted 7 days after application.

Should samples SM3-SM6 return results >1ppb, additional sample sites will be added ~300 ft further into the lake from the associated site at the next sampling date.

#### Sampling protocol

The following manufacturer sampling protocol will be followed: For ProcellaCOR FasTEST use the clear glass vial to collect the sample. Submerge the bottle upside down until elbow deep. Cap the clear glass vial underwater. The contents of the clear vial should be transferred to the amber glass vial until completely filled to preserve the sample. Place the amber vial in bubble wrap sleeve to protect the glass vial during shipping, and overnight all samples to SePRO's SRTC lab in Whitakers, NC. If samples are collected on a Friday, store samples in a refrigerated area, and ship samples on Monday.

#### **Cross-contamination prevention**

Each sample collected contains two bottles - one unpreserved bottle for collection and one preserved bottle for transfer and shipping. Once used, collection bottles are moved to a "spent bottle" container and not reused for other sample sites.

Sample site SM4 is only reachable by boat. There is no method to prevent contamination of the boat hull when moving to the site, and given the low herbicide concentration range, the possibility of boat contamination leading to a sample result of >1ppb can't be dismissed. SM1 - SM3 & SM5-SM6 samples will be collected from docks on the shoreline to avoid possible contamination by boat. Landowner authorization will be obtained for those sites where samples will be collected from private docks.

Competitively Sensitive & Proprietary Materials – The information contained herein is the intellectual property of SŌLitude Lake Management. Recipient may not disclose to any outside party any proprietary information, processes, or pricing contained in this document or any of its attachments without the prior written consent of SŌLitude Lake Management. This document is provided to the recipient in good faith and it shall be the responsibility of the recipient to keep the information contained herein confidential.

# SHEEP MEADOW BAY 2022 HERBICIDE SAMPLING PLAN MAP



EWM Treatment Area: 3.6 acres, 13.4 ft AD

Herbicide Dilution Zone: 40 acres

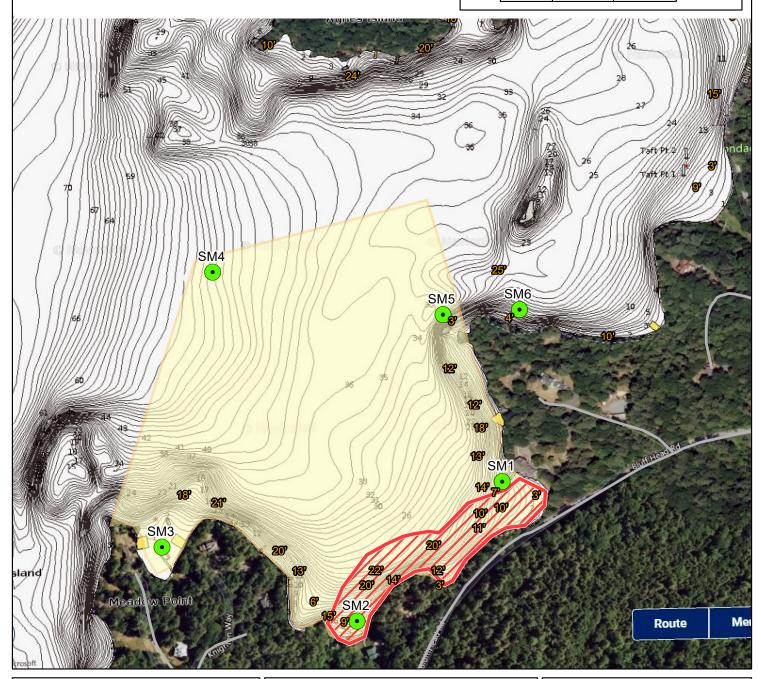
Water depth in feet at point (source: WCSWCD)

14 Bathymetry contour in feet (source: Navionics)

•

Herbicide Residue Sampling Stations

Station	Latitude	Longitude
SM1	43.65235°	-73.49663°
SM2	43.65088°	-73.49881°
SM3	43.65171°	-73.50167°
SM4	43.65465°	-73.50085°
SM5	43.65415°	-73.49746°
SM6	43.654191°	-73.496331°



#### Sheep Meadow Bay Lake George Warren County, New York 43.651930°, -73.497042°



# SHEEP MEADOW BAY LAKE GEORGE

0 260 520 Feet



Date: 2/2/2022
File: George\_SM-HerbSmplPlan\_2022
Prepared by: KM
Office: Washington, NJ



#### AQV (11/2016)

# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (DEC)

DIVISION OF MATERIALS MANAGEMENT - BUREAU OF PESTICIDES MANAGEMENT

APPLICATION FOR A PERMIT TO USE A PESTICIDE
FOR THE CONTROL OF AN AQUATIC PEST - TITLE 6 NYCRR PART 327/328/329
<a href="http://www.dec.ny.gov/chemical/8530.html">http://www.dec.ny.gov/chemical/8530.html</a>

SUBMIT THE APPLICATION 3 MONTHS BEFORE THE PROPOSED TREATMENT

FOR DEC USE: Application Number
Water Body Name
Date Received
Fee Receipt Number
Type of Application
New Previous #
NYCDEP/APA/Other

A CHECK OF \$100 MUST ACCOMP	ANY THE PERMI			RUCTIONS
	I. PERMIT AP			
Name of Permit Applicant/Association/Agency: Lake	George Park	Commission	)	
Name of Authorized Person signing (if on behalf of an Association/Orga			utive Dire	ector
Mailing Address 75 Fort George Road, PO Box 749				
City: Lake George		State: NY		Zip Code: 12845
Telephone Number: 518-668-9347	Email: dave@lgpc.	state.ny.us		Website: www.lgpc.ny.gov
The Permit Applicant is a (check	appropriate):			
Riparian Owner:	Lessee:		Assoc	iation of Riparian Owners:
Board of Directors resolution Other: Governmental agency charge (please explain)	in support of	the propositing Lake Ge	<b>ed pestio</b> orge and	
Name of Pesticide Business/Agency performing application (if applicable	у	ike Managen		ATION
Business/ Agency Registration Number: 17886	Telephone Number:	908-310-877	5	Contact: Glenn Sullivan
Business Mailing Address: 7256 Rt. 9W	•			
City: Catskill		State: NY		Zip Code: 12414
Email: gsullivan@solitudelake.com		Website: www.solitu	delakem	anagement.com
Name of Certified Applicator(s) performing application: Glenn Sulliva	an		Certified Identified	d Applicator(s) eation Number: C0680740
Mailing Address: (if different than Business Address)				

City:		State:	Z	ip Cod	le:		ephone mber:	
3. PERMIT HISTORY								
Have you previou	sly been issued a						Yes	No XXXX
If Yes, provide the	e prior permit nun	nber(s):						1
Is the application	Is the application identical to one covered by a previous permit?  Yes  No							No
If Yes, provide the	e prior permit nun	nber:					l-	The state of the s
Describe any other the water body? ( The Lake George watermilfoil control	attach separate o Park Commissio	documentation conducts a	on) an annua	al hand	d/diver assis	ted han		
The short term go area, allowing for expansion. The le effectively be app	What are the goals of the proposed permit application?  The short term goal of these two trial treatments is to eliminate the vast majority of milfoil in the treatment area, allowing for a much more cost-efficient and minimally impacting system to control milfoil growth and expansion. The longer term goal of this pilot effort is to show that this treatment methodology could cost-effectively be applied to other affected areas of Lake George that have shown resistance to traditional milfoil removal methods, while having no impact to public health, recreation or the environment.							
		4. WATE	R BOD	Y INFO	DRMATION			
Name of	n Maaday, Day is	a Laka Caas					lassification	
water body Shee Address or location		Lake Georg	je		(e.g.	Class A	A, Class B):	AA
of water body: At		orth of Hulet	ts Landii	ng, in	the town of E	Dresder	1	
County where			Town v					
water body is loca					located:Dre	sden		
Are fish present?	XXXXXX	No	Are fish				Yes XXXXX	No
If fish are preser	nt, see the Instru	ictions for A	QV Sec	tion #	4.			
Are there any reg proposed treated		r or tidal wetl	ands as	sociat	ed with the		Yes XXXX	No
Do application sit	Do application sites include lands under the control of the DEC?  Yes  No					No		
If Yes, please specify:								
Total water body size in acres: ~28	3,800	Average depth in feet	t: 70		Latitude: 43 Longitude:7			
Water body uses (Check all that apply):								
Swimming XXXXXX	Irrigation XXXXXX	Livestock watering		Pota wate	ble r uses XX	Dome	estic uses XX	Fishing XXXXXX
Other uses (list) Recreational boat	Other uses (list) Recreational boating, scenic boat tours							

## 5. A DETAILED MAP MUST BE INCLUDED WITH THIS APPLICATION

- The exact map scale size and average depths of the water body.
- The outline and average depths of the application site(s), with all streams/treated sites/catch basins clearly identified.
- Inlets and outlets to the water body. (if the applicant can't control the outflow, also include the downstream watershed map information for Attachment D Downstream Modeling)
- Location of known designated bathing sites, livestock watering sites, water intakes, public lands contiguous to the water body, public boat launches and any other features relevant to the application.
- Wetlands contiguous to the water body.

