



# **CHAUTAUQUA LAKE HERBICIDE TREATMENT**

## **FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT**

LEAD AGENCY:  
**ELLERY TOWN BOARD**

PREPARED BY:  
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**WENDEL COMPANIES**

SPONSORED BY:  
**CHAUTAUQUA LAKE PARTNERSHIP**

**FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT (FSEIS)**

**CHAUTAUQUA LAKE HERBICIDE TREATMENT**

**LOCATION:** Chautauqua Lake  
Chautauqua County, New York

**DATE** Thursday, April 5, 2018

**LEAD AGENCY:** Ellery Town Board  
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**CONSULTANTS:** SOLitude Lake Management  
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DK Water Resource Consulting LLC  
45 Red Brook Circle  
Wolfeboro, NH 03894

**Date of Acceptance of the Draft Supplemental  
Environmental Impact Statement:** February 8, 2018

**Date of Public Hearing on Draft Supplemental  
Environmental Impact Statement:** March 1, 2018

**Deadline for Submission of Comments:** March 16, 2018

**Date of Acceptance of FSEIS** \_\_\_\_\_

**LIST OF PREPARERS / CONSULTANTS:**

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## **CHAPTER 1: INTRODUCTION**

## 1.0 INTRODUCTION

The Towns of Ellery, North Harmony, Busti, and Ellicott, and the Villages of Bemus Point and Celoron have proposed to undertake the application of United States Environmental Protection Agency (EPA) and New York State Department of Environmental Conservation (NYSDEC) registered herbicides on target areas of Chautauqua Lake (the Lake) to control invasive aquatic plants.

This Final Supplemental Environmental Impact Statement (FSEIS) has been prepared in accordance with the New York State Environmental Quality Review Act (SEQR) and its implementing regulations contained in 6 NYCRR Part 617, for the proposed application of herbicides on target areas of Chautauqua Lake. This FSEIS provides responses to substantive comments received during the public comment period and at the Public Hearing on the Draft Supplemental Environmental Impact Statement (DSEIS). All information contained in the DSEIS is incorporated by reference in this FSEIS, except as specifically revised, amended, or replaced (see Chapter 3).

In response to public complaints about the density of invasive macrophytes, including curlyleaf pondweed and Eurasian watermilfoil, in Chautauqua Lake, the Town of Ellery Town Board (Ellery Town Board), in coordination with other lakefront municipalities and the NYSDEC, is seeking to resume herbicide application in target areas of the Lake. The NYSDEC has required a Supplemental Environmental Impact Statement (SEIS) pursuant to SEQR before it will issue permits for future aquatic herbicide use in Chautauqua Lake. Therefore, the Ellery Town Board, as the Lead Agency, has required the preparation of a SEIS to update the evaluation of the potential environmental impacts of the use of specific herbicides in target locations of Chautauqua Lake.

This SEIS supplements the evaluation of the potential impacts of herbicides contained in the "Programmatic Environmental Impact Statement on Aquatic Vegetation Control Program of the Department of Environmental Conservation Division of Lands and Forests" prepared in 1981 by the NYSDEC (1981 PEIS) and the Supplemental Environmental Impact Statement to the New York State Aquatic Vegetation Control Program: Plan for Future Use of Aquatic Herbicides in Chautauqua Lake prepared by the Chautauqua County Department of Planning and Development in 1990 (1990 SEIS). The 1981 PEIS is included as Appendix B to the DSEIS. The 1990 SEIS is Appendix D to the DSEIS. The intent of this FSEIS is to update the 1990 SEIS based on the current state of the Lake and additional information on the proposed herbicides.

The Ellery Town Board has classified the proposed herbicide application treatment as a Type 1 action under SEQR based on a determination that the herbicide application will ultimately involve the physical disturbance (application of herbicides) of ten or more acres. This threshold for a Type 1 action is set forth at 6 NYCRR § 617.4(b). The Ellery Town Board is completing a coordinated environmental review of the proposed action

as required by SEQRA. On December 11, 2017, upon receiving the consent of all Involved Agencies, the Ellery Town Board established itself as Lead Agency and issued a Positive Declaration. A copy of the Positive Declaration issued by the Ellery Town Board, indicating that a SEIS would be prepared for this action, is included in Appendix A to the DSEIS.

The Town determined that the DSEIS was complete and ready for public review on February 8, 2018. Copies of the DSEIS were made available for public review, including an electronic version on the Town of Ellery's website. A public meeting to receive comments was held on March 1, 2018. The deadline to receive comments was March 12, 2018. In response to requests for more time to respond, the comment deadline was extended to March 16, 2018. Written comments were received from the NYSDEC, NYS Office of Parks, Recreation, and Historic Preservation, Chautauqua County Department of Health and Human Services, Chautauqua County Water Quality Task Force, and the Chautauqua Utility District. Comments were also received from members of the public and organizations both at the public meeting and in writing. All comments were reviewed and logged, and all substantive comments have been addressed in this FSEIS. Appendix B to this FSEIS includes the written comments that were received prior to the end of the comment period, and Appendix C contains the transcript of the Public Hearing.

The proposed application of herbicides would be in accordance with permits received from the NYSDEC and in accordance with the New York State product labels. The herbicides that are being evaluated are Aquathol® K (active ingredient endosulf), Navigate (active ingredient 2, 4-D), and Renovate 3 (active ingredient triclopyr). All three herbicides have been the subjects of herbicide specific supplemental environmental impact statements approved by the NYSDEC and have been used in lakes throughout New York State. Aquathol® K and Navigate were evaluated in the 1981 PEIS, which is Appendix B to the DSEIS. Renovate was evaluated in an herbicide specific SEIS for Renovate, which is attached as Appendix C to the DSEIS.

## **CHAPTER 2: SUMMARY OF DSEIS/FSEIS**

## 2.0 SUMMARY OF DSEIS/FSEIS

The proposed action is the application of EPA- and DEC-registered herbicides (Aquathol K, Clearcast, Navigate, and Renovate 3) in target areas of Chautauqua Lake to eliminate or control invasive macrophyte populations. Invasive submerged aquatic vegetation, also known as macrophytes, including curlyleaf pondweed and Eurasian watermilfoil, have impeded recreational use of the Lake. The Ellery Town Board, in coordination with other lakefront municipalities and the NYSDEC, is seeking to resume targeted herbicide application in the Lake in order to control these macrophytes. The herbicides that are being evaluated in the SEIS are Aquathol® K (active ingredient endothall), Navigate (active ingredient 2, 4-D), and Renovate 3 (active ingredient triclopyr). All three herbicides have been the subjects of herbicide specific SEIS's approved by the NYSDEC and have been used in lakes throughout New York State. This SEIS evaluates potential impacts specific to Chautauqua Lake.

As noted in the DSEIS, Chautauqua Lake includes 42-miles of shoreline across nine municipalities: the Towns of Busti, Chautauqua, Ellery, Ellicott, and North Harmony, and the Villages of Bemus Point, Celoron, Lakewood, and Mayville. The Lake, which is approximately 13,000 acres in size, is divided into north and south basins, separated by a narrows at Bemus Point. The southern basin is generally shallow, with a maximum depth of 19 feet, and tends to have a higher concentration of macrophytes. However, non-native macrophytes are found in both basins of the Lake.

The history of weed control is outlined in the DSEIS. Various methods have been used since the 1930's. In the decades since the 1990 SEIS was issued, the ecology of the Lake has been studied in reports including a Watershed Management Plan (2010), a Total Maximum Daily Load (TDML) for Phosphorus study (2012), and the Macrophyte Management Study (MMS) for the Lake (2017). These reports provide insights into issues pertaining to weed growth, including in the case of the MMS, a discussion of the use of aquatic herbicides. They are not updates to the 1990 SEIS.

Certain municipalities around the Lake, including the Town of Ellery, intend to undertake the application of EPA- and DEC-registered herbicides in target areas in the Lake, subject to the completion of this SEIS, receipt of aquatic pesticide permits from the NYSDEC, and completion of the SEQR process. This SEIS is intended to identify potential impacts and explore ways to minimize significant adverse environmental impacts of herbicide application. The SEIS also evaluates potential alternatives to the proposed action.

The herbicides being considered in this project are Aquathol® K, Navigate, and/or Renovate 3. Figure 1-3 in the DSEIS illustrates proposed target areas. The target areas for herbicide application roughly include:

- Bemus Bay
- Bemus Point



- Bly Bay
- Burtis Bay
- Busti/Lakewood
- Stockholm/Greenhurst
- A portion of the Stow shoreline on the Lake's west shore
- Sunrise Cove
- Sunset Bay
- Warner Bay

The proposed activity will be undertaken in compliance with all applicable NYSDEC regulations and permit requirements and in accordance with the herbicide product labels to minimize potential impacts.

The application of the herbicides is intended to address nuisance macrophyte growths, primarily curlyleaf pondweed and Eurasian watermilfoil. Both species are non-native, exhibit aggressive growth characteristics, and degrade or impede recreational use and aesthetic conditions of Chautauqua Lake.

Consistent with its mission, the Chautauqua Lake Partnership (CLP) conducted over 75 educational meetings, presentations, mailings, and events beginning in November 2016 to raise awareness of Lake issues and garner support for its 2017 and 2018 activities. CLP assisted the Town of Ellery and Village of Bemus Point in the application of herbicides to Bemus Bay in June 2017 as part of a NYSDEC permitted Data Collection Project. The Data Collection Project demonstrated that herbicides could effectively reduce the density of Eurasian watermilfoil in the Lake. (SOLitude Dec. 2017) (DSEIS Appendix E).

As a result of the positive results of the Data Collection Project and this community outreach, ten lakeshore communities requested inclusion in CLP's 2018 herbicide treatment plans. These communities enlisted the support of their municipal representatives in the four Towns and three Villages included in this SEIS. Each Town and Village then unanimously passed a resolution supporting the SEIS and SEQR process.

As part of the 2018 herbicide application program, SOLitude conducted preliminary weed density/type and bottom sediment depth surveys offshore of the majority of these communities in June and October 2017. Further surveys will be conducted in spring 2018. Surveys include weed density/type and bottom sediment depth. The proposed treatment areas were selected based on (1) invasive weed (curlyleaf pondweed and Eurasian watermilfoil) concentrations, (2) community input on noxious weed interference with aesthetics, swimming, boating, fishing, and other recreational pursuits, (3) Lake bottom sediment depth since deep sediments are more conducive to nuisance level plant growth, and (4) community input on weed fragment accumulation and associated algae growth and odor.

This SEIS seeks to address the negative impacts of excessive invasive macrophyte growth on Chautauqua Lake and to evaluate to what extent herbicides may be used in target areas of the Lake to benefit Lake ecology, as well as tourism, recreation, and public enjoyment of the Lake.

## **CHAPTER 3: REVISIONS TO THE DSEIS**

### 3.0: REVISIONS TO THE DSEIS

The following revisions have been made to DSEIS in response to new information learned and comments received from Involved Agencies, Interested Agencies, Interested Parties, community organizations, and members of the general public.

#### 1. Treatment Areas

The maximum treatment area coverage (for a given year) was reduced from 1,031 to 989 acres, a reduction of 42 acres. This reduction occurred after review of NYSDEC dilution models applied to the proposed treatment areas and additional information on water depths within the proposed treatment areas. The new treatment areas comply with NYSDEC regulatory requirements regarding the application of 2, 4-D.

TREATMENT AREA REVISIONS (ACRES)					
Figure		DSEIS (Acres)	FEIS (Acres)	Change (Acres)	DSEIS Page
4-1	Busti/Lakewood	289	289	None	Page 88
4-2	Stockholm/Greenhurst	55	55	None	Page 88
4-3	Bemus Bay	124	124	None	Page 89
4-4A	Burtis Bay (Ellicott)	277	198	None	Page 90
4-4B	Burtis Bay (Celoron)		79	79	Page 90
4-5	Stow	48	48	None	Page 91
4-6	Warner Bay	42	37	-5	Page 92
4-7	Bly Bay	15	15	None	Page 93
4-8	Bemus Point	55	40	-15	Page 94
4-9	Sunrise Cove	23	23	None	Page 95
4-10	Sunset Bay	103	81	-22	Page 96
		<b>1031</b>	<b>989</b>	<b>-42</b>	

#### 2. Page 8, Paragraph 3

##### Original

"The MMS identified the use of aquatic herbicides as an appropriate management technique within over 50% of the Lake's management zones. While the MMS provides useful information to help evaluate the use of herbicides, it did not update the 1990 SEIS, nor did it include a strategy for implementing the varying macrophyte management strategies it recommends.

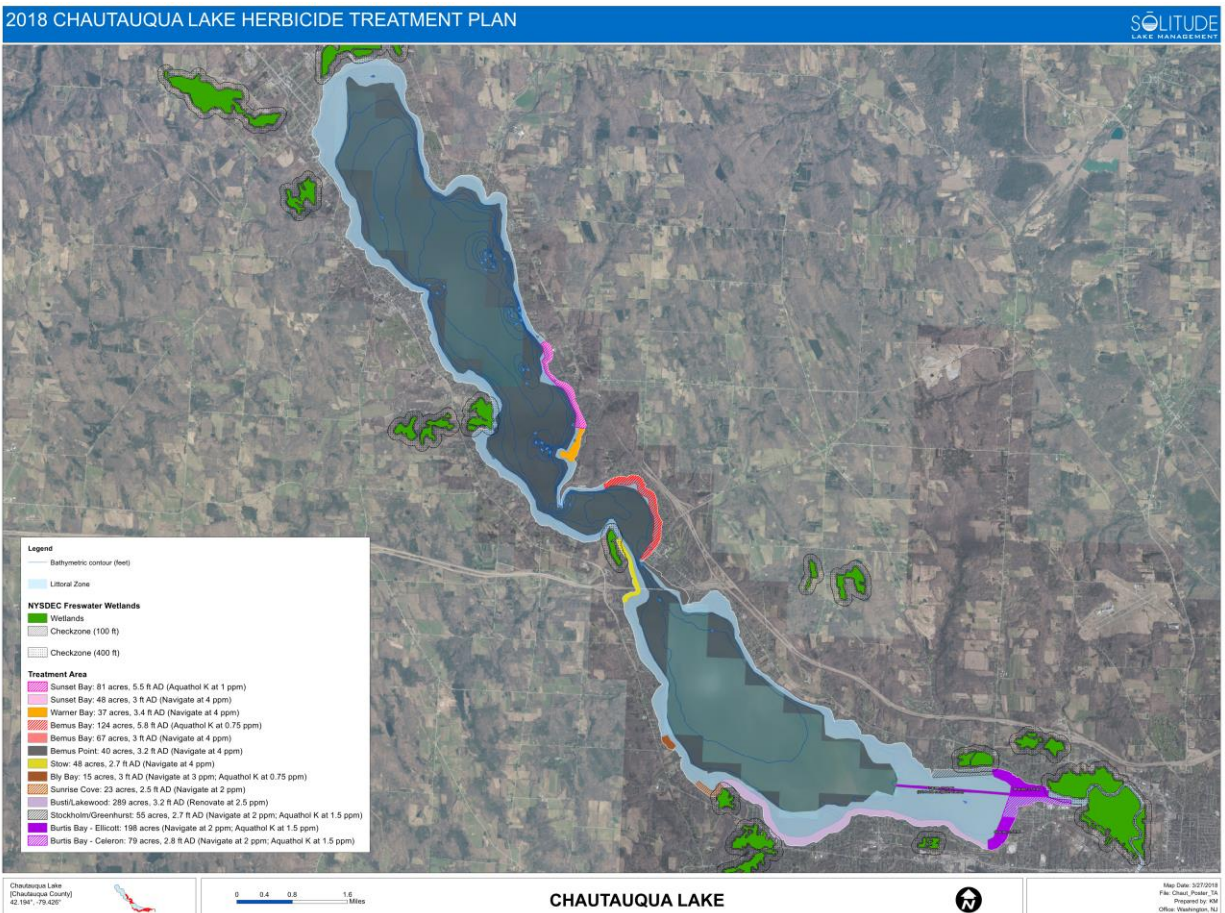
As a result, the MMS did not create a method through which the included herbicide weed management tool could not be utilized. In addition, by the time it was published, the MMS was based on data that, in some cases, were a decade old."

### Revised

"The MMS identified the use of aquatic herbicides as an appropriate management technique within over 50% of the Lake's management zones. While the MMS provides useful information to help evaluate the use of herbicides, it did not update the 1990 SEIS, nor did it include a strategy for implementing the varying macrophyte management strategies it recommends. As a result, the MMS did not create a method through which the included herbicide weed management tool could be utilized. In addition, by the time it was published, the MMS was based on data that, in some cases, were a decade old. **The MMS did not undergo the SEQR process and thus, did not create a method through which the included herbicide weed management tool could be utilized.**"

### 3. Page 11, Figure 3: Proposed Target Areas

**New Figure 3: Proposed Target Areas** (Full Map in Appendix F: Mapping)



#### 4. Page 21, Paragraph 2

##### Original

"The aquifer at the southern end of the Lake services the City of Jamestown."

##### Revised

"**The Cassadaga aquifer** services the City of Jamestown"

#### 5. Page 21, Paragraph 2

##### Original

"All wells surrounding the Lake are expected to be located in the aquifers showing on Figure 3-1."

##### Revised

"**Most** wells surrounding the Lake are expected to be located in the aquifers showing on Figure 3-1."

#### 6. Page 23, Paragraph 2

##### Original

"These monitoring wells are currently located in Panama and Falconer (USGS Groundwater Watch, 2018)."

##### Revised

"These monitoring wells are currently located in Panama and **Gerry** (USGS Groundwater Watch, 2018)."

#### 7. Page 24, Paragraph 2

##### Original

"Exceptions included the Chautauqua Utility District (Chautauqua, NY), the Chautauqua Heights Water District Number 2 (Dewittville, NY), and an unknown number of residences."

##### Revised

"Exceptions included the Chautauqua Utility District (Chautauqua, NY), the **Chautauqua Water District #2** (Dewittville, NY), and an unknown number of residences."

#### 8. Page 24, Paragraph 4

##### Original

"The 2016 CSLAP report only covers the north basin of Chautauqua Lake (Figure 3-3a)."

##### Revised

"The 2016 CSLAP report **covers the north basin and south basin** of Chautauqua Lake."

#### 9. Page 35, Paragraph 5

##### Original

"Racine-Johnson identified an additional 9 aquatic macrophyte species found in the Lake."

##### Revised

"Racine-Johnson identified an additional **12** aquatic macrophyte species found in the Lake."

#### 10. Page 37, Table 3-3: Fish Species, Chautauqua Lake (Adapted from CCDPD 1990)

##### **New Figure 3-3: Fish Species, Chautauqua Lake (Adapted from CCDPD 1990)**

Binomial Name	Common Nomenclature
<b>Ambloplites rupestris</b>	Rock Bass
<b>Amia calva</b>	Bowfin <b>(NO LONGER PRESENT IN THE LAKE)</b>
<b>Camptostoma anomalum</b>	Stoneroller Minnow
<b>Carassius auratus</b>	Goldfish <b>(INTRODUCED)</b>
<b>Caproides cyprinus</b>	Quillback Carpsucker
<b>Catostomus commersoni</b>	White Sucker
<b>Coregonus artedii</b>	Cisco
<b>Cottus bairdii</b>	Mottled Sculpin
<b>Clinostomus elongatus</b>	Reside Dace
<b>Culaea inconstans</b>	Brook Stickleback
<b>Cyprinus carpio</b>	Carp <b>(INTRODUCED)</b>
<b>Dorosoma cepedianum</b>	Gizzard Shad <b>(INTRODUCED)</b>
<b>Esox americanus</b>	Grass Pickerel <b>(INTRODUCED)</b>
<b>E. Lucius</b>	Northern Pike <b>(INTRODUCED)</b>
<b>E. masquinongy</b>	Muskellunge
<b>Etheostoma caeruleum</b>	Rainbow Darter

<b>E. exile</b>	Iowa Darter
<b>E. flabellare</b>	Fantail Darter
<b>E. nigrum</b>	Western Johnny Darter
<b>E. olmstedii</b>	Tessellated Darter
<b>Fundulus diaphanus</b>	Banded Killifish
<b>Hypentelium nigricans</b>	Northern Hog Sucker
<b>I. nebulosus</b>	Brown Bullhead
<b>I. punctatus</b>	Channel Catfish <b>(INTRODUCED)</b>
<b>Labidesthes sicculus</b>	Brook Silversides
<b>Lepisosteus oculatus</b>	Spotted Gar
<b>L. osseus</b>	Longnose Gar
<b>L. platostomus</b>	Shortnose Gar <b>(NO LONGER PRESENT IN THE LAKE)</b>
<b>L. gibbosus</b>	Pumpkinseed Sunfish
<b>L. macrochirus</b>	Bluegill Sunfish
<b>Micropterus dolomieu</b>	Smallmouth Bass
<b>M. salmoides</b>	Largemouth Bass
<b>Morone chrysops</b>	White Bass <b>(INTRODUCED)</b>
<b>Morone americana</b>	White Perch <b>(INTRODUCED)</b>
<b>Moxostoma anisurum</b>	Silver Red Horse
<b>M. macrolepidotum</b>	Shorthead Redhorse Sucker
<b>Notemigonus chrysoleucas</b>	Golden Shiner
<b>Notropis atherinoides</b>	Emerald Shiner
<b>N. cornutus</b>	Common Shiner
<b>N. heterodon</b>	Blackchin Darter
<b>N. heterolepis</b>	Blacknose Minnow
<b>Notropis hudsonius</b>	Spottail Shiner
<b>N. spilopterus</b>	Spotfin Shiner
<b>N. volucellus</b>	Mimic Shiner
<b>Noturus miurus</b>	Brindled Madtom
<b>Perca flavescens</b>	Yellow Perch
<b>Percina caproides</b>	Logperch
<b>P. maculate</b>	Blackside Darter
<b>Pimephales notatus</b>	Bluntnose Minnow
<b>P. promelas</b>	Fathead Minnow
<b>Polyodon spathula</b>	Paddlefish
<b>Pomoxis annularis</b>	White Crappie <b>(INTRODUCED)</b>
<b>P. nigromaculatus</b>	Black Crappie <b>(INTRODUCED)</b>
<b>Rhinichthys atratulus</b>	Western Blacknosed Dace
<b>Oncorhynchus mykiss</b>	Rainbow Trout <b>(INTRODUCED)</b>
<b>Salmo trutta</b>	Brown Trout <b>(INTRODUCED)</b>
<b>Salvelinus fontinalis</b>	Brook Trout
<b>Schilbeodes marginatus</b>	Mad Tom
<b>Semotilus atromaculatus</b>	Creek Chub
<b>Stizostedion vitreum</b>	Walleye <b>(INTRODUCED)</b>
<b>Umbra limi</b>	Central Mudminnow



