Chateaugay Lake Aquatic Invasive Species Adaptive Management Plan
Feb 2024
Version 2.0

The Chateaugay Lake Foundation (CLF) has been an active steward of the Chateaugay Lake system (Lower Lake, the Narrows, and Upper Lake) for over 15 years. During this time the CLF has actively worked to control the population of invasive Eurasian watermilfoil (EWM) that has spread throughout the lake. In 2023 the CLF started working with the Adirondack Park Invasive Plant Program (APIPP) to create an updated aquatic invasive species (AIS) management plan. The purpose of this plan is to provide a road map for the CLF to follow in pursuing new management strategies for controlling EWM population in the lake system. The CLF and APIPP held multiple meetings in preparation to provide the background information, management options, information about chemical management using herbicide, and to allow for the local community to voice their opinion. Many of the materials from those meetings can be found here. Based on those results, the CLF and APIPP have worked together to create this AIS adaptive management plan. This is intended to be a living document that is updated regularly.

Goals

The CLF's milfoil management program seeks to control invasive Eurasian watermilfoil growth to promote a diverse native plant community, to improve fish and wildlife habitat, and to support recreational use of the lake. A related goal is to prevent the introduction and spread of other invasive aquatic species. This adaptive management plan focuses on advancing these goals through financially sustainable long-term management.

Objectives

There are three main objectives of the adaptive management plan:

1) Prevention - Continue annual efforts to prevent the introduction and spread of aquatic invasive species (AIS) through outreach to make sure everyone follows clean, drain, dry procedures.

2) Monitoring - Conduct monitoring to inform our management decisions. CLF will do two types of volunteer monitoring. The first is annual early detection monitoring to be on the lookout for potential new AIS introductions and to catch any while the populations are still low in abundance. The second is Lake Management Tracker surveys to assess the effectiveness of the EWM management . This monitoring will complement professional pre- and post-treatment aquatic plant surveys that are required to measure the results of herbicide treatment.

3) Management – Use an integrated plant management approach that combines physical removal with chemical treatment to suppress EWM abundance to less than 10% EWM frequency in the treatment locations after a four-year period.

Action Steps

The following action steps are anticipated to help the CLF meet the goals and objectives.

1) Prevention. Prevent AIS introductions to Chateaugay Lakes through educational and outreach efforts that let shore owners, the community at large and visitors know what steps they can take to prevent the spread of AIS. Prevention follows the adage, "an ounce of prevention is worth a pound of cure."
    a. CLF will ask that all supporters, shore owners and visitors follow the Clean, Drain, Dry (CDD) principles for any boats or equipment that enter or leave the lake. CLF will have regular educational updates in newsletters, emails, and social media about the importance of following CDD and how to take easy steps to follow CDD. The CLF will encourage supporters and shore owners to talk to their friends and neighbors about the importance of CDD.
    b. CLF will work with the Adirondack Watershed Institute and the DEC to ensure that a boat steward is actively engaged at the public boat launch to make sure boats entering and exiting are clean.

2) Monitoring for AIS. Although a primary objective is to prevent AIS from being introduced to Chateaugay Lake, if a species does get in, it is important to detect it early to increase the likelihood of successful management and to reduce the cost of management.
    a. CLF will encourage supporters and shore owners to annually participate in APIPP's Lake Protector program that trains volunteers in how to identify and report AIS.
    b. The Lake Management Tracker survey program is designed to assess the effectiveness of managing AIS on an ongoing basis. The South Inlet of Upper Chateaugay Lake has been covered since 2019. Other areas will be identified and as professional monitoring stops, locations will be added to assess the long-term effectiveness of the treatment and removal efforts. This will involve identifying volunteers and having APIPP provide the training and technical support.