6. WATER BODY APPLICATION INFORMATION (FILL OUT THE APPLICABLE LETTERED SECTION)					
A. Whole or Partial Water Body Application:					
Total number of application sites:	1				
Surface acres of each application site:	3.6				
Total application area in surface acres:	3.6				
Average depth of each application site:	13.4'				
Total number of acre feet:	48.24 acft				
B. Stream Application	for Black Fly o	r Lamprey	Control:		
Miles of streams treated:			Stream flow estimates in cubic feet per second (cfs):		
C. Mosquito Larvacidi	ng Application				
Number of sites Total acreage/sq ft:					
(A COMPL			LICATION INFORMATION UST BE ATTACHED TO THE APPLICATION)		
Pesticide name: ProcellaCOR EC					
Pesticide active ingredient:		florpyrauxifen-benzyl			
% Active Ingredient:		2.7			
Pesticide EPA Registration Number:		67690-80, SLN NY-190001			
Formulation:		liquid			
Application rate: (e.g. gals/acre ft. or gals/surface acre)		4 PDUs/acft (12.68 oz/acft)			
Dosage rate: 7.72 ppb					
(e.g. ppm, ppb)					
Total number of applications:  (including bump/split applications)					
Approximate date(s) of application:  (including bump/split applications)  Between 5/17/22- 6/30/22, depending on permit approvals are the appropriate stage of plant growth					

Amount of pesticide needed per application:	4.77 gallons
Total amount of pesticide needed per calendar year:	4.77 gallons
Target pest: (scientific and common name)	Eurasian watermilfoil, Myriophyllum spicatum
Method of application (e.g. sprayed on surface, bag dragged behind boat):	mixed with water on boat and injected below the water surface
If the proposed application involves an aircraft, indicate FAA Number(s):	n/a

	8. WATER USE RESTRICTIONS			
List all the applicable water quality standard	vater use restrictions as stated on the label/SLN, in 6 NYC s.	RR 327.6, or t	he applicable	
Swimming	none			
Irrigation	restricted until concentration measures <1ppb for greenhouse, nursery, hydro-ponic and agricultural irrigation; <2 ppb for landscape and non-agricultural irrigation			
Livestock watering	restricted until concentration measures <1ppb			
Potable water uses	none, since application rate is below 50 ppb			
Domestic water uses	none, since application rate is below 50 ppb			
Fishing	none			
Other				
	9. OUTFLOW AND DOWNSTREAM MODELING			
Does this water body I	nave an outlet?	Yes XXXX	No	
If yes, can the applications after the a	nt hold the water during and for the required water use oplication?	Yes	No XXXX	
	the applicant proposes to hold the water for the required, and describe how the water will be held.	ed water use i	restrictions, fi	
	the applicant cannot hold the water for the required wa d complete the Downstream Modeling spreadsheet. 10. RIPARIAN OWNER/USER NOTIFICATIONS	ter use restri	ctions, see	
notified in writing of the Sample Riparian Lette	ne riparian owner, or vested riparian users, these riparian of e application and the water use restrictions, and their right r) If there will be outflow of treated waters through lands ow oner, they too must be notified. (See Attachment D - Downs	to object. (See vned by other	Attachment A than the sole	
11. CEF	RTIFICATION OF NOTIFICATION OF RIPARIAN OWNER	S AND USER	S	

The applicant must complete and sign the Certification of Notification of Riparian Owners and Users below. A copy of the notification letter and a list of riparian owners/users to whom the notification letter was sent must accompany this application. Check all appropriate statements:

XXXX All owners of real property abutting the body of water proposed to be treated pursuant to this application, a list of whom is attached to this application, have been notified by letter of the proposed pesticide permit. This list includes property owners abutting the outflow from this body of water, if the water is not to be held in the treated water body for the period of time during which use of water is restricted. Such letters were mailed or personally delivered on 1/7/22. A copy of the letter is attached.

owns any real property abutting the A person(s), not owning abutting reproposed to be treated. All such person be treated is attached. Such letters letter is attached.	perty tax records indicates that no person other than the applicant water body proposed to be treated.  all property, possesses vested legal right to use the water body ersons, and the nature of their right to use of the water proposed to were mailed or personally delivered on// A copy of the copy	to
To my knowledge, no person other water body treated pursuant to this	than the applicant possesses any vested legal right to use the application.	
Name:	If Applicant is not an individual, include the title of signatory:	
Signature:	Date:	
	12. AFFIRMATION:	
issuance of a permit: that the issuance of presented by the applicant/applicator; the improper application of the pesticide, or approvals or releases, or the failure to ollikely to be affected is the sole responsible. I hereby affirm under penalty of perjury the knowledge and belief. False statements in pursuant to Section 210.45 of the Penal I	hat information on this form is true to the best of my made herein are punishable as a Class "A" misdemeanor .aw.	g
Signature of Permit Applicant or Representation	Title Executive Director 1/7/22	
Signature of Certified Applicator:	Title Date: Project Manager 1/6/22	
	13. NOTES	

#### INSTRUCTIONS TO COMPLETE FORM AQV

A permit for the use of a pesticide for the control of an aquatic pest in waters of the State must be obtained in accordance with the rules and regulations of the State of New York in Parts 327, 328 and 329 of Title 6 New York Code of Rules and Regulations (6 NYCRR), adopted pursuant to Article 15, Title 3 of the Environmental Conservation Law (ECL). The following numbered directions correspond to the numbered blocks on the "Application for a Permit to Use a Pesticide for the Control of an Aquatic Pest (AQV)" form. Please read the instructions carefully and complete the application form accordingly.

Completed applications with all requested attachments must be submitted at least 3 months before the proposed pesticide application date to provide the DEC with sufficient time for application review. If all the information is not provided, or if the information is not correct, the application will be incomplete and returned to the applicant for correction. Application review may not begin until a signed, complete, original application has been received by the DEC. Additional copies may be needed as determined by DEC Regional offices.

EXCEPTIONS FROM HAVING TO OBTAIN A PERMIT: A permit shall not be required for the application of a pesticide to a pond of one acre or less in size which has no outlet to surface water. In addition,

Part 327 Aquatic Vegetation Pesticide Permits shall not be required:

- for the use of copper sulfate for the purpose of algae control by a duly constituted water supply agency in its water supply waters; or
- for control of aquatic vegetation in waters one acre or less, having no outlet to other waters, and which
  lie wholly within the boundaries of lands privately owned or leased by the individual(s) making or
  authorizing such treatment.

Part 328 Aquatic Undesirable Fish Pesticide Permits shall not be required:

• for control of fish by the DEC on waters completely enclosed by or bordered by lands owned or leased by the DEC or the State.

Part 329 Aquatic Insect Pesticide Permits shall not be required:

• for the use of pesticides for controlling biting aquatic insects in temporary ponds or ponds not containing fish and which have no outlet to other waters and lie wholly within the boundaries of lands privately owned or leased by the individual(s) making or authorizing such treatment.