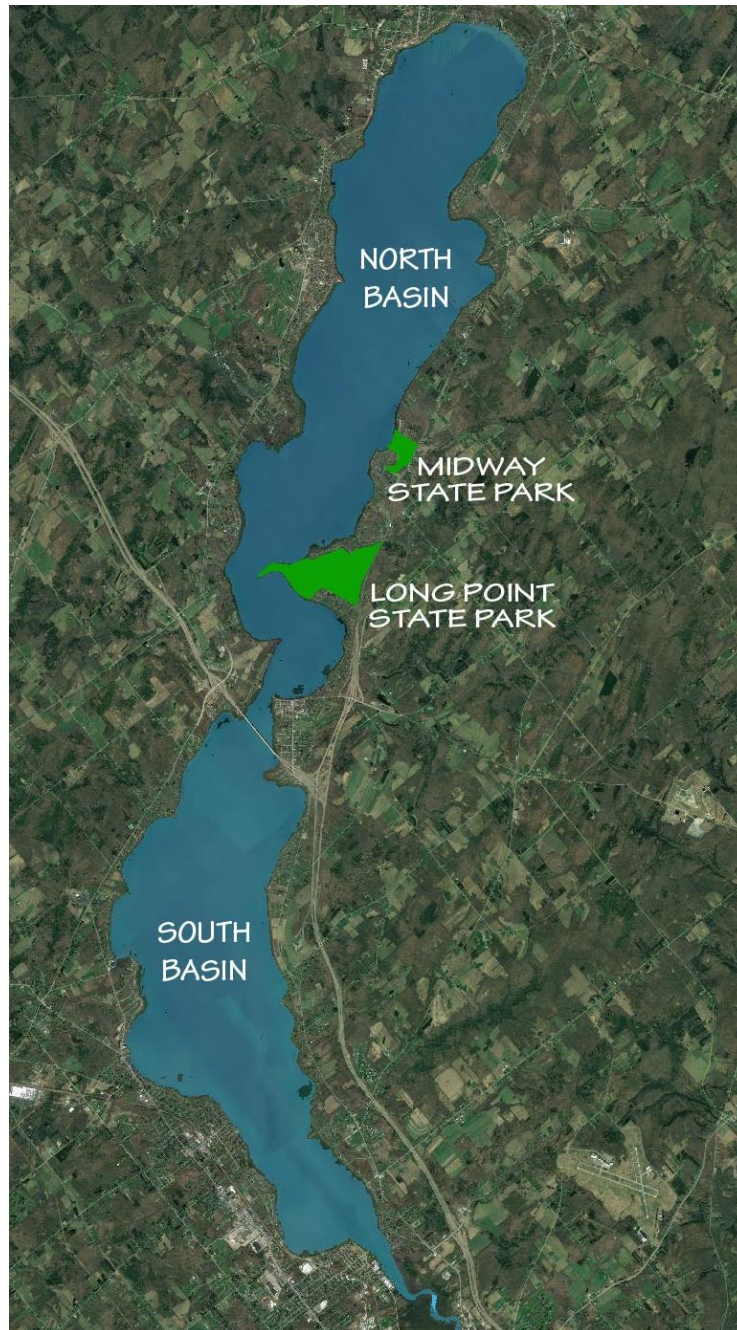
11. Page 45, Table 3-6: Potential Rare Plants/Animals

**New Table 3-6: Potential Rare Plants/Animals**

Binomial Name	Common Nomenclature	Last Year Documented	Notes
<b><i>Gavia immer</i></b>	Common Loon	2005	Species of Special Concern
<b><i>Littorella uniflora</i></b>	American Shore-Grass	1937	
<b><i>Monarda clinopodia</i></b>	Basil-Balm	1963	
<b><i>Notropis heterodon</i></b>	Blackchin Shiner	1937	Not Endangered
<b><i>Potamogeton hillii</i></b>	Hill's Pondweed	2017	Threatened
<b><i>Ptychobranhus fasciolaris</i></b>	Kidneyshell Mussel	2008	Not Endangered
<b><i>Stuckenia filiformis</i></b>	Slender Pondweed	1936	Endangered
<b><i>Apalone spinifera</i></b>	Spiny Softshell Turtle		Species of Special Concern

12. Page 56, Figure 3-11: Parks

Revised Figure 3-11: State Parks



**13. Pages 60 - 126, Header**

Original

"Draft, Attorney Work Product, Attorney Client Privileged, Not for Public Distribution."

Revised

Removed from document.

**14. Page 61, Paragraph 2**

Original

"Exceptions included the Chautauqua Utility District (Chautauqua, NY), the Chautauqua Heights Water District Number 2 (Dewittville, NY), and an unknown number of residences."

Revised

"Exceptions included the Chautauqua Utility District (Chautauqua, NY), the **Chautauqua Water District #2**, and an unknown number of residences."

**15. Page 61, Paragraph 3**

Original

"Systems serving private condominiums developments on the Lake (i.e., Point Chautauqua) also rely on Lake water, as do a small number of private residences."

Revised

"**Some** systems serving private condominiums developments on the Lake also rely on Lake water, as do a small number of private residences."

**16. Page 65, Table 3-16: Additional Water Discharge Sites**

Original

"Table 3-16: Additional Water Discharge Sites"

Revised

"Table 3-16: Additional Water Discharge Sites **in 2011 (Source: LWRP 2011)**"

**17. Pages 68, Paragraph 3**

Original

"In NY, additional restrictions on swimming until the day after application, and for potable water use (MCL of 0.005 ppm)."

Revised

"In NY, additional restrictions on swimming until the day after application, and for potable water use (MCL of **0.050 ppm**)."

**18. Page 74, Paragraph**

Original

"The Renovate setback distance is based on expected application rate and treatment plot size (> 16 acres), but the high label threshold (0.40 ppm) for potable water in relation to the NYS Department of Health threshold of 0.050 suggests that potential movement of Renovate would be significantly greater than the other herbicides."

Revised

"The Renovate setback distance is based on expected application rate and treatment plot size (> 16 acres), but the high label threshold (0.40 ppm) for potable water in relation to the NYS Department of Health threshold of 0.050 **ppm** suggests that potential movement of Renovate would be significantly greater than the other herbicides."

**19. Page 75, Paragraph 2**

Original

"To provide some guidance in this document, the total area of the ten proposed treatment zones was calculated for total volume, which equaled 4,459.5 acre-feet. (Average depth was based on those sample points measured for water depth during the plant survey.) Using this conservative total volume, the table below shows the theoretical partial or whole Lake concentration of each herbicide at anticipated application rates and areas."

**Table 4-1: Herbicide Application Rates and Concentrations**

Herbicide	Application Rate	South Basin concentration	Both basins concentration
<b>Renovate 3</b>	2.0-2.5 ppm	0.0499 ppm	0.0146 ppm
<b>Navigate</b>	2.0-4.0 ppm	0.0099 ppm	0.0033 ppm
<b>Aquathol® K</b>	0.75-1.5 ppm	0.0347 ppm	0.0095 ppm

Revised

"To provide some guidance in this document, the total area of the ten proposed treatment zones was calculated for total volume, which equaled **4,107.7** acre-feet. (Average depth was based on those sample points measured for water depth during the plant survey.) Using this conservative total volume, the table below shows the theoretical partial or whole Lake concentration of each herbicide at anticipated application rates and areas."

**New Table 4-1: Herbicide Application Rates and Concentrations**

Herbicide	Application Rate	South Basin concentration	Both basins concentration
<b>Renovate 3</b>	2.5 ppm	0.0355 ppm	0.0074 ppm
<b>Navigate</b>	2.0 – 4.0 ppm	0.0487 ppm	0.0226 ppm
<b>Aquathol® K</b>	0.75 - 1.5 ppm	0.0249 ppm	0.0088 ppm

20. Page 77, Table 4-2: Proposed Sampling Procedures

**New Table 4-2: Proposed Sampling Procedures**

Treatment Area	Proposed Herbicide(s) and Concentration(s) (mg/l)	Inside treatment area	Outside treatment area
<b>Busti/Lakewood</b>	Renovate (2.5 ppm)	4 samples	2 samples
<b>Stockholm/Greenhurst</b>	Navigate (2.0 ppm), Aquathol® K (1.5 ppm)	2 samples	1 sample
<b>Bemus Bay</b>	Navigate (4.0 ppm), Aquathol® K (0.75 ppm)	2 samples	1 sample
<b>Burtis Bay</b>	Navigate (2.0 ppm), Aquathol® K (1.5 ppm)	4 samples	2 samples
<b>Stow</b>	Navigate (4.0 ppm)	3 samples	1 sample
<b>Warner Bay</b>	Navigate (4.0 ppm)	2 samples	1 sample
<b>Bly Bay</b>	Navigate (3.0 ppm), Aquathol® K (0.75 ppm)	1 sample	1 sample
<b>Bemus Point</b>	Navigate (4.0 ppm)	2 samples	2 samples
<b>Sunrise Cove</b>	Navigate (2.0 ppm)	3 samples	1 sample
<b>Sunset Bay</b>	Navigate (4.0 ppm, Aquathol® K (1.0 ppm)	3 samples	2 sample
<b>Chautauqua Institution</b>	Outside treatment area	na	1 sample
<b>Lake Outlet</b>	Outside treatment area	na	1 sample

**21. Page 85, Table 4-6: Overlap Between Proposed Treatment Zones and Fish Spawning, Rearing, and Endangered Species Zones from the MMS (EcoLogic 2017)**

**New Table 4-6: Overlap Between Proposed Treatment Zones and Fish Spawning, Rearing, and Endangered Species Zones from the MMS (EcoLogic 2017)**

Overlap of Proposed Treatment Zones with Fisheries and Endangered Species Environmentally Sensitive Zones from MMS								
Proposed Treatment Area	Figure	Proposed Herbicide(s) and Concentration(s) (mg/l)	Fish Rearing/Spawning (FS1)	Fish Spawning (FS2)	Fish Rearing (FS3)	RTE Species (ES1 Kidneyshell Mussel)	RTE Species (ES2 Spiny Softshell Turtle)	RTE Species (ES3 Potomageton hillii)
<b>Busti/Lakewood</b>	4-1	Renovate (2.5 ppm)	yes		yes			
<b>Stockholm/Greenhurst</b>	4-2	Navigate (2.0 ppm), Aquathol® K (1.5 ppm)	yes					
<b>Bemus Bay</b>	4-3	Navigate (4.0 ppm), Aquathol® K (0.75 ppm)	yes			yes		
<b>Burlis Bay</b>	4-4	Navigate (2.0 ppm), Aquathol® K (1.5 ppm)			yes			yes <sup>1</sup>
<b>Stow</b>	4-5	Navigate (4.0 ppm)	yes					
<b>Warner Bay</b>	4-6	Navigate (4.0 ppm)						
<b>Bly Bay</b>	4-7	Navigate (3.0 ppm), Aquathol® K (0.75 ppm)						
<b>Bemus Point</b>	4-8	Navigate (4.0 ppm)	yes					
<b>Sunrise Cove</b>	4-9	Navigate (2.0 ppm)	yes					
<b>Sunset Bay</b>	4-10	Navigate (4.0 ppm), Aquathol® K (1.0 ppm)					yes	

<sup>1</sup>Based on 2007 data. Presence also noted in spring 2017 Racine-Johnson survey.

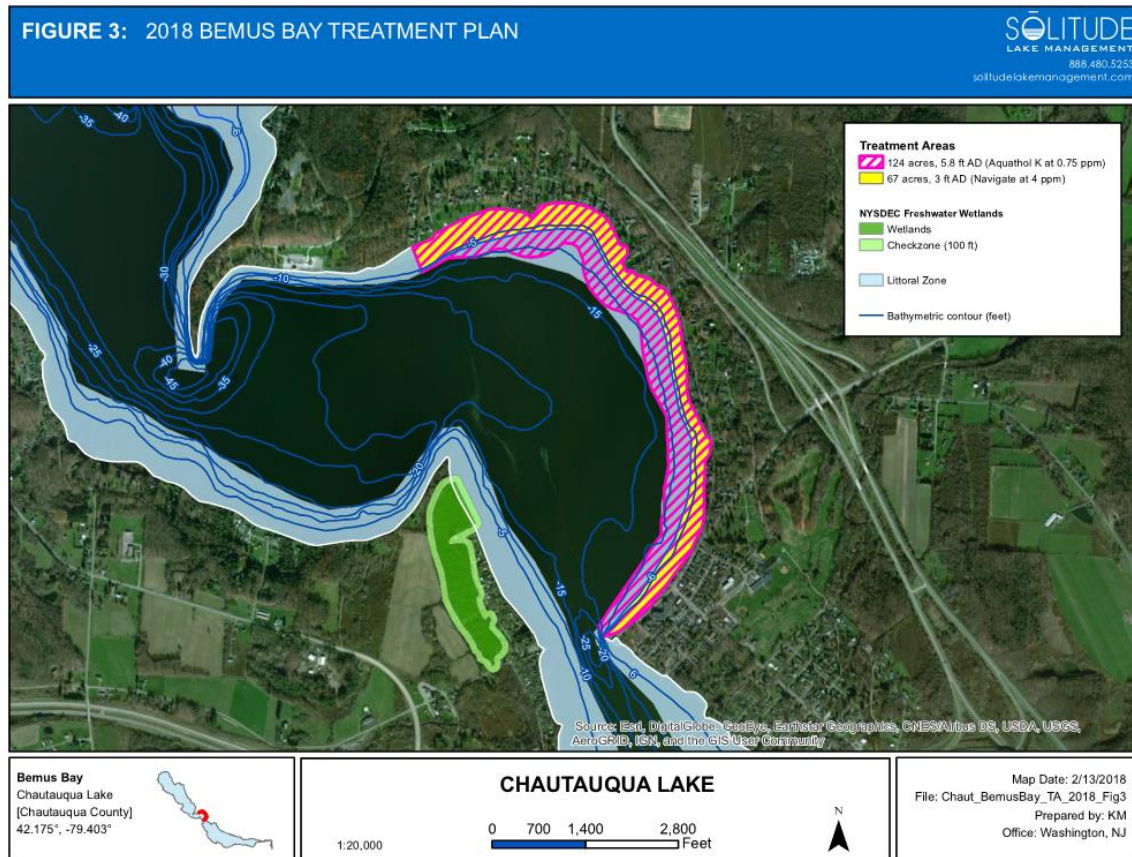


## 22. Page 89, Figure 4-3: Treatment Area Map - Bemus Bay

### Revised

The Aquathol K area has been reduced from 134 to 124 acres; the Navigate area has been reduced from 134 to 67 acres. The Navigate application rate increased from 3.0 to 4.0 ppm. A full map is included in Appendix F: Mapping.

### **New Figure 4-3: Treatment Area Map - Bemus Bay**



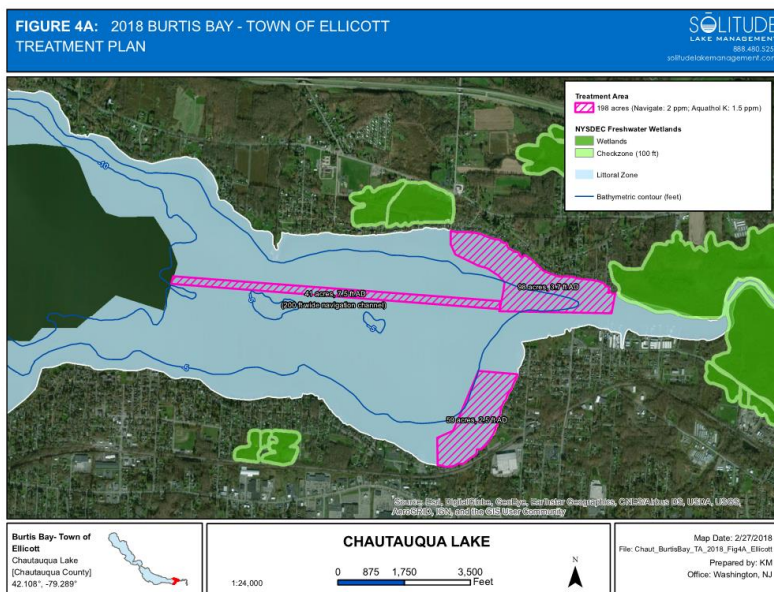


## 23. Page 90, Figure 4-4: Treatment Area Map - Burtis Bay

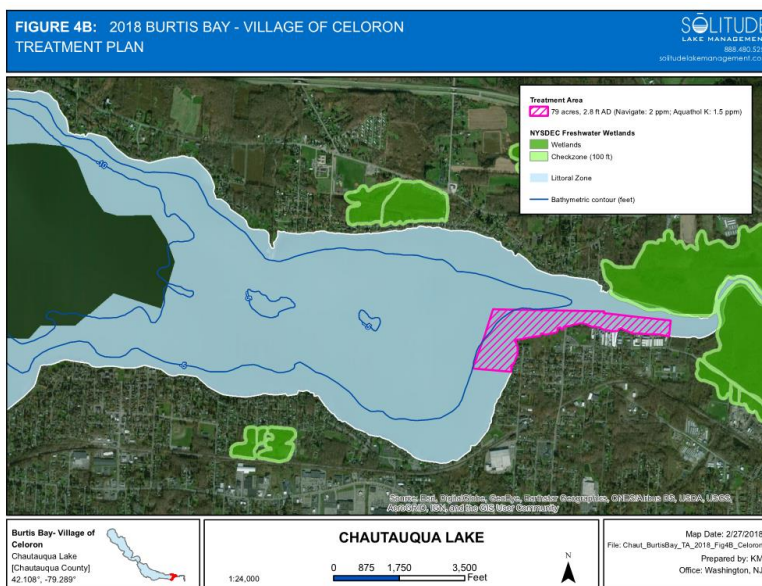
### Revised

The total areas, products and application rates remain the same as in the DSEIS, but the area was divided between two jurisdictions for permitting purposes: 198 acres in Ellicott (new Figure 4-4A) and 79 acres in Celeron (new Figure 4-4B). Full maps are included in Appendix F: Mapping.

### **New Figure 4-4A: 2018 Burtis Bay - Town of Ellicott**



### **New Figure 4-4B: 2018 Burtis Bay - Village of Celeron**

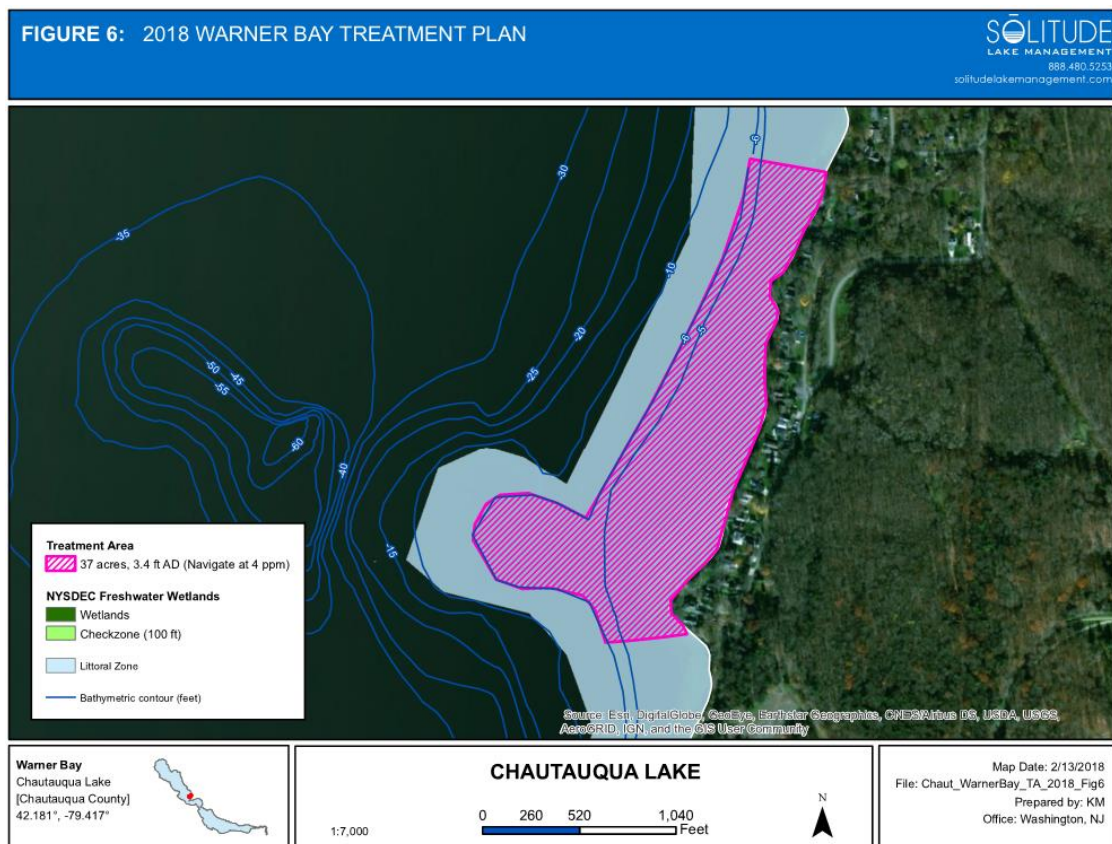


## 24. Page 92, Figure 4-6: Treatment Area Map - Warner Bay

### Revised

Upon receiving better water depth information, the proposed treatment area was reduced from 42 to 37 acres, and the Navigate rate was increased from 2.0 to 4.0 ppm in order to achieve control. Full map is included in Appendix F: Mapping.

