

**St. Lawrence County Environmental Management Council**  
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**Draft**

**MEETING MINUTES**

**April 17, 2019**

**2<sup>nd</sup> - Floor Conference Room, Public Safety Complex  
49½ Court Street, Canton, New York**

***Action items in bold italics / Motions underlined.***

Blue boxes indicate internal links to sections of these Minutes.

1. **Call to Order:** Chair Joseph Brant called the meeting to order at 6:02 PM.
2. **Roll Call, Determination of Quorum:** A quorum was achieved.  
Members present: Aaron Barrigar; Catherine Bennett; Jennifer Berbrich; Joseph Brant, *Chair*; Ryan Burkum; Erica Leonard; Don O'Shea, *Vice Chair*; Tiernan Smith; Nicole Terminelli, *BOL Liaison*; Rod Tozzi; Brian Washburn; Pat Whalen, *Secretary*.  
Members absent: Richard Marshall; Sue Rau; Lance Rudiger.  
Guest(s): David Fisher, owner, Mapleview Farms / President, NYS Farm Bureau; Hogan Dwyer; Lee Willbanks.  
Staff: John Tenbusch.

For the benefit of the new members (Barrigar; Leonard; Terminelli; Tozzi), all present introduced themselves.

3. **Hearings, Comments from the Public.**

The invited speaker was David Fisher; David is the owner of Mapleview Farms, a 3,000-cow dairy farm located in Madrid, and also President of the NYS Farm Bureau.

(For information about Mr. Fisher, see <https://www.watertowndailytimes.com/news05/state-farm-bureau-president-from-madrid-exploring-states-dairy-industry--20170621?fbclid=IwAR0-D-c-1f9IO97nRS6-KcC-KYicSx3hBTR8mPhasRsbXwd7n020sjTGTVQ> )

Fisher reported that the agriculture industry in NYS generates over \$5.6 billion per year. He noted that the Ag sector in NYS is the second most-varied in the country, behind only California.

Fisher reported that, in NYS, fewer than 900 dairy farms produce more than 70% of products. He sees farms getting larger, but fewer of them. Likewise with cows; Fisher reported that farmers produce more milk per cow, resulting in smaller herds.

Fisher discussed the importance of advances in genetic testing, soil research, etc. He noted that agriculture in NYS has benefitted greatly from the research done at land-grant colleges, including

Cornell. He then stated that China is currently outspending the U.S. by more than 2-to-1 in agricultural research.

Fisher spoke about how modern farming gets done: crop rotations, fertilizer and pesticide application are each planned according to specific factors (drainage; rainfall; etc.). He noted that tractors are GPS-directed; he said that this precision allows for minimums of chemicals to be applied to plants/fields, reducing costs and reducing adverse environmental effects.

Fisher reported that environmental regulations are stricter in NYS than some other places, especially for larger farms, which are classified as Concentrated Animal Feeding Operations (CAFOs; for more information about CAFOs, see <https://www.dec.ny.gov/permits/6285.html> ). He noted that smaller farms have significantly fewer regulations to meet.

Fisher was asked if his cows ever go outside; he replied that they do not; all their needs and comfort are seen to within the barns. Asked if his cows were happy, he replied “Yes”, noting that milk production is maximized when cows are tended to in the barns.

Fisher was asked what are his biggest cost drivers; he reported “feed costs and labor costs”. As a policy issue moving forward, he reported that labor issues may be problematic.

It was noted that the most recent Census of Agriculture has just been released. For further information, see <https://www.nass.usda.gov/AgCensus/> .

Chair Brant thanked Mr. Fisher for his presentation, and called a five-minute recess. The meeting resumed at 7:10 PM.

4. **Acceptance of Order of Business, Items for New Business, and Items for Unfinished Business:** Adopted by consensus.
5. **Approval of Minutes of the March 2019 EMC Meeting:** Rod Tozzi noted that the March meeting Minutes failed to report that he did not attend. On a motion by Tozzi (J. Berbrich), the Minutes of the March EMC meeting were approved as amended.
6. **Report by Representative of the Board of Legislators.** Nicole Terminelli reported that the BOL had approved their annual resolution recognizing Earth Day (April 22) in St. Lawrence County.
7. **Reports by EMC Members on Conversations with County Legislators:** None.
  - For the benefit of new members, Tenbusch explained the rationale for assigning EMC members to talk with BOL members each month: to establish personal relationships between the EMC and the BOL.
8. **Report of the Committees:**
  - a. **Executive Committee:** No meeting; no report.
  - b. **Conservation of Resources Committee (CRC):** T. Smith reported; **see attached.**
    - i. Tenbusch reported that the movie “Plastic Paradise: The Great Pacific Garbage Patch” (see <http://plasticparadisemovie.com/> ) will be shown at Pickens Hall in Heuvelton on Monday April 29<sup>th</sup> at 6:00 PM. Promotion for this showing will commence immediately. The CRC would like to show a series of movies as a way to engage the public’s attention.

- c. **Environment + Economy Committee (E+E):** R. Burkum reported. See attached.
  - i. Burkum distributed copies of a follow-up letter intended to go out to all those businesses contacted by the EMC in 2018. See attached.
- d. **Invasive Species Committee (ISC).** D. O’Shea gave the Committee report; see attached.
  - i. O’Shea and Tenbusch reported on the Earth Day / Arbor Day event planned for Ogdensburg on April 26<sup>th</sup>.
    - o At 9:30 AM there will be a dedication of new trees planted at Groulx Park to replace 4 aged, deteriorated ash trees that were removed last fall.
    - o At 10:30 AM, Tenbusch will give a presentation about Emerald Ash Borers. This will be held at the Dobisky Center.
- e. **Watershed Management Committee (WMC).** J. Brant gave the Committee report; see attached.
  - i. Brant reported that the FUND for Lake George has asked to partner with the EMC to work on issues of invasive species.

9. **Report of the Staff:** Tenbusch reported that he is working on an application for CDBG funds to support the 23<sup>rd</sup> round of Direct Homeownership Assistance Program. The deadline for this application is Friday, April 26<sup>th</sup>.

10. **Unfinished Business:** None.

- a. EMC Facebook Page. Tenbusch reported that he had spoken with K. Zimmerman (Planning Director) about this proposal. Zimmerman had directed him to speak to staff in the I.T. department.
  - i. Tenbusch spoke with Mike Cunningham, I.T. Director. Per Tenbusch, Cunningham stated that the County will develop policies regarding social media later in the year. *Cunningham said that the EMC Facebook page can get going now/soon*, and when County policies are adopted, it will need to conform to those policies.

11. **New Business:** None.

12. **Announcements:**

- a. Tenbusch announced that the Green Living Fair will be held on Saturday, April 20<sup>th</sup> at the Roos House on the campus of SUNY Canton, from 10 AM -4 PM. All are welcome. The EMC will have a static display at this Fair.
- b. Tenbusch reminded everyone that Friday, April 26<sup>th</sup> will be the combined Earth Day – Arbor Day observance in Ogdensburg.
- c. Tenbusch announced that the next Household Hazardous Waste collection event will be held on Saturday, May 18<sup>th</sup> from 9 AM to 1 PM at the Human Services Complex (80 SH 310, Canton). *A half-dozen EMC volunteers will be needed for directing traffic, etc.*
- d. Tenbusch reported that “EAB Awareness Week” will be observed across NYS during the period May 19 – 25.

13. **Message to the Board of Legislators:** EMC members were asked to let their assigned BOL members know about Mr. Fisher’s presentation to the BOL.

14. **Adjournment:** The meeting adjourned by consensus at 7:57 PM.

Respectfully submitted:

*Patrick Whalen*

Secretary

Minutes written by J. Tenbusch



# St. Lawrence County Environmental Management Council Conservation of Resources Committee Meeting Wednesday April 10, 2019

Purpose of the *Conservation of Resources Committee*.

- “Conservation” can mean “saving” or “effective/efficient/wise use”.
    - Thus, “conservation of resources” might include topic areas including solid waste management; household hazardous waste management; recycling; energy efficiency; wise use of natural resources of St Lawrence County
  - Conservation might also mean “preservation”, as in preservation of endangered/ rare/ significant flora (plants) or fauna (animals/creatures).
- 

**Present:** Tiernan Smith. J. Tenbusch attended as staff.

The meeting began at 4:46 PM.

**Item 1: Review Report of Last Meeting.** The report of the last committee meeting was reviewed, briefly. No comments were made.

**Item 2: Other Projects on the “To Do” List.**

- J. Tenbusch reported on an article that he had found on-line. Titled “Petrochemical Manufacturers Use Chemistry to Make Plastic More Sustainable and Recyclable”, it was sponsored content by the American Fuel and Petrochemical Manufacturers.
  - The article described how plastics manufacturers are learning to break down polymers (plastics) into their most basic parts; then to re-use these basic materials to reformulate new plastics.
    - o This process can theoretically be used for any plastics, including those not currently “recyclable”.
  - See attached article. Or see [www.politico.com/sponsor-content/2019/03/petrochemical-manufacturers?cid=201903hpms](http://www.politico.com/sponsor-content/2019/03/petrochemical-manufacturers?cid=201903hpms)
- Tenbusch reported that the “EMC Movie Night”, held 3/26 at the Canton U-U Church, attracted approx. 15 people. They watched the 1-hr-long film “Plastic Paradise: The Great Pacific Garbage Patch”, then stayed for another half-hour for a discussion.
  - Tenbusch reported that he, Cat Bennett and Pat Whalen (Bennet and Whalen are on this Committee) all agreed to try to hold another movie night – possibly grow it into a series of presentations at locations around the County.
  - Tenbusch and Bennett are working to hold another presentation at Pickens Hall in Heuvelton. (NOTE: This presentation is scheduled for 6:00PM on Monday April 29<sup>th</sup>.)