NOTE: Waters which are exempt may nevertheless be subject to Article 24/Part 663 Freshwater Wetlands Permit, Article 25/Part 661 Tidal Wetlands Permit, 6 NYCRR Part 190 Temporary Revocable Permit, or State Pollutant Discharge Elimination System (SPDES) General Permit for Point Source Discharges to Surface Waters of New York State from Pesticide Applications requirements. It is the responsibility of the applicant to determine if any other permit is needed prior to making a pesticide application.

The applicant must notify the Regional DEC Pest Management staff 7-14 days prior to the actual pesticide application to the water body. For permits requiring water use restrictions, the Regional Pest Management staff must also be notified within 24 hours after the application (or the first business day following the application for Friday, weekend or holiday applications). In addition, the applicant must allow the Regional Pest Management staff access to the water body and the ability to observe the pesticide application. The applicant must also give notice of the proposed date to the appropriate Regional, State or County Department of Health 7-14 days prior to the application, where the water body or outflow waters serve as water supplies.

#### 1. PERMIT APPLICANT INFORMATION

The name of the permit applicant proposing the application should be provided. If the application is being prepared for an organization, association or an agency, the applicant should be the organization/agency. If the entity is incorporated, please use the name registered with the NYS Division of Corporations. If the applicant is not an individual, please provide the name of the person authorized to submit the application for the organization. NOTE: The individuals signing the application must be the individuals identified on the application form. The application must be signed by an authorized individual, such as a riparian owner, an authorized representative of a lake association, or an authorized agency employee.

Check the appropriate block to identify whether the applicant is a riparian owner or lessee, or an organization, agency, or other entity. If the applicant is an Association of Riparian Owners/Lessees, a copy of the Board of Directors resolution in support of the proposed application must be attached.

A check in the amount of \$100 per permit application, made payable to "Commissioner, NYSDEC", must accompany the permit application.

#### 2. PESTICIDE APPLICATOR INFORMATION

Please provide the certified applicator information as identified on the application. Attach a list of certified applicators, if necessary. If applicable, provide the name and address, registration number and website/e-mail information of the Pesticide Business/Agency conducting the pesticide application.

#### 3. PERMIT HISTORY

Put in your prior permit numbers from the previous year, if applicable.

List or attach separate documentation for any other permitted projects, alternative pest management projects, or relevant studies concerning the water body.

Identify the purpose of the application (e.g. a rapid response to new invasive species, management of nuisance native species, part of a long term management plan, etc.)

The DEC encourages and promotes the development of Lake Management Plans which incorporate information on addressing the aquatic pest problem by utilizing integrated aquatic pest management practices such as control of nutrient and sediment runoff, use of benthic vegetation barriers, mechanical vegetation harvesting, and herbivorous fish. Information on management plan development and integrated pest management is available from your local DEC Regional Office, or refer to "A Primer on Aquatic Plant Management in New York State" on our website at: https://www.dec.nv.gov/docs/water\_pdf/ch6apr05.pdf

#### 4. WATER BODY INFORMATION

If fish are present, list the related application requirements specified on the label and explain how you will comply with these requirements. Place the information in the Notes Section # 13 of the permit application or attach documentation. Examples of these requirements, typically found in the Environmental Hazards portion

of the pesticide label, include but are not limited to: determining water hardness, dissolved oxygen, pH, and/or alkalinity; and prohibitions when Koi or sensitive fish species are present.

Except in the Adirondack Park, where the Adirondack Park Agency (APA) administers the Freshwater Wetlands Act, under the ECL Article 24 Freshwater Wetlands Act and the ECL Article 25 Tidal Wetlands Act, The Division of Environmental Permits in DEC regulates activities, including pesticide applications, in freshwater and tidal wetlands, and in their adjacent areas. Contact the DEC Regional DEP staff or the APA if you have any questions about obtaining a wetlands permit.

The Environmental Resource Mapper, found on our website at: <a href="http://www.dec.ny.gov/animals/38801.html">http://www.dec.ny.gov/animals/38801.html</a>, is an interactive mapping application that can be used to identify some of New York State's natural resources and environmental features that are state protected, or of conservation concern. Currently included on the maps are locations of:

- Freshwater wetlands regulated by the State of New York (outside the Adirondack Park). Contact the Adirondack Park Agency for wetlands within the Adirondack Park.
- New York's streams, rivers, lakes, and ponds;
- Water quality classifications.
- Animals and plants that are rare in New York, including those listed as Endangered or Threatened (generalized locations).
- Significant natural communities, such as rare or high-quality forests, wetlands, and other habitat types.

Indicate if any of the application sites include lands under the control of the DEC. Such applications of pesticides require authorization from the DEC Division having jurisdiction. The permit will not be valid for such waters unless signed by the Director of the Division (or designee) in the area provided for this authorization.

If the water can't be held at the water body outlet, identify the water body information, including the water body uses and wetlands, along the outlet stream, for the Attachment D - Downstream Modeling.

#### 5. DETAILED MAP

A copy of relevant portion of the 7 ½' U.S.G.S. quadrangle map containing the water body or stream(s) proposed for application must be attached. In addition, an expanded scale drawing showing in detail, including but not limited to, the following features of the application sites (if necessary, more than one such drawing should be submitted).

- A detailed map of the water body, with outlines of the weed beds, and outlines of site(s) proposed for application, or a diagram of all streams/surface acreage/catch basins proposed to be treated. All sites to be treated must be clearly identified. Be sure to include map scale.
- Length of shoreline in proposed application site(s) in feet; or length of target stream(s) proposed for application in feet.
- Width of proposed application site(s) outward from the shore (in feet).
- Depth soundings in site(s) proposed for application and their location(s). Information must be sufficient to determine correct pesticide application dosage if calculation is based upon the volume of water to be treated.
- Inlet and outlet streams, and location of any outflow control devices.
- Names and locations of known public and private water supply intakes, livestock watering sites, bathing sites, public boat launches or public lands in vicinity of the application sites and on the outlet waters.
- Any NYSDEC regulated freshwater or tidal wetland.

Detailed information on the dates and dosage rates of specific application sites may need to be illustrated on the map for the Attachment D - Downstream Modeling. If the water can't be held at the water body outlet,

include a map, including the water quality classifications, along the outlet stream for the Attachment D - Downstream Modeling.

#### 6. WATER BODY APPLICATION INFORMATION

For this section, choose the type of application and provide totals for the entire proposed permitted project. More detailed information on individual application dates and application sites may be required on the map or for the next application section.

- A. Whole or Partial Water Body Application Separate the application sites when you are treating ½ the water body at a time even if you propose to treat the entire water body. Provide information for each application site, application date or dosage rate. Enter the totals for the entire proposed permitted project on the form but use the map or separate documentation to identify individual application sites, if necessary.

  B. Stream Application for Black Fly or Lamprey Control Identify total miles of streams proposed for application. Give the stream flow estimates in cubic feet per second (cfs).
- **C. Mosquito Larvaciding -** Provide the total number of application sites or catch basins/sewers and the total acreage/sq ft, proposed for application.

#### 7. PESTICIDE APPLICATION INFORMATION

Provide the information for each separate pesticide product proposed for application. Only one pesticide product may be requested on each permit application. Each individual application site, date of application, including split and bump applications must be accounted for. Use separate documentation or the map if necessary.

Specify the proposed date(s) of application. These must be the dates contained in the notification notice sent to all riparian owners. If the proposed dates change for any reason, the riparian owner(s) must be re-notified of the date change.

#### 8. WATER USE RESTRICTIONS

List all the water use restrictions as stated on the pesticide product label or accompanying Special Local Need (SLN) labeling.

Consult the DEC regulations in 6 NYCRR 327.6 for specific restrictions on Copper Sulfate, Diquat and 2,4,-D on our website at: <a href="http://www.dec.ny.gov/regs/2491.html">http://www.dec.ny.gov/regs/2491.html</a>.