### **New Figure 4-6: Treatment Area Map - Warner Bay**

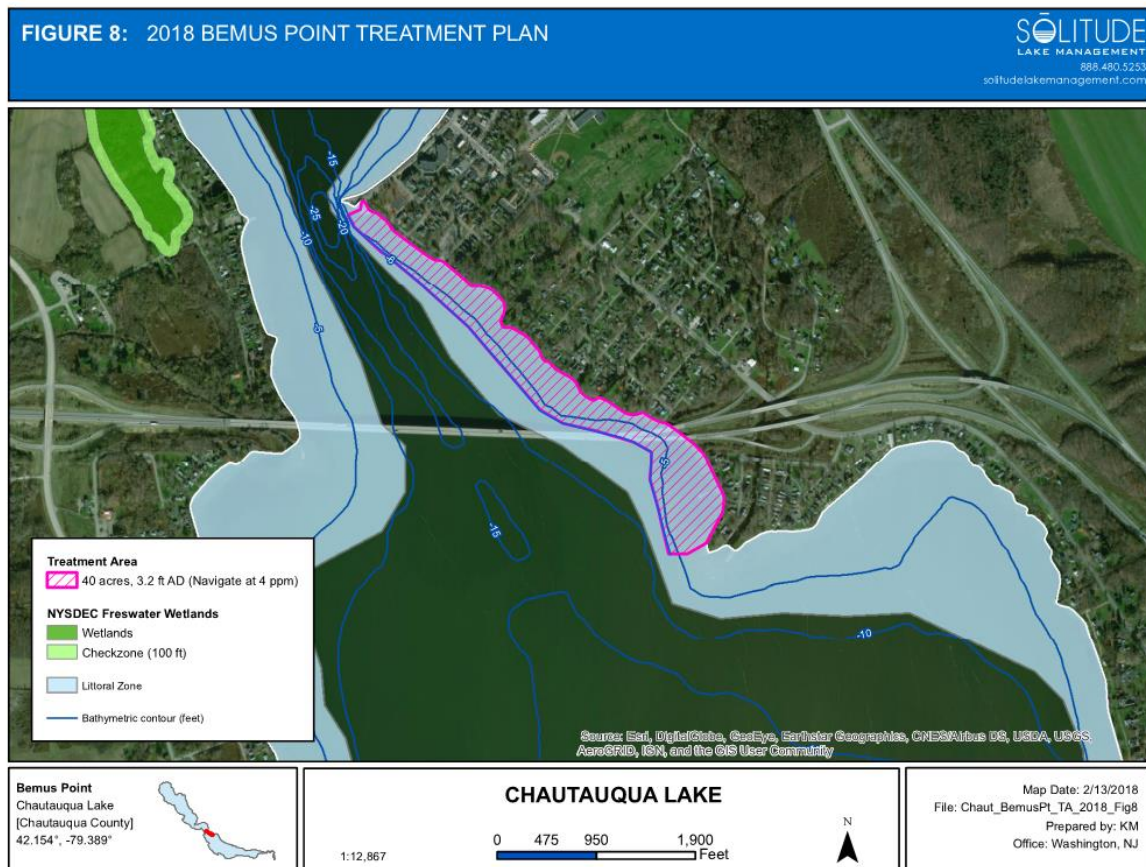


## 25. Page 94, Figure 4-8: Treatment Area Map - Bemus Point

### Revised

The treatment area was reduced from 55 to 40 acres to conform to the 6' contour line. Full map is included in Appendix F: Mapping.

### **New Figure 4-8: Treatment Area Map - Bemus Point**



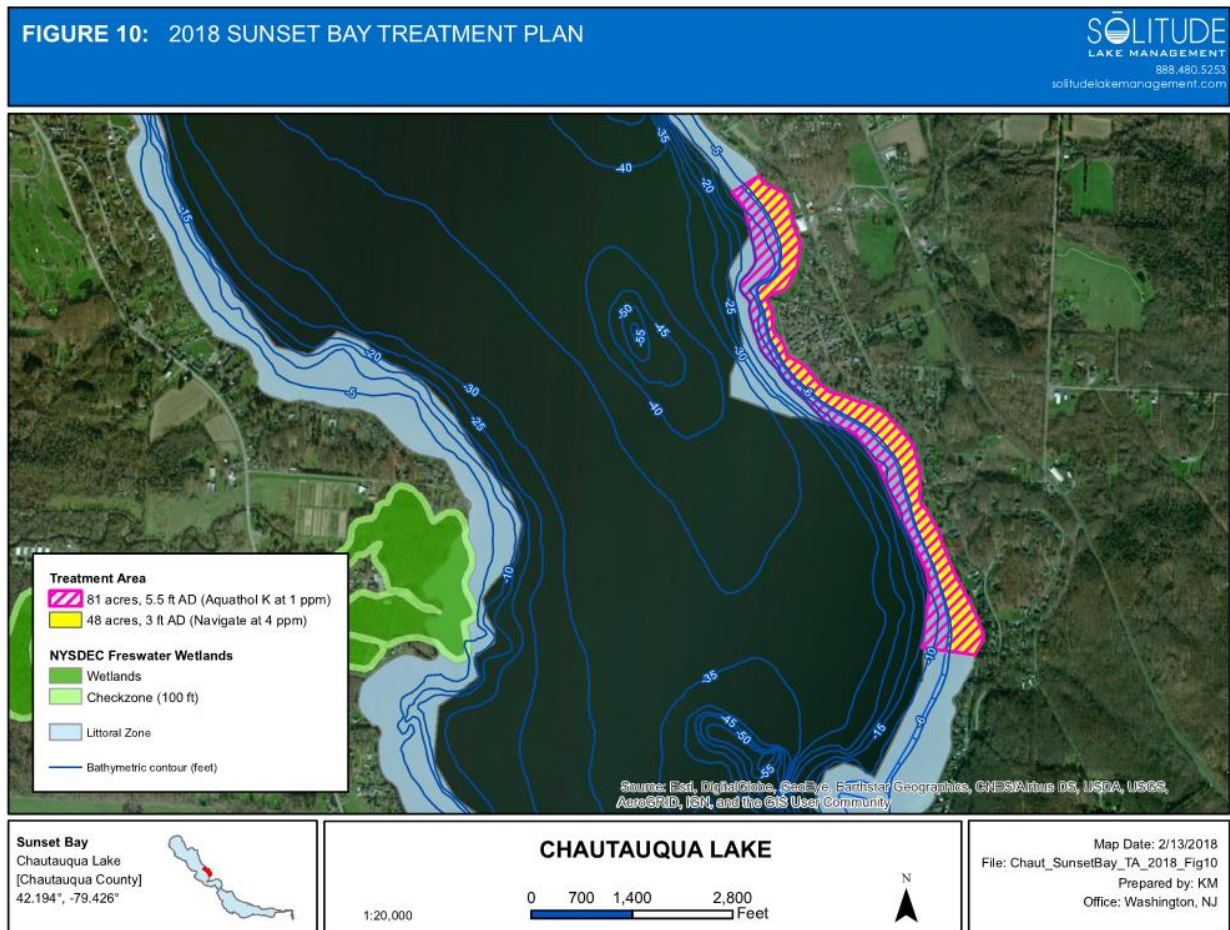


## 26. Page 96, Figure 4-10: Treatment Area Map - Sunset Bay

### Revised

The Aquathol-K treatment area was reduced from 134 acres to 124 acres in areas of greater water depth. The Navigate treatment area was reduced to 48 acres by removing an area steep drop off. Full map is included in Appendix F: Mapping.

### **New Figure 4-10: Treatment Area Map - Sunset Bay**



## 27. Page 101, Paragraphs 2, 3, and 4

### Original

Paragraph 2: "A major private water district is the Chautauqua Heights Water District."

Paragraph 3: "The Chautauqua Heights Water District located in the Dewittville, as well as individual homeowners, use surface water from the Lake."

Paragraph 4: "In the case of the Chautauqua Heights Water District, it is located miles north of the closest treatment area and concentrations of the herbicides to be applied and the dilution modelling show that the concentrations at this intake we be several orders of magnitude less than the drinking water standards."

### Revised

Paragraph 2: "A major private water district is the **Chautauqua Water District #2.**"

Paragraph 3: "The **Chautauqua Water District #2** located in the Dewittville, as well as individual homeowners, use surface water from the Lake."

Paragraph 4: "In the case of the **Chautauqua Water District #2**, it is located miles north of the closest treatment area and concentrations of the herbicides to be applied and the dilution modelling show that the concentrations at this intake we be several orders of magnitude less than the drinking water standards."

## 28. Page 103, Paragraph 2

### Original

"It should be noted that mussels are found in less than 20% of the proposed treatment areas. A goal of the program is to change the invasive dominated plant community to one closer to the native plant community for Chautauqua Lake. This native plant community should be functionally better suited and more stable for all of the aquatic and land-based organisms which utilize it, ultimately resulting in a more robust aquatic community."

### Revised

**"Limited mussel sampling has been conducted by Racine-Johnson. While using its rake toss method to sample aquatic plants, Racine-Johnson identified the mussels that were a bycatch. The sampling program conducted by Racine-Johnson does give useful information on the presence of specific mussel species, but it cannot be used to determine abundance or absence of specific mussel**

**species. More paper pondshell mussels were found by Racine-Johnson in 2015 than in 2016.** A goal of the program is to change the invasive dominated plant community to one closer to the native plant community for Chautauqua Lake. This native plant community should be functionally better suited and more stable for all of the aquatic and land-based organisms which utilize it, ultimately resulting in a more robust aquatic community."

**29. Page 114, Paragraph 4**

Original

"The increase in densities of Eurasian watermilfoil was seen Lakewide. In the 2007 survey, Racine-Johnson found Eurasian watermilfoil present at 72% of the 716 sampled Lake locations. (Johnson, 2007). By 2016, Eurasian watermilfoil was found at 84% of the sample points. (Johnson, 2016). The following year, Eurasian watermilfoil was found at approximately 89% of the locations surveyed. (Johnson 2017). In 2017, the levels of Eurasian watermilfoil were medium to dense in 23% of the rake toss samples, a 3% increase from the previous year. (Johnson, 2016; Johnson 2017)."

Revised

"The increase in **occurrences** of Eurasian watermilfoil was seen Lakewide. In the 2007 survey, Racine-Johnson found Eurasian watermilfoil present at 72% of the 716 sampled Lake locations. (**Johnson, 2008**). By 2016, Eurasian watermilfoil was found at 84% of the sample points. (**Johnson, 2017**). The following year, Eurasian watermilfoil was found at approximately 89% of the locations surveyed. (**Johnson 2017a**). **Eurasian watermilfoil compromised 23% of the species found in the Racine-Johnson Fall 2017 sample, a 3% increase from the Eurasian watermilfoil presence Racine-Johnson recorded the previous year.** (Johnson, 2017; Johnson 2017a)."

**30. Table 3-5: Non Dreisseneid (Zebra or Quagga) Mussels Collected in Chautauqua Lake in 2016 (adapted from Racine-Johnson 2016)**

Revised

Table 3-5: Non Dreisseneid (Zebra or Quagga) Mussels Collected in Chautauqua Lake in **2016** (adapted from Racine-Johnson 2016)

**Table 6.** This table is a summary of non-Dreissenid mussels we collected from Chautauqua Lake in 2016.

Species	Common name	# Found	Map ID	Info
<i>Pyganodon grandis</i>	giant floater	5	A	Native
<i>Ligumia nasuta</i>	Eastern pond mussel	37	B	Native
<i>Actinonaias ligamentia</i>	mucket	9	C	Native
<i>Utterbackia imbecilli</i>	paper pondshell	1	D	Native, last seen in 1895
<i>Sphaeridae</i> family	fingernail clams	3	E	Native
<i>Corbicula fluminea</i>	Asian clam	0	F	Introduced
<i>Elliptio dilatata</i>	spike	1	G	Native
<i>Anodonta sp.</i>	floater	1	H	Native

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**31. Appendix F: Additional Mapping**

- 2018 Chautauqua Lake Treatment Plan
- 2018 Chautauqua Lake Treatment Areas
- NYSDEC Muskellunge Trap Net and Treatment Areas Comparison
- MMS: Spawning and Rearing, Treatment Areas Comparison
- MMS: Developed Areas, Treatment Areas Comparison

## **CHAPTER 4: COMMENTS RECEIVED AND RESPONSES**



## 4.0 COMMENTS RECEIVED AND RESPONSES

Comments were received from Involved and Interested Agencies, community organizations, and the general public during the March 1, 2018 public meeting, and in letters and e-mails. In total, approximately 60 Agencies, organizations, or individuals submitted comments in oral or written form; approximately 800 comments were received.

The comments were divided into the following categories as they relate to the DSEIS: (1) DSEIS, (2) Process, (3) Political, (4) Herbicides, (5) Fisheries/Muskellunge, (6) Rare, Threatened, and Endangered Species, (7) Harmful Algal Blooms/Cyanobacteria, (8) Water Use/Human Health, (9) Dispersion, (10) Overall Ecology, (11) Economy/Tourism, and (12) Other Alternatives. All substantive comments that were received fell into these categories. A total of 41 agencies and organizations were included as Involved or Interested Agencies; four of these 41 agencies submitted comments.

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### **Chapter 1: Introduction and Project Background; and Chapter 2: Environmental Review of the Project Pursuant to SEQR**

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#### *Category 1: DSEIS*

Word choice; structure of document; informational errors; additional or questioning of listed sources/references; missing components; proposed corrections to presented data, appendices, etc.

#### *Category 2: Process*

State Environmental Quality Review (SEQR) and Environmental Impact Statement (EIS) processes.

#### *Category 3: Political*

The politics of Chautauqua Lake and the groups actively working towards solutions for the Lake.

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**Chapter 3: Environmental Setting; and**  
**Chapter 4: Potential Environment Impacts**  
**Chapter 5: Mitigations**

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*Category 4: Herbicides*

In support and against their use; requests for clarification on the proposed products and how they would be used; impacts, if any, on wildlife that live in and/or use the Lake; proposed mitigations.

*Category 5: Fisheries/Muskellunge*

Recreational fishing; recreational fishing industry, and, specifically, muskellunge fishing.

*Category 6: Rare, Threatened, and Endangered (RTE)*

Location and identification of rare, threatened, and endangered species that may live in or use the Lake, and what impacts, if any, the proposed action may have on them.

*Category 7: Harmful Algal Blooms/Cyanobacteria*

Impact, if any, on harmful algal blooms and cyanobacteria.

*Category 8: Water Use/Human Health*

Potential impacts, if any, to human health and human use of the Lake.

*Category 9: Dispersion*

How the aquatic herbicides, if registered for use, might travel once in the water (e.g. wind driven currents).

*Category 10: Overall Ecology*

Possible effects on the overall ecology and habitats of the Lake.

*Category 11: Economy/Tourism*

Possible positive and negative impacts on the local economy and/or the tourist industry.

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## **Chapter 6: Alternative Analysis**

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### *Category 12: Other Alternatives*

Other alternatives for controlling invasive macrophytes, utilized independently or in conjunction with proposed action; other alternatives (e.g. mechanical harvesting) should require completion of a SEIS; possible impacts associated with alternative methods of invasive macrophyte control on the Lake.

## **COMMENTS FROM INTERESTED AND INVOLVED AGENCIES**

The following comments were received from those Interested and Involved Agencies that are part of the coordinated review of the proposed action and offered input via public meeting, letters, and/or e-mails. They are in summarized form here. They are not verbatim. Each letter and e-mail that was received by the Lead Agency prior the comment period's extended deadline of 4:00 P.M. on Friday, March 16, 2018 is included in Appendix B to this FSEIS. A full transcript from the March, 1, 2018 public hearing is included in Appendix C to the FSEIS; a summary spreadsheet to the comments can be found in Appendix F to this FSEIS.

The Interested and Involved Agencies that chose to submit comments in written or spoken form are included below:

- 1. New York State Department of Environmental Conservation (Involved Agency);**
- 2. New York State Office of Parks, Recreation, and Historic Preservation (Interested Agency);**
- 3. Chautauqua County Department of Health and Human Services (Interested Agency); and**
- 4. Chautauqua Utility District (Interested Agency).**

## 1. NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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### CHAPTER 1: INTRODUCTION AND PROJECT BACKGROUND; AND

### CHAPTER 2: ENVIRONMENTAL REVIEW OF THE PROJECT PURSUANT TO SEQR

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#### COMMENT CATEGORY 1: DSEIS

Comment: Recommend that the DSEIS be clarified to address the length of time that the proposed herbicide treatment would be conducted.

Response: The proposed application will take place over the course 3 to 7 days (weather permitting). Treated plants will die over a 3 to 4 week period. Thus, the total application time frame, including plant mortality, is roughly 4 to 5 weeks. Herbicide treatments may take place on a yearly basis for the foreseeable future provided a permit is received from the NYSDEC.

Comment: Please make corrections to Table 3-6: Potential Rare Plants and Animals. Blackchin Shiner is not endangered in New York, it is considered uncommon or rare. Spiny softshell turtle is listed as a New York State Species of Special Concern. The Kidneyshell Mussel is not endangered in New York.

Response: Table 3-6: The revised Table 3-6: Potential Rare Plants and Animals is provided in this document in Chapter 3: Project Changes, Revisions to DSEIS.

#### COMMENT CATEGORY 2: PROCESS

No comments provided related to this category.

#### COMMENT CATEGORY 3: POLITICAL

No comments provided related to this category.

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**CHAPTER 3: ENVIRONMENTAL SETTING;****CHAPTER 4: POTENTIAL ENVIRONMENT IMPACTS; AND****CHAPTER 5: MITIGATIONS**

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COMMENT CATEGORY 4: HERBICIDES

Comment: Aquatic pesticide permits for the treatment of invasive species, if issued, would not allow treatment of entire bays, lengthy stretches of shoreline, or undeveloped shoreline.

Response: We recognize the NYSDEC's position with regards to permitting. The treatment areas identified in the FSEIS were chosen due to the current weed densities and nuisance levels. Any application of herbicides will comply with the terms of the NYSDEC permits.

Comment: The FSEIS should address the maximum acreage of treatment that would be proposed for each treatment zone for any given year.

Response: Maximum treatment area acreage is listed below (please see Appendix F to the FSEIS: Additional Mapping):

• Busti/Lake	289	Acres
• Stockholm/Greenhurst	55	Acres
• Bemus Bay	124	Acres
• Burtis Bay (Town)	198	Acres
• Burtis Bay (Village)	79	Acres
• Stow	48	Acres
• Warner Bay	37	Acres
• Bly Bay	15	Acres
• Bemus Point	40	Acres
• Sunrise Cove	23	Acres
• Sunset Bay	81	Acres
Maximum Total Area	989	Acres

#### COMMENT CATEGORY 5: FISH HABITAT/MUSKELLUNGE

Comment: Aquatic pesticide permits for the treatment of invasive species, if issued, would not allow treatment near fish spawning locations.

Response: We recognize the NYSDEC's position with regards to permitting. The treatment areas only overlap with approximately 25% of the identified fish spawning areas. In addition, we note that the vast majority of muskellunge are currently reared at the NYSDEC fish hatchery. The NYSDEC collects adult muskellunge in early May at the trap locations identified in Appendix F to this FSEIS. Treatment will be planned in conjunction with the NYSDEC to minimize any effects on the NYSDEC's annual collection of muskellunge eggs from the Lake in early May. Any application of herbicides will comply with the terms of the NYSDEC permits.

#### COMMENT CATEGORY 6: RARE, THREATENED, AND ENDANGERED SPECIES

Comment: Aquatic pesticide permits for the treatment of invasive species, if issued, will not allow treatment near sensitive species. "Sensitive species" include the Spiny softshell turtle (species of special concern) and the Kidneyshell mussel (protected under Article 11 of NYS Environmental Conservation Law).

Response: The DSEIS analyzed the possible effects of herbicides on various organisms, including sensitive species, which live in the Lake. The SEIS determined that possible harm is minimal or can be effectively mitigated through the proposed treatment plan.

Please see 3.2.2: Wildlife/Rare, Threatened, and Endangered Species for discussion on existing conditions, 4.3: Terrestrial and Aquatic Ecology for discussion on potential impacts to rare, threatened, and endangered species, and 5.2.2: Rare, Threatened, and Endangered Species for discussion on mitigations.

There is no apparent toxicity to spiny softshell turtles from endothall at treatment doses (please see *Notes: Toxicity of Diquat and Endothall to Eastern Spiny Softshell Turtles (Apalone spinifera spinifera)* by Paul and Simonin). There are no known data describing the toxicity of triclopyr ester or 2, 4-D to eastern spiny softshell turtles. The State of Wisconsin's guidance on box turtles notes that triclopyr ester and salt concentrations of less than 2.0 ppm can be used (Wisconsin DNR 2018). 2, 4-D was shown to cause non-lethal effects to tortoises (Willemsen and Hailey 2001).

#### COMMENT CATEGORY 7: HABITS

Comment: Include an estimate of the increase in phosphorous that will result from herbicide treatment and elimination of vegetation.

Response: We have provided a set of calculations to estimate the amount of phosphorus that may be released from macrophytes targeted by the herbicide treatment program (Appendix D). What follows is a summary of what we expect.

In May when herbicide treatment is proposed, Eurasian watermilfoil will be at the beginning of its growing season, it will be minimally developed and its biomass will be low. Even though phosphorus concentrations within these early season plants may be higher than concentrations in plants later in the season, the greatly reduced biomass results in phosphorous release estimates after treatment that are lower than natural dieback of the maximum biomass at the end of the season

We expect that invasive plant die-off resulting from herbicides would add ~430 lbs. of phosphorus to the North Basin (~1.5% of the 2007 North Basin load) and ~1450 lbs. of phosphorus to the South Basin (~2.7 % of the 2007 South Basin load). This compares to ~800 lbs. (2.9%) and ~2490 lbs. (4.7%) of phosphorus which would be added to the North and South Basins, respectively, with no herbicide treatment and end-of-season die off.