- **EMC Facebook page.** Tenbusch reported that he had spoken with K Zimmerman, Director of Planning, about creating a FB page. Zimmerman did not say “No”; he did advise Tenbusch to discuss the matter with the I.T. department.
- T. Smith expressed appreciation for the effort and imagination that new EMC member Cat Bennett has brought to this Committee and to the EMC.
- **Earth Day Project.** Tenbusch reviewed the joint event with the Ogdensburg Tree Commission for an Arbor Day project on Friday April 26<sup>th</sup>.

The meeting was adjourned at 5:15 PM.

**The next meeting of the CRC will be held on Wednesday May 8<sup>th</sup> at 4:45 PM.**

**SPONSORED CONTENT**

By American Fuel &amp; Petrochemical Manufacturers



# **PETROCHEMICAL MANUFACTURERS USE CHEMISTRY TO MAKE PLASTIC MORE SUSTAINABLE AND RECYCLABLE**



Presented by American Fuel &amp; Petrochemical Manufacturers



Plastic (HDPE) flakes are processed at Quality Circular Polymers' recycling facility in the Netherlands.

**A**n engineer scoops a handful of tiny pellets out of a stainless-steel canister at a manufacturing plant in the Netherlands and rolls them around in his hand. The BB-sized pellets made at Quality Circular Polymers (QCP) could hold the key to changing how the world thinks about plastics. Made of polymers repurposed from plastic waste, the pellets represent the successful reuse of thousands of bottles, bags, packaging and other materials that typically would be destined for the landfill.



**SPONSORED CONTENT**  
By American Fuel & Petrochemical Manufacturers

*In 2018, LyondellBasell and waste recovery company SUEZ launched a recycling partnership, through Quality Circular Polymers (QCP), that aims to turn more used plastic into high-quality recycled polymers.*

Each year, consumers around the world throw away approximately 150 million tons of plastic — roughly half of all the plastic produced globally, according to researchers. Dealing with that waste has become a top priority for the plastics industry and its main supplier, the petrochemical industry, and their efforts are turning the traditional plastics manufacturing and recycling process on its head. As chemists, material scientists and engineers, they're now applying their ingenuity to the plastic waste problem — turning the waste into a resource with promising results:

**f** Americas Styrenics, a Chevron Phillips Chemical Company joint venture, has partnered with Agilyx to convert waste polystyrene — currently deemed one of the least recyclable resins — back into the styrene monomer, which can then be used to make new polystyrene.

**in** ABIC last June became the first petrochemical company that announced plans to invest in a project to convert mixed plastic waste — which includes everything from bottles to film to grocery bags, products often difficult to recycle due to contamination with food and other wastes — into original feedstock. That plant, set to open in 2021, will also be in the Netherlands.

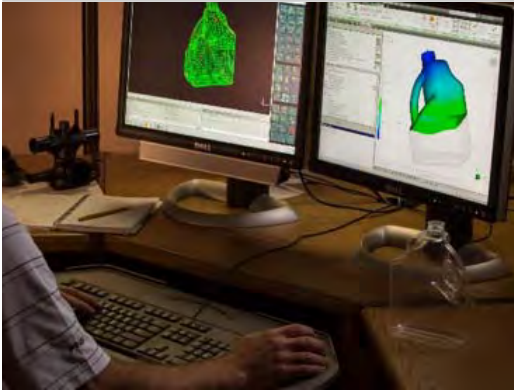
- And LyondellBasell partnered last year with SUEZ, a leader in advanced mechanical recycling, to form QCP in the Netherlands, which is developing recycled resins to compete in quality and price with resins from virgin material. It is also partnering with Karlsruhe Institute of Technology in Germany to test chemical, or molecular, recycling.

“Our view is that we are among the best polymer chemists in the world. We discovered a key family of catalysts that make high-density polyethylene many years ago. We have some of the strongest technical teams in the world. We are going to have to do something more creative,” said Jim Becker, vice president of polymers and sustainability for Chevron Phillips Chemical. “The combination of different types of recycling is going to be the answer. We think there is a home for all these products outside of landfills and plastics are too valuable to waste. They are really a resource for circular solutions.”



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orks at Chevron Phillips Chemical's Research  
 enter in Bartlesville, Okla., the company's  
 h center and home to the world-renowned  
 cal Center, which specializes in plastics

without compromising the properties that made plastics appealing and in high demand by customers in the first place.

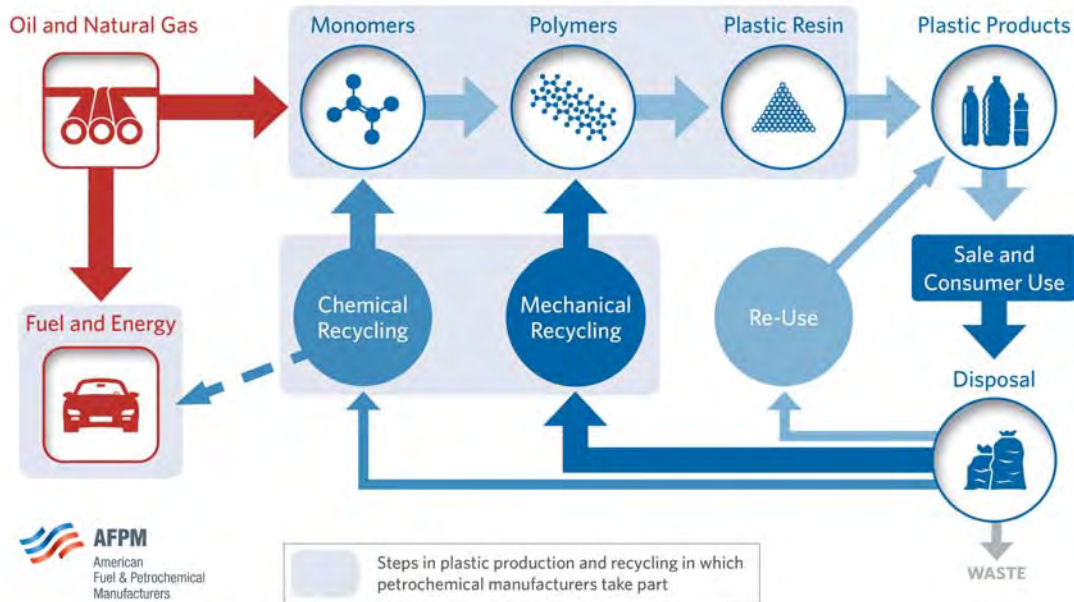
Mechanical recycling has long been used to recycle plastics. But by simply shredding and melting post-consumer waste into new pellets, its scale is limited — the process weakens the plastic over time, and therefore restricts how much postconsumer recycled content can be put in a plastic bag or cup without compromising strength.

Another issue is many mechanically recycled products are brown or gray because it is hard to strip out the color.

Petrochemical manufacturers have worked for years alongside their customers to tweak and perfect formulas for recycled and virgin plastics, but to create more products that contain primarily recycled material will require the adoption of chemical recycling.

is one of the technical problems in incorporating mechanically recycled post-consumer resin into these products," Becker said. "How much can you put in before you really change the properties of the end product? Right now, you can't put post-consumer resin in everything. It doesn't work in all applications."

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**f** Petrochemical manufacturers — who transform oil and natural gas into monomers, polymers and plastic resins — are pioneering in chemical recycling and breaking new ground in mechanical recycling, turning what would otherwise be plastic waste into valuable resources.

**in** fact, several companies are looking into chemical recycling — meaning the plastic is stripped down to its fundamental building blocks, or monomers, and then refashioned into polymers in the form of pellets, a process they can repeat several times without jeopardizing strength and quality. This is the Holy Grail of the circular economy for plastics.

“We certainly see chemical recycling as a very significant part of this whole puzzle,” Becker said. “In fact, long term, chemical recycling could become the solution we have been looking for to really having a circular, sustainable economy in terms of plastics.”

Anyone who regularly tosses their old milk bottles in a curbside recycling bin may assume their plastic underwent recycling for years, but the process isn’t as simple as it seems.

Different types of plastics require different processes, and the key is collecting a large volume of consistently high-quality material that’s clean and pure enough for recycling — difficult in many areas of the country where different types of recyclables are comingled. Food residue, glues or even a smattering of the wrong types of plastics may contaminate the resin, making it difficult to reuse.

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SUEZ, Europe's second-largest waste company. Their cooperation is critical in developing recycled resin that can compete with virgin resin on both strength and price.



general manager Geleen site, and  
 general manager corporate  
 celebrate the launch of certified circular  
 action in the Netherlands.



SABIC is taking a different approach by developing a system that can take the tainted plastic waste that currently gives recyclers headaches. Partnering with Plastic Energy, SABIC will be able to make TACOIL destined for its crackers from plastic trash, which would typically be headed for incinerators or landfills.

“When you start talking about plastic waste as a feedstock for your virgin materials, there is much more attraction with customers. The reason is very simple at the end of the day. People are very concerned about plastic waste,” said Frank Kuijpers, general manager sustainability for SABIC.

For this reason, the entire petrochemical industry is making plastics a priority.

“U.S. petrochemical producers are committed to the plastic waste issue and are at the forefront of addressing the problem,” said Chet Thompson, president and CEO of the American Fuel and Petrochemical Manufacturers. “They’re developing innovative products, investing in new and advanced recycling methods, and collaborating closely with other stakeholders in the plastics and recycling supply chains.”

Recycling not only diverts plastic waste from landfills, but a recent study by the Association of Plastics Recyclers found producing recycled resin also reduces emissions.