Information on the DEC Water Quality Standards in 6 NYCRR 703 may be found on our website at: <a href="http://www.dec.ny.gov/chemical/23853.html">http://www.dec.ny.gov/chemical/23853.html</a>

The New York State Department of Health (DOH) maximum contaminant levels (MCL) tables for public water supplies, including the 50 ppb unspecified organic contaminant (UOC) standard, may be found in the DOH regulations in Title 10, Section 5-1.52.

#### 9. OUTFLOW AND DOWNSTREAM MODELING

Indicate whether the waterbody has an outlet, and if "yes" show the location of the outlet on the detailed map of the waterbody. If the waterbody has an outlet, indicate whether the water level in the waterbody can be controlled during and for the required period of time after the application. Some pesticide products contain water use restrictions as either label requirements or in regulation. Outflow from the treated waterbody must not be permitted if the pesticide label states that there must be little or no outflow from the waterbody.

If the water level is going to be held for the required water use restrictions, describe how the water will be held and if necessary, complete a Drawdown Study. The study should include calculations and drawings of the outlet, dam, etc. and clearly indicate how the water will be held. See Attachment C - Drawdown And Outflow Studies for more details. The data used in these calculations are based on normal conditions. If extreme weather is anticipated the pesticide application should not occur. Modifications to the spillway, or capping a standpipe, to control the water may require a DEC Dam Safety Permit. Contact the DEC Bureau of Flood Protection and Dam Safety if you have any questions. DEC Bureau of Habitat staff may require that a minimum stream flow be maintained.

If the water level is not going to be held, data will be needed to demonstrate how far the outlet waters will flow during the water use restriction period in order to identify potential adversely affected downstream riparian owners. See Attachment D - Downstream Modeling for more details.

#### 10. RIPARIAN OWNER/USER NOTIFICATIONS

An example of a notification letter, which is specific to only aquatic vegetation control, is attached at the end of this instruction sheet (Attachment A). This suggested letter contains the minimum wording necessary to satisfy riparian owner/user notification. You may add additional information. Certification that these written notices were provided must be completed in Section 11 of the AQV, Certification of Notification of Riparian Owners and Users.

<u>Riparian owners</u> are persons who own property along the shore of the proposed application sites. The ownership of the riparian property surrounding or bordering the waterbody proposed for application must be established, and if there is to be outflow during the restriction period along any outlet, this ownership must also be established.

<u>Riparian users</u> are those users of a waterbody who have a <u>vested</u> right to the use of the waterbody. Examples of such a vested right include a person with deeded access to the waterbody for recreational or other purposes, or a person who has a vested right to withdrawal and use of water from the waterbody.

If there is more than one riparian owner, or if there are one or more vested riparian users, these riparian owners/users must be notified in writing of the application and their right to object.

If there will be outflow of treated waters through lands owned by parties other than the sole waterbody riparian owner, they too must be notified.

Riparian owner/user notification must include:

- The date of the notice.
- Name of Applicant/Association and a contact phone number.
- The purpose of the proposed aquatic pesticide application.
- The pesticide(s) to be used. A copy of the pesticide product label (or the label with <u>only</u> the application directions not relevant to the proposed application deleted) must accompany the letter. According to ECL 33-0905.5, this information may be provided in either a written, digital or electronic form which shall be determined by the recipients.
- The anticipated water use restrictions.
- The date(s) of the proposed application. If application dates change from those stated in the notice or if dates are uncertain, a contact person and phone number with hours of availability must be provided.
- The fact that they may object to the application, how to file an objection, the location of the DEC Regional Office and the contact person where they may register their disapproval of the proposed application.
- The period of time, no more than 21 calendar days, to respond to the DEC if they do not consent to the proposed application.
- A statement that lack of comment will be considered agreement to the application.

By conditions imposed in the permit, the applicant may also be responsible for the posting of notification signs along shorelines, public access points, bathing sites, and swimming sites for notice of fishing, swimming and other restrictions as a result of the pesticide application. In addition, applicants may be required to mark or buoy the sites to be treated prior to application.

For public notice of aerial or community wide applications for aquatic insect larvacide applications, for nuisance or public health purposes, the DEC may require additional notification procedures to satisfy ECL 33-0905 - Prior Label Notification Requirements, such as posting the application information in a publication of largest circulation in the area. See Attachment B - ECL 33-0905 - Prior Label Notification Requirements.

#### 11. CERTIFICATION OF NOTIFICATION OF RIPARIAN OWNERS AND USERS

Check the appropriate blocks, and have the authorized individual sign and date. In cases where regulations or label directions require that treated water not be used for a stated period of time, the applicant must submit proof with the application that the water use restrictions can be enforced. The enforcement may occur by either securing consent from riparian owners/users or demonstrating that riparian owners/users will not be significantly adversely impacted.

#### 12. AFFIRMATION

The application must be signed by an authorized individual, such as a riparian owner, an authorized representative of a lake association, or an authorized agency employee. NOTE: The individual signing the application must be the authorized person identified on the application form. Also include the individual's title, if a representative of a lake association or employee of an agency, and the date of endorsement. The Certified Applicator who is actually associated with the pesticide application must sign the application.

# MAIL THE COMPLETED APPLICATION, ATTACHMENTS, AND APPLICATION FEE TO THE APPROPRIATE REGIONAL DEC OFFICE LISTED BELOW:

Region 1	Nassau, Suffolk	50 Circle Road, Stony Brook, NY 11790-3409 - (631) 444-0340
Region 2	New York City	1 Hunters Point Plaza, 47-40 21 <sup>st</sup> Street, Long Island City, NY 11101-5407 - (718) 482-4994
Region 3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, Westchester	21 South Putt Corners Road, New Paltz, NY 12561-1696 (845) 256-3097
Region 4	Delaware, Green, Otsego, Schenectady, Albany, Schoharie, Montgomery, Rensselaer, Columbia	1130 North Westcott Road, Schenectady, NY 12306 (518) 357-2045
Region 5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren, Washington	232 Golf Course Road, Warrensburg, NY 12885 - (518) 623-1200
Region 6	Herkimer, Jefferson, Lewis, Oneida, St. Lawrence	Utica State Office Building, 207 Genesee Street, Utica, NY 13501 (315) 793-2554
Region 7	Broome, Cayuga, Chenango,	1285 Fisher Avenue, Cortland, NY 13045-1090 - (607) 753-3095

	Cortland, Tioga, Onondaga, Oswego, Madison, Tompkins	
Region 8	Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Wayne, Schuyler, Seneca, Steuben, Yates	6274 East Avon-Lima Road, Avon, NY 14414-9519 - (585) 226-2466
Region 9	Allegany, Cattaraugus, Niagara, Erie, Chautauqua, Wyoming	270 Michigan Avenue, Buffalo, NY 14203-2999 - (716) 851-7220
	Attachment A. Cample D	inguing Owner/Hear Natification/ Concept Latter

Attachment A. Sample Riparian Owner/oser - Notification/ Consent	Lettel
Date of Notice:	
Dear Riparian Property Owner/User:	
To control the excessive growth of the aquatic plant species species or algae) in (name of water body), the (name of applicant) proposes to conduct an application of the aquatic herbicide(s)	(indicate plant
(product name).	
A copy of the aquatic herbicide label(s) has been attached to this notice.	
We anticipate the application to occur on (list all proposed donly after (applicant name) obtains a permit for the application notification of the exact dates of application will be provided by shoreline, mailing, door to door, etc.).	from the DEC. Prior
As an affected riparian owner/user, you have the right to consent or object to the use resulting from the proposed application. The water use restrictions associated with upesticides are checked below:	
Swimming and bathing are prohibited for	
Livestock watering is prohibited for	
Irrigation or spraying of agricultural crops is prohibited for	
Use of potable water is prohibited for	
046	(0

You have twenty-one (21) days to respond to this notice. If you would like to object to the proposed application(s), you must file a written document stating your objection to the proposed application. Your objection must demonstrate that your use of the water body will be significantly adversely affected.

If you do not respond to this notice, your lack of response will be considered to be consent to the proposed application. If you have any questions on the permitting process, please contact the DEC representative listed above.