Phosphorus release from second and third year herbicide applications, if needed, is anticipated to be even lower as the densities of invasive macrophytes are expected to decrease after the first and subsequent treatments. This will be somewhat offset by biomass of native plants recolonizing the treated area. Phosphorus release from early season treatment would be short lived and relatively small compared to overall total phosphorus loads to the Lake which were 27,930 kg (North Basin) and 52,898 kg (South Basin) in 2007 (2012 Cadmus).

Please also reference sections 4.2.1 and 5.1.1 in the DSEIS. In addition, Dr. Greg Boyer, Professor, SUNY College of Environmental Science and Forestry recently stated during the Central NY HAB Summit that early season HABs, when the water was cooler, were less toxic than those late in the season, when the water was warmer. Dr. Boyer's lab conducts a large portion of the HAB toxin analysis for samples collected in NY.

We acknowledge the importance of the HABs summit and the work that will come out of the Summit, including future studies and plans.

#### COMMENT CATEGORY 8: WATER USE/HUMAN HEALTH



Comment: The NYSDEC notes that aquatic pesticide permits for the treatment of invasive species, if issued, would not allow chemical concentrations at water supply intakes to exceed NYS DOH drinking water standards.

Response: We recognize the NYSDEC's position with regards to permitting. Any application of herbicides will comply with the terms of the NYSDEC permits. We further note that the NYSDEC dilution model indicates that herbicide concentrations at water supply intakes will not exceed NYS DOH drinking water standards.

COMMENT CATEGORY 9: DISPERSION

No comments provided related to this category.

COMMENT CATEGORY 10: OVERALL ECOLOGY

No comments provided related to this category.

COMMENT CATEGORY 11: ECONOMY/TOURISM

No comments provided related to this category.

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**CHAPTER 6: ALTERNATIVE ANALYSIS**  
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COMMENT CATEGORY 12: OTHER ALTERNATIVES

No comments provided related to this category.

## 2. NEW YORK STATE OFFICE OF PARKS, RECREATION, AND HISTORIC PRESERVATION

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### CHAPTER 1: INTRODUCTION AND PROJECT BACKGROUND; AND

### CHAPTER 2: ENVIRONMENTAL REVIEW OF THE PROJECT PURSUANT TO SEQR

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#### COMMENT CATEGORY 1: DSEIS

No comments provided related to this category.

#### COMMENT CATEGORY 2: PROCESS

No comments provided related to this category.

#### COMMENT CATEGORY 3: POLITICAL

No comments provided related to this category.

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### CHAPTER 3: ENVIRONMENTAL SETTING;

### CHAPTER 4: POTENTIAL ENVIRONMENT IMPACTS; AND

### CHAPTER 5: MITIGATIONS

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#### COMMENT CATEGORY 4: HERBICIDES

No comments provided related to this category.

#### COMMENT CATEGORY 5: FISH HABITAT/MUSKELLUNGE

No comments provided related to this category.

#### COMMENT CATEGORY 6: RARE, THREATENED, AND ENDANGERED SPECIES

Comment: Pp 40-42 indicates that some surveys were conducted of the mussel population (Racine Johnson 2016). However, it is unclear where those surveys occurred and whether any surveys were conducted along the shoreline of Long Point and Midway State Parks where the endangered Kidneyshell Mussel has been identified as recently as 2008. Page 81 indicated that freshwater mussels are vulnerable to acute toxicity from the use of Navigate. Navigate is proposed for use on both sides of Long Point State Park and in front of Midway State Park. Mussel surveys should be required along these areas of shoreline prior to any treatments with Navigate. We are also concerned about the potential presence of the spiny softshell Turtle in the Sunset Bay area. Impacts to these animals need to be better addressed within the EIS.

Response: Information provided by Natural Heritage along with documented occurrences of RTE species in the Lake and toxicity information were used to evaluate potential impacts. The NYSDEC has indicated that the Kidneyshell Mussel is not endangered in New York State, while the spiny softshell turtle is a New York State Species of Special Concern.

There is no apparent toxicity to spiny softshell turtles from endothall at treatment doses (please see *Notes: Toxicity of Diquat and Endothall to Eastern Spiny softshell Turtles (Apalone spinifera spinifera)* by Paul and Simonin). There are no known data describing the toxicity of triclopyr ester or 2, 4-D to Eastern spiny softshell turtles. The State of Wisconsin's guidance on box turtles notes that triclopyr ester and salt concentrations of less than 2.0 ppm can be used (Wisconsin DNR 2018). 2, 4-D was shown to cause non-lethal effects to tortoises (Willemsen and Hailey 2001).

Washington State University (Publication Number 00-10-040, July 2000) found that "Aquathol® K disodium endothall salt and endothall acid have low acute toxicity to benthic (sediment dwelling) invertebrates. At the projected maximum use rate, Aquathol® K and its surrogate test substances will not acutely impact members of this segment of the biota." (Appendix D, Vol. 2, Sect. 5, p. 7).

Freshwater mussels are vulnerable to acute toxicity from 2, 4-D (Alves and Oliveira 2014; Milam et al. 2005). In addition to direct mortality, 2, 4-D has been shown to cause demineralization in freshwater mussel shells.

Publication Number 04-10-018, *Environmental Impact Statement (EIS) for Permitted Use of Triclopyr* (Washington State), found that "Triclopyr TEA and triclopyr acid are practically non-toxic to aquatic invertebrates."

#### COMMENT CATEGORY 7: HABs

Comment: Pages 73 – 74 of the DSEIS discuss the proposed treatment's potential to release substantial amounts of nutrients into the water column which may provide additional nutrients for algal growth at the beginning of the summer. Page 74 indicates that nutrients are expected to be released at a rapid rate in areas treated with Aquathol which is proposed for use on either side of Long Point State Park and adjacent to Midway State Park. While we understand the argument that treatment early in the season will result in less biomass being treated and thus less nutrients being released, we are nonetheless very concerned about the potential for increased early season Harmful Algal Blooms (HABs) at our parks as a result of these treatments.

Chautauqua Lake is one of the 12 lakes being addressed this year through Governor Cuomo's HABs initiative. The Western New York HABs Regional Summit is scheduled for March 26 in Rochester. At this summit experts from all over the country and the state will convene to discuss and begin to develop a HABs Action Plan for Chautauqua Lake. Since the relationship between the macrophytes and algae in this Lake are so complex we believe that any decisions about herbicide treatment should be postponed until after the HABs summit and development of the HABs Action Plan for the Lake. The Chautauqua Lake Herbicide Treatment plan should be developed in tandem with the Chautauqua Lake HABs Action Plan to best address all of the concerns and needs of all the stakeholders on the Lake and within the watershed.

Response: We have provided a set of calculations to estimate the amount of phosphorus that may be released from macrophytes targeted by the herbicide treatment program (Appendix D). What follows is a summary of what we expect.

In May when herbicide treatment is proposed, Eurasian watermilfoil will be at the beginning of its growing season, it will be minimally developed and its biomass will be low. Even though phosphorus concentrations within these early season plants may be higher than concentrations in plants later in the season, the greatly reduced biomass results in phosphorous release estimates after treatment that are lower than natural dieback of the maximum biomass at the end of the season

We expect that invasive plant die-off resulting from herbicides would add ~430 lbs. of phosphorus to the North Basin (~1.5% of the 2007 North Basin load) and ~1450 lbs. of phosphorus to the South Basin (~2.7 % of the 2007 South Basin load). This compares to ~800 lbs. (2.9%) and ~2490 lbs. (4.7%) of phosphorus which would be added to the North and South Basins, respectively, with no herbicide treatment and end-of-season die off.

Phosphorus release from second and third year herbicide applications, if needed, is anticipated to be even lower as the densities of invasive macrophytes are expected to decrease after the first and subsequent treatments. This will be somewhat offset by biomass of native plants recolonizing the treated area. Phosphorus release from early season treatment would be short lived and relatively small compared to overall total phosphorus loads to the Lake which were 27,930 kg (North Basin) and 52,898 kg (South Basin) in 2007 (2012 Cadmus).

Please also reference sections 4.2.1 and 5.1.1 in the DSEIS. In addition, Dr. Greg Boyer, Professor, SUNY College of Environmental Science and Forestry recently stated during the Central NY HAB Summit that early season HABs, when the water was cooler, were less toxic than those late in the season, when the water was warmer. Dr. Boyer's lab conducts a large portion of the HAB toxin analysis for samples collected in NY.

We acknowledge the importance of the HABs summit and the work that will come out of the Summit, including future studies and plans.

#### COMMENT CATEGORY 8: WATER USE/HUMAN HEALTH

Comment: Under recreational impacts, the potential for increased frequency of HABS closing more bathing beaches and restricting recreation on the Lake also needs to be considered.

Response: The frequency and timing of HAB's in the Lake have been changing over the last decade without the treatment of the Lake with herbicides. Due to the proposed timing of the herbicide treatments, their location, and the discussion of the HAB's issue above and throughout this document, the herbicide treatments will not adversely affect the HAB-related closure of bathing beaches of the Lake.

#### COMMENT CATEGORY 9: DISPERSION

No comments provided related to this category.

#### COMMENT CATEGORY 10: OVERALL ECOLOGY

No comments provided related to this category.

#### COMMENT CATEGORY 11: ECONOMY/TOURISM

No comments provided related to this category.

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## **CHAPTER 6: ALTERNATIVE ANALYSIS**

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### COMMENT CATEGORY 12: OTHER ALTERNATIVES

No comments provided related to this category.

### 3. CHAUTAUQUA COUNTY DEPARTMENT OF HEALTH AND HUMAN SERVICES

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#### CHAPTER 1: INTRODUCTION AND PROJECT BACKGROUND; AND

#### CHAPTER 2: ENVIRONMENTAL REVIEW OF THE PROJECT PURSUANT TO SEQR

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##### COMMENT CATEGORY 1: DSEIS

Comment: Corrections needed for section 3.1.1 (page 21), 3.7.1 (page 61), 4.1.1 (page 68), 4.2.2 (page 74), and Table 3-16: Additional Water Discharge Sites.

Response: Please refer to Chapter 3: Project Changes, Revisions to DSEIS for revised sections.

##### COMMENT CATEGORY 2: PROCESS

Comment: CCDHHS requests to be involved in development of communication plan and Lake water sampling plan.

Response: Postings and notifications for all future treatments will occur in accordance with the law and permit conditions imposed by the NYSDEC. The water sampling plan is included in Section 4.2 of the DSEIS.

##### COMMENT CATEGORY 3: POLITICAL

No comments provided related to this category.

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#### CHAPTER 3: ENVIRONMENTAL SETTING;

#### CHAPTER 4: POTENTIAL ENVIRONMENT IMPACTS; AND

#### CHAPTER 5: MITIGATIONS

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##### COMMENT CATEGORY 4: HERBICIDES

Comment: Please prepare a check and balance process to ensure full compliance with the details of the water use restrictions listed on each herbicide label. CCDHHS requests that a summary table be included in the final SEIS listing the setback or restrictions for each herbicide for the following uses: potable water supply intakes, swimming/contact recreation, crop irrigation,

livestock/animal watering, fishing/fish consumption. Since these restrictions can depend on the size of the area being treated and/or concentration of the herbicide, summary tables should be prepared for each application area that includes the herbicide(s) used, target concentration and area.

Response: Maps provided in Appendix F to this FSEIS: Additional Mapping depict the treatment areas (with acreages), the herbicides to be applied, and the application rate (ppm). Application will be conducted in accordance with the requirements of the NYSDEC permit.

#### COMMENT CATEGORY 5: FISH HABITAT/MUSKELLUNGE

No comments provided related to this category.

#### COMMENT CATEGORY 6: RARE, THREATENED, AND ENDANGERED SPECIES

No comments provided related to this category.

#### COMMENT CATEGORY 7: HABITS

No comments provided related to this category.

#### COMMENT CATEGORY 8: WATER USE/HUMAN HEALTH

Comment: If a permit is granted, treatment should take place in May.

Response: Comment acknowledged.

Comment: Include discussion of dogs and their potential contact with treated water in summary tables.

Response: Dogs should be subject to the same water use restrictions as children and adults. Please reference DSEIS sections 3.7.1 Public Water Supply, 4.2.1 Surface Water Resources, 4.2.2 Herbicide Dilution, Section 4.7 Water Supply and Infrastructure, section 4.8.5 Impacts to Human Use of Lake, and section 5.5 Water Supply and Public Infrastructure.

Comment: If a permit is granted for June or July application, the closest permitted bathing beach to each application area should be sampled for active ingredient in each herbicide used.



Response: Comment acknowledged. The DSEIS recommends herbicide application in May.

COMMENT CATEGORY 9: DISPERSION

No comments provided related to this category.

COMMENT CATEGORY 10: OVERALL ECOLOGY

No comments provided related to this category.

COMMENT CATEGORY 11: ECONOMY/TOURISM

No comments provided related to this category.

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**CHAPTER 6: ALTERNATIVE ANALYSIS**  
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COMMENT CATEGORY 12: OTHER ALTERNATIVES

No comments provided related to this category.

#### **4. CHAUTAUQUA UTILITY DISTRICT**

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##### **CHAPTER 1: INTRODUCTION AND PROJECT BACKGROUND; AND**

##### **CHAPTER 2: ENVIRONMENTAL REVIEW OF THE PROJECT PURSUANT TO SEQR**

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###### COMMENT CATEGORY 1: DSEIS

No comments provided related to this category.

###### COMMENT CATEGORY 2: PROCESS

No comments provided related to this category.

###### COMMENT CATEGORY 3: POLITICAL

No comments provided related to this category.

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##### **CHAPTER 3: ENVIRONMENTAL SETTING;**

##### **CHAPTER 4: POTENTIAL ENVIRONMENT IMPACTS; AND**

##### **CHAPTER 5: MITIGATIONS**

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###### COMMENT CATEGORY 4: HERBICIDES

Comment: The DSEIS is not specific as to what chemicals will be used in what areas and when those chemicals will be applied.

Response: Maps provided in Appendix F to this FSEIS: Additional Mapping depict the treatment areas (with acreages), the herbicides to be applied, and the application rate (ppm). The application date range will be in accordance with NYSDEC permits.

Comment: The DSEIS generically states "Any application of herbicides would be in accordance with the permits received from NYSDEC and in accordance with the New York State Product Labels." An intention to use these products

simultaneously, and in conjunction with one another, is clearly expressed on page 104 under section 4.9 "Cumulative Impacts" which states "These products have been used together in treatment and treatments at other lakes, and there have been no accumulative effects. No negative effects were observed as a result of the use of both Aquathol K and Navigate in Bemus Bay in 2017." The New York product Label for Aquathol K specifically states that the herbicide should not be used in conjunction with any other chemicals. When used together, what chemical or chemicals are created? Is there any available information?

Response: The combination of Aquathol K and Navigate is common in aquatic plant control, and has been used often in the past with effective results and no evidence of negative impacts. In New York, the combination has recently been used at both Bemus Bay (2017) and Glen Lake (Queensbury, NY, 2016). The benefit of combining the two products allows the applicator to use lower doses of both products than would otherwise be needed for a similar level of control. The combination of Aquathol K and Navigate is so common in aquatic plant control throughout the United States that the manufacturer of Aquathol K, United Phosphorus Inc., recently announced the full registration of a new product, Chinook, which is a premixed formulation of Aquathol K and Navigate's active ingredient 2, 4-D. The NY registered label of Aquathol K does not state that the "herbicide should not be used in conjunction with any other chemicals." Rather, the label states that Aquathol K treated water should not be used for Chemigation (e.g. the application of pesticides through an irrigation system). More information on the combination of endothall (Aquathol K) and 2, 4-D is available from the manufacturer UPI at [www.UPI-USA.com](http://www.UPI-USA.com).

Comment: The deterioration of the intended use of chemicals from full concentration to harmless levels varies dramatically with water temperature, oxygen content and other factors. The literature states that it may take months for the water treated with 2,4D to become potable. Due to the low rate of turnover of the upper Chautauqua Lake basin, it is reasonable that 2,4D could be present at the Chautauqua Utility district water intake and in unacceptable concentrations. This is especially true if water is driven by wind. The application of herbicides relative to the CUD water intake will be much closer than the "test" application made in 2017.

Response: The NYS registered Navigate label states that the required setback for a functioning potable water intake for an application of 4 ppm Navigate is 2,400 feet. The approximate distance from the closest treatment area, Sunset Bay, is estimated to be at least 9,000 feet. The Navigate label specifies an alternate potable water threshold (if within the setback distance) of 70 ppb. NYS Division of Water assigns a lower potable water

threshold of 50 ppb for 2, 4-D. Based on calculations using the dilution model provided by NYSDEC's Division of Water, there is adequate dilution of the herbicide by the Lake adjacent to the treatment area, and there is no likelihood of 2, 4-D reaching the CUD intake at levels above the 50 ppb threshold.

Under certain circumstances, wind driven currents can affect herbicide concentrations. However, given the pattern of prevailing winds and the location of the CUD intake, the tendency would be to drive the water away from the CUD water intake. If extreme weather conditions occur at the time of treatment or in the immediate future, treatment would be postponed.

Comment: What is the half-life of 2, 4-D in the treated area?

Response: A Report from Mississippi State (GRI Report #5066, Madsen) notes: "The half-life (of 2, 4-D) in aerobic water is typically 15 days, and in anaerobic water it ranges from 41 to 333 days. The half-life in water is sensitive to pH, with degradation occurring more rapidly at pH above 8, and more slowly at pH below 5." Chautauqua Lake has aerobic water in the treatment area. NYSDEC has provided written guidance to Aquatic Pesticide Applicators that indicates the half-life for 2, 4-D to be used in calculations is 48 days.

Comment: Even if the likelihood for 2, 4-D and endothall to get into the CUD water system in dangerous levels is remote, the consequences thereof are high. Approximately 10,000 people per day rely upon the CUD for potable water. The CUD water system is not designed to remove herbicides.

Response: Regarding Aquathol, the NY approval product label states that a setback of 600' is required from an active potable water intake. NYS Division of Water assigns a potable water threshold of 50 ppb for endothall, Aquathol K's active ingredient. Based on calculations using the dilution model provided by NYSDEC's Division of Water, there is adequate dilution of the herbicide by the Lake adjacent to the treatment area, and no likelihood of endothall reaching the CUD intake at levels above the 50 ppb threshold.

The NYS registered Navigate label states that the required setback for a functioning potable water intake for an application of 4 ppm Navigate is 2,400 feet. The approximate distance from the closest treatment area, Sunset Bay, is estimated to be at least 9,000 feet. The Navigate label also specifies an alternate potable water threshold (if within the setback distance) of 70 ppb. NYS Division of Water assigns a lower potable water threshold of 50 ppb for 2, 4-D. Using the dilution model provided by

NYSDEC's Division of Water, it is calculated that there is adequate dilution of the herbicide by the Lake adjacent to the treatment area, and there is no likelihood of 2, 4-D reaching the CUD intake at levels above the 50 ppb threshold.

Finally, it is a reasonable assumption that the CUD has emergency plans in place to respond to interruptions in their water supply.

Comment: Because there is a delay in receiving water test results, thousands of people may ingest chemicals at an unacceptable level for days prior to the determination that those chemicals exist at the water inlet.

Response: There is no field analysis with the appropriate level of accuracy to determine in-water concentrations of the herbicides proposed. Since there is no expectation that the herbicides will exceed the threshold of 50 ppb at the CUD intake, testing at the intake is intended to ascertain the movement of lower concentrations of the herbicides, and provide evidence that potable water thresholds were not exceeded.

#### COMMENT CATEGORY 5: FISH HABITAT/MUSKELLUNGE

No comments provided related to this category.

#### COMMENT CATEGORY 6: RARE, THREATENED, AND ENDANGERED SPECIES

No comments provided related to this category.

#### COMMENT CATEGORY 7: HABS

No comments provided related to this category.

#### COMMENT CATEGORY 8: WATER USE/HUMAN HEALTH

No comments provided related to this category.

#### COMMENT CATEGORY 9: DISPERSION

Comment: Due to the low rate of turnover of the upper Chautauqua Lake basin, it is reasonable that 2, 4-D could be present at the Chautauqua Utility District

water intake and in unacceptable concentrations. This is especially true if water is driven by wind.

Response: Under certain circumstances, wind driven currents can affect herbicide concentrations. However, given the pattern of prevailing winds and the location of the CUD, the tendency would be to drive the water away from the CUD water intake. In the event that extreme weather conditions occur at the time of treatment or in the immediate future, treatment would be postponed.

COMMENT CATEGORY 10: OVERALL ECOLOGY

No comments provided related to this category.

COMMENT CATEGORY 11: ECONOMY/TOURISM

No comments provided related to this category.

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**CHAPTER 6: ALTERNATIVE ANALYSIS**  
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COMMENT CATEGORY 12: OTHER ALTERNATIVES

No comments provided related to this category.

## **COMMENTS FROM COMMUNITY ORGANIZATIONS**

The following comments were received from those interested parties and community organizations that offered input via public hearing, letter, and/or e-mail. They are in summarized form here. They are not verbatim. Each letter and e-mail received by the Lead Agency prior the comment period's extended deadline of 4:00 P.M. Friday, March 16, 2018 is included in Appendix B. A full transcript from the March, 1, 2018 public hearing is included in Appendix C. A summary spreadsheet of the comments can be found in Appendix E.

The interested parties and community organizations that submitted comments in written or spoken form prior to 4:00 P.M. on the March 16<sup>th</sup> extended deadline are included below:

- 1. Chautauqua Fishing Alliance (Community Organization);**
- 2. Chautauqua Institution (Community Organization);**
- 3. Chautauqua Lake Association (Community Organization);**
- 4. Chautauqua Watershed Conservancy (Community Organization);**
- 5. Collective Comments by Rebecca Nystrom, Janis Bowman, Joe Galati, Twan Leeders, Jonathan Townsend, and Claire Quadri;**
- 6. Racine-Johnson Aquatic Ecologists (Community Organization);**
- 7. Roger Tory Peterson Institute of Natural History (Community Organization); and**
- 8. Chautauqua County Water Quality Task Force (Community Organization)**

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**Chapter 1: Introduction and Project Background; and**

**Chapter 2: Environmental Review of the Project Pursuant to SEQRA**

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Comment Category 1: DSEIS

Comment: Statements made at the public hearing and in the DSEIS contradict and/or misrepresent Racine-Johnson surveys (**Chautauqua Lake Association, Racine-Johnson**).