LyondellBasell and SUEZ created the QCP joint venture last year. The initial results have been encouraging. Jim Seward, LyondellBasell vice president of sustainability, believes the business model eventually can be applied to

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By American Fuel &amp; Petrochemical Manufacturers

particularly critical in more fragmented waste collection markets. Based in the Netherlands, QCP hopes in the near future to double its initial capacity of about 25 kilotons of resin a year.



When the effort takes off, the program and others like it could broaden the role that plastics play in a sustainable future. “Plastics are an incredibly efficient resource and a versatile class of products,” Seward said. “We need to think about it in terms of circularity so that plastic does not become waste but rather is a raw material of feedstock for some other useful purpose. That is how we will solve the plastic waste challenge.”

f



in

**AFPMP**

American  
Fuel & Petrochemical  
Manufacturers

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# St. Lawrence County Environmental Management Council Environment + Economy Committee Meeting Monday, May 6, 2019

## *Purpose of the Environment + Economy Committee.*

- To explore the relationship and interactions of the environmental resources of St. Lawrence County with the local and regional economy.
  - To reach out to individuals, business, and organizations involved in the use of natural resources in an economic capacity and to learn from these individuals and organizations about the challenges and opportunities in their endeavors.
  - To act as the interface between business, residents, and lawmakers of St. Lawrence County with regards to the role of natural resources in the economy, with an emphasis on sustainable use.
- 

**Meeting started** at 5:02 PM. **Present:** Ryan Burkum, Chair; Rod Tozzi. J. Tenbusch attended as staff. .

## **Item 1: Review Presentation by David Fisher to EMC at their meeting in April.**

- Immediate impressions included:
  - Mr. Fisher had seemed guarded in his comments. That was to be expected since he was not sure of his audience.
  - It was felt that the EMC might want to ask Mr. Fisher back at some point to continue the conversation about agriculture in the County and the State.
- There was general discussion about farming, and about how people have such a wide variety of impressions about farming.
  - For example, during the EMC meeting, Mr. Fisher was asked if his cows were happy; he replied “Yes”. Asked how he knows that, he stated that they receive the best of care, medical attention, feed, creature comforts, etc.; this is evidenced by the fact that his cows produce huge quantities of milk.
    - o However, in response to another question, Mr. Fisher stated that his cows do not go outside.
  - As another example, Mr. Fisher had stated that one of his main concerns going forward will be the cost of labor. Yet, there is a bill in Albany to require farm workers to receive \$15/hr. as a wage. Another effort is proceeding to allow farm workers to unionize.
    - o Both of these issues were seen as polarizing.

- Additional discussions about farms/farming. The Committee felt that it might be important to hear from other sectors of the agriculture industry, including:
  - Cornell Cooperative Extension.
  - A small-to-medium-size farmer, who might not be subject to strict CAFO standards, but who might not benefit from economies of scale, or from coordination with ag experts from CCE and other institutions.
  - An alternative farmer. This might be an organic farm operation, or some other non-industrialized farm operation.

The meeting adjourned at 5:30 PM.

**The next E+E Committee meeting will be held on Monday June 10<sup>th</sup> at 5:00 PM.**





# St. Lawrence County Environmental Management Council Invasive Species Committee Meeting Tuesday April 9<sup>th</sup>, 2019

## *Overview of the Invasive Species Committee.*

- The Committee decided that the variety of “invasive species” topics is so large, that it might be best for this committee to work on specific areas.
    - Emerald Ash Borer
    - Eurasian Watermilfoil
    - Wild Parsnip
    - Others
- 

Meeting started at 1:03 PM.

**Present:** Don O’Shea, Chair; Aaron Barrigar; Erica Leonard; Sue Rau. John Tenbusch attended as staff.

**Item 1: Review Previous Meeting Report.** No comments were made.

## **Item 2: ISC Projects for 2019:**

- ***Emerald Ash Borer.*** Tenbusch reported on the previous EAB TF meeting: various reports of sentinel trees being cut and peeled.
  - Don O’Shea reported that the EMC, the EAB Task Force, and the Ogdensburg Tree Commission are collaborating on a joint Earth Day – Arbor Day event in Ogdensburg. This event will be held on Friday April 26<sup>th</sup>.
    - There will be a dedication of newly-planted at Groulx Park. These trees replace ash trees that had to be taken down in 2018.
    - After local speechifying, there will be a presentation at the Dobisky Center about EABs. John Tenbusch will make that presentation.
- ***Eurasian Watermilfoil.*** Tenbusch reported on Lee Harper’s presentation to the EMC at the March EMC meeting. Harper had described milfoil eradication work that was done in Goose Bay, located in Jefferson County.
  - Harper described the number of studies required both pre- and post-treatment to ensure that the treatment was safe and effective.
  - The herbicide used did not linger in the water column for long; did not migrate far from the site of application; did not kill anything else except Eurasian water milfoil.
  - Tenbusch reported that EMC members had expressed interested in seeing milfoil harvesters in action.

- **Wild Parsnip.**
  - P. Whalen had checked with DEC about their recommendations for Wild Parsnip control (see attached email from P. Whalen); its “main advice would be to be careful when handling mowing machines ...”
  - A. Barrigar’s co-worker at SWCD had put together an informational sheet (see attached, “Wild Parsnip Control”). This document indicates that “mowing before July will prevent the 2<sup>nd</sup>-year generation from seeding out and will prevent the spread or seed dispersal to other locations.”
  - Tenbusch will aggregate this information, look for more, and set up a meeting with SLC Highway Superintendent Association. (**Note:** this meeting has been tentatively scheduled: 9 AM on May 9<sup>th</sup> in Madrid.)
- **Blue-Green Algae Blooms.**
  - This Committee will work cooperatively with the Watershed Management Committee on this topic.
  - Tenbusch will attach to this document materials provided by Joe Brant last month, so that Committee members can read them.

**Potential Project(s) for Earth Day, April 22nd.**

- Tenbusch reported on the EMC Earth Day / Arbor Day event, Friday April 26<sup>th</sup>. These will include:
  - At 9:30 AM there will be a dedication of new trees planted at Groulx Park to replace 4 aged, deteriorated ash trees that were removed last fall.
  - At 10:30 AM there will be a presentation at the Dobisky Center about Emerald Ash Borer.

The meeting ended at 1:50 PM.

**Next ISC meeting will be at 1:00 PM on Monday May 6<sup>th</sup>.**



## Tenbusch, John

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**From:** whalenpj@gmail.com  
**Sent:** Tuesday, March 19, 2019 4:27 PM  
**To:** Tenbusch, John  
**Subject:** Fwd: Wild Parsnip

FYI

Sent from my iPhone

Begin forwarded message:

**From:** "Smith, David (DEC)" <david.smith@dec.ny.gov>  
**Date:** March 19, 2019 at 11:55:21 AM EDT  
**To:** Patrick Whalen <whalenpj@gmail.com>  
**Subject:** Wild Parsnip

Pat,

Good to hear from you, glad all is well and you're soon to be a grandfather. Does that worry you?

I checked around, including with Irene today (who says hello), and there are not any special treatments for wild parsnip. Like giant hogweed, dig out small patches, and/or spray with herbicide. I have attached an info flyer from our website, and the only other thing it says is if you cut the plant after it's flowered and before the seed is set you may kill the plant, and prevent future seedlings. So probably for town and county road maintenance unless there is an especially thick patch the main advice would be to be careful when handling mowing machines and weed whipping to keep out of reach of the parsnip and keep skin covered when you could be in contact with the plant or plant parts.

Enjoy spring as of tomorrow, though there does not appear to be any big warmup in sight.

<wildparsnipfact\_pdf.pdf>

## Wild Parsnip control

- Wild parsnip (WP) is bi-annual meaning it grows basal leaves in the first year of growth and flowers/seeds out in the second-year growth, then the mature plant dies in the second year.
- WP seeds out in July-August and seed bank is viable for 5 years.
- Mowing WP before July will prevent the 2<sup>nd</sup> year generation from seeding out and will prevent the spread or seed dispersal to other locations. Mowing after July has the potential to spread WP to new uninfected locations.
- Treatment options would be mowing (before July/seed out) or herbicide application or a combination of both
- It would be best to use a broad leaf herbicide like 2-4D or Garlon 3a and NOT Round-up. DO NOT USE ROUND UP! Broadleaf herbicides will target the WP and other vegetation, but it will not kill grasses, so by keeping native grasses it will be harder for the WP to germinate the following years and there will be less opportunities for other invasives to move in.
- 2-4D or Garlon3a are not safe to use around wetlands so alternative broadleaf herbicides would have to be used around riparian areas.
- Spraying after July-August will not be effective and would be a waste of money.
- Broadleaf herbicides will kill native flowers as well but a select number of native flowers seedbanks last 10-15 years so they would potentially out last WP.
- Mowing only will take 10 years to eradicate, spraying would take 3-5 years to eradicate.

### Key points:

Do not treat with round-up, treat with broadleaf herbicide

Mow before July and not after to prevent further distribution of seeds.