Send your objections to the proposed pesticide application to the person listed below:

lame of Contact Person	
IYS Department of Environmental Conservation	on (DEC)
Region	, ,
Address	
elephone Number	

If you would like further information about the pesticide application, or information on the exact dates of the pesticide application, please contact the following person:

Name of Contact Person:	
Telephone Number:	
Hours Contact Person is Available:	

#### Attachment B: ECL 33-0905 - PRIOR LABEL NOTIFICATION REQUIREMENTS

For aerial or community wide aquatic insect larvacide applications, for nuisance or public health purposes, the DEC may require additional notification procedures to satisfy ECL 33-0905 - Prior Label Notification Requirements.

#### Option 1

Prior notice of the pesticide application(s) shall be provided by supplying the proposed application dates, and copies of the information, including all warnings, contained on the label(s) of the pesticide to be applied, or an actual copy of the product(s) label, to owners, owners agent, or the occupants of all buildings and structures on the premises of the pesticide application site. According to ECL 33-0905.5, this information may be provided in either a written, digital or electronic form which shall be determined by the recipients.

#### **Option 2**

Prior notice of the pesticide application shall be provided by newspaper publication at least twice, once at least one week in advance of the proposed pesticide application and once during the application season. A publication that includes the following information will satisfy your notification obligations:

- A. A detailed statement describing the proposed application, the purpose of the application and the sponsor of the application;
- B. The product name, EPA product registration number(s) and common chemical names of the pesticide(s) to be applied, and the U.S. Environmental Protection Agency toxicity category of "danger", "warning" or "caution" for each pesticide to be applied;
- C. The proposed date(s) of the pesticide application.
- D. The target pest(s) of the application;
- E. A detailed description and/or map of the specific application sites. Specific reference should be made to a map that is on file in a public office in the municipality where the application is to be conducted, as well as the hours during which the map is available for public viewing;
- F. The New York State Department of Environmental Conservation's Regional office telephone number, the regional Poison Control Center phone number and the National Pesticide Telecommunications Network telephone number 1-800-858-PEST; and

G. The name, address and telephone number of a contact person located at the project sponsor's place of business and the hours of availability of the contact person, a statement that the contact person will answer questions regarding the proposed pesticide application, a statement that inquiries concerning symptoms of pesticide poisoning for the pesticides of concern should be made to the regional Poison Control Center and, unless the applicator and the sponsor agree otherwise in writing, a statement that the sponsor will be advised of the specific pesticide application date on the calendar day prior to the proposed application and may be contacted to obtain that information.

Attachi	ment C: DRAWDOWN AND OUTFLOW STUDIES
period of time the pesticide water the pesticide concentration is less an advance water drawdown, a I	the water, the applicant must describe how the water will be held for the ruse restrictions are in effect, or until a test approved by the DEC proves is than the water use restriction. If the outflow is to be stopped by means of Drawdown Study must be completed. (see example below)
Describe how water will be held (e.g. description of the dam or diversion, dam safety permit number)	
Drawdown Study:	
Acres of watershed:	
Acres of water body:	
Rainfall data during the water	
use restriction period (inches): (see link below)	
Evaporation data during the water use restriction period (see table below) (inches):	
Runoff Coefficient (C): (see table below)	
Inflow =	
(runoff coefficient x inches of rainfall x acres of watershed)	
Evaporation = (inches x acres of lake)	
Amount to draw down water (Q) = (Inflow minus Evaporation divided by acres of lake)	

#### Drawdown Study Example:

Watershed Area:

19 acres

Lake Area:

4 acres

Rainfall:

3.26 inches (14 day hold time in June) (see NOAA weather station data link below)

Evaporation: 3.5 inches (14 day hold time in June) (see Evaporation Data Table below)

Runoff Coefficient: 0.45 - Forest, good cover, some clay soils (see Runoff Coefficient Table below)

Q = 1. Inflow (runoff coefficient x inches of rainfall x acres of watershed)

2. Subtracted by Evaporation (inches x acres of lake)

3. Divided by acres of lake

Inflow = 0.45 x 3.26 inches x 19 acres = 27.87 acre-inches

Evaporation = 3.5 inches x 4 acres = 14.00 acre-inches

(27.87 - 14.00 = 13.87 acre-inches)

## Q = 13.67 acre-inches / 4 acres = 3.47 inches or 0.29 feet (to draw down the water) Estimating the Watershed Runoff Coefficient (C):

 $C = (C1 \times A1) + (C2 \times A2)...(Cn \times An) / A (total lake watershed acreage)$ 

Determine the total acreage for each land use description in the watershed and multiply it by the appropriate runoff coefficient in the table below and then divide by the total watershed acreage to determine the watershed runoff coefficient used in the calculations above.

#### Runoff Coefficient Table (C):

Land Use Description		A Sandy Soils	В	С	D Clay Soils
Agricultural Land	Without conservation treatment	0.49	0.67	0.81	0.88
	With conservation treatment	0.27	0.43	0.61	0.67
Pasture or range land	Poor condition	0.38	0.63	0.78	0.84
	Good condition	-	0.25	0.51	0.65
Meadow	Good condition	-		0.44	0.61
Forest	Thin stand, poor cover	-	0.34	0.59	0.70
Consider and Section	Good cover	-	-	0.45	0.59
Open space, lawns, parks, golf courses	Good conditions (Grass cover 75% or more)	- -	0.25	0.51	0.65
	Fair conditions (Grass cover 75% or less)	-	0.45	0.63	0.74
Commercial or Business	85% impervious	0.84	0.90	0.93	0.96
Industrial	72% impervious	0.67	0.81	0.88	0.92
Residential	Average Lot Size				
	1/8 acre lot size	0.59	0.76	0.86	0.90
	1/4 acre lot size	0.25	0.55	0.70	0.80

	1/3 acre lot size	-	0.49	0.67	0.78
	1/2 acre lot size	₽.	0.45	0.65	0.76
	1 acre lot size	-	0.41	0.63	0.74
Paved parking lots, roofs, driveways		0.99	0.99	0.99	0.99
Streets and Roads	Paved with storm sewers	0.99	0.99	0.99	0.99
	Gravel	0.57	0.76	0.84	0.88
	Dirt	0.49	0.69	0.80	0.84

#### Rainfall Data:

The National Oceanic and Atmospheric Administration (NOAA) Online Weather Data (NOWData) is a data query system providing basic climate statistics to the public.

Aquatic pesticide permit applicants can access the monthly precipitation normal in inches, for the month of the proposed pesticide application, from the closest New York weather station to the water body, under the Weather Station Data - NOWData link on the Northeast Regional Climate Center website at: <a href="http://www.nrcc.cornell.edu/">http://www.nrcc.cornell.edu/</a>. If the aquatic pesticide permit applicant proposes to hold the water for 7 days, use one quarter of the value given for the calculations above.

#### **Evaporation Data: (NOAA Technical Report NWS 34 Mean Monthly Pan Evaporation - December 1982)**

Use evaporation data from the closet station to the water body. These evaporation values are the 30 day mean in inches, so if you want to hold the water for 7 days use one quarter of this value for the calculations above.

	May	June	July	August	September	October
Aurora Research Farm	5.26	6.36	6.98	5.78	4.04	2.79
Boonville	5.23	5.92	6.47	5.36	3.40	2.69
Canton	5.83	7.33	6.93	5.57	3.65	2.65
Downsville Dam	4.66	5.09	5.51	4.88	3.32	2.15
Geneva Res. Farm	5.59	6.70	7.60	6.03	4.10	2.73
Greenport Power House	5.0	5.50	6.18	5.20	3.95	3.30
Lockport	4.77	5.87	6.42	5.40	3.68	2.35
Mineola	6.31	7.19	8.0	6.73	5.32	3.74
Mt. Pleasant Farm	5.09	5.90	6.35	5.49	3.83	2.55
New York Central Park	5.06	6.02	7.86	5.88	4.0	3.01
Voorheesville	5.05	5.57	6.16	5.20	3.52	2.30

#### ATTACHMENT D: DOWNSTREAM MODELING

If the water is not going to be held, data will be needed to demonstrate how far the outlet waters will flow during the pesticide water use restriction period in order to identify potential adversely affected downstream riparian owners or users. If not provided on the map or in the application, detailed information on the locations, dates of application, and dosage rates of specific application sites may be required to estimate the concentration of the pesticide at the outlet.