Response: Where specific instances of misrepresentations were identified, they were discussed in this document (as noted).

Comment: Writers of each section of the DSEIS need to be identified (**Chautauqua Lake Association**).

Response: The authors are listed on the cover page of the document.

Comment: SOLitude Lake Management's report underreported macrophyte species, page 35 of DSEIS (**Racine-Johnson**).

Response: Two species, *Potamogeton Zosteriformis* and *Alisma gramineum* were unintentionally overlooked in the original comparison since that comparison referenced a graph where the two species were categorized as "other" due to their low abundance. *Nitella flexilis* was not referenced as an additional macrophyte species in the DSEIS because it is a macro-algae.

Comment: Questions regarding the methodology of SOLitude Lake Management's 2017 data collection project (**Collective Comments by Rebecca Nystrom, Janis Bowman, Joe Galati, Twan Leeders, Jonathan Townsend, and Claire Quadri and Racine-Johnson**).

Response: The June application and May and July surveys were conducted under specific and narrow timeframes, and with the intent of collecting data to support the application project and to assess plant growth afterwards.

The methodology used in the 2017 report was consistent with industry standards and methods accepted by the NYSDEC for a field study.

The abundance/density scale, developed by the US Army Corps of Engineers and modified by Cornell University, was used to categorize total



observed plant growth. SOLitude used the scale referenced in NYSDEC plant monitoring guidelines, which was adapted from the Army Corps' method by Lord and Johnson (2006) and enhanced over the past decade by experienced aquatic plant samplers. Minor adaptations to this scale are widely accepted both in the field and by the NYSDEC. The minor adaptations are necessary as a function of individual site and surveyor characteristics. The scale used in SOLitude's surveys is a relative abundance scale that does not necessarily correlate to biomass. Relative abundance refers to 'the evenness of distribution of individuals among species in a community.' Biomass refers to 'the organic matter produced by living organisms' in this case plants. There were no substantive errors that affected the conclusions of the report.

### Comment Category 2: Process

Comment: Opportunities for public participation should have been commensurate with those afforded in drafting the 1990 SEIS; this process was rushed. The comment period should have been longer. **(Chautauqua Lake Association, Chautauqua Watershed Conservancy, and Roger Tory Peterson Institute).**

Response: Oral and written comments were accepted, first, during public scoping and then in the DSEIS comment period (which was extended). The public was welcomed to submit oral or written comments during both public scoping and then in the DSEIS comment period. Opportunities for public comment have exceeded those required in SEQR and its implementing regulations. All time frames have complied with SEQR and the regulations. We have received ±800 comments from 60+ speakers, writers, and community organizations and 7+ agencies, which have collectively provided over 100 individual comments.

Comment: The whole Lake should be considered and the Town of Ellery should not be acting as Lead Agency **(Chautauqua County Water Quality Task Force).**

Response: The DSEIS addresses the impacts of herbicide treatments on the entire Lake. The DSEIS/Plan for herbicide treatments does not include applying herbicides to the entire Lake. Less than 10% of the surface area of the Lake will be treated. There will be direct environmental impacts to the areas of the Lake that are being treated and possible impacts to areas adjacent to the treated areas. The mitigation measures proposed in this document mitigate these impacts to the maximum extent practicable. The comment regarding the Ellery Town Board's role as lead agency is noted.

### Comment Category 3: Political

No comments provided related to this category.

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**Chapter 3: Environmental Setting;**

**Chapter 4: Potential Environment Impacts; and**

**Chapter 5: Mitigations**

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Comment Category 4: Herbicides

Comment: We request that the herbicide treatment proposals be refined to fully comply with the zone recommendations of the Chautauqua Lake Macrophyte Management Strategy, which was prepared as mandated by the State of New York as a guide to future herbicide treatments. Preparation of this strategy was a significant expense to the taxpayers of Chautauqua County, the State of New York, and participating private and public organizations and individuals **(Chautauqua Watershed Conservancy)**.

Response: The 2017 MMS was referred to in the development of this SEIS, although some of the data relied on in the MMS is outdated. The MMS includes herbicides as a macrophyte management technique, but it does not provide detail on a methodology for implementing herbicide treatment. The MMS was not formally adopted and did not undergo SEQR.

Comment: In the 1990 SEIS the greatest extent on the application area was 426 acres, the DSEIS is requesting to apply herbicides to 1,031 acres **(Chautauqua County Water Quality Task Force)**.

Response: As noted in Chapter 3, the greatest extent on the application area is now 989 acres. Based on the established aggressive growth of Eurasian watermilfoil (Michigan Tech Research Institute), public interest in Eurasian watermilfoil management has increased in the 28 years since the 1990 SEIS was written, and an increased application area is needed.

Many of the statements regarding herbicide use in the 1990 SEIS are outdated or incorrect (e.g. water use restrictions of Aquathol K; references to herbicide response time by Chevron). This SEIS was prepared to provide more up-to-date assessment of potential impacts.

Comment: Aquathol K is a recognized molluscicide **(Racine-Johnson)**.

Response: No documentation was provided to support this comment. Proposed concentrations of Aquathol K as a part of this program are well below toxicity thresholds reported for mollusks.

Comment: Guidelines outlined in the 1990 SEIS for herbicide application on Chautauqua Lake should be paralleled in this document. The 1990 SEIS has a strict deadline of no application before July 1<sup>st</sup> **(Chautauqua County Water Quality Task Force)**.

Response: The 1990 SEIS stated that the application herbicides should not occur before late June. This statement is out of date in light of current product labels. The Navigate label states: "For best results, spread this product in the spring and early summer, during the time weeds start to grow. . . . If treatments are delayed until weeds form a dense mat or reach the surface, two treatments may be necessary." The Renovate 3 product label also states: "Apply in spring or early summer when Eurasian watermilfoil or other submersed weeds are actively growing." As explained in section 5.2.3 of the DSEIS, treatment early in the growing season provides a wider margin of safety for dissolved oxygen levels, since water temperatures are cooler and support higher dissolved oxygen levels. Application of herbicides will comply with product labels and the terms of the NYSDEC permit.

Comment: SOLitude work does not account for natural die-off in drawing conclusions from past herbicide treatments. What is the proposed timing? If it's after natural die-off, as it was in Bemus Bay in 2017, then what is the justification for an herbicide application during the spawning period? Later, the DSEIS states that the timing is more focused around recreation and school vacation periods than ecological significance **(Chautauqua County Water Quality Task Force)**.

Response: The identification of herbicide use and rate in each treatment area appears in Table 4-2 on page 77 and in Table 4-6 on pages 85-86 of the DSEIS. Section 5.0, Mitigation Measures, page 105 of the DSEIS, describes that the application is planned to occur in spring prior to Memorial Day. Treatment will occur as early in May as possible following approval of the permits. The May treatment dates were chosen because herbicide use is more effective (see response to previous comment), plant biomass is much smaller, and the overall effect to lake ecology is less than if treatment was to occur later in the summer.

Comment: Due to the late timing of the additional Bay surveys, most plant density was characterized as trace to sparse, as plant growth had already begun to decline for the season. If the timing was late, why spend the effort collecting data. If this was a research collection project done by professionals, this should have been done with the proper timing to have data that could be useful.

a) A sample size of one does not imply statistical significance and should not be used to make long-term decisions from in a complex environment.

b) Need to identify what constitutes as trace or sparse. If sites only had this level of invasive plant community, does it still factor into the density percentages when looking at overall coverage? Only some of the Bay surveys include comparisons of native vegetation (**Chautauqua County Water Quality Task Force**).

Response: The fall 2017 surveys were completed to provide necessary information for the DSEIS, including weed types and densities which informed the proposed treatment plan. Calculations take into consideration the difference between interpolate late season plant coverage and expected coverage at the peak of the growing season. The presence of Eurasian watermilfoil and curly leaf pondweed in any treatment area will be verified prior to treatment. In quantifying plant abundance, "trace" is described as a "finger-full on the plant rake"; "sparse" is described as a "handful on the plant rake." All samples and densities are factored into the overall coverage estimates.

Comment: The synergistic effects of Aquathol K and Navigate (2, 4-D) are not known, and the long-term effects from their combined treatment in Bemus Bay are not known. They should not be recommended to be used together until the short and long term effects are documented. Later, the DSEIS states that no negative effects from any synergistic interactions between herbicides are expected, provide scientific data that substantiates that statement (**Chautauqua County Water Quality Task Force**).

Response: The combination of Aquathol K and Navigate is common in aquatic plant control, and has been used often in the past with effective results and no evidence of negative impacts. In New York, the combination has been recently used at both Bemus Bay (2017) and Glen Lake (Queensbury, NY, 2016). The benefit of combining the two products allows the applicator to use lower doses of both products than would otherwise be needed for a similar level of control. The combination of Aquathol K and Navigate is so common in aquatic plant control throughout the US that the manufacturer of Aquathol K, United Phosphorus Inc., recently announced the full

registration of a new product, Chinook, which is a premixed formulation of Aquathol K and Navigate's active ingredient 2, 4-D. The NY registered label of Aquathol K does not state that the "herbicide should not be used in conjunction with any other chemicals." Rather, the label states that Aquathol K treated water should not be used for Chemigation (e.g. the application of pesticides through an irrigation system). More information on the combination of endothall (Aquathol K) and 2, 4-D is available from the manufacturer UPI at [www.UPI-USA.com](http://www.UPI-USA.com).

Comment: Under the proposed herbicides chapter, it states that a pH of 8 or higher may reduce weed control. What is the pH of Chautauqua Lake, and will this reduce the effectiveness. Needs to be defined before a conclusion can be made on use **(Chautauqua County Water Quality Task Force)**.

Response: pH can vary from day to day, and over the course of a single day by more than 1.5 units (R. J. Whitney, U. of Birmingham, 1942, C.E. Boyd, Auburn University, 1990). The recorded pH during last year's application was 7.9.

Comment: For the treatment maps, the herbicide application was stated to be restricted to 200-feet off shore or 6-feet of water, whichever comes first. With the scale of the maps, the presented areas show zones many times the width. Proposed areas of herbicide application must be recalculated and mapped to maintain the stated restrictions **(Chautauqua County Water Quality Task Force)**.

Response: The relevant NYSDEC regulations stated that treatment areas for 2, 4-D "shall not extend beyond 200 feet from shore or beyond a maximum depth of six feet, whichever gives the greater distance from shore." See 6 NYCRR § 327.6(c).

Portions of some treatment areas have been reduced in size in accordance with this regulation. The maps provided in Appendix F to this FSEIS: Additional Mapping depict the treatment areas.

Comment Category 5: Fish Habitat/Muskellunge

Comment: Fish spawning and rearing will be threatened (**Chautauqua Fishing Alliance, Chautauqua Lake Association, Ramboll Consulting on behalf of Chautauqua Institution**).

Response: The fish spawning areas, as identified in the MMS and by NYSDEC, have been mapped. The treatment areas only overlap with approximately 25% of the identified important fish spawning areas. The vast majority of muskellunge are currently reared at the NYSDEC fish hatchery. The NYSDEC collects adult muskellunge in early May at the trap locations identified in Appendix F to this FSEIS. Treatment will be planned in conjunction with the NYSDEC to minimize any effects on the NYSDEC's annual collection of muskellunge eggs from the Lake in early May.

Comment: Impacts to fishery, especially muskellunge needs further explanation. Dissolved oxygen impacts (due to decomposing weeds) need to be discussed. Spawning areas need to be protected (**Chautauqua Lake Association, Ramboll Consulting on behalf of Chautauqua Institution**).

Response: Treating early in the growing season when oxygen levels are high and biomass of targeted plants is low is designed to mitigate potential dissolved oxygen impacts. Dissolved oxygen will be checked before the application begins, and if extending beyond one day, at the beginning of each application day. If the dissolved oxygen measures 5.0 ppm or below, treatment may be postponed until oxygen levels are more suitable. The proposed action will target two, non-native, invasive species of macrophytes (weeds) that are presently found in Chautauqua Lake: Eurasian Watermilfoil and curly leaf pondweed. Less than 10% of the surface area of the Lake will be treated with herbicides and native macrophytes (weeds) will not be targeted for removal.

There will be some local changes to weed beds, but the removal of invasive, non-native plant species is considered a net benefit. Less than 20% of the littoral zone of the Lake will be affected by the proposed action, leaving over 80% of the Lake's littoral zone available to provide habitat for fish. The proposed action seeks to remove invasive, non-native plants from the Lake: Eurasian watermilfoil and curlyleaf pondweed. The fish species found in Chautauqua Lake, were in the Lake prior to the arrival of these non-native plants and they will survive after some of these non-natives are removed from the Lake.

As stated in the DSEIS, the vast majority of muskellunge in the Lake are spawned and reared in the NYSDEC fish hatchery. The NYSDEC trap muskellunge in early May each year to gather their eggs for spawning.

Herbicide application will be coordinated with the NYSDEC to minimize impacts to muskellunge egg gathering.

Comment Category 6: Rare, Threatened, and Endangered Species

Comment: The cursory attention paid to local at-risk wildlife, simply to quickly remove a large amount of vegetation from the Lake is extremely worrisome. I'm not arguing that the target nuisance vegetation is not a challenge for certain Lake uses, but I do have grave concerns over the fact that that several biological indicators which suggest that -biologically- things aren't all bad in Chautauqua Lake are being ignored. It behooves all of us to heed the signs that in the past decades/years sensitive species- including several formally designated RTE species- have recovered in the area and that we may undo all these gains if the proposed herbicide applications are not done carefully and after meticulous deliberation of the potential consequences for the health of Chautauqua Lake **(Roger Tory Peterson Institute)**.

Response: The SEIS analyzes the possible effects of herbicides on various biological organisms that live in the Lake and efforts have been made to balance the needs of all species utilizing the Lake (to include *Homo sapiens*) and the net benefit of removing non-native, invasive species from limited portions of the Lake through targeted herbicide treatments.

Comment: Claire Quadri of the Chautauqua Watershed Conservancy (CWC) provided proposed treatment area maps superimposed on mapping from the MMS to illustrate potential impacts to RTE species and CWC owned lands **(Chautauqua Watershed Conservancy)**.

Response: Information provided by the CWC, along with documented occurrences of RTE species in the Lake and toxicity information were used to evaluate potential impacts. Many species on this list are not vulnerable to the herbicides proposed. Please refer to responses to previous comments regarding the spiny softshell turtle and the DSEIS: 3.2.2: Wildlife/Rare, Threatened, and Endangered Species for discussion on existing conditions, 4.3: Terrestrial and Aquatic Ecology for discussion on potential impacts to rare, threatened, and endangered species, and 5.2.2: Rare, Threatened, and Endangered Species for discussion on mitigations.



Comment: Further communication with Natural Heritage is needed (**Chautauqua Lake Association**).

Response: Information provided by Natural Heritage along with documented occurrences of RTE species in the Lake and toxicity information were used to evaluate potential impacts. Many of the species on this list are not vulnerable to the herbicides proposed. Please refer to responses to previous comments regarding the spiny softshell turtle and the following sections from the DSEIS: 3.2.2: Wildlife/Rare, Threatened, and Endangered Species for discussion on existing conditions, 4.3: Terrestrial and Aquatic Ecology for discussion on potential impacts to rare, threatened, and endangered species, and 5.2.2: Rare, Threatened, and Endangered Species for discussion on mitigations.

Comment: Fails to address all of the NYS RTE species known to occur on the Lake (**Roger Tory Peterson Institute**).

Response: The DSEIS includes an analysis of RTE species. The New York Natural Heritage Program was consulted to identify known RTE species.

Comment: The Natural Heritage Program notes that rare and NYS listed animals, plants, and significant natural communities are documented within treatment zones (**Chautauqua Watershed Conservancy, Ramboll Consulting on behalf of Chautauqua Institution**).

Response: Information provided by Natural Heritage, along with documented occurrences of RTE species in the Lake and toxicity information were used to evaluate potential impacts. Please refer to responses to previous comments regarding the spiny softshell turtle the DSEIS: 3.2.2: Wildlife/Rare, Threatened, and Endangered Species for discussion on existing conditions, 4.3: Terrestrial and Aquatic Ecology for discussion on potential impacts to rare, threatened, and endangered species, and 5.2.2: Rare, Threatened, and Endangered Species for discussion on mitigations.

Comment: Need to discuss impacts to Pied-Billed Grebes, Common Loon, Common Tern, Osprey, Red-Shouldered Hawk, Common Nighthawk, Piping Plover, and Bald Eagle. Insufficient information on direct and indirect effects of the proposed action on resident, breeding, and migrating birds and waterfowl in IBA (**Roger Tory Peterson Institute**).

Response: The proposed herbicides have very low toxicity to birds. Please see section 4.3.2 of DSEIS. No impacts are anticipated.

Comment: Need to discuss impacts to bats **(Roger Tory Peterson Institute)**.

Response: The proposed herbicides have very low toxicity to mammals. Please see section 4.3.2 of DSEIS. No impacts are anticipated.

Comment: Need to discuss impacts to spiny softshell turtle, including use of SAV for habitat and forage and dissolved oxygen impact **(Roger Tory Peterson Institute)**.

Response: The NYSDEC notes that the spiny softshell turtle is a New York State Species of Special Concern.

There is no apparent toxicity to spiny softshell turtles from endothall at treatment doses (please see Notes: Toxicity of Diquat and Endothall to Eastern spiny softshell Turtles (*Apalone spinifer spinifer*) by Paul and Simonin). There are no known data describing the toxicity of triclopyr ester or 2, 4-D to eastern spiny softshell turtles. The State of Wisconsin's guidance on box turtles notes that triclopyr ester and salt concentrations of less than 2.0 ppm can be used (Wisconsin DNR 2018). 2, 4-D was shown to cause non-lethal effects to tortoises (Willemsen and Hailey 2001).

Treating early in the growing season when oxygen levels are high and biomass of targeted plants is low is designed to mitigate potential dissolved oxygen impacts. Dissolved oxygen is checked before the application begins, and if extending beyond one day, and the beginning of each day. If the dissolved oxygen measures 5.0 ppm or below, treatment may be postponed until oxygen levels are more suitable. The proposed action will target two, non-native, invasive species of macrophytes (weeds) that are presently found in Chautauqua Lake: Eurasian watermilfoil and curly leaf pondweed. Less than 10% of the surface area of the Lake will be treated with herbicides and native macrophytes (weeds) will not be targeted for removal, and will remain in the Lake as submerged aquatic vegetation (SAV) for habitat and forage.

Comment: Impact to *Potamogeton hillii* by Aquathol K, early treatment period would not be mitigated; other natives would be impacted too **(Racine-Johnson and Ramboll Consulting on behalf of Chautauqua Institution)**.

Response: Application in early May is proposed in order to occur prior to *P. hillii* growth. In the event that is not possible due to SEIS and permitting delays, the Aquathol K rate of 1.5 ppm in Stockholm/ Greenhurst and Burtis Bay treatment areas may be high enough to impact *P. hillii*. The plant was not found in the Burtis Bay area in 2017. Other Aquathol K application areas are 1.0 ppm or below, and are not expected to impact *P. hillii* in a shoreline

application based on application rates noted for most *Potamogeton* species on the Aquathol K product label. Typically, pondweeds only display the effects of control for the season of application, and return the following season unaffected.

Please see 3.2.1 Aquatic Vegetation, pages 31-35 of the DSEIS for a discussion of native macrophytes. Also, please refer to DSEIS 5.2.2 Rare, Threatened, and Endangered Species for more information on *P. hillii*. The EPA and NYSDEC registered herbicides that are being proposed are selective products, designed to target the two (2) specific invasive species analyzed in this document: Eurasian watermilfoil and curlyleaf pondweed. Unlike the other major macrophyte management technique currently employed on the Lake, mechanical harvesting, using selective herbicides to combat non-native, invasives is a more refined technique to manage macrophytes. Mechanical harvesting indiscriminately removes up to 6' of any plant, and kills any fish, that the harvesters' blades encounter and/or those fish that are caught and collected in the harvested plants.

Comment Category 7: HABS

Comment: Is there a potential for an increase in HABS as result of the proposed action? There is the potential for herbicide treatments to significantly reduce the mass uptake of nutrients from the Lake water column by plants, potentially resulting in these nutrients fueling algal blooms and more intense cyanobacteria in or near treatment areas. **(Chautauqua Watershed Conservancy and Chautauqua County Water Quality Task Force)**

Response: Please see sections 4.2.1 and 5.1.1 of the DSEIS. Early herbicide treatment is anticipated to cause fewer nutrients to be released into the water column than no treatment or treatment late in the season.

The herbicide application will target the early stage of Eurasian watermilfoil growth, well before the plant reaches maximum growth or biomass. The treatment plan that has been developed uses selective herbicides to target non-native, invasive macrophyte (weed) species. Although some native species may be killed, with proper treatment techniques, and acting in full accordance to NYSDEC regulations, impacts to native plants can be kept to a minimum. Without treatment, natural die off of all macrophytes would eventually occur and would contribute to the phosphorous (nutrient) load, although the release of phosphorous through natural die off will be less without Eurasian watermilfoil and curly leaf pondweed present. Also, the extent of Eurasian watermilfoil in the southern end of the Lake (Burtis Bay area) is much greater than the proposed treatment area. The size of the treatment areas and subsequent nutrient availability has been taken into consideration.