3) Management of EWM. CLF will use an integrated management approach that includes both physical management (hand-harvesting) and chemical management (ProcellaCOR herbicide) to maintain existing areas of control and expand control to the rest of the infested shoreline. Hand-harvesting will be used to control priority areas prior to ProcellaCOR treatment and to maintain control thereafter. ProcellaCOR will be used to reduce the EWM populations in select areas on a rotating basis. The goal is to reduce the population size with chemical management to small amounts of EWM that make follow-up hand harvesting successful (able to stay ahead of plant growth) and financially sustainable.

The general management rotation is a four-year plan for each treated area as outlined below.

a. Year 1 – Chemical management to greatly reduce EWM locations and abundance.
b. Year 2 – Monitoring of new AIS population baseline in treatment area.
c. Year 3 – Monitoring EWM and limited hand harvesting of any of the initial EWM population that rebounds.
d. Year 4 – Monitoring EWM and hand harvesting of any reestablished EWM plants.
e. Year 5 – Actions based on resources and assessment of past management success and data collected.

The tables below and on the following pages show a typical management rotation for integrated management with chemical and hand harvesting for areas we anticipate being treated first. Future areas (shaded grey) will be added and likely continue a similar rotation. Future work, especially beyond 2025, is dependent on resources and management results.

Areas	2024	2025	2026	2027	2028
Narrows Sandbar (J), South of bridge (K), South of Sandbar (DD)	Chemical treatment with ProcellaCOR ($69K); Post-treatment survey ($5K)	Full lake survey ($12 K)	Lake Management Tracker Hand harvesting (1 week, $8K) Possible chemical retreatment of boat launch within area K ($25K)	Lake Management Tracker Hand harvesting (2 week, $16K)	Action based on 2026/2027 data
North of Bridge (L, LL, M)			Chemical Management ($25K)	Lake Management Tracker	Lake Management Tracker Hand harvesting (1 wk, $8K)

NOTE: The locations of the alpha-coded beds are shown on the maps that appear below. The sections colored in grey represent the out years of the proposed treatment plan based on future available resources.

Areas	2024	2025	2026	2027	2028
Lower Lake LL Inlet (N1/N2)	Hand harvesting (1 wk, $8K) Lake Management Tracker	Chemical Management ($75K); post-treatment survey ($5K)	Lake Management Tracker	Lake Management Tracker Hand harvesting (1 wk, $8K)	Lake Management Tracker Hand harvesting (2 wk, $16K)
SW Shore (U,V)			Chemical Management ($28K) Post-treatment survey ($5K)	Lake Management Tracker	Lake Management Tracker Hand harvesting (1 wk, $8K)
Northeast Shore (O, P, Q) and North Shore (R, S, T)				Chemical Management ($60K) Post-treatment survey ($5K)	Lake Management Tracker

NOTE: The locations of the alpha-coded beds are shown on the maps that appear below. The sections colored in grey represent the out years of the proposed treatment plan based on future available resources.

Areas	2024	2025	2026	2027	2028
Upper Lake UL Northeast Shore/Sunset (B), Deep Bay (H), Tamarack Pier (AA)		Chemical Management ($41K) Post-treatment survey ($5K)	Lake Management Tracker	Lake Management Tracker Hand harvesting (1 wk, $8K)	Lake Management Tracker Hand harvesting (2 wks, $16k)
West Shore (E, F, G)			Chemical Management ($29K); Post-treatment survey ($5K)	Lake Management Tracker	Lake Management Tracker Hand harvesting (1 wk, $8K)
North Shore (C, D)				Chemical Management ($45K) Post-treatment survey ($5K)	Lake Management Tracker
South Inlet (AA, I, W)	Hand harvesting (I, W – 2wks, $16K) Lake Management Tracker (I,W)	Hand harvesting (I, W - 2 wks, $16K) Lake Management Tracker (I,W)	Hand harvesting (I, W - 2 weeks, $16K) Lake Management Tracker (I,W)	Hand harvesting (I, W - 2 weeks, $16k) Lake Management Tracker (I,W)	Chemical Management (AA, I, W, $225K) Post-treatment survey $5K) Lake Management Tracker (I,W)

NOTE: The locations of the alpha-coded beds are shown on the maps that appear below. The sections colored in grey represent the out years of the proposed treatment plan based on future available resources.