The purpose of the Downstream Modeling spreadsheet, which is available from DEC Pest Management staff and on the DEC website, is to model the pesticide's movement downstream. It shows the distance downstream from the treated water body, where riparian owner and user notification of the water use restrictions must be provided, from the outlet to a point below the notification value (e.g. drinking water restriction). The spreadsheet is used to estimate concentrations of pesticide and travel time to a given point in flowing waters using United States Geological Survey (USGS) reference gage water flow and watershed data. Pesticide dilution is estimated using a USGS reference gage from which the flow of the watershed in question may be obtained by correlating it to the flow and corresponding area from the reference gage, along with watershed information from downstream tributaries and inputs.

The Downstream Modeling spreadsheet is only an estimate, but will provide a scientific basis for notification of downstream riparian owners and users about the pesticide's water use restrictions. The spreadsheet is available from Regional Pest Management staff and on the DEC website with the AQV application. Instructions for completing the Downstream Modeling and links to the required data are included in the spreadsheet.

# Sheep Meadow Lake George, New York

2021 Submersed Aquatic Macrophyte Survey Report





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## 2021 Aquatic Macrophyte Survey Report

Sheep Meadow Bay Lake George

## Introduction

On August 13th 2021, Warren County Soil & Water Conservation District conducted a detailed aquatic macrophyte survey for the Lake George Park Commission at Sheep Meadow Bay, Lake George in New York (Warren County). Sheep Meadow Bay, Lake George is located inside the Adirondack Park. The primary goal of the submersed aquatic vegetation (SAV) survey was to map and identify the abundance and distribution of Eurasian water milfoil to provide science-based recommendations for the continual management control strategies, as a more aggressive approach seems to be appropriate. Eurasian water milfoil at this location had previously been the target of suction harvesting, benthic barrier and hand harvesting in efforts to control its population. In addition to the target invasive plant, all submersed vegetation was mapped. The appendix of this report contains survey data tables as well as detailed distribution and abundance maps for each aquatic macrophyte species collected/observed in Sheep Meadow Bay. Also included is an aquatic macrophyte library, which provides a description of each species documented in 2021.

## Methodology

Point-Intercept Submersed Aquatic Plant Mapping

The Point Intercept Method (PIM) of sampling aquatic macrophytes is designed to determine the extent of aquatic plant growth within an area of concern. The total number of sample locations is typically based on the total acreage of the treatment area, where at least one sample location per acre is surveyed at a given site. For Blair's Bay, 38 GPS-referenced locations were sampled for the presence of aquatic macrophytes. During the survey, each pre-determined sampling point was accessed via a boat and the real-time GPS coordinates of the sample location were recorded using a handheld GNSS system. The same sample locations that were gathered during this survey can be utilized for future surveys for accuracy and ease of comparison purposes, if desired. This way changes in the aquatic macrophyte community can be tracked over time, especially to determine the efficacy of management program. A sample point map is included in the appendix that depicts these sampling stations. One rake toss was conducted at each sample point for detection of target species and native submersed aquatic vegetation (SAV). The Rake Toss Methodology, developed by the US Army Corps of Engineers and modified by Cornell University, was intended for use in this type of aquatic macrophyte survey (Lord and Johnson 2006). The following data was collected for each sampling station: overall abundance of aquatic macrophyte growth, relative abundance of each species, and any other pertinent field notes regarding the sample location. Based on available bathymetry information we determined that the bay had approximately 40 acres of littoral zone within 0.3 of a mile radius from the proposed treatment area. Thus, sampling stations are spread out over the entire area of 35 feet in depth or less, with a concentration on the known area of milfoil located in said grid system. Water depth was measured at each sampling station using a sonar-based depth finder and a weighted tape measure as appropriate to the SAV conditions. Water depths are depicted on a map in the appendix of this report. Based on our 40 water depth measurements, we calculated an average depth of

12.6 feet, with a maximum depth of 25 feet. The entire bay within 0.3 of a mile radius from the proposed treatment zone has an area of approximately 80 acres, of that 40 acres have a depth shallower than 35 feet. That means only 50 % of the area would be considered littoral zone by depth; bottom conditions further reduce the applicable littoral zone due to bottom substrate type. Large stretches of this sampling location have a steep bedrock substrate which does not hold sediment and are not conducive to SAV growth. For each rake toss, the weed rake, attached to a 10-meter-long piece of rope, was tossed from a random side of the boat. The weed rake used for aquatic macrophyte surveys has a specific design. It is constructed with two 13.5-inch wide metal garden rakes attached back to back. The wooden handles are removed, and a 10-meter-long nylon rope is attached to the rake heads. It is important to toss the weed rake the full 10 meters (a loop at the end of the rope is attached to the boat to prevent losing the rake). The weed rake is slowly retrieved along the bottom, and carefully hoisted into the boat. To determine the amounts of overall submersed vegetation, the weed mass is assigned one of five densities, based on the semi-quantitative metrics developed by Cornell University.

### Aquatic Vegetation Abundance Scale

#### Field Note

Symbol	Abundance	Level Description
0	Zero	No plants on rake
T	Trace	One or two stems or fingerful on rake
S	Sparse	Three to ten stems or handful on rake
M	Moderate	More than ten stems or covering all rake tines
D	Dense	Rakeful of plants, difficult to bring into boat

As shown above, these densities are: *No Plants* (empty rake), *Trace* (one or two stems per rake, or the amount that can be held between two fingers), *Sparse* (three to 10 stems, but lightly covering the rake, or about a handful), *Medium* (more than 10 stems, and covering all the tines of the rake), or *Dense* (entire rake full of stems, and one has trouble getting the plant mass into the boat). Pictures of the corresponding densities are included in the appendix. These densities are abbreviated in the field notes as 0, T, S, M, and D. Next, the submersed weed mass is sorted by genus (or species if possible) and one of the five densities is assigned to each genus and/or species. Finally, overall floating macrophyte density within a 10-meter diameter of the survey boat is assigned a density, as well as an estimated density for each separate genus (or species) observed. This data is recorded in the field notes. This procedure is then repeated for the remaining sample points. For the purposes of this survey, the terms "density" and "abundance" refer to the same description.

Lake George New York is classified as an oligotrophic or meso/oligotrophic lake with a mean depth of approximately 70 ft deep; the lower nutrient, low production lake has a limited littoral zone by percentage of area, unlike many of the smaller Adirondack waterbodies. The Eastern shoreline and in fact a majority of the lake George shoreline is dominated by steep rocky substrates, it is not uncommon to be in 30 feet of water less than 25 feet from the mean high water mark.

Sheep Meadow Bay, conditions at this site were very similar to those found at Glenburnie. The near shore areas with both favor-able bottom substrate and depths were dominated by EWM, with pockets of native macrophytes. Areas of the wave break zone with depths of 1 to 4 feet deep mostly consisted of bottom sediments of sand with little organic materials; areas within the 0.3 mile radius of the proposed treatment areas were lacking in aquatic macrophytes due to benthic bedrock or steep drop offs which are not conducive to holding soft organic sediment needed for plant growth. Areas of 20 ft in depth and greater were found to have Isoetes lacustris a macrophyte found on the New York State list of Rare, Threatened or Endangered plants; though it is commonly found in Lake George throughout this depth range. Areas of 25 ft in depth or more were sampled for the presents of Nitella which is generally found in Lake George at the 25—35 foot depth range.