Nutrients are released from decaying plant biomass left from harvesting activities. This floating mass of decaying plants ultimately gets pushed by currents to shoreline, where warmer water and sunlight can quickly turn released nutrients to algae growth. Mechanical harvesting cuts indiscriminately, affecting both native species and invasive species, trimming the top 6 feet of all submerged aquatic vegetation. Approximately 7% to 15% (see Engel, Sandy, *Ecological Impacts of Harvesting Macrophytes in Halverson Lake, Wisconsin*) of the trimmed vegetation (measuring 6 feet in length) stays in the Lake and, ultimately, releases additional phosphorous (nutrients). Mechanical harvesting is conducted throughout the summer (including when macrophytes are at their peak in terms of growth), up to 3 to 5 times depending on the location, leaving the trimmed residue in the Lake each time, and contributing to the phosphorous levels.

Comment: In the Unavoidable Adverse Environmental impacts chapter, it indicated that impacts associated with the application of herbicides for this project

will be short-term with no long-term environmental impacts expected. Is there any background in science to support this conclusion? What about the impact removal of the macrophytes can have on HAB's? **(Chautauqua County Water Quality Task Force)**

Response: The basis for this statement is provided in the accompanying text of sections 4.8.1 – 4.8.5 of the DSEIS. This includes a reference to planktonic algae growth.

Comment Category 8: Water Use/Human Health

Comment: There is not quantification or mitigations to address the potential impact of herbicides to near shore wells. Quantify capture zones of wells near the lakeshore to ensure herbicides are not being drawn through **(Chautauqua County Water Quality Task Force)**.

Response: Neither the EPA nor the NYSDEC have identified well water use restrictions associated with the use of the prescribed herbicides. Application of herbicides will be conducted in accordance with product labels.

Comment: The DSEIS states that concentrations of the herbicides to be applied and the dilution modeling show the concentrations at the major water intakes will be several orders of magnitude less than drinking water standards. Show the model for review. The only model indicated is a dilution model and not a transport of dispersion model to substantiate this statement. Does this also protect non-regulated water intakes on this Lake? Have any been identified in the proposed treatment areas? **(Chautauqua County Water Quality Task Force)**

Response: Known or reported water withdrawals are cited in section 3.7.1 of the DSEIS on page 61. This is addressed further in section 4.7 on page 101. Mitigations for private water users that are impacted by the treatment include notification of the applications is explained in section 5.5.2 on page 112 of the DSEIS.

The dilution model concept was established by the NYSDEC under the guidance of their Division of Water, with input from the Bureau of Pesticides. The dilution models for each treatment area must be performed during the permitting process.

Comment: There has been no groundwater modeling to determine the impact of groundwater on the application of herbicides. Bottom springs need to be considered; if present, herbicide application may change. Clarification is

needed on if/where bottom springs are identified in the Lake and any changes to the herbicide application rates (i.e. more herbicide) for these areas. **(Chautauqua County Water Quality Task Force)**

Response: Given the size of the Lake and anticipated normal water exchange from a treatment area, as well as the location of treatment areas along the shoreline, the presence of bottom springs are not considered to present a significant impact to the proposed treatment areas.

#### Comment Category 9: Dispersion

Comment: Chautauqua Lake has wind-driven currents as well as an outflow current from Fluvanna and Burtis Bay to Celoron locations downstream through the outlet. Product and treatment site selection must consider impacts to the submergent and emergent aquatic plants lining in the Lake and outlet in proximity to the "terrestrial" wetlands and dismisses any impact on the wetlands.

We ask that dispersion modeling and current/flow modeling be completed and that the treatment zones and proposed herbicide products be modified based on the model results to ensure that adequate safety zones for dilution are provided to avoid potential negative impacts on water supplies, sensitive species, fish spawning areas, emergent vegetation and macrophytes and shoreline vegetation **(Chautauqua Watershed Conservancy)**.

Response: Dilution modeling to ensure adequate separation for restricted water uses for each treatment area is performed as part of the permitting process. Treatment areas have been focused away from previously documented sites of *Potamogeton hillii* when possible, despite the fact that no *Potamogeton hillii* was observed in late summer 2017. Dilution modeling for spawning areas and emergent vegetation was not conducted as these are not expected to be impacted based on product information and applicator experience. Wetland boundaries are included on the maps provided in Appendix F.

#### Comment Category 10: Overall Ecology

Comment: Fails to address implications to fish, wildlife, and waterfowl, and habitats in Lake and outlet **(Chautauqua Fishing Alliance, Chautauqua Lake Association)**.

Response: Please see Chapter 4: Potential Environmental Impacts and Chapter 5: Mitigations of the DSEIS. Many groups of organisms are not vulnerable to the herbicides being proposed as discussed in the DSEIS. Please refer to

responses to previous comments regarding the spiny softshell turtle and to following sections of the DSEIS: 3.2.2: Wildlife/Rare, Threatened, and Endangered Species for discussion on existing conditions, 4.3: Terrestrial and Aquatic Ecology for discussion on potential impacts to rare, threatened, and endangered species, and 5.2.2: Rare, Threatened, and Endangered Species for discussion on mitigations.

Comment: There may be drastic changes to the Lake's biological functioning. **(Roger Tory Peterson Institute)**

Response: The DSEIS acknowledges that the aquatic community is currently dominated by non-native species at numerous trophic levels including fish, plants, invertebrates, and mussels. The program outlined in the DSEIS is designed to address two of the more prevalent invasive plant species. For the reasons stated in the DSEIS, drastic changes to the Lake's biological functioning are not anticipated.

Comment: Zebra mussel information needs to be updated to reflect Racine-Johnson data. **(Chautauqua Lake Association)**

Response: Zebra mussels are acknowledged to be present in most areas of Chautauqua Lake. Because they are a non-native, invasive species, any toxicity to them, if any, by the herbicides proposed is expected to be of no consequence to the Lake's overall ecology.

Comment: Does not consider impacts to Lake outlet or proximity to wetlands, greater setbacks from wetlands should be required to protect sensitive habitats. CWC owned waterfront nature preserves may be negatively impacted **(Chautauqua Watershed Conservancy).**

Response: The EPA and NYSDEC registered herbicides that are being proposed are selective products, designed to target the two (2), specific, invasive species analyzed in this document: Eurasian watermilfoil and curlyleaf pondweed. Please see the following sections of the DSEIS for information on wetlands: 3.2.3: Wetlands. 4.3.3: Wetlands, and 5.2.4: Wetlands. Wetland boundaries are included on the maps provided in Appendix F. Application of herbicides will be in compliance with the NYSDEC permit.

Comment: Page 6 - incorrect statement, there is a baseline for invertebrate population **(Racine-Johnson).**

Response: No reference is given for this baseline invertebrate data nor is there a statement regarding invertebrates on page 6. We acknowledge that there are data presented in annual monitoring reports on mussels and beneficial aquatic insects. Data on the rest of the invertebrate community are few.

Comment: Page 40 - macroinvertebrates statement on few data points existing and the first identification of herbivores are both incorrect **(Racine-Johnson)**.

Response: Reference is given for this baseline data on insect invertebrate herbivores, but not on the remainder of the invertebrate community, nor is there a statement regarding identification of beneficial insects for the first time on page 40. We acknowledge that there are data presented in annual monitoring reports on mussels and beneficial aquatic insects. Data on the rest of the invertebrate community are few.

It is not necessary to preserve the non-native, invasive Eurasian watermilfoil to protect the insects that feed on it.

Comment: Under "Impacts to invertebrates" there is no mention of aquatic insects **(Racine-Johnson)**.

Response: There are few data on invertebrates in Chautauqua Lake, beyond mussels and insect herbivores that feed on milfoil. The rest of the invertebrate community is not well described.

Comment: More information on the impacts to mussels is needed **(Ramboll Consulting on behalf of Chautauqua Institution)**.

Response: Information provided by Natural Heritage along with documented occurrences of RTE species in the Lake and toxicity information were used to evaluate potential impacts. Many species on this list are not vulnerable to the herbicides proposed. In addition, the NYSDEC noted that the Kidneyshell Mussel is not an endangered species. Paper pondshell was reported (Racine-Johnson) to be widely distributed in 2015, but not in 2016.

Washington State University (Publication Number 00-10-040, July 2000) found that "Aquathol® K disodium endothall salt and endothall acid have low acute toxicity to benthic (sediment dwelling) invertebrates. At the projected maximum use rate, Aquathol® K and its surrogate test substances will not acutely impact members of this segment of the biota." (Appendix D, Vol. 2, Sect. 5, p. 7).



Freshwater mussels are vulnerable to acute toxicity from 2, 4-D (Alves and Oliveira 2014; Milam et al. 2005). In addition to direct mortality, 2, 4-D has been shown to cause demineralization in freshwater mussel shells.

Publication Number 04-10-018, Environmental Impact Statement (EIS) for Permitted Use of Triclopyr (Washington State), found that "Triclopyr TEA and triclopyr acid are practically non-toxic to aquatic invertebrates."

Comment: Fails to address the impact of proposed action on native plants **(Chautauqua Lake Association)**.

Response: The proposed herbicides and application rates will primarily kill the invasive target plants, Eurasian watermilfoil and curlyleaf pondweed. Some native plants may be impacted, but overall, the removal of the invasive plants will allow native plants to increase in abundance, range and biomass. Once Eurasian watermilfoil dies off, it is anticipated that natives will regrow as they did in Bemus Bay after the June 2017 treatments. Eurasian watermilfoil also has competitive advantages that contribute to its ability to expand, including tolerance to low temperatures and forming surface mats that shade out native plants. Please reference Table 4-3, section 4.3 on page 78 of the DSEIS.

Comment: Discussion on dilution calculations and mitigation is focused on drinking water standards but should also include consideration for ecological standards for all life stages of fauna that depend on the Lake (i.e. protection of aquatic life from acute effects (A (A)), protection of aquatic life from chronic effects (A (A)), protection of wildlife (W)). The proposed herbicide applications may have sufficient dilution models for drinking water standards, as they are located away from the source water intakes. However, do the models meet ecological standards, A (A), A(C) and W, for the Lake? **(Chautauqua County Water Quality Task Force)**

Response: NYSDEC has not stipulated any specific modeling for ecological standards for aquatic pesticide applications.

Comment: The DSEIS states that nutrients released to the south basin in the fall when plants naturally die back would be more likely to be flushed out of the Lake before the growing season the following year, yet earlier in the document, it states that internal loading is a problem for the "foreseeable future." Now it states that it will be flushed out in less than a year. **(Chautauqua County Water Quality Task Force)**

Response: Internal loading references release of nutrients from Lake sediments throughout the basin, which have been accumulated since the formation

of the Lake. The flushing rate of the Lake's south basin is 2.5, which means the water is exchanged 2.5 times per year or approximately every 5 months. The flushing rate of the north basin is 0.5, which means it takes 2 years to flush the north basin once (Cadmus 2012).

Comment: In the Vegetation (Aquatic) chapter, there is no mention of potential impacts to native shoreline vegetation and riparian vegetation that could be affected by herbicides if a high-water event occurs. Some of these areas may be within the 100-foot buffer of state wetlands or federal wetlands. More literature is needed, as 2, 4-D can kill shoreline trees whose roots access the treated water. **(Chautauqua County Water Quality Task Force)**

Response: Experience indicates that control of woody brush requires direct application of the concentrated herbicide to a portion of the stem or trunk beneath the bark layer for successful control.

In the event that a high water event occurs immediately prior to treatment, or is anticipated in the days following application, consideration will be given to postponing the application. Wetland boundaries are included on the maps provided in Appendix F.

#### Comment Category 11: Economy/Tourism

No comments provided related to this category.

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### **Chapter 6: Alternative Analysis**

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#### Comment Category 12: Other Alternatives

Comment: The MMS should be consulted **(Chautauqua Watershed Conservancy)**.

Response: The MMS was consulted and utilized as source of reference. The MMS was written to provide a strategy for addressing the macrophytes in the Lake. It was not adopted by any regulatory body, nor was it put out for public comment under SEQR. While the MMS considers that herbicides may be applied in certain zones of the Lake, the MMS did not go through the SEQR process and therefore is not acceptable to the NYSDEC as an SEIS for the application of herbicides to the Lake. In short, the MMS does not have any regulatory authority in and of itself.

Comment: Need to fully explore No Action Alternative, herbivores, and other macrophyte management techniques **(Ramboll Consulting on Behalf of Chautauqua Institution, Chautauqua Watershed Conservancy, and Chautauqua Lake Association)**.

Response: Alternative approaches, including the “No Action” alternative are discussed in section 6.0 of the DSEIS beginning on page 113. The presence of herbivores within the growth of Eurasian watermilfoil has been documented as recently as 2016 by Racine Johnson Ecologists. Herbivores do impact the vegetation targeted for treatment with herbicides, but they are not a standalone solution. Please see the MMS for a discussion of how introduced/ non-native herbivores can be utilized as a management tool for controlling Eurasian watermilfoil. Similarly, mechanical harvesting also has a role to play in managing macrophytes in Chautauqua Lake, but it too is not a standalone solution. The extent of Eurasian watermilfoil present in the treatment areas is deemed sufficiently problematic to require herbicide treatments as a management technique, in addition to the existing mechanical harvesting program. While herbivores impact the vegetation targeted for treatment with herbicides, herbivores have not been successful in controlling invasive macrophytes on the Lake, and they are not a standalone solution.

Comment: We request that the SEIS thoroughly consider the benefits of the “No Action” treatment alternative and fully explain this option of allowing herbivores to build strong populations to have the opportunity to control milfoil **(Chautauqua Watershed Conservancy)**.

Response: See response to previous comment.

Comment: Failure to address alternative measures such as green infrastructure, note that SPDES must address phosphorus **(Chautauqua Lake Association)**.

Response: Green infrastructure plays an important role in reducing the nutrient load that enters the Lake, but it is a long-term management technique that will take many years to fully implement and even more to see any significant reduction in nutrients entering the Lake.

We have provided a set of calculations to estimate the amount of phosphorus that may be released from macrophytes targeted by the herbicide treatment program (Appendix D). What follows is a summary of what we expect.

In May when herbicide treatment is proposed, Eurasian watermilfoil will be at the beginning of its growing season, it will be minimally developed and

its biomass will be low. Even though phosphorus concentrations within these early season plants may be higher than concentrations in plants later in the season, the greatly reduced biomass results in phosphorous release estimates after treatment that are lower than natural dieback of the maximum biomass at the end of the season

We expect that invasive plant die-off resulting from herbicides would add ~430 lbs. of phosphorus to the North Basin (~1.5% of the 2007 North Basin load) and ~1450 lbs. of phosphorus to the South Basin (~2.7 % of the 2007 South Basin load). This compares to ~800 lbs. (2.9%) and ~2490 lbs. (4.7%) of phosphorus which would be added to the North and South Basins, respectively, with no herbicide treatment and end-of-season die off.

Phosphorus release from second and third year herbicide applications, if needed, is anticipated to be even lower as the densities of invasive macrophytes are expected to decrease after the first and subsequent treatments. This will be somewhat offset by biomass of native plants recolonizing the treated area. Phosphorus release from early season treatment would be short lived and relatively small compared to overall total phosphorus loads to the Lake which were 27,930 kg (North Basin) and 52,898 kg (South Basin) in 2007 (2012 Cadmus).

Please also reference sections 4.2.1 and 5.1.1 in the DSEIS. In addition, Dr. Greg Boyer, Professor, SUNY College of Environmental Science and Forestry recently stated during the Central NY HAB Summit that early season HABs, when the water was cooler, were less toxic than those late in the season, when the water was warmer. Dr. Boyer's lab conducts a large portion of the HAB toxin analysis for samples collected in NY.

We acknowledge the importance of the HABs summit and the work that will come out of the Summit, including future studies and plans.

Comment: Focus should be on alternative techniques that seek to prevent nutrients from entering the Lake **(Ramboll Consulting on Behalf of Chautauqua Institution)**

Response: The focus of this SEIS is on the specific action of treating the Lake with herbicides to reduce the problem of invasive macrophytes and how that may impact the environment. This SEIS does not preclude pursuing any of the other recommendations in the MMS concerning nutrient loading and macrophyte reductions in the Lake.

## **COMMENTS FROM THE GENERAL PUBLIC**

The following comments were received from those members of the general public that offered input via public hearing, letter, and/or e-mail. Most comments are in summarized form here, not verbatim. Each letter and e-mail that was received by the Lead Agency prior the comment period's extended deadline of 4:00 P.M. on Friday, March 16, 2018 is included in Appendix B. A full transcript from the March, 1, 2018 public hearing is included in Appendix C; a summary spreadsheet to the comments can be found in Appendix E.

The members of the general public that submitted comments in written or spoken form are included below:

### **Written Comments Received Prior to March 1, 2018**

- 1. Writer #1 - Keith Clelland;**
- 2. Writer #2 - Giff and Jane Lawrence;**
- 3. Writer #3 - Ron Nelson;**
- 4. Writer #4 - Ruth Wahl;**
- 5. Writer #5 - David Wasik;**
- 6. Writer #6 - Beth Peyton;**
- 7. Writer #7 - Rachel Brown;**

### **Comments Received at March 1, 2018 Public Hearing**

- 8. Speaker #1 - Doug Champ;**
- 9. Speaker #2 - Andy Ohl;**
- 10. Speaker #3 - Bob Johnson;**
- 11. Speaker #4 - Jim Paige;**
- 12. Speaker #5 - Randy Present;**
- 13. Speaker #6 - Bruce Erikson;**
- 14. Speaker #7 - John Durkee;**

15. Speaker #8 - Becky Nystrom;
16. Speaker #9 - Jennifer McDowell;
17. Speaker #10 - Jan Bowman;
18. Speaker #11 - Jane Conroe;
19. Speaker #12 - Rudy Mueller;
20. Speaker #13 - John Conley;
21. Speaker #14 - Kathleen McCarthy;
22. Speaker #15 - Bob Wooler;
23. Speaker #16 - Hillary Hornyak;
24. Speaker #17 - Julia McMahon;
25. Speaker #18 - Karen Rine.

**Written Comments Received Prior to ORIGINAL Deadline of 4:00 P.M. on March 12, 2018**

26. Writer #8 - Edward Chum;
27. Writer #9 - Pat and Brad Zimmer;
28. Writer #10 - Robert Lannon;
29. Writer #11 - Robert Wooler;
30. Writer #12 - Kathleen McCarthy;
31. Writer #13 - Becky Nystrom;
32. Writer #14 - Mary Glatt;
33. Writer #15 - Anonymous/Unknown;
34. Writer #16 - Jay Kuntz;
35. Writer #17 - Fletcher Ward;

- 36. Writer #18 - Anonymous/Unknown;
- 37. Writer #19 - Brian and Cheryl Eckwahl; and
- 38. Writer #20 - John F. Dilley

**Written Comments Received by the EXTENDED Deadline of 4:00 P.M. on March 16, 2018**

- 39. Writer #21 - Dustin Nelson
- 40. Writer #22 - Edward Crum
- 41. Writer #23 - James Reynolds
- 42. Writer #24 - Jan Bowman
- 43. Writer #25 - Chery Eckwahl
- 44. Writer #26 - Barbara Blanchard
- 45. Writer #27 - Jonathan Townsend
- 46. Writer #28 - Daniel Bowman
- 47. Writer #29 - Jane Conroe
- 48. Writer #30 - Becky Nystrom
- 49. Writer #31 - Deborah Moore
- 50. Writer #32 - Peter Beeson
- 51. Writer #33 - Francis Trenkamp
- 52. Writer #34 - Jan Bowman
- 53. Writer #35 - Thomas Arnn
- 54. Writer #36 - John F. Dilley
- 55. Writer #37 - Mary D. Laumer

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**Chapter 1: Introduction and Project Background; and**

**Chapter 2: Environmental Review of the Project Pursuant to SEQR**

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Comment Category 1: DSEIS

Comment: One of the statements made about the SEIS is that it is intended to put herbicides "in the toolbox." The MMS already provides for herbicide use under very carefully considered conditions and with specific limitations as determined by a local group of scientists who know the Lake, its history, and understand Lake ecology. It's already in the toolbox, so what is the purpose of this SEIS document if not to challenge what scientists have carefully determined for our Lake and to push for large scale treatment for personal gain with a disregard for Lake ecology? A SEIS is a wonderful idea at this point, but this document will not serve us well.

Response: The MMS was written to provide a strategy for addressing the macrophytes in the Lake. It was not adopted by any regulatory body nor was it put out for public comment under SEQR prior to its adoption. While the MMS considers that herbicides may be applied in certain zones of the Lake, the MMS did not go through the SEQR process and therefore is not acceptable to the NYSDEC as an SEIS for the application of herbicides to the Lake. In short, the MMS does not have any regulatory authority in and of itself. The purpose of this document is to study whether herbicides may be safely used in targeted areas of the Lake and to provide for public comment through the SEQR process. The SEIS is necessary in order to receive an aquatic pesticide permit.

Comment: Questions were raised about why the DSEIS did not address the entire Lake.

Response: The DSEIS does address the impacts of herbicide treatments on the entire Lake. The herbicide treatment plan does not include applying herbicides to the entire Lake. Less than 10% of the surface area of the Lake will be treated. There will be direct impacts to the environmental conditions of the Lake in areas that are being treated and areas adjacent to these areas. The impacts of this treatment on areas further away from the treatment areas are being shown to be minimized to the maximum extent practicable (primarily by the dilution of these herbicides as they travel outside the treatment areas).



Comment: The distances off shore for treatment in these maps reaches from hundreds to over 1000 feet. This is in violation of the General Conditions written by NYSDEC Fisheries in the NYS 1981 EIS for which this proposed document is a supplement. The fact that this draft is recommending significant extensions of the accepted state distance makes it unacceptable. There is significant liability in extending these distances and thus, this is another significant reason the Town of Ellery should find this document to be unacceptable.

Response: The 200 foot distance limitation found in the 1981 Programmatic Environmental Impact Statement has been superseded. According to the NYSDEC's 2014 State Environmental Quality Review Amended Findings Statement, "Any restrictions in the PEIS or SEISs that go beyond the scope of labeled use requirements shall no longer be applicable unless the same restrictions occur in the Environmental Conservation Law, the associated regulations, or Department policy." (2014 Findings at 12). None of the labels for the proposed products limit the distance from shore in which the products may be applied. However, Section 327.6(c)(5) of NYSDEC regulations pertaining to the Use of Chemicals for the Control or Elimination of Aquatic Vegetation provides that the treatment area for low-volatile esters, salts and amines of 2, 4-D (including Navigate) "[s]hall not extend beyond 200 feet from shore or beyond a maximum depth of six feet, whichever gives the greater distance from the shore." The treatment area maps in the SEIS have been updated to be in compliance with this regulation.