Plan Monitoring

It is critical to monitor the activities done and the condition of the lake in quantitative ways so that we can compare data from year to year and make decisions on how to manage the lake.

1) Prevention efforts and outreach - Keep track of the outreach that the CLF does to inform supporters, shore owners and visitors about clean, drain, dry approaches. Also monitor AWI boat steward data.
    a. Key indicators – Number of stories in the newsletters/social media about CDD, number of boats inspected, number of interceptions at boat launch and intercepted species, number of decontaminations.

2) AIS monitoring – Keep track of the early detection Lake Protector Survey efforts and the results of the Lake Management Tracker surveys in the different treatment zones.
    a. Key indicators – Number of volunteers monitoring, number of Lake Protector surveys, , number of new AIS observations, EWM frequency and abundance in treatment areas monitored by Lake Management Tracker surveys.

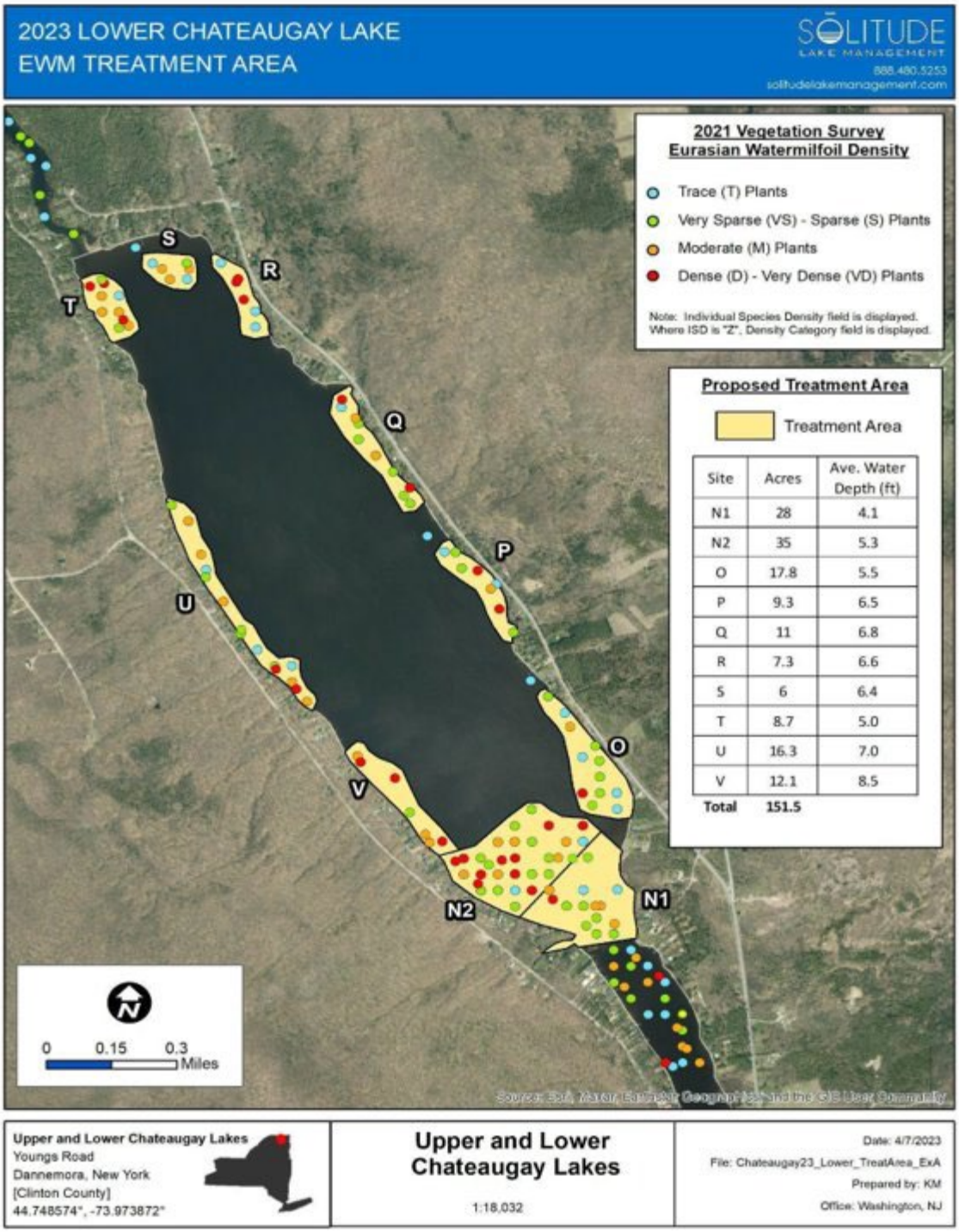
3) Management –Keep track of the effort, costs and results of the integrated management approach to controlling EWM.
    a. Key Indicators –Amount spent on each type of management, acres treated, amount of EWM removed via hand harvesting, data from plant surveys by professionals and Lake Management Tracker data on locations and abundance of EWM in treated areas. Periodic full lake plant surveys.