In Sheep Meadow Bay the areas which are directly adjacent to the proposed treatment site were heavily sampled for aquatic macrophytes from the depths of 0-25 feet; the areas within the 0.3 miles of the proposed treatment site which were conducive to aquatic plant growth due to either or both bottom sediments type and depth were also sampled. The areas favorable to aquatic vegetation at this location were dominated Myriophyllum spicatum (EWM). The reason for extended spacing between marked sample locations was as we travelled both to the north and south of the proposed treatment area, water shallow enough (< 30 ft) for aquatic plants had benthic conditions consisting of mostly bedrock or large cobble/ boulder piles, very little soft sediment. Areas consistent with aquatic plant growth by depth and sediment type visible from the surface (<15ft) were sampled. Shallow areas which had bottom sediments consisting of mostly sand with low organic content were also sampled repeatedly for low growing macrophytes such as Eriocaulon, Eleocharis, Juncus, Myriophyllum alterniflorum and M. tenellum. M. tenellum was located at three locations during the survey, but not within the immediate proposed treatment area, it was found north of the proposed treatment area within the 0.3 mile radius of the known Eurasian Watermilfoil bed.

# **Summary of Aquatic Vegetation Sheep Meadow Bay—Lake George**

Sheep Meadow Bay			
Common Name	Scientific Name	Stations	% occurrence
Slender Naiad	Najas flexillis	21	52.5
Robbins Pondweed	Potamogeton robbinsii	11	27.5
Eurasian Water milfoil	Myriophyllum spicatum	10	25.0
Grassy Pondweed	Potamogeton gramineus	10	25.0
American Eelgrass	Vallisneria americana	9	22.5
Stonewort	Nitella	8	20.0
Muskgrass	Chara	6	15.0
Flatstem Pondweed	Potamongeton zosteriformis	6	15.0
Canadian Waterweed	Elodea canadensis	5	12.5
Spikerush	Eleocharis acicularis	5	12.5
Water Marigold	Megalodonta beckii	5	12.5
Northeastern Bladderwort	Utricularia resupinata	5	12.5
Clasping leaf Pondweed	Potamogeton perfoliatus	5	12.5
Brown Fruit Rush	Juncus pelocarpus	4	10.0
Narrowleaf Pondweed	Potamogeton narrow-leaf 3	4	10.0
Narrowleaf Pondweed	Potamogeton narrow-leaf 4	4	10.0
Slender Water milfoil	Mryiophyllum tenellum	3	7.5
Lake Quillwort	Isoetes lacustris	3	7.5
Longbeak Buttercup	Ranunculus longirostris	3	7.5
Pipewort	Eriocaulon septangulare	2	5.0
Spiny Quillwort	Isoetes echinospora	2	5.0
Water Stargrass	Zosterella dubia	2	5.0
Largeleaf Pondweed	Potamogeton amplifolius	2	5.0
Narrowleaf Pondweed	Potamogeton narrow-leaf 2	2	5.0
White stem Pondweed	Potamogeton praelongus	1	2.5
Narrowleaf Pondweed	Potamogeton narrow-leaf 1	1	2.5

## Discussion

### Macrophyte Abundance and Distribution

The table above is a summary of the frequency of occurrence data for the 2021 Point Intecept survey at Sheep Meadow Bay - Lake George. Entries in red indicate an invasive species, while entries in green indicate an macro-alga species. The aquatic plant community can be divided into several different categories. These include submersed aquatic plants (such as pondweeds, milfoils, and bladderworts), floating-leaf plants (such as water lilies) and free-floating aquatic plants (such as duckweeds and watermeal). The latter two groups typically comprise the floating plant community. Macroscopic algae (such as muskgrass and stonewort) are typically collected during these surveys as they impact the SAV community or serve in a similar ecological niche. Emergent growth (such as pickerelweed and cattails) commonly occur along shoreline margins, but typically are not a focal point of SAV point intercept surveys, nor were any seen or collected during this survey. At Sheep Meadow Bay, aquatic macrophytes were collected at 33 of the 40 sample points (or 83%) in the basin. Trace abundance macrophytes were collected at nine (or 23%) of the sites, Sparse abundance was found at 8 sites (20%). Moderate abundance macrophytes accounted for 28% of the sites (n=11) while only five of the sites (n=5, or 13%) were considered dense abundance. We typically consider moderate and dense Eurasian Watermilfoil (EWM) to be at nuisance abundance. Therefore, nuisance growth occurred at 13% of the sites with EWM growth at Sheep Meadow Bay.

Richness (or diversity) is the measure of different species at a specific location. At Sheep Meadow Bay, we collected/observed 26 different aquatic macrophytes. Further, we can examine the individual sample site richness to determine if there are locations in the basin that have higher (or lower) richness. The richness ranged from 0 to 11 unique aquatic macrophytes. The mean richness at all 40 stations was calculated at 3.5 macrophyte species per site. In other words, an average of three and a half different macrophytes were collected at each sample site. Sample site richness is depicted on a map in the appendix of this report.

**Eurasian water milfoil** is an aggressive invasive submersed plant and is the current target of localized control efforts in this bay. The EWM beds only cover an area of approximately an acre of the 40 acres surveyed; Eurasian water milfoil occurred at 10 (or 25%) of the sites surveyed and was one of the dominant aquatic macrophytes collected/ observed in this area; exceeded only by Najas flexilis and Potamogeton robbinsii. Most abundances were dense (9- 90%) or trace (1or 10%). Therefore, 90% of the sites were dense (n=9), which we would consider a nuisance. Eurasian water milfoil is found in one larger bed area



and one small bed with native macrophytes between the two beds, although EWM was found scattered in lesser amounts between the two beds. Its possible that given time, EWM will begin to dominate the area between the two beds forming one large population of Eurasian water milfoil; this has been seen at a number of locations in Lake George before. **Najas flexilis** is very common in Lake George and New York State. N. flexilis was collected at 21 (or 53%) of the sites in 2021. At all of these sites the small plants were found in trace abundance (n=17, or 81%) and sparse abundance at (n=4, 19%).



**Potamogeton robbinsii** is a highly desirable native pondweed. It was documented in Blair's Bay at 11 sites (28%) with a distribution found at depths of 10 feet or more, but can be found in shallower waters. At all of these sites the plants were found in trace abundance (n=6, or 55%) and sparse abundance at (n=5, 45%).



**Potamogeton gramineus -** Grassy Pondweed was one of the ten potamogetons found during this survey, P. gramineus is a common Lake George species which can be found throughout the littoral zone from 1 to 25 feet deep. During this survey it was recorded from 3 to 15 feet deep at 10 sites (25%) sampled; 8 samples in trace amounts (80%) and 2 samples in sparse amounts (20%).

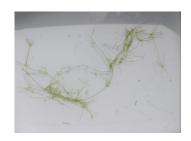


**Vallisneria Americana** - Eel Grass have long basal ribbon like leaves with obvious lacunae bands their entire length, common in Lake George it was found at 9 sites (23%) at depths from 3 to 15 feet. 8 samples (89%) in trace amounts and 1 in sparse amounts (11%).



**Macroalga**– Chara and Nitella are visible multi-branching algal species that ecologically function as higher plants. There are two main native genera in the northeast: muskgrass (Chara sp.) and stonewort (Nitella sp.).

**Nitella** (stonewort) was found at 8 sites (20%) at an average depth of 24 feet; it tends to be lighter green, smooth more delicate branching and located among the last plants found in deepest waters at the end of the littoral zone. 5 samples were trace amounts (63%), 1 in sparse amounts (12%) and 2 in moderate amounts (25%).



**Chara** (muskgrass) tends to be darker green in color, with stiffer calciumencrusted branches generally found in shallower waters. It was found at 6 sites (15%) in trace amounts at Sheep Meadow Bay at an average depth less than 6.5 feet.



**Potamogeton zosterformis:** Flat-stem Pondweed is another of the ten potamogetons found during this survey, P. zoterformis is a common Lake George species which was found throughout the littoral zone from 5 to 20 feet deep. During this survey it was recorded from 7 to 15 feet deep at 6 sites (15%) of the total samples, 5 in trace amounts, 1 in sparse amounts.