# Ohio EPA

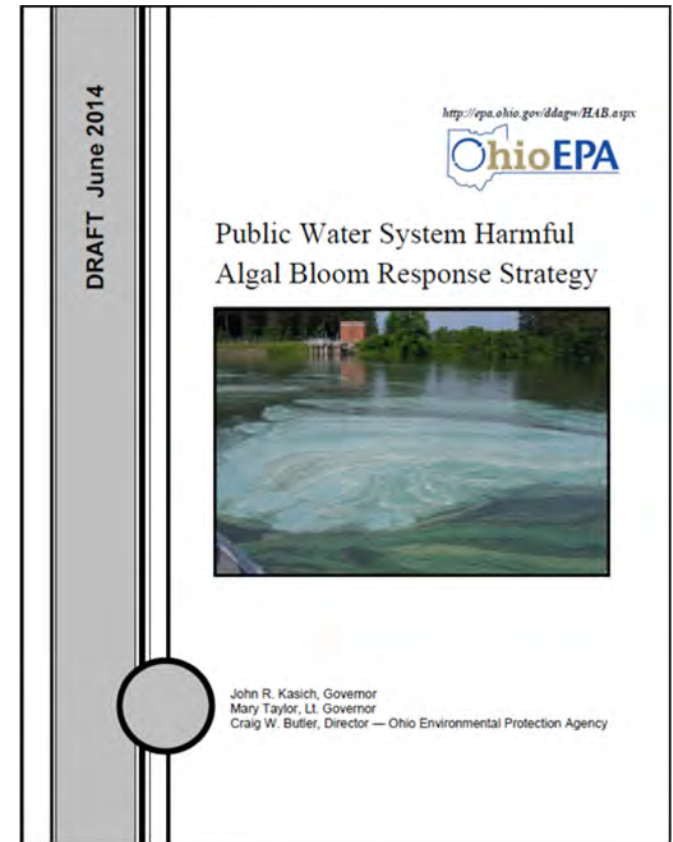
## Prevention, Detection and Response to Cyanotoxins in Drinking Water

Beth Messer  
Assistant Chief  
Division of Drinking and Ground Waters  
Ohio Environmental Protection Agency



# Ohio Harmful Algal Bloom Response

- **Ohio EPA began Sampling for Cyanotoxins at Public Water Systems in 2010**
- **Collaborated with Ohio Department of Health and Ohio Department of Natural Resources to Develop State of Ohio HAB Response Strategy**
  - Developed in 2011, reviewed and revised annually
    - Sampling Frequency and Procedures,
    - Cyanotoxin Advisory Levels for:
      - Microcystins (total)
      - Cylindrospermopsin
      - Saxitoxins (total), and
      - Anatoxin-a
    - Public Notice Templates, and
    - HAB-related Contingency Planning Recommendations
  - <http://www.epa.ohio.gov/portals/28/documents/HAB/PWS-HAB-response.pdf>
  - Will revise based on U.S.EPA national health advisory guidance and lessons learned in 2014





# Cyanotoxin Sampling



- **Ohio EPA Sampling is Primarily Incident-Response Based**
- **Factors Considered:**
  - **Source Water Quality:** Phytoplankton, Phycocyanin, Chlorophyll-a, pH, Geosmin or MIB taste and odors
  - **Operational Issues:** Decreased filter run times and filter clogging, Increased chlorine demand
  - **Satellite & NASA Flight Data:** Remotely monitor bloom based on presence of pigments unique to cyanobacteria
  - **Algaecide Application:** At a minimum, sample following Ohio EPA pesticide permit requirements
- **Ohio EPA Encourages PWSs with a History of Persistent HABs to Voluntarily Monitor**
- **Sampling at Lake Erie Islands and Marblehead routinely in lieu of triggered – perhaps others in 2015**
- **Inland Lake Ambient Monitoring (Partner with Clean Water Act program)**



# Sampling Frequency & Analytical Method

- **Sampling Frequency:**
  - Weekly until toxins are  $< \frac{1}{2}$  Ohio threshold for two consecutive weeks and bloom has dissipated.
  - If raw water microcystin concentrations are  $> 5$  ug/L, increase sampling and analysis to 3 times/week.
  - Finished water detections trigger repeat sampling & analysis within 24 hours. Ongoing sampling may include distribution sampling.
  - Need to reevaluate based on U.S. EPA H.A. Guidelines.
- **Analytical Method:** Ohio EPA utilizes the ELISA method for total microcystins (MC-ADDA), saxitoxin, and cylindrospermopsin and LC-MS/MS for anatoxin-a



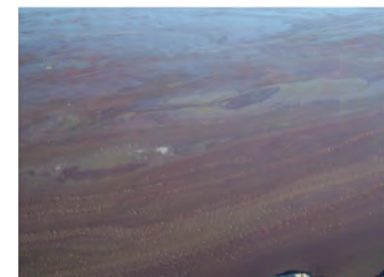
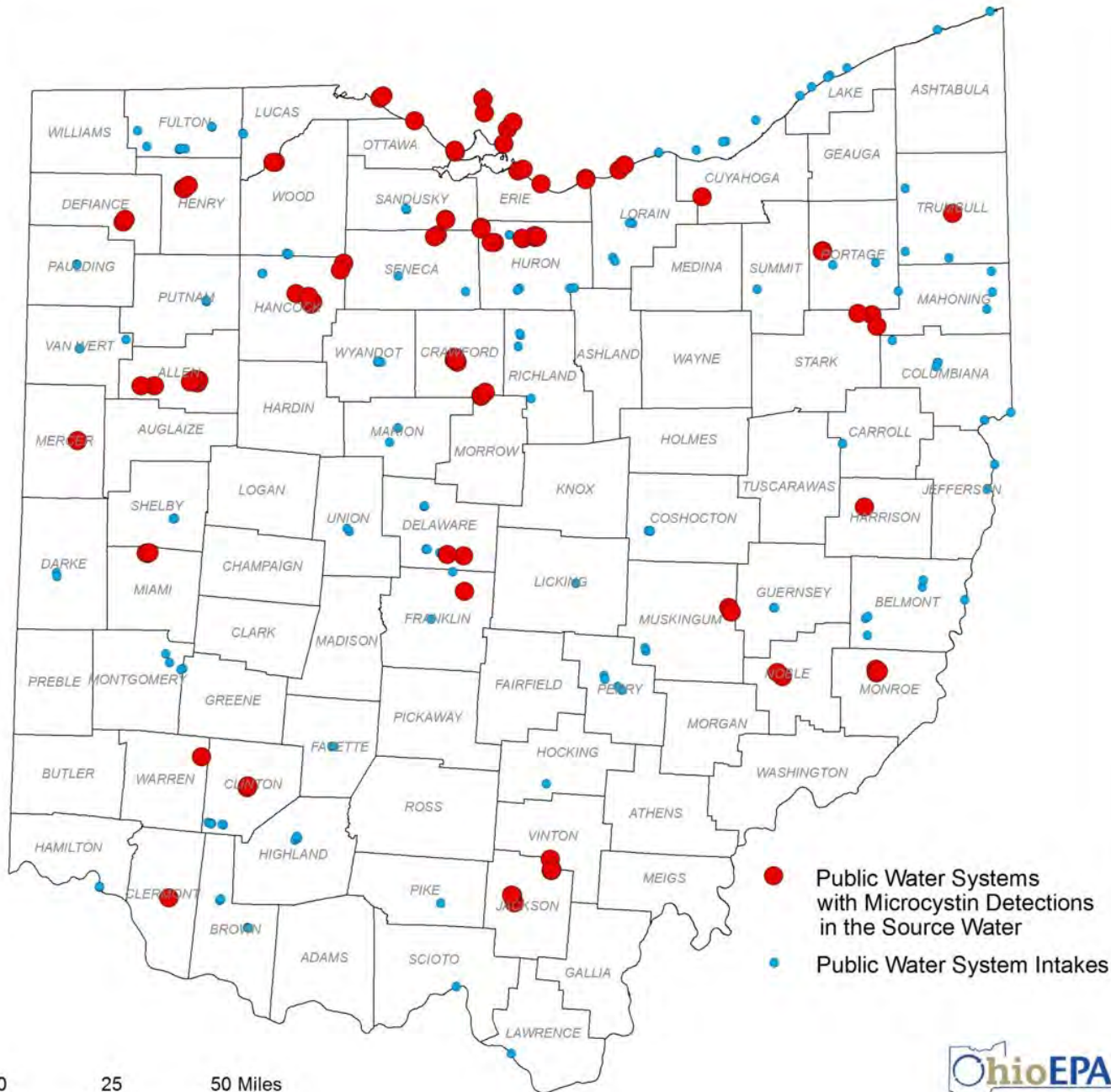
# Public Water System Sampling Summary

- Ohio EPA has collected approximately 2,000 cyanotoxin samples at 56 water systems (almost 1/2 of all Ohio surface water supplies).
- Public water systems have voluntarily submitted results to Ohio EPA for over 1,000 cyanotoxin samples.
- Cyanotoxins detected in MAJORITY of source waters sampled.
- Five water systems had finished water detections  $>0.3$  ug/L
- Two water systems exceeded 1.6 ug/L

Public Notice is recommended if a health advisory level is exceeded, however, Director also has authority to issue public notice.