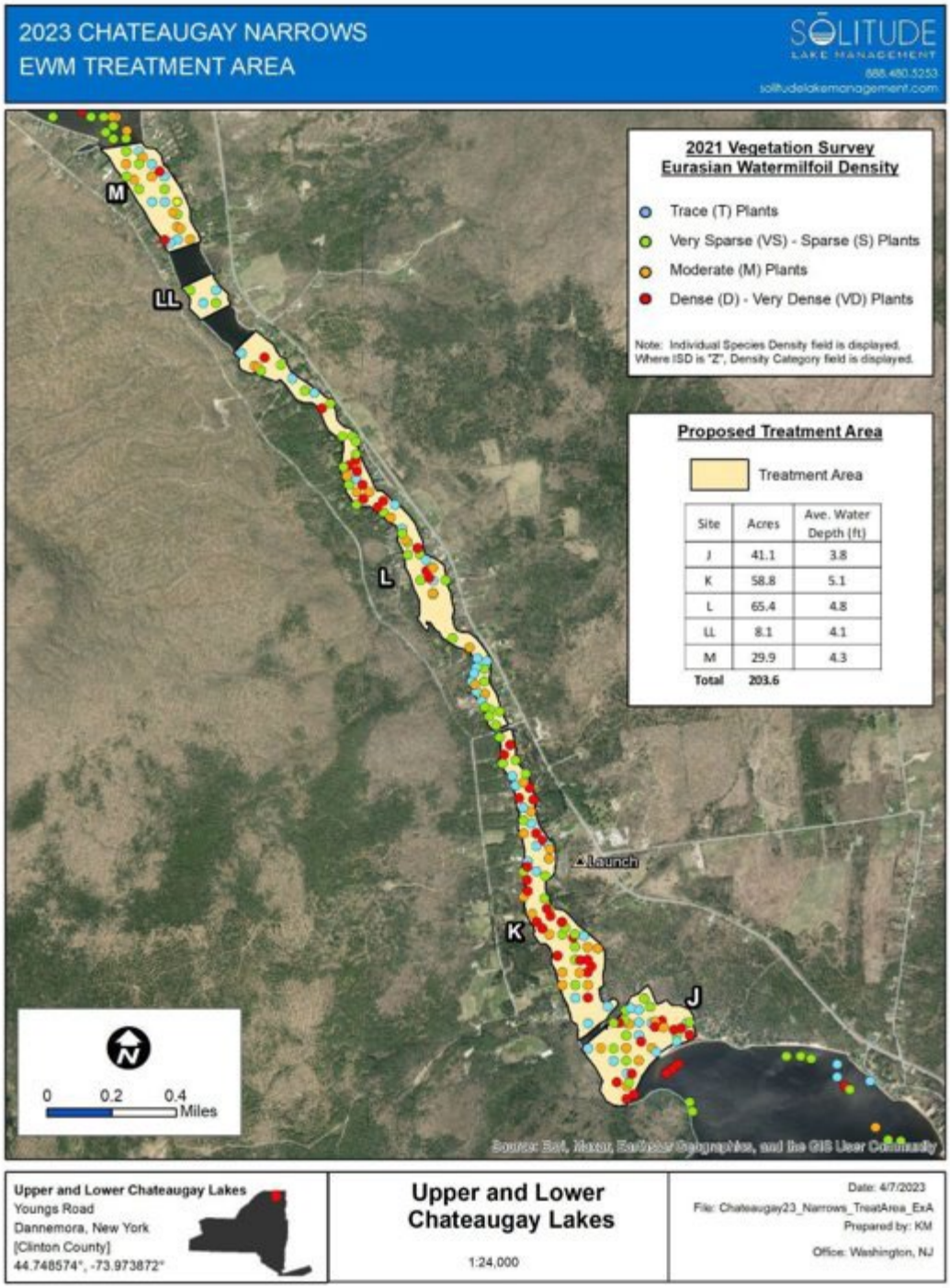
Review and Adjust. Every winter the CLF and APIPP will review the results of the prevention outreach, monitoring and management and revisit if this plan needs to be updated. Updated adaptive management plans will be tracked as different versions and shared with supporters and the community at large