Comment: The DSEIS has to address the quarantine problem.

Response: As part of the herbicide permitting process, the NYSDEC requires the applicant to transmit a letter of notification to potentially affected individuals. This letter of notification is required to list the water use restrictions associated with herbicide treatment. In addition, prior to application, posters will be posted around the Lake that notify Lake users of the treatment areas, water restriction zones, and contact information for the clerks of each Town or Village that intends to apply herbicides should an individual request more information.

Comment: DSEIS does not take into account environmental impact to the Lake.

Response: Please see *Chapter 4: Potential Environmental Impacts* and *Chapter 5: Mitigations*. Specific impacts raised in comments to the DSEIS have been addressed throughout this document.

Comment: Include additional mapping showing displaying the proposed treatment areas with ecologically important areas overlaid.

Response: Additional mapping has been provided in Appendix F to this FSEIS.

Comment: General indications of uncertainty over timing of the proposed herbicide treatment (length of time). Total application "could be 12 weeks."

Response: The application is proposed to occur in early May over the course of 3 to 7 days (weather permitting). Plants will die over 3 to 4 weeks. Total application time frame, including plant mortality and decay, is roughly 4 to 5 weeks.

Comment: General indications that there was confusion of the exact location of the proposed treatment areas.

Response: Appendix F of the FSEIS includes maps of the amended treatment areas.

Comment: General indications of confusion over how the proposed herbicides are going to be physically applied to the Lake - how will the proposed action be performed?

Response: The EPA- and NYSDEC-registered herbicides will be physically applied by licensed professional staff, in full accordance with the EPA and NYSDEC registered product labels and permits issued by the NYSDEC. These licensed professionals will perform the applications with GPS units on the application boats, using plant surveys based on GPS locations.

Comment: Does SOLitude Lake Management have experience on a Lake approaching the size of Chautauqua Lake and experience treating waters containing pure bred *Esox maskinonge*?

Response: This comment is noted. The SEIS addresses the application of herbicides to Chautauqua Lake. It does not mandate who will conduct that treatment, and thus SOLitude's experience is not relevant to the evaluation of

environmental impacts. Furthermore, as explained in section 4.8.3 of the DSEIS, the toxicity to muskellunge is anticipated to be minimal.

Comment: The meaning of "Treatment Area," as shown in figures 4-1 to 4-10 should be defined. Do the shaded areas shown in the figures denote the location of herbicide deposition or expected area of weed removal? If the former, the killing effect will likely include a much larger surrounding area than shown due to the dissipation and drift of the chemicals after they have been deposited. The expected area of killing should be shown in these figures.

Response: The shaded areas in the figures (see Appendix F to this FSEIS) represent the location of herbicide application. The size and location of each treatment area have been developed to effectively control the target plants in that specific area. Dilution at the edges of each treatment area may result in a marginal increase or decrease in the extent of the invasive plant control. Drift was measured and was found to be minimal following treatment in June 2017 (Bemus Bay Data Collection Project, June 2017).

Comment: Questions about the methodology utilized by SOLitude Lake Management to complete its 2017 report.

Response: The methodology used in the 2017 report was consistent with industry standards and methods accepted by the NYSDEC for a field study. There were no substantive errors that affected the conclusions of the report.

The document notes that 25 sites were not sampled in May. However, these sites were sampled in July to gain a wider assessment of herbicide impacts. Conclusions drawn in the report represent these assessments, both from sample sites and observations, and are supported by the past experience in aquatic plant control using the selected herbicides.

#### Comment Category 2: Process

Comment: Despite my best efforts, I cannot understand why Chautauqua Lake is treated so differently than other lakes in New York State that regularly use herbicide as part of the comprehensive approach to fighting invasive species.

Response: The NYSDEC has stated that no future aquatic pesticide permits will be issued until a SEIS is issued through the SEQRA. We make no comment on why a SEIS is required for Chautauqua Lake and not for other similarly situated lakes.

Comment: Notification must be made at all public and private access points and should cover the entire Lake, not just the treatment areas.

Response: Postings and notifications for treatments will occur in accordance with the law.

Comment: From a scientific standpoint, it appears that this entire project and its conclusions represent a clear conflict of interest and lack independent evaluation of the "success" of the treatment, since the company paid to apply the herbicides also evaluated its own work.

Response: Comment acknowledged.

Comment: Questions have been raised regarding SEIS process, the time frames, and the Town of Ellery acting as Lead Agency.

Response: The SEQR process was thoroughly described in Sections 1.0 and 2.0 of the DSEIS, and the process, including all timeframes and deadlines, has followed the requirements of 6 NYCRR Part 617 State Environmental Quality Review. We have received ±800 comments from over 60 speakers, writers, and community organizations and 7+ agencies, which have collectively provided more than 100 individual comments. The comment regarding the Town of Ellery acting as lead agency is noted.

### Comment Category 3: Political

Comment: I have followed the problem very closely over the last two years, and I am mystified by the lack of accountability, the lack of urgency, and the political dysfunction between the groups trying to improve the Lake. Rather than being open-minded and working together, it seems some groups are more interested in competing with one another and protecting personal interests and agendas. It is deeply frustrating to watch.

Response: Comment acknowledged.

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**Chapter 3: Environmental Setting;**

**Chapter 4: Potential Environment Impacts; and**

**Chapter 5: Mitigations**

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Comment Category 4: Herbicides

Comment: Herbicides should not be applied before July 1<sup>st</sup> to protect spawning and rearing periods for fish.

Response: The fish spawning areas, as identified in the MMS and by NYSDEC, have been mapped. The treatment areas only overlap with approximately 25% of the identified important fish spawning areas. The vast majority of muskellunge are currently reared at the NYSDEC fish hatchery. The NYSDEC collects adult muskellunge in early May at the trap locations identified in Appendix F to this FSEIS. Treatment will be planned in conjunction with the NYSDEC to minimize any effects on the NYSDEC's annual collection of muskellunge eggs from the Lake in early May.

Comment: Spot applications close to shore should be enough.

Response: Treatment areas are considered spot applications close to shore. Smaller or tighter treatment areas would allow more rapid re-infestation from adjacent untreated areas.

Comment: Aquathol should not be applied to more than 1/3 of the surface at one time.

Response: Proposed treatment areas represent less than 20% of the Lake's littoral zone, and less than 10% of the Lake's overall surface.

Comment: What happens next year, when invasives have a field day on barren bottom?

Response: Our treatment plan endeavors to use selective herbicides to leave the majority of native plants in place within treatment areas. Less than 10% of the surface area of the Lake is being treated. Overall, the removal of the invasive plants will allow native plants to increase in abundance, range and

biomass. Once Eurasian watermilfoil dies off, it is anticipated that natives will regrow as they did in Bemus Bay after the June 2017 treatments.

Comment: Herbicides should not be applied on undeveloped shoreline, NYS-owned property, and there should be at least 50% density of weeds.

Response: Treatment areas have been chosen to focus on developed shorelines, as well as areas that support the target invasive plants. In some cases, some portions of treatment areas may support lower densities of target plants, but treatment has been considered important in these areas to reduce the rate of re-infestation or address surface matting of the invasive species.

Comment: Concerned about claims that native macrophytes will come back and be re-established once the non-natives and aggressive invasives are targeted. These herbicides will not just target the non-native aggressive species. Many of us are concerned with the pondweeds that are going to be targeted by Aquathol K, many of which are native and important for the ecology of the Lake.

Response: Aquathol K is proposed at application rates from 0.75-1.5 ppm, with the intention of targeting curlyleaf pondweed. As indicated on the Aquathol K label, most native pondweed species require higher application rates (2.0-5.0 ppm) for successful control in lake margin treatments.

Comment: The weeds are dynamic, some years they grow in certain places and some years they do not. Do not want to treat somewhere that is potentially bad now, but might or might not be five years from now.

Response: While plant growth is dynamic, the targeted species are invasives and not likely to decrease. Eurasian watermilfoil has competitive advantages, including tolerance to low temperatures and forming surface mats that shade out native plants, which contribute to its ability to expand. Curlyleaf pondweed reproduces primarily by seed-like structures called turions that can remain dormant in the sediment for several years before re-sprouting. Each year curlyleaf pondweed grows, it contributes new turions to the sediment.

Comment: SOLitude Lake Management's macrophyte survey techniques are questionable, not vetted by the scientific community, and should not be considered as a basis for the DSEIS.

Response: The methodology used in the 2017 report was consistent with industry standards and methods accepted by the NYSDEC for a field study.

The abundance/density scale, developed by the US Army Corps of Engineers and modified by Cornell University, was used to categorize total observed plant growth. SOLitude used the scale referenced in NYSDEC plant monitoring guidelines, which was adapted from the Army Corps' method by Lord and Johnson (2006) and enhanced over the past decade by experienced aquatic plant samplers. Minor adaptations to this scale are widely accepted both in the field and by the NYSDEC. The minor adaptations are necessary as a function of individual site and surveyor characteristics. The scale used in SOLitude's surveys is a relative abundance scale that does not necessarily correlate to biomass. Relative abundance refers to 'the evenness of distribution of individuals among species in a community'. Biomass refers to 'the organic matter produced by living organisms' in this case plants.

There were no substantive errors that affected the conclusions of the report.

Comment: Spraying endothall does not destroy the root systems of the plants.

Response: Recent studies at Colorado State University (Nissen, Ortiz) have demonstrated that endothall does translocate to the roots of Eurasian watermilfoil, Aquathol K has since been reclassified as a systemic herbicide.

Comment: Just like everybody who is human has a different effect with cancer in terms of what the effects are with the chemotherapy treatment and what that represents, so remember, as we expose water to chemistry whether it becomes drinking water that is intake into the Chautauqua Institution, or natural aspects of our Lake which is living and breathing and really rejuvenating or in some cases not too well with that, it's going to have an impact and those impacts have yet to be defined, I think because these herbicides as a triumphant trifecta, if you will, have not been introduced before either by themselves or individually all the time for a number of years so we really know what those effects are.

Response: The combination of Aquathol K and Navigate is common in aquatic plant control, and has been used often in the past with effective results and no evidence of negative impacts. In New York, the combination has been used recently at both Bemus Bay (2017) and Glen Lake (Queensbury, NY, 2016). The benefit of combining the two products allows the applicator to use lower doses of both products than would otherwise be needed for a similar level of control. The combination of Aquathol K and Navigate is so common in aquatic plant control throughout the US that the manufacturer

of Aquathol K, United Phosphorus Inc., recently announced the full registration of a new product, Chinook, which is a premixed formulation of Aquathol K and Navigate's active ingredient 2, 4-D. Renovate will only be used in one treatment area, and will not be combined with another product.

Comment: These herbicides will kill beneficial plants as well as invasive species.

Response: The proposed herbicides and application rates will primarily kill the invasive target plants, Eurasian watermilfoil and curlyleaf pondweed. Some native plants may be impacted, but overall, the removal of the invasive plants will allow native plants to increase in abundance, range and biomass. Please reference Table 4-3, section 4.3 on page 78 of the DSEIS.

Comment: No discussion of native macrophytes in section 3.2.1: Aquatic Vegetation or impacts to wetlands.

Response: Please see DSEIS section 3.2.1 Aquatic Vegetation, pages 31-35 for a discussion of native macrophytes. The EPA and NYSDEC registered herbicides that are being proposed are selective products, designed to target the two (2), specific, invasive species analyzed in this document: Eurasian watermilfoil and curlyleaf pondweed. Unlike the other major macrophyte management technique currently employed on the Lake, mechanical harvesting, the selective herbicides do not indiscriminately kill all macrophytes that they come into contact with. Please see 3.2.3: Wetlands, 4.3.3: Wetlands, and 5.2.4: Wetlands for information on wetlands. Wetland boundaries are included on the maps provided in Appendix F.

Comment: Fail to address downstream impacts. Concern over Renovate near the Lake's outlet.

Response: Renovate will be applied by licensed professionals in accordance with EPA and NYS registered product labels and permits issued by the NYSDEC. Renovate concentrations are limited to 1.0 ppb for water use for irrigation purposes. Per NYSDEC dilution modeling, levels greater than 1.0 ppb will occur in the outlet and downstream of the outlet after application of the Renovate. Permitting will require notices and testing until levels drop below 1.0 ppb. Please see 3.3.2: Agricultural Practices and Irrigation from the Lake, 4.4: Agricultural Resources, 5.3: Agricultural Resources, and 6.3: Alternative: Different Herbicides for discussion of downstream impacts.



Comment: We do not know the effects of the herbicides on the ecosystem of and near the Lake. There may be unintended consequences on fish or insect life in the area. The unknowns are just too many.

Response: In order to receive EPA registration, an aquatic herbicide must undergo a comprehensive set of studies, including ecological assessments by an independent organization. EPA will grant a registration only after these studies support that the herbicide presents a reasonable level of risk to the ecosystem (and other concerns). This DSEIS has been drafted to go beyond the information supporting the product registration, and focus on additional local concerns, including ecological assessments. For additional information, refer to sections 3.2, 4.3 and 5.2 of the DSEIS.

Comment: Many of us try to eat organic food to reduce our exposure to pesticides and herbicides. To deliberately poison the Lake waters is unconscionable.

Response: The application of the proposed EPA and NYSDEC registered herbicides will be conducted in full accordance with their respective product labels and with the requirements of the NYSDEC permit. The public will be notified of all applicable water use restrictions.

Comment: Study of impact to invertebrate animals is not included and should be.

Response: Please see DSEIS section 4.8.4: Impacts to Invertebrates for discussion of invertebrates.

Comment: Study of impact to private groundwater wells is incorrect; private groundwater wells should be sampled prior to treatment.

Response: The proposed herbicide application is not expected to impact groundwater drawn from private wells surrounding the Lake. Outflows to Chautauqua Lake do not recharge groundwater—in other words, water generally flows from the groundwater into the Lake. Please see DSEIS sections 3.7: Water Supply and Infrastructure and 4.2.3: Groundwater.

Pre-treatment groundwater well sampling is not a requirement of the NYSDEC permit application, nor is it required for other bodies of water in New York State in which herbicides are routinely applied.

Comment: Use and impacts of Clearcast® should be included in DSEIS section 4.1: Description of Products.

Response: Clearcast® is not being proposed for use.

Comment: Impacts to birds in treatment areas must be included.

Response: Please see DSEIS section 4.3.2: Wildlife and 5.2: Terrestrial and Aquatic Ecology for discussion of birds.

Comment Category 5: Fish Habitat/Muskellunge

Comment: Impacts to muskellunge food chain (pan fish). Young fish use weed cover for habitat.

Response: Direct toxicity to most organisms in the muskellunge food chain is not anticipated, although zooplankton abundance may temporarily decline. Changes in the available habitat could alter the food chain locally, although this change is unlikely to persist due to recolonization of plants, macroinvertebrates, and fish from untreated areas. Less than 10% of the surface area of the Lake will be affected by the proposed action, leaving over 90% of the Lake available to provide habitat for other fish species (less than 20% of the Lake's littoral zone). The proposed action seeks to remove invasive, non-native plants from the Lake: Eurasian watermilfoil and curlyleaf pondweed. The other fish species found in Chautauqua Lake, were in the Lake prior to the arrival of these non-native plants and they are anticipated to survive after some of these non-natives are removed from the Lake.

Comment: Negative impacts to fishery and fishing industry.

Response: No supporting information is given regarding potential negative influence to the fishing industry. However, the invasive exotic plant species targeted are not a part of the historic aquatic community that supported the native fish assemblage that included muskellunge and the pan fish they feed on.

Comment: Levels of dissolved oxygen should be monitored with suspension of herbicide application if there is a drop below the critical level of 6.0 ppm.

Response: Dissolved oxygen is checked before the application begins, and if extending beyond one day, at the beginning of each application day. If the dissolved oxygen measures 5.0 ppm or below, treatment may be postponed until oxygen levels are more suitable.

Comment: Offshore weed beds are important habitat for fish and other living things that make up the ecosystem and are important in recreational activities for many users of the Lake. Indeed curlyleaf pondweed, one of the species of macrophytes targeted by the proposed plan provides a useful and healthy fish habitat in many areas of the Lake that are used in sport fishing. These plants regress and are gone by late June or early July in most of the offshore locations proposed for treatment.

Response: The goal of the treatment plan with regards to curlyleaf pondweed is to create a balance between recreational uses in early summer and the beneficial habitat it provides. Very few locations are targeting curly leaf pondweed specifically, but reducing the seed stock to more moderate levels is desired so a more natural plant community can be created. Curly leaf pondweed is providing the most benefit in April and early May before other native plants actively start growing. The treatment is proposed to be conducted in early May once native vegetation begins growing, in order to help offset any negative impact. A fact that often gets overlooked is standing native and invasive biomass from the previous growing season plays a big part in providing useful and healthy fish habitat.

Comment: Herbicides should not be applied greater than 200 feet from shore or in water depth greater than four feet, whichever comes first.

Response: The relevant NYSDEC regulations state that a treatment area for 2, 4-D "shall not extend beyond 200 feet from shore or beyond a maximum depth of six feet, whichever gives great distance from shore." See 6 NYCRR § 327.6(c). Portions of some treatment areas have been reduced in accordance with this regulation; final maps presented in the FSEIS (please see Appendix F) are in compliance.

Comment: The weed beds are a vital part of the fishery for spawning. You wipe those out, you wipe out the fishery.

Response: The proposed action will target two, non-native, invasive species of macrophytes (weeds) that are presently found in Chautauqua Lake: Eurasian Watermilfoil and curly leaf pondweed. Less than 10% of the surface area of the Lake will be treated with herbicides and native macrophytes (weeds) will not be targeted for removal. Following the 2017 treatment study in Bemus Bay, native plants remained subsequent to treatment. The native species found in Chautauqua Lake, were in the Lake prior to the arrival of non-native plants and they are anticipated to survive after some of the non-natives are removed from the Lake.

Comment: Lakes that persistently use aquatic herbicides for a decade or more have ruined quality fisheries by destroying aquatic habitats. Fisherman I know will not fish in lakes knowing products like Aquathol K are being used. Chautauqua is recognized as one of the great fisheries in the northeast and it fuels much of the tourism.

Response: Aquatic herbicides can deplete aquatic vegetation negatively impacting fish habitat if used indiscriminately. The herbicide application plan calls for the use of systemic herbicides at rates that are designed to control invasive species, while allowing and even encouraging growth of a far greater number of native plants. Such a strategy has been successful at Cazenovia Lake and Saratoga Lake over the past decade.

Comment: With dissolved oxygen, when you kill that amount of weeds in a short term you can really put a significant impact on the amount of dissolved oxygen in the water and when that value falls below four down to three, you can have significant fish kills and you combine that with hot weather or the right things happen and that could potentially happen.

Response: Please refer to section 5.0, page 105 of the DSEIS for a discussion of the benefits of treating early in the growing season when water temperatures are lower and support more oxygen. The total proposed treatment area is roughly 20% of the Lake's littoral zone, and the herbicides have been chosen to not harm the majority of native plants, so the impact on short-term dissolved oxygen in the Lake is not expected to be hazardous to the fish community. Dissolved oxygen is checked before the application begins, and if extending beyond one day, and the beginning of each application day. If the dissolved oxygen measures 5.0 ppm or below, treatment may be postponed until oxygen levels are more suitable.

Comment: One quarter of the fish spawning/rearing areas in the Lake will be treated, causing adverse impacts due to dissolved oxygen.

Response: Please refer to section 5.0, page 105 of the DSEIS for a discussion of the benefits of treating early in the growing season when water temperatures are lower and support more oxygen. The total proposed treatment area is roughly 20% of the Lake's littoral zone, and the herbicides have been chosen to limit or prevent harm the majority of native plants. Therefore, the impact on short-term dissolved oxygen in the Lake is not expected to be hazardous to the fish community. Dissolved oxygen is checked before the application begins, and if extending beyond one day, and the beginning of each application day. If the dissolved oxygen measures 5.0 ppm or below, treatment may be postponed until oxygen levels are more suitable.

It is acknowledged that some important fish spawning/rearing areas (as they were mapped for the MMS) may be impacted by the proposed action. Efforts have been made to avoid important fish spawning/rearing areas, while at the same time seeking to design treatment areas that are effective in removing the two, non-native, invasive plant species being targeted, in an attempt to effectively balance the needs of many different Lake users and species (to include the native plants that have been displaced by the invasives).

Comment: Specific examples of NYSDEC approvals of herbicide treatments conducted during spawning season should be provided, noting if any such examples included waters with pure strain *Esox maskinonge*.

Response: Herbicide treatments were conducted on Waneta Lake. *Esox maskinonge* is found in Waneta Lake. Treatments will be done in full accordance with NYSDEC permits. The NYSDEC has stated that it traps muskellunge in early May to remove eggs for spawning and rearing at the NYSDEC fish hatchery. The treatment will be planned in coordination with the NYSDEC to minimize impacts on muskellunge spawning and rearing.

Comment: Application of herbicides while fish are in spawning areas is a problem because muskies are biologically programmed to stay in the same area during spawning season, they will not leave for deeper waters during herbicide application. There is potential for damaging or killing a significant number of Muskie.

Response: In general, toxicity of the proposed herbicides to fish is low, however, comments regarding changes in fish habitat related to the killing of aquatic plants are acknowledged. The NYSDEC has stated that it traps muskellunge in early May to remove eggs for spawning and rearing at the NYSDEC fish hatchery. The treatment will be planned in coordination with the NYSDEC to minimize impacts on muskellunge spawning and rearing.

Comment: Herbicides should not be applied to undeveloped shoreline and should not occur prior July 1<sup>st</sup>.

Response: Treatment areas have been chosen to focus on developed shorelines, as well as areas that support the target invasive plants. Please refer to section 5.0, page 105 of the DSEIS for a discussion of the benefits of treating early in the growing season when water temperatures are lower and support more oxygen.