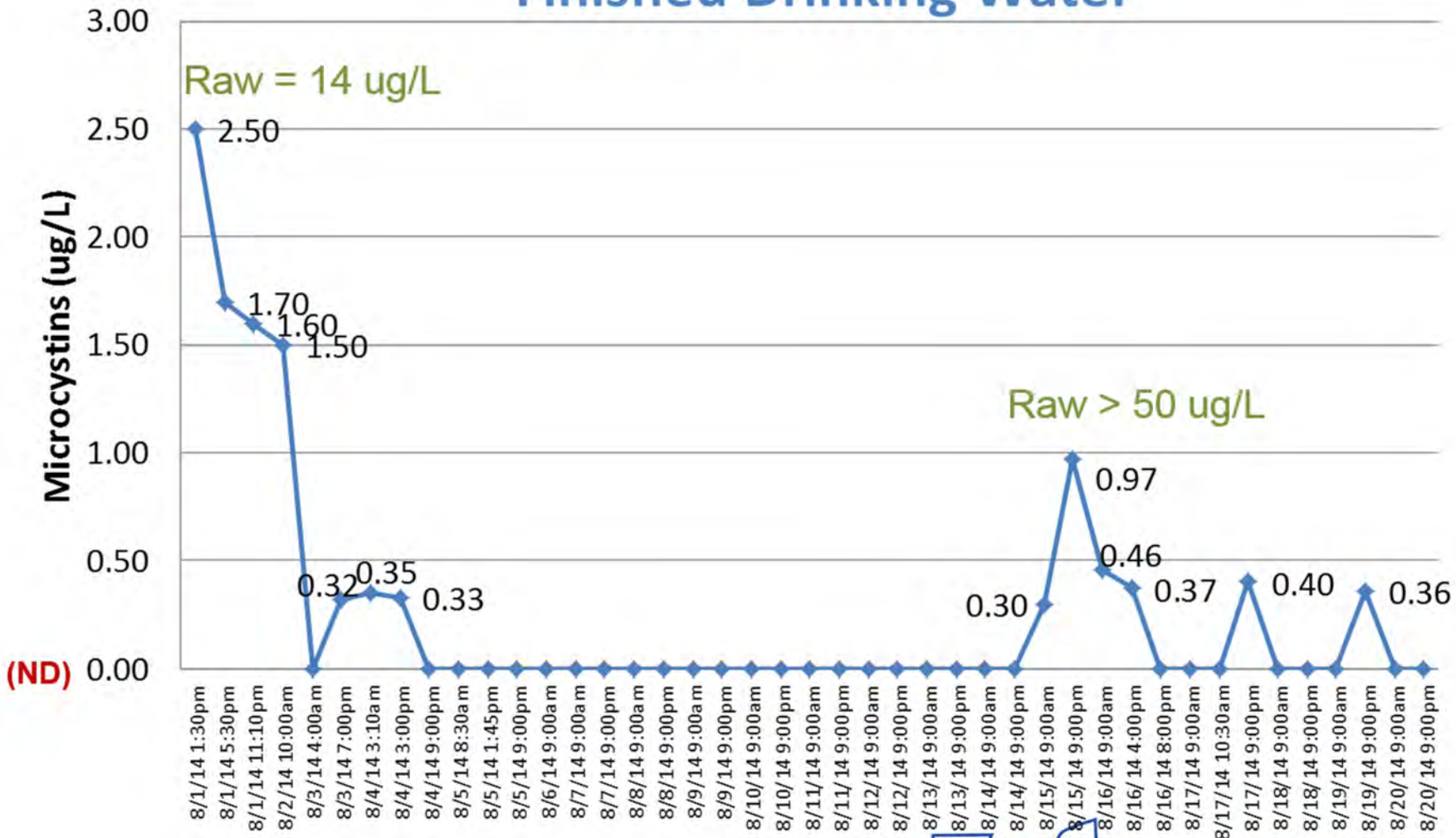
# Public Water Systems with Cyanotoxin Detections in their Source Water



April 28, 2015



# Microcystins Concentrations in Toledo's Finished Drinking Water



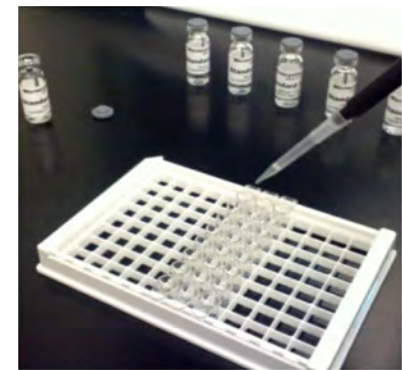
ND= Not Detected (Concentration <0.25)

Data Source: Toledo PWS

# Microcystins Testing - ELISA

- **Ohio EPA uses the Enzyme-Linked ImmunoSorbent Assay (ELISA) Microcystin-ADDA Method**

- Measures Total Microcystins
  - (all congeners, based on ADDA)
- Certified by USEPA (ETV Program)
- Moderately sensitive (RL: 0.30ug/L)
- Suitable for raw & finished water
- Quick (four hours), useful for operational adjustments
- Relatively inexpensive
- Does not require high end equipment or expertise to run (can be used in water system lab)
- Does not provide concentrations of specific Microcystin congeners
- Is an indirect measure of toxin



# Microcystin-ADDA ELISA SOP

- Helps ensure consistent sample handling, preparation, and application of analytical method.
  - Finished water samples and treatment train samples that are subjected to an oxidant must be quenched upon collection.
- Labs must demonstrate they can achieve an acceptable level of precision and accuracy.
- Ohio EPA conducts site visits at labs performing analysis.
- Considering Ohio EPA confirming finished water detections triggering an advisory

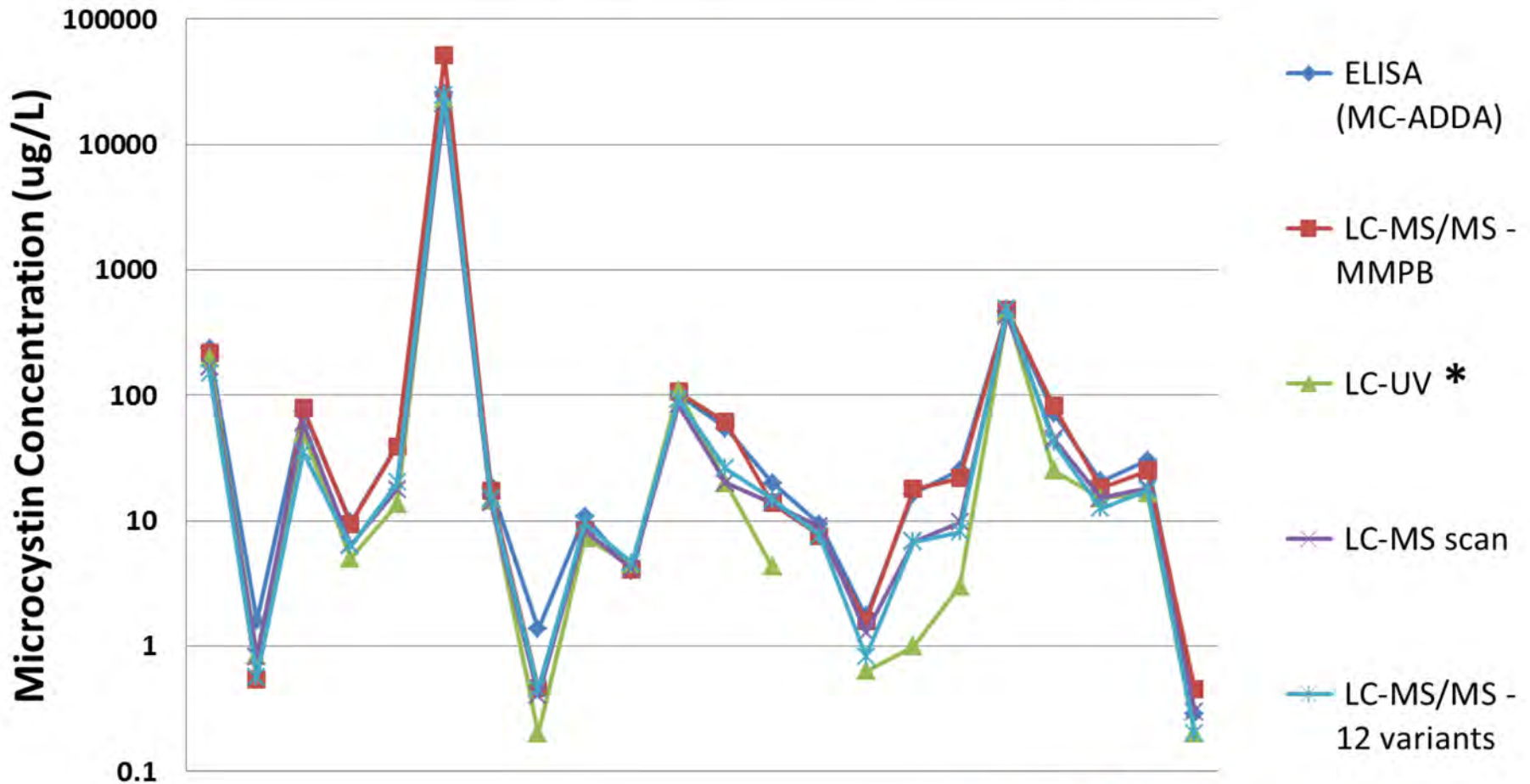


# Analytical Method Comparison & Microcystin Congener Evaluation

- 11 Sites/22 Samples: 4 Up-ground Reservoirs, 2 In-stream Reservoirs, 2 Lake Erie locations, 2 Canal-feeder Lakes, and 1 River Source.
- Variety of Cyanobacteria Genera Represented
- Each Sample Analyzed Using 5 Separate Analytical Methods
- MC-LR was not the most common congener
- Confirmed ELISA results



# Results of Method Comparison



\* LC-UV data presented does not include false-positives that were eliminated from total (Based on lack of confirmation with LC-MS methods).  
Sample # 14 was non-detect using LC-UV.



# HAB Response Strategy Revisions

- Incorporate USEPA Health Advisory Guidance
- Determine Analytical Method and sampling and analytical protocols
- Apply 10 Health Advisory as “not to exceed”
- Initiating an advisory
  - Confirmation analysis and sampling
  - Allowing for treatment adjustments



# HAB Response Strategy Revisions

- Removing an advisory
  - Defining the number and time between samples
  - Entry point or distribution
- Cyclical advisory level detections
- Messaging
  - Revising Public Notices
  - Clarifying Exposure pathways





# Ohio EPA Preparation

- Hosting Multi-Agency Tabletop Exercises to Better Prepare for any Future Advisories.
- Expanding the early warning network.
- Requiring HAB Contingency Plans for Susceptible Public Water Systems.
- Collaborating with University and Federal Researchers on Treatment Technologies, Analysis Methods, Remote Sensing, Bloom Dynamics, and other Applied Sciences.
- Assisting with Revisions to Ohio AWWA Cyanotoxin Treatment White Paper.
- Participating in State and National HAB Workgroups.
- Assisting other States.