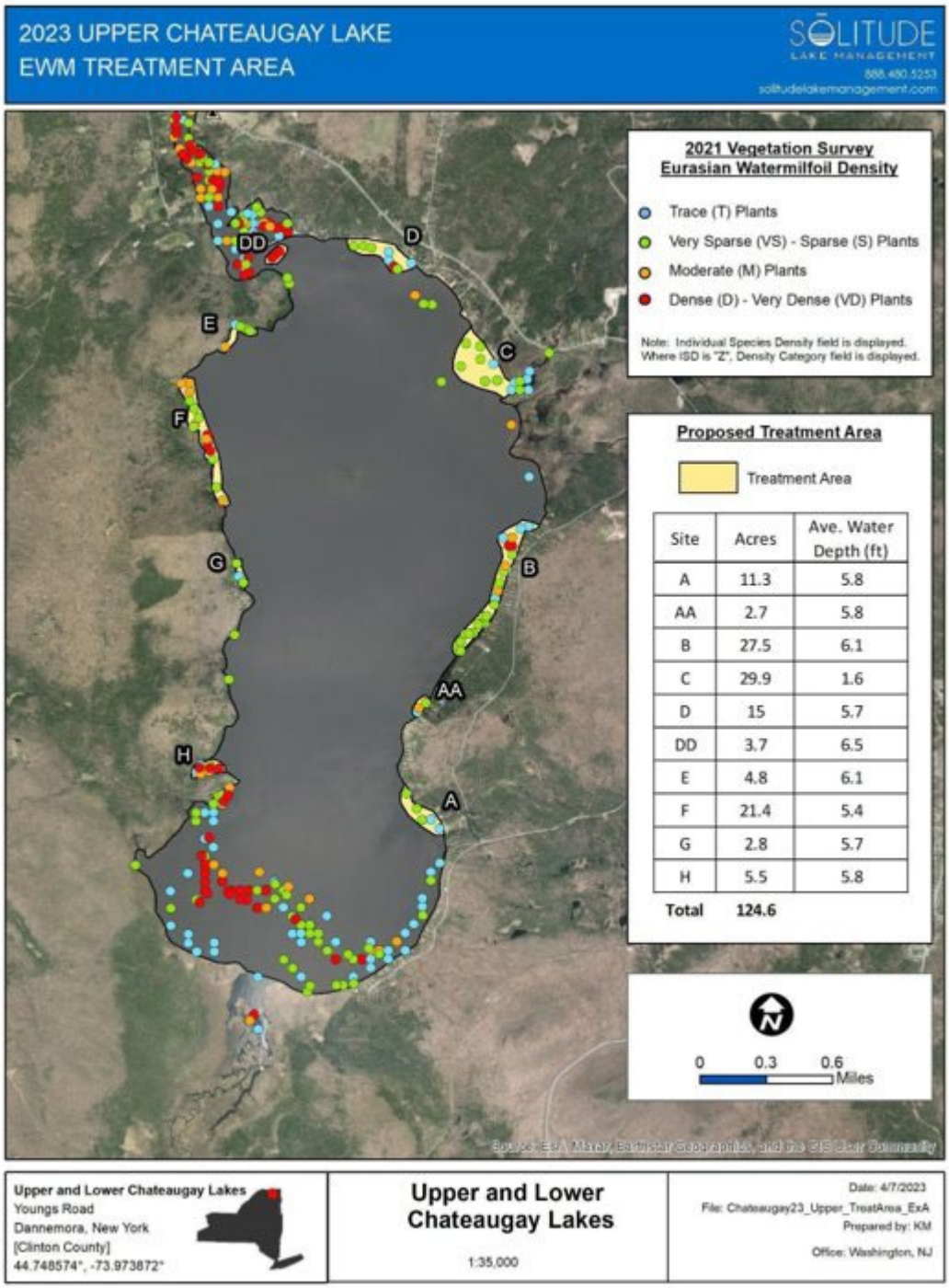
Maps

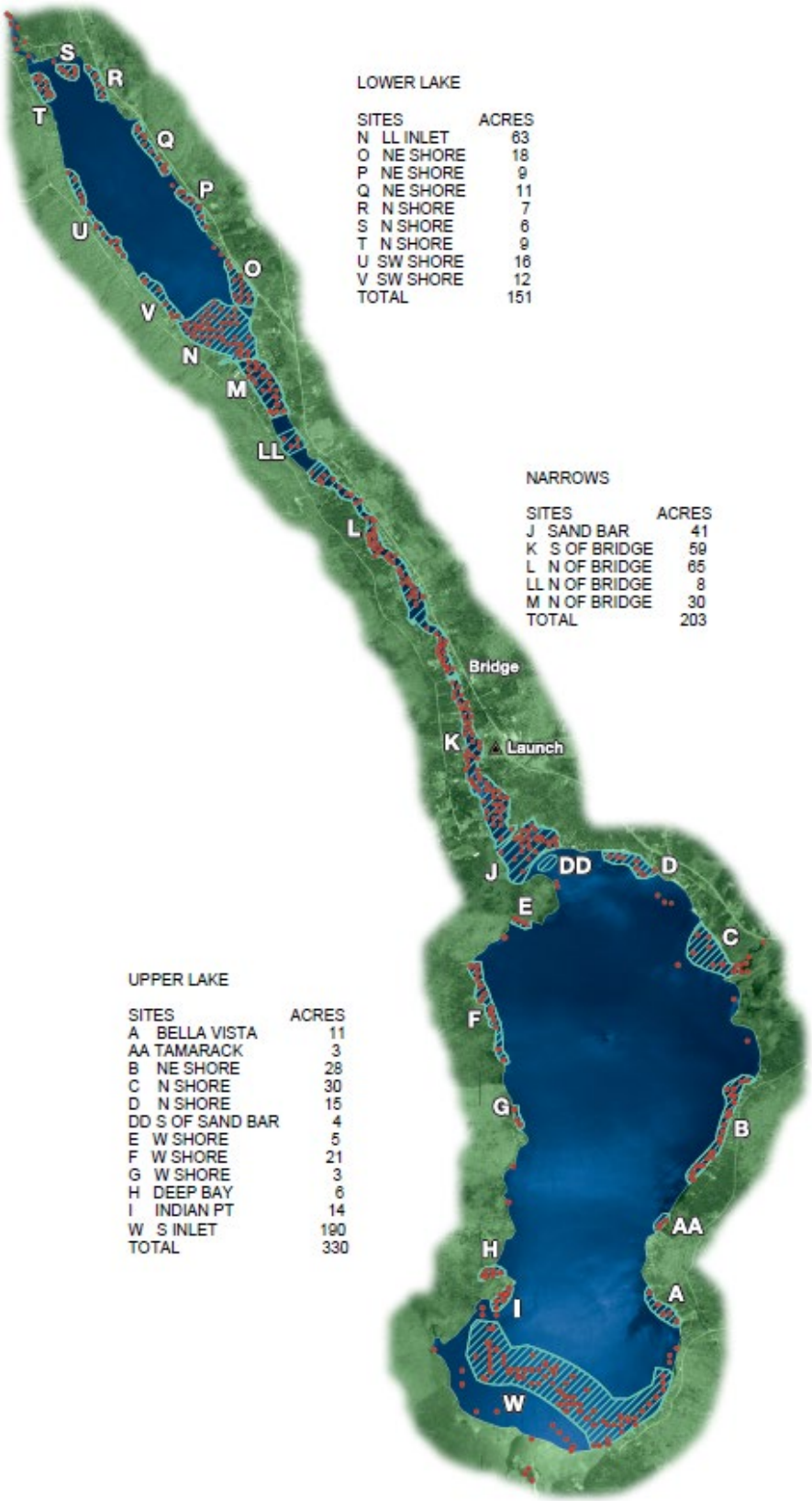
In 2021, the CLF commissioned a lake-wide aquatic plant survey to document the species present in the lake and their abundance, including the extent of invasive Eurasian watermilfoil (EWM). The survey found that EWM was present in 695 acres of the shoreline waters, or 48 percent of the area where plants can grow (littoral zone). This was an alarming increase from the comprehensive survey done in 2006, which set the stage for control efforts, when there were some 200 acres of EWM. Despite control efforts during the intervening years, the spread of EWM has outpaced control.