Comment: Invertebrate impacts as they relate to the fish habitat, in particular zooplankton.

Response: Zooplankton play an important role in the food chain of Chautauqua Lake, particularly for young of the year and juvenile fish. The proposed herbicide application program encompasses a small percentage of the surface area of Chautauqua Lake. Potential toxicity to zooplankton is acknowledged; however, the herbicides proposed are not persistent in the water column and zooplankton populations are expected to rebound quickly after the treatment through recolonization from untreated areas and reproduction in the treated areas.

Comment: Page 81, Paragraph 2 - fail to address mitigations for 2, 4-D toxicity to certain fish.

Response: Comment acknowledged. In general, the toxicity of the proposed herbicides to fish is low. Please refer to section 4.3.2: Wildlife of the DSEIS.

Comment: Navigate is toxic to fish, and one dead 50" muskellunge was found in Bemus Bay after treatment was completed last year.

Response: Comment is acknowledged. There is no evidence that the herbicide treatments in Bemus Bay caused the death of the muskellunge reported in the comment. Please refer to section 4.3.2: Wildlife of the DSEIS.

Comment: Reference to article on the decline of muskellunge fishing in Lake Arthur.

Response: This newspaper article provides no scientific data linking muskellunge decline to herbicide use.

Comment: Reference to article on DNR stocking larger muskellunge in Lake Webster.

Response: The article makes one reference to weed control reducing the amount of cover for immature muskellunge. No details or scientific analysis are provided. The toxicity of the proposed herbicides to fish is low. Please refer to section 4.3.2: Wildlife of the DSEIS.

Comment: Because of the Lake's ecology and the work of the NYSDEC Fisheries Division, Chautauqua Lake's, muskellunge remains a species which brings

millions of dollars in sport fishing tourism into Chautauqua County's and New York State's economic base. At a time when local industry is diminishing, we can ill-afford the potential impact of the effect of herbicide application on the muskellunge population.

Response: We recognize that Chautauqua Lake is known for its world class muskie fishing. As documented in the SEIS, significant long term adverse impacts to muskellunge in the Lake are not anticipated.

#### Comment Category 6: Rare, Threatened, and Endangered Species

Comment: Natural Heritage Program information not discussed fully.

Response: Information provided by Natural Heritage along with documented occurrences of RTE species in the Lake and toxicity information were used to evaluate potential impacts. Many of the species on this list are not vulnerable to the herbicides proposed.

Comment: The impacts to native pondweeds, in particular *Potamogeton hillii*, were not discussed.

Response: Please see section 3.2.1 Aquatic Vegetation, pages 31-35 of the DSEIS for a discussion of native macrophytes. The EPA and NYSDEC registered herbicides that are being proposed are selective products, designed to target the two (2), specific, invasive species analyzed in this document: Eurasian watermilfoil and curlyleaf pondweed. Unlike the other major macrophyte management technique currently employed on the Lake, mechanical harvesting, the selective herbicides are targeting two specific species of invasives, rather than removing all vegetation (rare, threatened, endangered, native, or otherwise) that comes in contact with the harvester's blades. Please see page 108 of the DSEIS for information about *Potamogeton hillii*.

Comment: Fails to address impacts to bats.

Response: Please see DSEIS section 4.3.2: Wildlife for discussion of bats.

Comment: Failure to consider impacts to species that are classified as New York State Species of Greatest Conservation Need.

Response: Information provided by Natural Heritage along with documented occurrences of RTE species in the Lake and toxicity information were used

to evaluate potential impacts. The EPA and NYSDEC registered herbicides will be applied in accordance with NYSDEC regulations and product labels.

Comment: The common loon has been seen on the Lake since 2005.

Response: The NYSDEC's Nature Explorer unofficially documents the last sighting as being in 2005. The proposed herbicides have very low toxicity to birds. Please see DSEIS section 4.3.2: Wildlife.

Comment: Fail to address impacts and mitigations related to rare, threatened, and endangered species on the Lake.

Response: The SEIS analyzed the possible effects of herbicides on various organisms, including sensitive species, which live in the Lake. The SEIS determined that possible harm is minimal or can be effectively mitigated through the proposed treatment plan. Please see responses above regarding toxicity of herbicides to the spiny softshell turtle and the following sections of the DSEIS: 3.2.2: Wildlife/Rare, Threatened, and Endangered Species for discussion on existing conditions, 4.3: Terrestrial and Aquatic Ecology for discussion on potential impacts to rare, threatened, and endangered species, and 5.2.2: Rare, Threatened, and Endangered Species for discussion on mitigations.

Comment: The information from the NYSDEC Nature Explorer is inaccurate.

Response: The NYSDEC's Nature Explorer is unofficial. In addition to the Nature Explorer, the New York Natural Heritage Program was consulted.

Comment: Chautauqua Lake's ecosystem is dynamic.

Response: The SEIS acknowledges that the ecosystem is dynamic and that a number of the abundant species currently present in the Lake are not native in Chautauqua Lake. The proposed action is to partially control two of the most abundant non-native aquatic invasive plant species.

#### Comment Category 7: HABS

Comment: Page 7, Paragraph 4 - "not actively addressed" statement on internal loading is not true.

Response: Internal loading attributable to release of phosphorus from previously deposited sediments is not currently being directly addressed in ongoing Lake management efforts. Watershed loading is being addressed;



however, the phosphorus in the sediments is largely a function of historic loading and not current loading. While it is true that reductions in the watershed load may eventually help reduce the internal load, this may take a very long time. For the foreseeable future, the internal load will continue to be a large part of the phosphorus budget.

Comment: The potential for the proposed action to increase the number of HABS or cause them to start earlier in the season.

Response: Please see sections 4.2.1 and 5.1.1 of the DSEIS. In addition, without herbicide treatment, there will be the nutrient release from decaying plant biomass left from harvesting activities. This floating mass of decaying plants ultimately gets pushed by currents to shoreline, where warmer water and sunlight can quickly turn released nutrients to algae growth. Mechanical harvesting cuts indiscriminately, affecting both native species and invasive species, trimming the top 6 feet of all submerged aquatic vegetation. Approximately 7% to 15% (see Engel, Sandy, *Ecological Impacts of Harvesting Macrophytes in Halverson Lake, Wisconsin*) of the trimmed vegetation (measuring 6 feet in length) stays in the Lake and, ultimately, releases phosphorous (nutrients). Mechanical harvesting is conducted throughout the summer (including when macrophytes are at their peak in terms of growth), up to 3 to 5 times depending on the location, leaving the trimmed residue in the Lake each time, and contributing to the phosphorous levels.

The herbicide application will target the early stage of Eurasian watermilfoil growth, well before the plant reaches maximum growth or biomass. The herbicides being proposed for use will not target native macrophyte (weed) species. Natural die off of all macrophytes will eventually occur and will contribute to the phosphorous (nutrient) load, although the amount of phosphorous released through natural die off will be less without Eurasian watermilfoil and curly leaf pondweed present.

Comment: Think of the long term use of herbicides and the effect on the Lake. It will be more difficult to control algae growth.

Response: Please reference sections 4.2.1 and 5.1.1 in the DSEIS. In addition, Dr. Greg Boyer, Professor, SUNY College of Environmental Science and Forestry recently stated during the Central NY HAB Summit that early season HABs were less toxic than those late in the season. Dr. Boyer's lab conducts a large portion of the HAB toxin analysis for samples collected in NY.

Comment: Section 3.2.1 fails to describe key native algal groups, fails to distinguish between true algae and cyanobacteria.

Response: This section discusses that all of the algal groups depend, in part, on phosphorus for growth and the potential release of phosphorus from herbicide applications and natural dieback.

Comment: Reference to article from Michigan State University Extension: "Be Careful What You Wish for When Managing Aquatic Weeds."

Response: The comment is acknowledged. Many of the points in the article are discussed throughout the DSEIS. The areas to be treated are only a fraction of the surface area of the Lake. The goal of this program is not to eliminate all aquatic plants in Chautauqua Lake. The article correctly notes that removal of all weeds can shift community to algae growth and turbid water. Our treatment plan endeavors to use selective herbicides to target two, non-native, invasive species for removal, while leaving the majority of native plants in place.

Comment: Do algae toxins get stuck in the weeds?

Response: Weeds that have reached the water surface will tend to limit circulation of the surface water, and lead to increased localized temperature. Stagnant water and higher temperatures can encourage algae growth.

Comment: Reference to article on the allelopathic qualities of Eurasian watermilfoil.

Response: The Michigan Tech Research Institute states the following: Eurasian watermilfoil is thought to be allelopathic. Allelopathic plants produce and secrete chemicals that influence the growth and survival of other organisms (Rice 1984). Extracts from Eurasian watermilfoil contain polyphenols that have been shown to inhibit the growth of cyanobacteria, green algae, and duckweed (Planas 1981, Elakovich and Wooten 1989). Eurasian watermilfoil extracts have also been shown to delay the development of mosquito larvae, and that high concentrations of the extract are lethal to them (Dhillon et al. 1982). The allelopathic polyphenols have been identified as ellagic, gallic, and pyrogalllic acids, and catechin (Nakai 2000) and tellimagrandin II (Gross et al. 1996). The production of tellimagrandin II, a compound that inhibits and deactivates algal extracellular enzymes, increases when Eurasian watermilfoil is grown in nitrogen limiting conditions (Gross et al. 1996, Gross 1999). Glomski et al (2002), however, suggests that if Eurasian watermilfoil does secrete allelopathic chemicals into the water column they may be degraded quickly by microbes (Gross 1999) or quickly

diluted (Morris et al. 2009), thus providing no competitive advantage over other organisms (Glomski et al. 2002). The production of these compounds in Eurasian watermilfoil could be for defense against herbivory, rather than for allelopathy (Ervin and Wetzel 2003).

Comment Category 8: Water Use/Human Health

Comment: The water draining from Chautauqua Lake is used as a source of drinking water extending to the Gulf of Mexico. No one wants to drink herbicides. Need scientific evidence that action will not pollute drinking water.

Response: Please see DSEIS 3.7.1: Public Water Supply and Infrastructure, 4.2.1 Surface Water Resource, 4.2.2: Herbicide Dilution, 4.7: Water Supply and Infrastructure, 4.8.5: Impacts to Human Use of the Lake, and 5.5: Water Supply and Public Infrastructure.

Comment: One of the herbicides intended for use poses an unacceptable danger to human and animal health; namely Navigate (2, 4-D). This chemical (one of the ingredients found in Agent Orange) is a known endocrine disrupter. This means it may affect male reproductive development. It has been shown, in experiments at Stamford University, to change a male frog to a female frog. It has also been shown to negatively impact other hormones like estrogen, androgen and most significantly, thyroid hormones. The risk to those applying this herbicide are even greater.

Response: The most toxic components of Agent Orange are 2, 4, 5 T and the contaminant dioxin. Neither compound will be applied to Chautauqua Lake.

As a requirement for continuing registration of a pesticide, all pesticides are required to undergo a periodic Reregistration Eligibility Decision, which looks at the characteristics of the herbicide using current technology and research. 2, 4-D was re-registered by the EPA in 2016. Details of the human health effects of 2, 4-D were not considered prohibitive to continued use of the herbicide in aquatic or terrestrial environments. This document is available at:

[https://www.24d.org/Studies/PDF/24D\\_EPA\\_Human\\_Health\\_Risk\\_Assmnt\\_2017.pdf](https://www.24d.org/Studies/PDF/24D_EPA_Human_Health_Risk_Assmnt_2017.pdf).

Comment: There are a lot of people who eat fish from the Lake, are we sure that the fish will be safe to eat?

Response: None of the proposed herbicides have any restriction on fish consumption following their application. The public will be notified of any water use restrictions.

Comment: What is the impact of these chemicals to living organisms like fish, dogs, children, and adults who are exposed in the water or drink the water (drinking water and health)?

Response: Toxicity information on each of the proposed herbicides is presented throughout the DSEIS. As a requirement for continuing registration of a pesticide, all pesticides are required to undergo a periodic Reregistration Eligibility Decision, which looks at the characteristics of the herbicide using current technology and research. All of the proposed herbicides are EPA and NYSDEC registered for use in New York State. Dogs should be subject to the same water use restrictions as children and adults. Please refer to DSEIS sections 3.7.1 Public Water Supply, 4.2.1 Surface Water Resources, 4.2.2 Herbicide Dilution, Section 4.7 Water Supply and Infrastructure, section 4.8.5 Impacts to Human Use of Lake, and section 5.5 Water Supply and Public Infrastructure.

#### Comment Category 9: Dispersion

Comment: Wind driven currents need to be modelled.

Response: It is acknowledged that wind driven surface currents may be present at times on Chautauqua Lake. Herbicide application will only occur during weather periods when post-application forecasts do not include high winds within 36 hours of the treatment. The entire herbicide treatment will be completed within 3 to 7 days (weather permitting).

Comment: Currents need modelling.

Response: The DEC dilution model will be used as part of the permitting process as required by NYSDEC.

Comment: Throughout DSEIS lack of technical understanding of limnology (currents, waves, temperature profiles, resulting vertical stability).

Response: The general flow in Chautauqua Lake is from the north to the south with water exiting the Lake via the Chadakoin River. There may be other localized currents in the Lake; however, monitoring of residual

concentrations of herbicide required as part of the permit application process will document whether herbicides leave the site of application.

Comment Category 10: Overall Ecology

Comment: Need to further evaluate long-term impacts of proposed treatment

Response: The long-term impacts of the proposed treatment will be evaluated through on-going surveys of the aquatic plant community and comparison of those results to historic reports, including those written by Racine-Johnson.

Comment: Page 102-103 - native plant reemergence is speculative.

Response: Native plants rebounded in Bemus Bay following the 2017 treatment study. The removal of the invasive plants will provide native plants a better opportunity to increase in abundance, range and biomass (as happened in Bemus Bay after the 2017 treatment). Eurasian watermilfoil has competitive advantages that contribute to its ability to expand, including tolerance to low temperatures and forming surface mats that shade out native plants. Please refer to Table 4-3, section 4.3 on page 78 of the DSEIS.

Comment: Need to study long term ecosystem impacts (bioaccumulation, degradation times, potential for soil mobility, dispersion, etc.).

Response: These areas of inquiry have been addressed through the registration process for the herbicides and through the EIS process for the application of these aquatic herbicides in New York. That source of documentation is incorporated by reference throughout the DSEIS.

Comment: Need to study biological oxygen demand (BOD), impacts of dissolved oxygen levels on species.

Response: Treating early in the growing season when oxygen levels are high and biomass of target plants is low is designed to mitigate potential dissolved oxygen impacts. Dissolved oxygen levels will be monitored as part of the herbicide treatment. Please refer to section 5.0, page 105 of the DSEIS for a discussion of the benefits of treating early in the growing season when water temperatures are lower and support more oxygen.

Comment: Affects to fish, crustaceans, benthic macroinvertebrates, and other species are not adequately addressed.

Response: Where existing data or toxicity information was available, it was included in the SEIS.

Comment: Section 5.2.3 - "fish are free to move" mitigation during application is not an acceptable as a mitigation.

Response: Adult and larger juvenile fish will be able to move during application. Not all of the macrophytes in the treatment areas will be killed by the herbicides. Two, non-native, invasive species are being targeted for removal. Most of the native macrophytes, which also provide habitat for fish, will remain after the treatment is complete.

Comment: Page 102, Unavoidable Adverse Environmental Impacts - Lake is amorphic, negative change in habitat to RTE, native plants and fish could lead to unforeseen problems.

Response: The DSEIS acknowledges that the aquatic community is currently dominated by non-native species at numerous trophic levels including fish, plants, invertebrates, and mussels. The program is designed to manage two of the invasive plant species.

Comment: Chautauqua Watershed Conservancy owned waterfront nature preserves will be negatively impacted, valuable near shore vegetation will be killed.

Response: Concerns raised by the Chautauqua Watershed Conservancy have been addressed in the section on Comments from Community Organizations. The proposed herbicides and application rates will primarily kill the invasive target plants, Eurasian watermilfoil and curlyleaf pondweed. Some native plants may be impacted, but overall, the removal of the invasive plants will allow native plants to increase in abundance, range and biomass. Please reference Table 4-3, section 4.3 on page 78 of the DSEIS.

Comment: Treatment areas have no baseline data on fauna.

Response: Statements in the DSEIS indicating no expected impacts are formed from decades of experience applying aquatic herbicides to lakes throughout the northeast, in many cases as part of long term plant management projects.

- Comment: Currently, tons of weed growth harvested from the Lake are composted for use as an agricultural supplement- some of it by organic farming interests. Once any herbicides are applied, the use of any residual organic matter from that application as well as all mechanically harvested weeds would be prohibited for use by organic farms and all resulting organic matter would, in all likelihood, have to be landfilled at an exorbitant fee
- Response: Early season herbicide treatment is intended to reduce the amount of weeds that are mechanically harvested.

Comment Category 11: Economy/Tourism

- Comment: Seriously consider the impact to the fishing industry and perhaps consider what we could do as a community to give that industry a boost.
- Response: The DSEIS has taken the fishing industry into consideration. Treatment areas are limited to less than 10% of the surface area of the Lake and the herbicides are selective, targeting non-native, invasive macrophyte species.
- Comment: Weeds are negatively impacting home sales. Assessments will be lowered and individuals will move if the problem is not addressed.
- Response: Comment acknowledged.
- Comment: Tourism is economically important to the community. The reason people are drawn to the area is because of the Lake.
- Response: Comment acknowledged.
- Comment: Proposed action will negatively impact historic and cultural resources by reducing amount of tourism to the area (4.6: Historic and Cultural Resources).
- Response: The proposed treatment will be completed in early May, within a 3 to 7 day time frame (weather permitting). All water use and consumption restrictions will be lifted before the tourist season begins. The removal of invasive macrophytes will afford Lake users greater opportunities to passively and actively recreate in and around the Lake.

Comment: Horrible stench of weeds down in Bemus Point. Just a mess and the stench and the stuff piling up. We don't even stop there.

Response: Controlling the invasive weeds early in the growing season with herbicides will reduce the amount of decaying weeds that float on the Lake surface and end up on the shoreline. Once treated with herbicides, submersed plants generally decompose slowly and drop to the Lake bottom.

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## **Chapter 6: Alternative Analysis**

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### Comment Category 12: Other Alternatives

Comment: General indication that not all alternatives were considered.

Response: The project and the SEIS involves the targeted use of herbicide treatments on Chautauqua Lake as discussed in Section 1 of the DSEIS. The range of alternatives that were considered was established during public scoping. This SEIS does not involve the analysis of the different recommendations for nutrient reductions found in the MMS; that is not the purpose of this SEIS. This SEIS does not evaluate or change all of the other recommendation (non-herbicide) of the MMS. No Action alternatives were considered and addressed.

Comment: General indication that the management techniques in the MMS were not fully considered.

Response: The focus of this SEIS is on the specific action of treating the Lake with herbicides to reduce the problem of invasive macrophytes and how that may impact the environment. This SEIS does not preclude pursuing any of the other recommendations in the MMS concerning nutrient loading and macrophyte reductions in the Lake.

Comment: We have local biologists, and I happen to be one of them, that have worked on Chautauqua Lake for a good number of years. I have been working on the Lake for almost 30 years and we know the Lake today. We don't know the Lake fifty years ago. We're talking about the Lake that it is today and we all agree, all of us that are on the Lake today that have spoken and have collaborated, that this is not a good management strategy and that this is dramatically lacking and the rate at which its being



pushed through is disturbing could be catastrophic and I don't think I'm being – I don't think I'm exaggerating with that.

Response: The MMS includes herbicides as a macrophyte management technique (please see page 9-5 of the MMS). The plant management strategy of the past decade has been partly unsuccessful, as evident by the documented increase in invasive plants in the Chautauqua Lake. There is ample evidence from waterbodies in New York State, and around the country, that herbicides can control invasive weeds without completely removing all plants. The 2017 Bemus Bay demonstration treatments support that concept.

Comment: No discussion of relationship between herbivores and Eurasian watermilfoil

Response: Herbivores impact the vegetation targeted for treatment with herbicides. Herbivores have not been successful in controlling invasive macrophytes on the Lake, and they are not a standalone solution.

Comment: I think that there is a need for both cutting the weeds and spraying and I think if spraying, you come up with this big report which is fine and I think if they cut they've got to go through the same process, so we know where they're doing and what they're doing.

Response: The NYSDEC, unlike numerous other states, does not currently require a permit or an evaluation of the environmental impacts of weed cutting. See Section 6.2.1 of the DSEIS for a discussion of these environmental impacts.

Comment: The overgrowth of invasive plants in Chautauqua Lake is largely a result of a chemical imbalance in nature. Farm fertilizers, lawn enhancement chemicals, improperly maintained septic systems and more are the cause. Using more chemicals in the form of aquatic herbicides further pollutes the Lake while only masking the problem. It does nothing to provide a permanent solution.

Response: While agriculture, septic systems and lawn fertilizers contribute nutrients that encourage aquatic plant growth, the presence and abundance Eurasian watermilfoil is a problem in and of itself. In fact, Eurasian watermilfoil has relatively low nutrient requirements (Michigan Tech Research Institute). Controlling Eurasian watermilfoil with aquatic herbicides does not mask the nutrient loading problems of the Lake. It provides relief from invasive plant growth, which has its own set of negative ecological impacts, while the nutrient load problem is being addressed.

Comment: Progress on the Lake has been made without the use of herbicides. The problem has been caused over more than a century of misuse and yet we are unwilling to give sufficient time for programs carefully thought out and researched by marine biologists to work.

Response: Programs being implemented to reduce nutrient loading in the Lake are valuable and should be continued. However, no progress has been made in the fight against Eurasian watermilfoil. Herbicides are the most appropriate technique for large-scale control of Eurasian watermilfoil.

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## **PERSONAL COMMUNICATIONS**

Greg Boyer, Professor, SUNY College of Environmental Science and Forestry, March 2018  
Central New York HABS Summit

Paul McKeown NYSDEC Region 9 former fisheries biologist

Michael Nierenberg, NYSDEC Region 9