# Technical Assistance, Training & Outreach

- Responded to over 700 requests for information related to HABs at public water systems
- Gave over 30 presentations on HAB impacts to water systems
- Present at the 2-day OSU Stone Lab HAB Workshop (since 2010)
- 5 Targeted meetings with PWSs in 2014
- Additional Meetings in 2015
- Targeted Outreach to Susceptible Systems

Algae ID and HAB Workshops Offered by OSU & Ohio EPA

- Held at Stone Lab Campus on Gibraltar Island
- Geared to Water Supplies and Lake Managers
- August

<http://stonelab.osu.edu/courses/noncredit/87/>



# HAB Funding

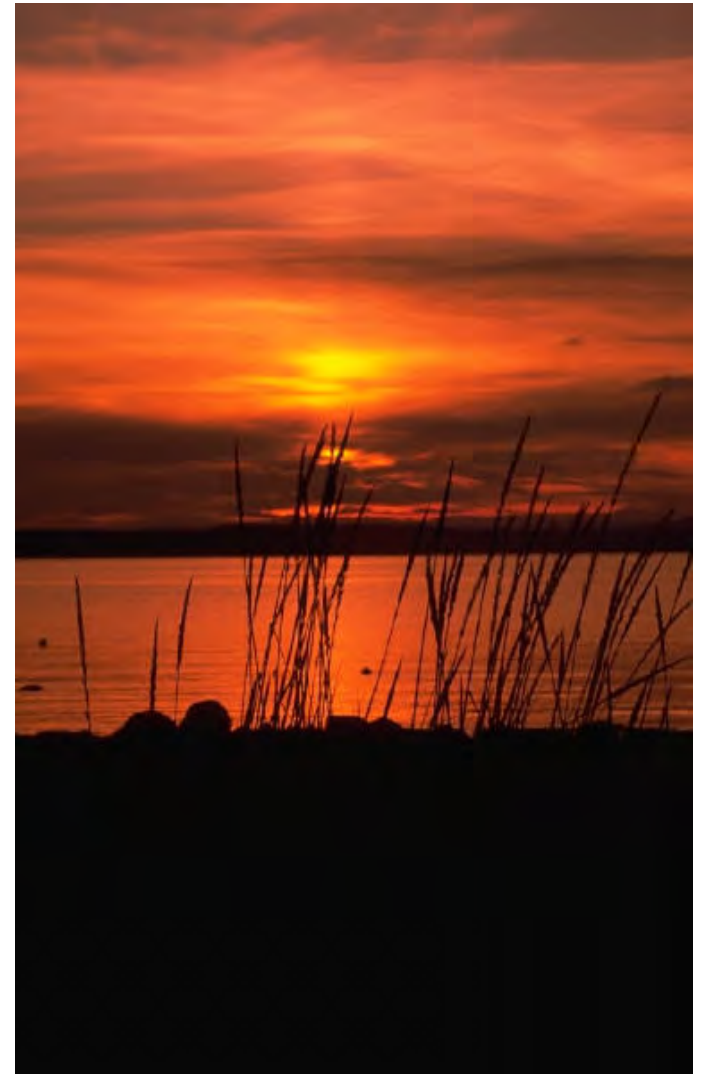


- \$1 million in grants to surface water public water systems to enhance their monitoring capacity for cyanotoxins and harmful algal blooms.
- \$50 million in 0% interest rate loans to surface water public water systems for enhanced water treatment infrastructure components as well as back-up water sources.
- \$100 million in 0% interest rate loans for equipment and facilities that reduce the levels of phosphorus and other nutrients.
- \$1.25 million in grants for farmers to plant cover crops or install controlled drainage devices.
- OBOR \$2 million in grants for applied research on harmful algal blooms.



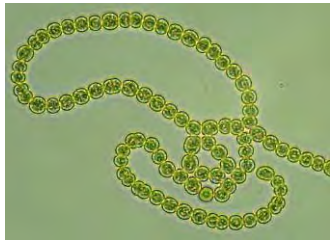
# Thank You!

<http://www.epa.ohio.gov/ddagw/HAB.aspx>

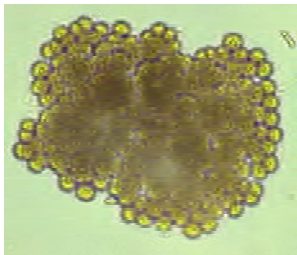


# Freshwater HABs=CyanoHABs

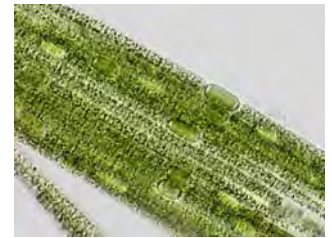
*Anabaena*



*Microcystis*



*Aphanizomenon*



*Gloeotrichia*



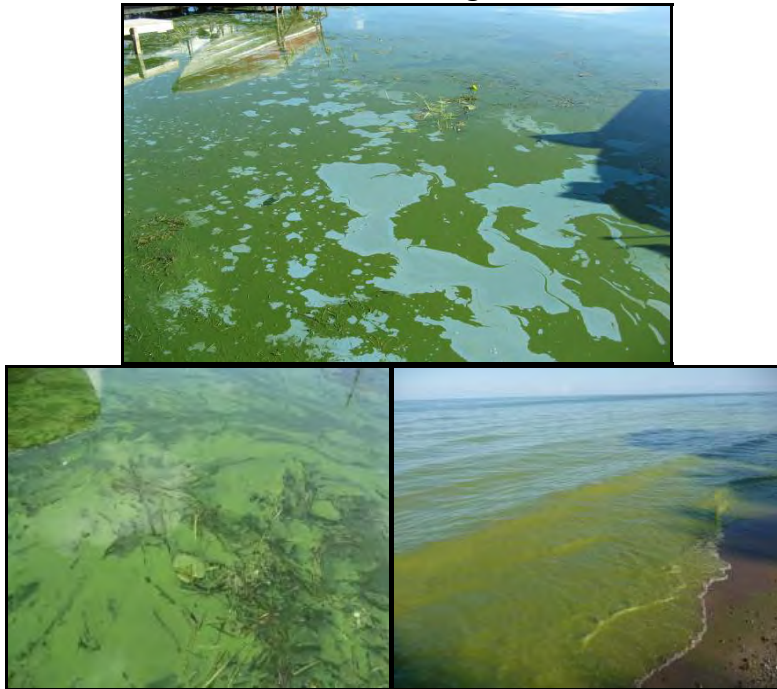
Toxins (LD50 = acute toxicity <sup>A</sup> )	Structure (number of variants)	Activity	Toxigenic genera
<b>Hepatotoxins</b>			
Microcystins (25 to ~ 1000)	Cyclic heptapeptides (71)	Hepatotoxic, protein phosphatase inhibition, membrane integrity and conductance disruption, tumour promoters	<i>Microcystis</i> <sup>BCD</sup> , <i>Anabaena</i> <sup>BCD</sup> , <i>Nostoc</i> <sup>BC</sup> , <i>Planktothrix</i> <sup>BCD</sup> , <i>Anabaenopsis</i> <sup>B</sup> , <i>Hapalosiphon</i> <sup>BC</sup>
Nodularins (30 to 50)	Cyclic pentapeptides (9)	Hepatotoxic, protein phosphatase inhibition, membrane integrity and conductance disruption, tumour promoters, carcinogenic	<i>Nodularia</i> <sup>BCD</sup>
Cylindrospermopsins (200 to 2100)	Guanidine alkaloids (3)	Necrotic injury to liver (also to kidneys, spleen, lungs, intestine), protein synthesis inhibitor, genotoxic	<i>Cylindrospermopsis</i> <sup>BC</sup> , <i>Aphanizomenon</i> <sup>BC</sup> , <i>Anabaena</i> <sup>C</sup> , <i>Raphidiopsis</i> <sup>BC</sup> , <i>Umezakia</i> <sup>B</sup>
<b>Neurotoxins</b> <a href="https://quarrylifeproject.wordpress.com">https://quarrylifeproject.wordpress.com</a> <a href="http://www.plingfactory.de">http://www.plingfactory.de</a>			
Anatoxin-a (250)	Tropane-related alkaloids (5)	Postsynaptic, depolarising neuromuscular blockers	<i>Aphanizomenon</i> <sup>B</sup> , <i>Anabaena</i> <sup>BCD</sup> , <i>Raphidiopsis</i> <sup>BC</sup> , <i>Oscillatoria</i> <sup>BC</sup> , <i>Planktothrix</i> <sup>BC</sup> , <i>Cylindrospermum</i> <sup>B</sup>
Anatoxin-a(5) (40)	Guanidine methyl phosphate ester (1)	Acetylcholinesterase inhibitor	<i>Anabaena</i> <sup>BC</sup>
Saxitoxins (10 to 30)	Carbamate alkaloids (20)	Sodium channel blockers	<i>Aphanizomenon</i> <sup>BC</sup> , <i>Anabaena</i> <sup>BC</sup> , <i>Planktothrix</i> <sup>BC</sup> , <i>Cylindrospermopsis</i> <sup>BC</sup> , <i>Lyngbya</i> <sup>BC</sup>
<b>Dermatotoxins (irritants) and cytotoxins</b>			
Lyngbyatoxin-a	Alkaloid (1)	Inflammatory agent, protein kinase C aktivator	<i>Lyngbya</i> <sup>B</sup> , <i>Schizotrix</i> <sup>B</sup> , <i>Oscillatoria</i> <sup>B</sup>
Aplysiatoxin	Alkaloids (2)	Inflammatory agents, protein kinase C aktivators	<i>Lyngbya</i> <sup>B</sup> , <i>Schizotrix</i> <sup>B</sup> , <i>Oscillatoria</i> <sup>B</sup>