**Elodea Canadensis** –Canadian Waterweed has slender stems that can reach a meter in length, and a shallow root system. The stem is adorned with 3 whorled lance-like leaves that are attached directly to the stalk that tend to congregate near the stem tip. It was found in at five sample sites (13%) in Sheep Meadow Bay. The depths were from 3 to 14 feet deep, with all five densities being trace.



**Eleocharis accicularis:** Spikerush is commonly found in sandy sediments from the wave break zone to 10 feet of depth in Lake George, during this sampling in Sheep Meadow Bay it was recorded in 3 to 10 feet of water at 5 sites (13%). 4 sites (80%) was listed as trace and a single density of sparse.



**Megalodonta beckii:** Water marigold is common in Lake George, found throughout the littoral zone in waters from 5 to 25 feet in depth. In Sheep Meadow it was found at 5 sites (13%) in a trace amount at 4 of the sample sites, 1 in moderate amounts in 7 to 20 feet of water.



Utricularia resupinata –Northeastern Bladderwort unlike a majority of Bladderworts, resupinata is not a free floating plant, it was found in trace amounts at 5 sites (13%) in shallow sandy areas in Lake George. Thin thread like leaves with carnivorous bladders on leaf stems and roots identify this species. Found at depths of less than 6 feet it sometimes forms mats in shallow sandy areas throughout the lake.



**Potamogeton perfoliatus** - Clasping-leaf Pondweed is another of the ten potamogetons found during this survey, P. perfoliatus is a common Lake George species which was found throughout the littoral zone from 3 to 32 feet deep. During this survey it was recorded from 3 to 15 feet deep at 5 sites (13%) in trace amounts.



**Juncus pelocarpus** - Brownfruit Rush is commonly found in sandy sediments from the wave break zone to 12 feet of depth in Lake George, during this sampling in Sheep Meadow Bay it was recorded in 3 to 10 feet of water at 4 sites (10%). All four sites (100%) were listed as trace.



**Narrow-leaf Potamogeton 3 -** there are a number of narrow-leaf potamogeton species common to Lake George that without seeds and a dissecting microscope are very difficult to identify to species. This species was found at 4 sites (10%) in Sheep Meadow Bay. It was found between 6 and 25 feet in depth, 4 samples densities were trace (100%).



**Narrow-leaf Potamogeton 4** - there are a number of narrow-leaf potamogeton species common to Lake George that without seeds and a dissecting microscope are very difficult to identify to species. This species was found at 4 sites (10%) in Sheep Meadow Bay. It was found between 10 and 20 feet in depth, 3 samples densities were trace (75%) 1 was found in sparse amounts (25%).



Myriophyllum tenellum - Slender Water Milfoil is the third milfoil found during the two surveys, and is one of the two milfoils found in Sheep Meadow Bay. M. tenellum is found in soft or sandy areas throughout Lake George. It was listed at three sites outside of the treatment area, and found between 3 and 9 feet in depth, All 3 samples (7.5%) with densities listed as trace (100%).



**Isoetes lacustris:** - Lake Quillwort is one of two species of found in lake George and listed as a rare aquatic plant in New York State; this plant is commonly found in the deep waters of Lake George, from depths of 20 to 30 deep. It was found at three sites in Sheep Meadow Bay (7.5%), 2 samples in trace amounts and one in Moderate. All three of the sites were listed as 20 feet deep.



**Ranunculus longirostris** –Longbeaked Buttercup has leaves that are finely divided into many thread-like segments, round to fan-shaped in outline, to  $\frac{3}{4}$  inch long and about 1 inch wide, alternately attached. Stems and leaves are all submersed and mostly hairless. It was found in trace (2) or sparse (1) amounts at 3 sites (7.5%) during sampling ranging from 3 to 10 feet in depth.



**Eriocaulon septangulare:** Pipewort is commonly found in sandy sediments from the wave break zone to 10 feet of depth in Lake George, during this sampling in Sheep Meadow Bay it was recorded in 4 to 10 feet of water at 2 sites (5%). Both sites (100%) were listed as trace.



**Isoetes echinospora:** - Spiny Quillwort is one of two species of found in lake George; this plant is commonly found in the shallow waters of Lake George, from depths of 2 to 10 deep. It was found at two sites in Sheep Meadow Bay (5%) in trace amounts. One of the sites was listed as 15 feet deep but was on a steep section of the bay, chances are this sample came from a shallow end of the rake toss sample area.



**Zosterella dubia:** Water Stargrass is often mistaken for any number of pondweeds, the lack of an obvious mid-vein on it's alternate leaves is the key identifying feature of this plant. In Sheep Meadow Bay it was found at 2 sites (5%) in 10 and 12 feet of depth in trace amounts during sampling, but is quite common in Lake George.



**Potamogeton amplifolius** - Large-leaf Pondweed was one of the ten potamogetons found during this survey, P. amplifolius is a common Lake George species which can be found throughout the littoral zone from 3 to 25 feet deep. During this survey it was recorded at 10 and 12 feet deep at 2 sites (5%) in trace amounts at both (100%).



**Narrow-leaf Potamogeton 2:** - there are a number of narrow-leaf potamogeton species common to Lake George that without seeds and a dissecting microscope are very difficult to identify to species. This species was found at 2 sites (5%) in Sheep Meadow Bay. It was found between 14 and 15 feet in depth, Both sample densities were trace (100%).



**Potamogeton praelongus**— White stem Pondweed is another of the ten potamogetons found during this survey, P. peraelongus is a common Lake George species which was found throughout the littoral zone from 8 to 25 feet deep. During this survey it was recorded at 15 feet deep at a single site (2.5%) in trace amounts.



**Narrow-leaf Potamogeton 1:** - there are a number of narrow-leaf potamogeton species common to Lake George that without seeds and a dissecting microscope are very difficult to identify to species. This species was found at single site (2.5%) in Sheep Meadow Bay. It was found at 3 feet in depth, its sample densities was trace (100%).



# Appendix

Sheep Meadow	Total		Trace		Sparse		Moderate		Dense	
Abundance Distribution	Sites	%	Sites	%	Sites	%	Sites	%	Sites	%
Total Sites	40									
Overall Abundance	33	83	9	23	8	20	11	28	5	13
Najas flexillis	21	53	17	81	4	19				
Potamogeton robbinsii	11	28	6	55	5	45				
Myriophyllum spicatum	10	25	1	10					9	90
Potamogeton gramineus	10	25	8	80	2	20				
Vallisneria americana	9	23	8	89	1	11				
Nitella	8	20	5	63	1	12	2	25		
Chara	6	15	5	83	1	17				
Potamongeton zosteriformis	6	15	5	83	1	17				
Elodea canadensis	5	13	5	100						
Eleocharis acicularis	5	13	4	80	1	20				
Megalodonta beckii	5	13	4	80			1	20		
Utricularia resupinata	5	13	5	100						
Potamogeton perfoliatus	5	13	5	100						
Juncus pelocarpus	4	10	4	100						
Potamogeton narrow-leaf 3	4	10	4	100						
Potamogeton narrow-leaf 4	4	10	3	75	1	25				
Mryiophyllum tenellum	3	8	3	100						
Isoetes lacustris	3	8	3	100						
Ranunculus longirostris	3	8	2	67	1	33				
Eriocaulon septangulare	2	5	2	100						
Isoetes echinospora	2	5	2	100						
Zosterella dubia	2	5	2	100						
Potamogeton amplifolius	2	5	1	50	1	50				
Potamogeton narrow-leaf 2	2	5	2	100						
Potamogeton praelongus	1	3	1	100						
Potamogeton narrow-leaf 1	1	3	1	100						

Site-#	(tj) upded (2.5	C.demersum	Chara	E. acicularis	E. canadensis	E. septangulare	I.lacustris	J. pelocarpus	M. beckii	M. alterniflorum	M. spicatum	M. tenellum	N. flexilis	N. guadalupensis	Nitella	P. amplifolius	P. gramineus	P. perfoliatus	P. praelongus	P. robbinsii	P. zosterformis	P. narrowleaf 1	P. narrowleaf 2	P. narrowleaf 3	P. narrowleaf 4	R. longirostris	U. resupinata	V. americana	o Richness	O Rake density
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