Below are the maps showing the milfoil density along the shoreline and the proposed treatment areas in each segment of the lake. A final map provides an overall view, with the addition of treatment areas in the South Inlet.


2023 LOWER CHATEAUGAY LAKE
EWM TREATMENT AREA
SOLITUDE
LAKE MANAGEMENT
888.480.5253
solitudelakemanagement.com
2021 Vegetation Survey
Eurasian Watermilfoil Density
Trace (T) Plants
Very Sparse (VS) - Sparse (S) Plants
Moderate (M) Plants
Dense (D) - Very Dense (VD) Plants
Note: Individual Species Density field is displayed. Where ISD is "Z", Density Category field is displayed.
Proposed Treatment Area
Treatment Area
Site | Acres | Ave. Water Depth (ft)
N1 | 28 | 4.1
N2 | 35 | 5.3
O | 17.8 | 5.5
P | 9.3 | 6.5
Q | 11 | 6.8
R | 7.3 | 6.6
S | 6 | 6.4
T | 8.7 | 5.0
U | 16.3 | 7.0
V | 12.1 | 8.5
Total | 151.5
S
R
T
Q
P
U
O
V
N2
N1
N
0 0.15 0.3 Miles
Upper and Lower Chateaugay Lakes
Youngs Road
Dannemora, New York
[Clinton County]
44.748574°, -73.973872°
Upper and Lower Chateaugay Lakes
1:18,032
Date: 4/7/2023
File: Chateaugay23_Lower_TreatArea_ExA
Prepared by: KM
Office: Washington, NJ


