



How CyanoHAB Education Contributed to a 9E grant

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&

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Town of Otsego Councilmember

Summer 2022 Headline News – The HABs are Here!



All Otsego

<https://www.allotsego.com> › glimmerglass-closed-for-s... ⋮

Glimmerglass State Park Closed for Swimming

Jul 28, 2022 — The beach at Glimmerglass State Park has been closed for swimming due to a Harmful Algae Bloom which is affecting the north end of Otsego ...



thedailystar.com

<https://www.thedailystar.com> › glimmerglass-state-park-... ⋮

Glimmerglass State Park experiences harmful algal blooms

Jul 29, 2022 — Glimmerglass State Park Beach is closed until further notice, beginning July 27, due to a harmful algal bloom (HAB).



All Otsego

<https://www.allotsego.com> › news-from-the-noteworthy... ⋮

News from the Noteworthy: Algae Bloom Affects Lake ...

Sep 8, 2022 — The summer of 2022 will be remembered as the year our beloved Lake Otsego first suffered a Harmful Algal Bloom (HAB).

Spring 2024

Applicant: Cooperstown (V)
CFA Number: 129336
Award Amount: \$503,456
Project Name: Otsego Lake Watershed Nine Element Plan

Project Description:

The Village of Cooperstown, in partnership with other watershed municipalities, non-profit organizations, and community stakeholders, will develop a Nine Element Watershed Management Plan for Otsego Lake. The Plan will engage the community in a discussion of vision and goals, complete a quantitative analysis of pollutant loading, identify sources of pollutants affecting the lake, and prioritize recommendations for water quality improvement.

Otsego Lake

Date of Observation 7/27/2022 11:47 AM
 HAB Status Confirmed
 Reported by NYS Parks
 Extent Small Localized
 County Otsego County

Attachments:
[Glimmerglass SP_07.27.2022.JPG](#)
[Glimmerglass SP_07.27.2022_.jpg](#)

[Zoom to](#)



**Continuous Lake Monitoring Buoy (CLMB)
Usually April - Dec**

Bas W. Ibelings⁵ | Ana M. Morales-Williams⁶ | Lisette N. De Senerpont Domis⁷ |
 Karen S. Atkins⁸ | Peter D. F. Isles⁹ | Jorrit P. Mesman^{5,10} | Rebecca L. North¹¹ |
 Lars G. Rudstam¹² | Julio A. A. Stelzer^{5,13,14} | Jason J. Venkiteswaran¹⁵ |
 Kiyoko Yokota¹⁶ | Qing Zhan⁷

(5 Aug 2022, sampled at NW end of OTL)

WILEY Freshwater Biology

TABLE 1 Summary of cyanobacteria genera, traits, and Morpho Functional Groups (MFGs)^a for documented blooms in oligotrophic systems in Table S1

Taxa	Traits summary	MFG (from Salmaso & Padisák, 2007)
<i>Aphanizomenon gracile</i>	Thick filaments, produce akinetes, can regulate buoyancy	Nostocales (5e)
<i>Dolichospermum</i> sp. (formerly <i>Anabaena</i> sp.)	Thick filaments, produce akinetes, can regulate buoyancy Was dominant in a localized diffuse bloom in 2018	Nostocales (5e)
<i>Gloeotrichia echinulata</i>	Thick filaments, forms large colonies, produce akinetes, can regulate buoyancy	Nostocales (5e)
<i>Microcystis</i> sp.	Large vacuolated colonies, can regulate buoyancy, large surface area-volume allows slower sinking from surface, over-wintering dormant cells	LargeVacC (5b)
<i>Planktothrix agardhii</i>	Thin filaments, can regulate buoyancy, over-wintering dormant cells	FilaCyano (5a)

High N in OTL is promoting non-N₂ fixing *Microcystis*?

Source: NYHABS (type in the URL box in a browser to be redirected to the NYSDEC HAB web page)

GSP beach closed again on 27 July for HAB



**Otsego Lake Association
2022 annual meeting**

Otsego Lake Science Update

Kiyoko Yokota, Ph.D., CLM
 OLA Technical Advisor
 Associate Professor of Biology & Biological Field Station
 Researcher, SUNY Oneonta

biogeochemical cycling and food web

Zebra mussel (2007-)

Quagga mussel (2018/20-)

THERE'S A PROBLEM ----- **NOW WHAT?**

- **VARIOUS COMMUNITY MEMBERS**
 - **READ, RESEARCHED, *EDUCATED* THEMSELVES AND OTHERS.**
 - **CONTACTED STAFF LOCAL, STATE & FEDERAL PUBLIC AND PRIVATE ORGANIZATIONS SEEKING SUGGESTIONS, ANSWERS, FUNDING, STRATEGIES**
- **AT THE **WSC** MEETINGS IN EARLY SPRING 2023 A "BIFURCATED" STRATEGY WAS DEVELOPED ...**

The Otsego Lake Watershed Supervisory Committee

What it is – What it has done – What the next steps are



MULTI-PRONGED* STRATEGY

NEAR TERM EXAMPLES:

Identify, prioritize and act on mitigation opportunities:

- Update 2007 Watershed plan
- Submit non-point source grant applications
- Sediment core sampling
- Research Impact of mussels
- Conduct water sampling during 2023***
 - Acquire/upgrade microcystin testing equipment
 - Obtain lab certifications
 - Participate in CSLAPP
 - Have samples tested in certified lab

PRIMARY LONG TERM: Develop a 9E plan

- Network with other lake associations that have 9E plans
- Continue to read and research harmful algal bloom action plans
- EDUCATE VARIOUS STAKEHOLDER GROUPS TO DEVELOP COMMUNITY SUPPORT

APPLY FOR LOCAL STATE AND FEDERAL GRANTS

We were told: “It couldn’t be done on time.”