Blaha et al. 2009



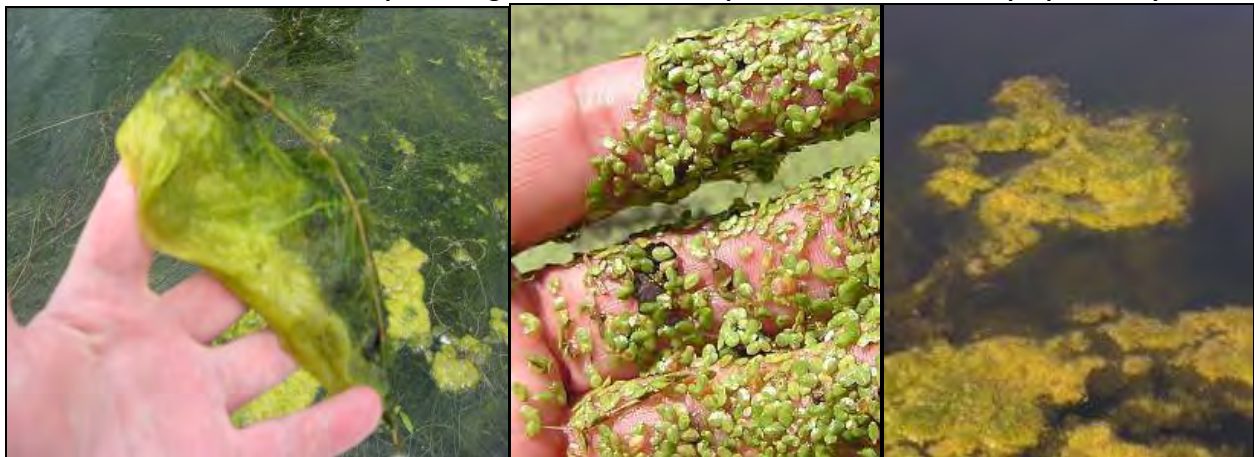
# Photo References

**Blue-Green Algae**



**NOT Blue-Green Algae**

**Caution: Do not collect suspicious algae with bare hands, photo for demonstration purposes only.**





Sandy beaches still rim the lakes, but if Lake Michigan, for example, were drained it would now be possible to walk almost the entire 100 miles between Wisconsin and Michigan on a bed of trillions upon trillions of filter feeding quagga mussels.” With no natural predators here, “the mussels have transformed the lakes into some of the clearest freshwater on the planet. But this is not a sign of a healthy lake; it’s the sign of a lake having the life sucked out of it.”

In the summer of 2016, quagga mussels were found by watercraft inspectors on a trailered boat coming from Lake Erie and preparing to launch in Lake Placid. This “catch” was hailed as a victory, a tribute to the Adirondack Watershed Institute’s boat-inspection program sponsored by New York State ([adkcleanboats.com](http://adkcleanboats.com)). Hydrilla, a fast-growing invasive plant that chokes out native life, was caught last summer on a watercraft before launching into Upper Saranac Lake. Both of these species have invaded other New York waters, including the Finger Lakes. Other AIS already in the Adirondacks include the spiny waterflea, originating from ballast waters discharged by ships in the Great Lakes, where it has contributed to the demise of native fisheries. These are but a foreshadowing of the escalating threat.

Even as the state’s largest coordinated program, the Adirondack AIS program is voluntary with limited regional coverage and hours of operation. Only Lake George has a mandatory boat-inspection program for all trailered boats, considered the strongest program of its kind in the eastern United States. The invasives threat is 24/7, and only through such rigorous measures can we stop them from ravaging the region and a recreation economy that depends on healthy waters.

Yet there is good news: latest surveys conducted last year by the Nature Conservancy’s Adirondack Park Invasive Plant Program, show 75 percent of the lakes surveyed still remain invasives free. By contrast, the Great Lakes possess nearly two hundred invasive and non-native species, driving home the need for action now.

Winning the fight for the Adirondacks demands both defense and offense. This means coupling strong prevention programs—exemplified by the governor’s inclusion of a state-of-the-art boat-inspection station at the new Welcome Center at Glens Falls on the Northway (I-87)—with preemptive actions that take the fight as close to the source of the problem as possible. Other states such as Idaho, Oregon, Montana, and Washington are employing pre-emptive inspection stations at their borders to protect waterways critical to their economies. We must follow their lead.

Effective preemption begins by using AIS data from the Adirondack Watershed Institute to identify priority source waters (shown on the map) from which invasives are entering the state or region. Using this information, we can then site mandatory inspection facilities at high-risk locations. “A Source Waters Compact” would call for active cooperation with representatives within and outside New York State. Its terms would focus on proactive measures to be taken at those source waters as the first line of protection before boaters travel to the region.

Building on their vital leadership in this now-or-never fight, Governor Andrew Cuomo and the state Department of Environmental Conservation can leverage diverse and growing public support across the state for stopping invasive species from destroying our waters. An executive order would enable rapid advance on this imperative.

Hope for bringing back the Great Lakes begins with “closing the door on future invasions.” By doing the same here — and now — we can avoid having to suffer the death of the Adirondacks in order to save it.

*Eric Siy is executive director of the Fund for Lake George.*

*Fred Monroe is executive director of the Adirondack Park Local Government Review Board.*

*Photo courtesy FUND for Lake George.*

This piece was first published in [Adirondack Explorer magazine](#).



## Guest Contributor

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The *Adirondack Almanack* publishes occasional guest essays from Adirondack residents, visitors, and those with a biding interest in the Adirondack Park.

Submissions should be directed to *Almanack* editor John Warren at [adkcalmanack@gmail.com](mailto:adkcalmanack@gmail.com).

[View all posts by →](#)

## Leave a Reply

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2019 Leaving no one behind

### WHAT IS THE THEME?

The theme for World Water Day 2019 is 'Leaving no one behind'. This is an adaptation of the central promise of the 2030 Agenda for Sustainable Development: as sustainable development progresses, everyone must benefit.

### HOW DOES IT RELATE TO WATER?

Sustainable Development Goal 6 (SDG 6) includes a target to ensure availability and sustainable management of water for all by 2030. By definition, this means leaving no one behind.

### WHAT IS THE PROBLEM?

Today, billions of people are still living without safe water – their households, schools, workplaces, farms and factories struggling to survive and thrive.

Marginalized groups – women, children, refugees, indigenous peoples, disabled people and many others – are often overlooked, and sometimes face discrimination, as they try to access and manage the safe water they need.



### WHAT DOES 'SAFE WATER' MEAN?

'Safe water' is shorthand for a 'safely managed drinking water service': water that is accessible on the premises, available when needed, and free from contamination.<sup>1</sup>

### WHY IS IT IMPORTANT?

Whoever you are, wherever you are, water is your human right. Access to water underpins public health and is therefore critical to sustainable development and a stable and prosperous world. We cannot move forward as a global society while so many people are living without safe water.

### WHAT IS THE HUMAN RIGHT TO WATER?

In 2010, the UN recognized "the right to safe and clean drinking water and sanitation as a human right

that is essential for the full enjoyment of life and all human rights."<sup>2</sup>

The human right to water entitles everyone, without discrimination, to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use; which includes water for drinking, personal sanitation, washing of clothes, food preparation, and personal and household hygiene.<sup>3</sup>

### WHY ARE PEOPLE BEING LEFT BEHIND WITHOUT SAFE WATER?

People are left behind without safe water for many different reasons. The following are some of the 'grounds for discrimination' that cause certain people to be particularly disadvantaged when it comes to accessing water:

- Sex and gender
- Race, ethnicity, religion, birth, caste, language, and nationality
- Disability, age and health status
- Property, tenure, residence, economic and social status

Other factors, such as environmental degradation, climate change, population growth, conflict, forced displacement and migration flows can also disproportionately affect marginalized groups through impacts on water.