2023 CHATEAUGAY NARROWS
EWM TREATMENT AREA
SOLITUDE
LAKE MANAGEMENT
888.480.5253
solitudelakemanagement.com
2021 Vegetation Survey
Eurasian Watermilfoil Density
Trace (T) Plants
Very Sparse (VS) - Sparse (S) Plants
Moderate (M) Plants
Dense (D) - Very Dense (VD) Plants
Note: Individual Species Density field is displayed. Where ISD is "Z", Density Category field is displayed.
Proposed Treatment Area
Treatment Area
Site | Acres | Ave. Water Depth (ft)
J | 41.1 | 3.8
K | 58.8 | 5.1
L | 65.4 | 4.8
LL | 8.1 | 4.1
M | 29.9 | 4.3
Total | 203.6
M
LL
L
Launch
K
J
N
0 0.2 0.4
Miles
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
Upper and Lower Chateaugay Lakes
Youngs Road
Dannemora, New York
[Clinton County]
44.748574°, -73.973872°
Upper and Lower Chateaugay Lakes
1:24,000
Date: 4/7/2023
File: Chateaugay23_Narrows_TreatArea_ExA
Prepared by: KM
Office: Washington, NJ


2023 UPPER CHATEAUGAY LAKE
EWM TREATMENT AREA
SOLITUDE
LAKE MANAGEMENT
888.480.5253
solitudelakemanagement.com
2021 Vegetation Survey
Eurasian Watermilfoil Density
Trace (T) Plants
Very Sparse (VS) - Sparse (S) Plants
Moderate (M) Plants
Dense (D) - Very Dense (VD) Plants
Note: Individual Species Density field is displayed. Where ISD is "Z", Density Category field is displayed.
Proposed Treatment Area
Treatment Area
Site | Acres | Ave. Water Depth (ft)
A | 11.3 | 5.8
AA | 2.7 | 5.8
B | 27.5 | 6.1
C | 29.9 | 1.6
D | 15 | 5.7
DD | 3.7 | 6.5
E | 4.8 | 6.1
F | 21.4 | 5.4
G | 2.8 | 5.7
H | 5.5 | 5.8
Total 124.6
N
0 0.3 0.6
Miles
Upper and Lower Chateaugay Lakes
Youngs Road
Dannemora, New York
[Clinton County]
44.748574°, -73.973872°
Upper and Lower Chateaugay Lakes
1:35,000
Date: 4/7/2023
File: Chateaugay23_Upper_TreatArea_ExA
Prepared by: KM
Office: Washington, NJ



Overall map that shows the locations of EWM (red dots) and the treatment areas (blue hatches)

Overall Timeline and Budget

This table shows the overall timeline and estimated budget for chemical management with ProcellaCOR herbicide.

	Lower Lake	Narrows	Upper Lake	Annual Total
2024 (Pilot Project)				
Sand Bar (J)		$40,000		
South of Bridge (K)		$25,000		
South of Sand Bar (DD)			$4,000	
				$69,000
2025				
LL Inlet (N1/N2)	$75,000			
UL NE Shore/Sunset (B)			$30,000	
UL Deep Bay (H), Tamarack Pier (AA)			$11,000	
				$116,000
2026				
Lower Lake SW Shore (U,V)	$28,000			
N of Bridge (L, LL, M)		$25,000		
S of Bridge (K) re-treat Boat Launch		$25,000		
UL W Shore (E, F, G)			$29,000	
				$107,000
2027				
LL NE Shore (O, P, Q)	$38,000			
LL Lake N Shore (R, S, T)	$22,000			
UL N Shore (C, D)			$45,000	
				$105,000
2028				
UL Bella Vista (A)			$11,000	
UL Indian Point (I)			$14,000	
UL S Inlet (W)			$200,000	
				$225,000
TOTAL, 2024-2028	**$163,000**	**$115,000**	**$344,000**	**$622,000**