Data collection

Began before grant submitted
And continued while waiting to
hear if grant was approved

- Volunteers were key
 - willing to be trained
 - willing to drive samples to lab 1.5 hours each way
- Support
 - by faculty, staff & interns at the Biological Field Station
- Funding
 - Guarantees by private individual donors for lab testing
 - backing by OLA & the Village



Photo credit: Kiyoko Yokota

WSC

COOPERSTOWN 2
MIDDLEFIELD 1
OTSEGO 1
SPRINGFIELD 1

APRIL 2023 LOCAL STAKEHOLDER HAB SAFETY MEETING

OLA, BFS, OTSEGO CONSERVATION
ASS'N, SOIL & WATER, OTSEGO
PLANNING, PUBLIC HEALTH,
MUNICIPALITIES, COMMUNITY FUNDS,
LAND TRUST, OTSEGO 2000, SUNY
ONEONTA, CANADARAGO LAKE ASS'N,
CU COOP. EXT., USDA NAT'L RES.

EDUCATE COMMUNITY GROUPS

Q: WHAT MESSAGE(S)?

Q: HOW -- WHAT MEDIA?

Q: WHO?

OVERLAPPING TEAMS AT THE WSC

- **GRANT APPLICATIONS**

- NYS DOS LWRG due 7/24
- ARCG
- TRIBUTARY ASSESSMENT

- **COMMUNICATION**

- SCIENCE ROAD SHOWS
- HAB WEBSITE SUPPORT
- POSTER BOARDS
- ARTICLES FOR MEDIA
- HANDOUTS
- VIDEOS

- **DATA COLLECTION**

- **LAND USE & COMP PLANS**

- **SPECIALIZED COMMUNICATION WITH FUNDING AGENCIES**

- **LOCAL FUNDING**

- **MUNICIPAL COOPERATION**

The Roadshows

Examples of what was covered in the road shows

- **People wanted to know**
- **Is it safe to use the lake?**
- **Drinking**
- **Showering**
- **Dishwashing, laundry, etc.**
- **Swimming**
- **Can we get an instant, real-time alert for blooms?**
- **How can I get rid of cyanotoxins in the lake water drawn into camps?**
- **Why is this suddenly a problem? (used to swim in pea-soup green waters with no adverse health effects, etc.)**
- **How can we get rid of cyanobacteria?**

What is a “Healthy Lake”?

OCCA Be Informed Lecture Series
21 June 2023

Kiyoko Yokota, Ph.D., CLM
Associate Professor of Biology & Biological Field Station Researcher, SUNY Oneonta