<sup>1</sup> WHO/UNICEF: <https://washdata.org/monitoring/drinking-water>

<sup>2</sup> UN (2010): A/RES/64/292 Resolution adopted by the General Assembly on 28 July 2010: [http://www.un.org/en/ga/search/view\\_doc.asp?symbol=A/RES/64/292](http://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/64/292)

<sup>3</sup> OHCHR, UN Habitat, WHO: <https://www.ohchr.org/Documents/Publications/FactSheet35en.pdf>

## KEY FACTS

- 2.1 billion people live without safe water at home.<sup>4</sup>
- One in four primary schools have no drinking water service, with pupils using unprotected sources or going thirsty.<sup>5</sup>
- More than 700 children under five years of age die every day from diarrhoea linked to unsafe water and poor sanitation.<sup>6</sup>
- Globally, 80% of the people who have to use unsafe and unprotected water sources live in rural areas.<sup>7</sup>
- Women and girls are responsible for water collection in eight out of ten households with water off-premises.<sup>8</sup>
- Over 800 women die every day from complications in pregnancy and childbirth.<sup>9</sup>
- For the 68.5 million people who have been forced to flee their homes, accessing safe water services is highly problematic.<sup>10,11</sup>
- Around 159 million people collect their drinking water from surface water, such as ponds and streams.<sup>12</sup>
- Around 4 billion people - nearly two-thirds of the world's population - experience severe water scarcity during at least one month of the year.<sup>13</sup>
- 700 million people worldwide could be displaced by intense water scarcity by 2030.<sup>14</sup>
- The wealthier generally receive high levels of WASH services at (often very) low cost, whereas the poor pay a much higher price for a service of similar or lesser quality.<sup>15</sup>



<sup>4</sup> WHO/UNICEF (2017) *Progress on drinking water, sanitation and hygiene*: [https://www.who.int/water\\_sanitation\\_health/publications/jmp-2017/en/](https://www.who.int/water_sanitation_health/publications/jmp-2017/en/)

<sup>5</sup> UNICEF (2018) *WASH in Schools: Global baseline report 2018*: <https://data.unicef.org/resources/wash-in-schools/>

<sup>6</sup> Calculation made in 2018 based on data from UNICEF: <https://data.unicef.org/topic/child-health/diarrhoeal-disease/>

<sup>7</sup> WHO (2017) *Safely managed drinking water - thematic report on drinking water 2017*: <https://data.unicef.org/wp-content/uploads/2017/03/safely-managed-drinking-water-JMP-2017-1.pdf>

<sup>8</sup> WHO/UNICEF (2017) *Progress on drinking water, sanitation and hygiene*: [https://www.who.int/water\\_sanitation\\_health/publications/jmp-2017/en/](https://www.who.int/water_sanitation_health/publications/jmp-2017/en/)

<sup>9</sup> UNICEF: <https://data.unicef.org/topic/maternal-health/maternal-mortality/>

<sup>10</sup> UNHCR (2017) *Global Trends Report: Forced Displacement in 2017*: <https://www.unhcr.org/5b27be547.pdf>

<sup>11</sup> WWAP (UNESCO World Water Assessment Programme)/UN-Water (2019) *The United Nations World Water Development Report 2019: Leaving No One Behind*

<sup>12</sup> WHO/UNICEF (2017) *Progress on drinking water, sanitation and hygiene*: [https://www.who.int/water\\_sanitation\\_health/publications/jmp-2017/en/](https://www.who.int/water_sanitation_health/publications/jmp-2017/en/)

<sup>13</sup> Mekonnen and Hoekstra (2016), Four billion people facing severe water scarcity. *Science Advanced*, Vol. 2, No. 2: <https://www.ncbi.nlm.nih.gov/pubmed/26933676>

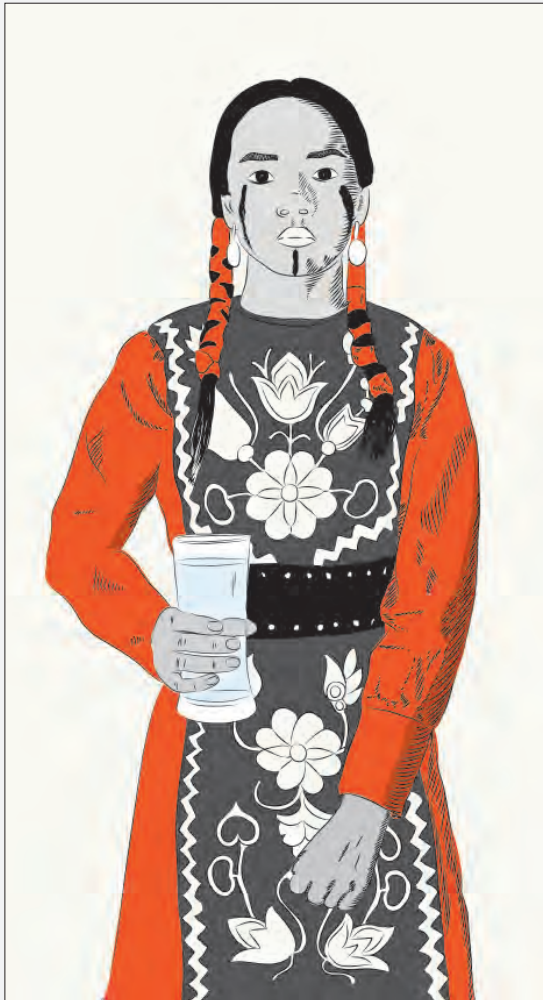
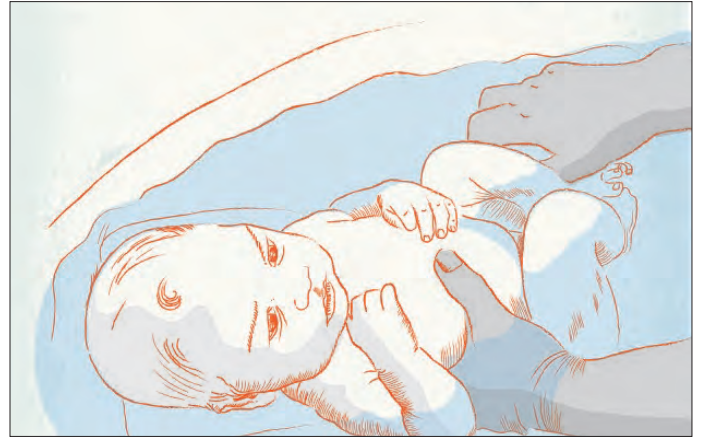
<sup>14</sup> Global Water Institute (2013) *Future water (in)security: facts, figures and predictions*: [https://img1.wsimg.com/blobby/go/27b53d18-6069-45f7-a1bd-d5a48bc80322/downloads/1c2meuvon\\_105010.pdf](https://img1.wsimg.com/blobby/go/27b53d18-6069-45f7-a1bd-d5a48bc80322/downloads/1c2meuvon_105010.pdf)

<sup>15</sup> WWAP (UNESCO World Water Assessment Programme)/UN-Water (2019) *The United Nations World Water Development Report 2019: Leaving No One Behind*



## WHAT NEEDS TO BE DONE?

To 'leave no one behind', we must focus our efforts towards including people who have been marginalized or ignored. Water services must meet the needs of marginalized groups and their voices must be heard in decision-making processes. Regulatory and legal frameworks must recognise the right to water for **all** people, and sufficient funding must be fairly and effectively targeted at those who need it most.



## HOW TO GET INVOLVED WITH THE CAMPAIGN

### • Share:

**Use or adapt campaign materials on your social media channels**

Engage your friends and contacts with information and stories about the reality of the water crisis and how it affects every aspect of society.

Go to [www.worldwaterday.org/resources](http://www.worldwaterday.org/resources) or [www.worldwaterday.org/social-media](http://www.worldwaterday.org/social-media) to start a conversation and inspire action.

### • Act:

**Organize an event or activity**

Gather people together to share ideas and make them grow. Hold or attend an event to make personal connections that could make a difference to people living without safe water.

Go to [www.worldwaterday.org/events](http://www.worldwaterday.org/events) to see where a World Water Day event is taking place near you and find out how you could hold an event yourself.



# St. Lawrence County Environmental Management Council Watershed Management Committee Meeting Tuesday, April 9<sup>th</sup>, 2019

## Overview of *Watershed Management Committee*.

- This Committee has worked on a number of watershed questions/issues, including:
    - Development / promotion of riparian buffers
      - “No Mow Zones” / “Trees for Tribs”
    - Work with U.S.A. Corps of Engineers to bring Sediment Transport Analysis and Regional Trainning to local colleges, high schools, etc.
    - Stenciling storm drains to read: “Don’t Dump – Drains to River”
- 

Meeting started at 4:02 PM.

Present: J. Brant, Chair. J. Tenbusch attended as staff.

## Item 1: Review Priority Projects.

- Shoreline Resilience Planning Project. Tenbusch reported that the consultants hired to conduct the Shoreline Resilience Planning Project are working on their draft document.
  - There will be a second Stakeholder’s Meeting on Wednesday May 8th. Place TBD.
    - o At the Stakeholders Meeting, the consultants will present their findings and recommendations. Comments will then be incorporated into the final document.
  - The next meeting between the consultants and Planning staff will be held on Monday April 24<sup>th</sup> at 10 AM.
- Blue-Green Algae / Harmful Algal Blooms. J. Brant and J. Tenbusch discussed recent developments regarding blue-green algae.
  - Tenbusch will forward the information that Brant had previously provided re HAB to the Invasive Species Committee.
    - o Brant will attend the next meeting of the ISC to discuss the HAB material.
  - Brant re-emphasized that the FUND Lake George organization is interested in partnering with environmental groups to reduce the amount of invasive species imported into their watershed. As indicated on the map, right, both



the St. Lawrence River and Black Lake are cited as sources for invasive species to enter Lake George.

- For more information about the Fund for Lake George, see <https://fundforlakegeorge.org/>

## **Item 2: Other Items.**

- Committee Work Plan for 2019
  - “Septic Smart Week” will be observed September 16 – 20th. See <https://www.epa.gov/septic/septicsmart-week> for more information.
    - How might this event might be observed in St. Lawrence County, considering that the County has secured two grants, totaling over \$1.5 million, to assist homeowners who have deficient septic systems to repair or replace their systems.
- Brant and Tenbusch discussed recent communications with Dr. Adrienne Rygel at SUNY Canton. She has several students who have done water-quality research this academic year as a “cap-stone” project. It may be feasible for one or more of these students to present their research at an upcoming EMC meeting (May?).
  - Tenbusch will contact Rygel.
- EMC Facebook page. Brant and Tenbusch discussed the logistics involved with building a Facebook page for the EMC.
  - Tenbusch has spoken with his boss, K. Zimmerman. Zimmerman asked him to get in touch with the County I.T. office.

The meeting was adjourned at 4:35 PM.

**The next meeting of the Watershed Management Committee** will be held on Wednesday, May 8<sup>th</sup>, 2019 at 4:00 PM.