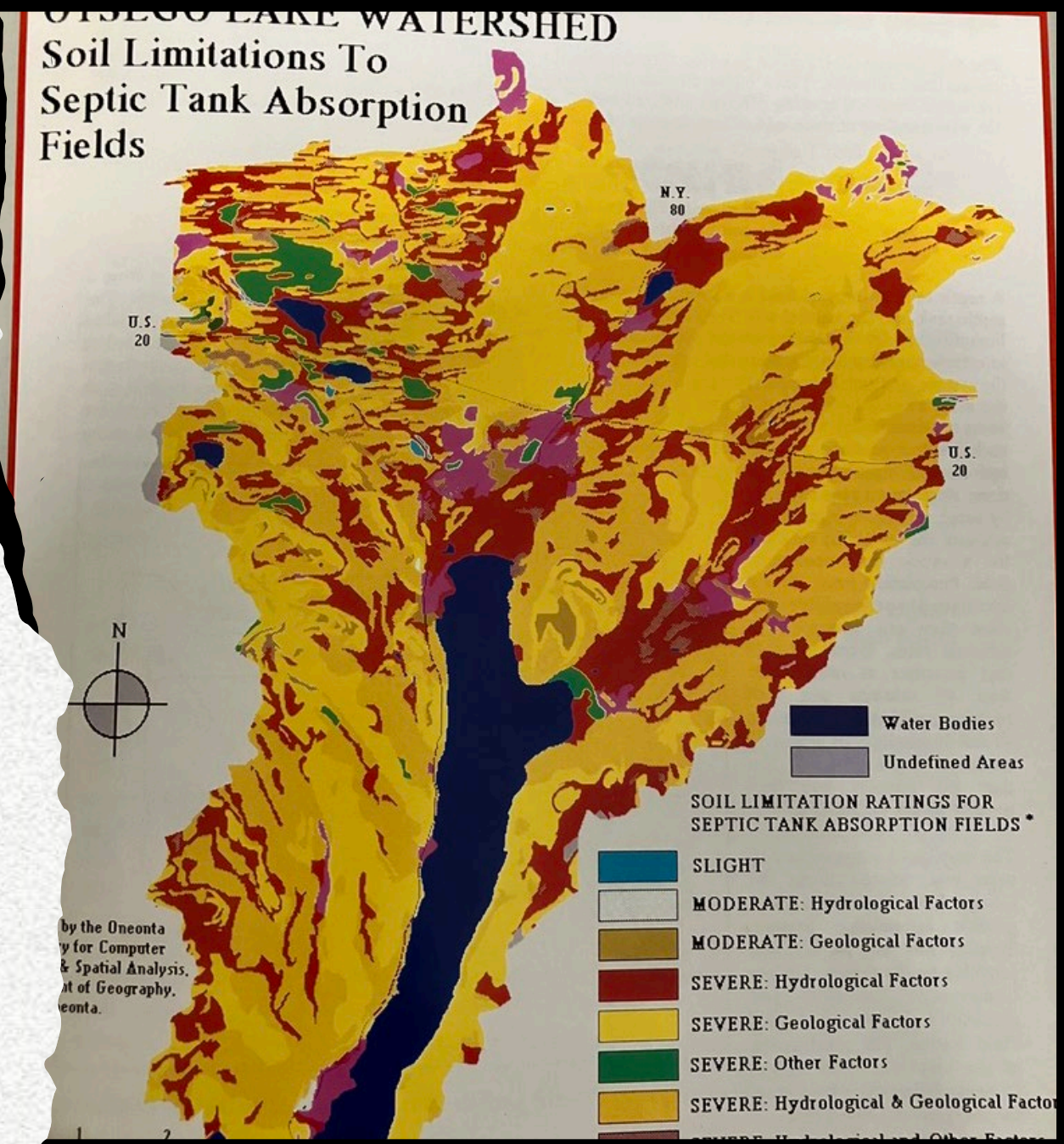
Technical Advisor, Otsego Lake Association
President, North American Lake Management Society*

****I am giving this presentation as a limnologist, not as a representative of NALMS.***

Otsego Lake Watershed

Glacial

Vastly unsuitable for septic systems (red, yellow, orange, green, pink)



Cyanobacterial blooms

- Commonly associated with warm and eutrophic waters
- But ...lakes that are considered oligotrophic have been affected, even at low temperatures.
- Oligotrophic lakes often serve public water systems for nearby population centers, while lakeside properties may use untreated lake water and have no other alternative water sources.

Otsego Lake, NY

- used to be meso-oligotrophic (moderately nutrient-poor)
- oligotrophic (nutrient-poor) in the last decade



Photo by Holly Waterfield



THE HABS SAFETY WEBSITE & YOUTUBE VIDEOS

Otsego County HAB Safety

[HOME](#)

[REPORT](#)

[OTSEGO LAKE](#)

[CANADARAGO LAKE](#)

[GOODYEAR LAKE](#)

[FAQ](#)



Harmful Algal Bloom Dashboard

A one-stop information resource to learn about harmful algal blooms (HABs), risks to people and pets, and how you can help.

[Otsego HABs Safety Dashboard](#)

Continuing to educate the Otsego Lake Communities

- Videos on OCCA Youtube channel
 - Otsego County Conservation Association
 - Cyanobacteria 101 -Dr. Bill Richtsmeier
 - HABs and Lake Safety
 - HABs and Drinking Water
 - HABs and Illness
 - HABs and Dogs
 - HABs and Humans
 - HABs and Treating Illness

#1 Incidents in Humans

• CDC Report for 2020-21

OH HABS 2021 Data Summary

CDC collects data about harmful algal bloom (HAB) events¹ and associated human or animal illnesses in the United States through the One Health Harmful Algal Bloom System (OHHABS)

HAB-Associated Human Illnesses

- About half of ill people were under the age of 18 years
- 74% sought medical care
- Most (89%) of the HAB-associated human illnesses were classified as probable cases²

HAB-Associated Animal Illnesses

- Wildlife 97%
- Dogs 2%
- Cattle 1%
- 92% of ill animals died
- Most (94%) of the HAB-associated animal illnesses were classified as confirmed cases, including deaths of 2,000+ bats

16 states reported data for 2021

368 Harmful Algal Bloom Events

- 117 Human Illnesses
- 2,715 Animal Illnesses

<7 people / state

“Data reported in OHHABS for 2020 (or 2021) are **not representative** of HAB event or illness occurrence in the United States because **reporting is voluntary and not all states are currently reporting** to this system”

William Richtsmeier

HABs and Humans

IN SUM...

- When it came time to submit the New York State, DOS grant an enormous number of local stakeholders wrote supportive letters.
- In part that support came because we worked hard to educate the community about the threat to the lake.

• Other critical factors

- **Funding.** The willingness of individuals, the OLA, & the Towns to provide guarantees for needed funding to collect data BEFORE we knew whether we would receive the grant or not, **and**
- **Volunteers.** Who committed to collecting samples & delivering to the lab.