JOINT STATEMENT BY NEW YORK STATE DEPARTMENTS OF HEALTH AND ENVIRONMENTAL CONSERVATION REGARDING THE AUGUST 2014 LAKE ERIE ALGAL BLOOM AND WATER SUPPLY RESRICTIONS IN TOLEDO OHIO

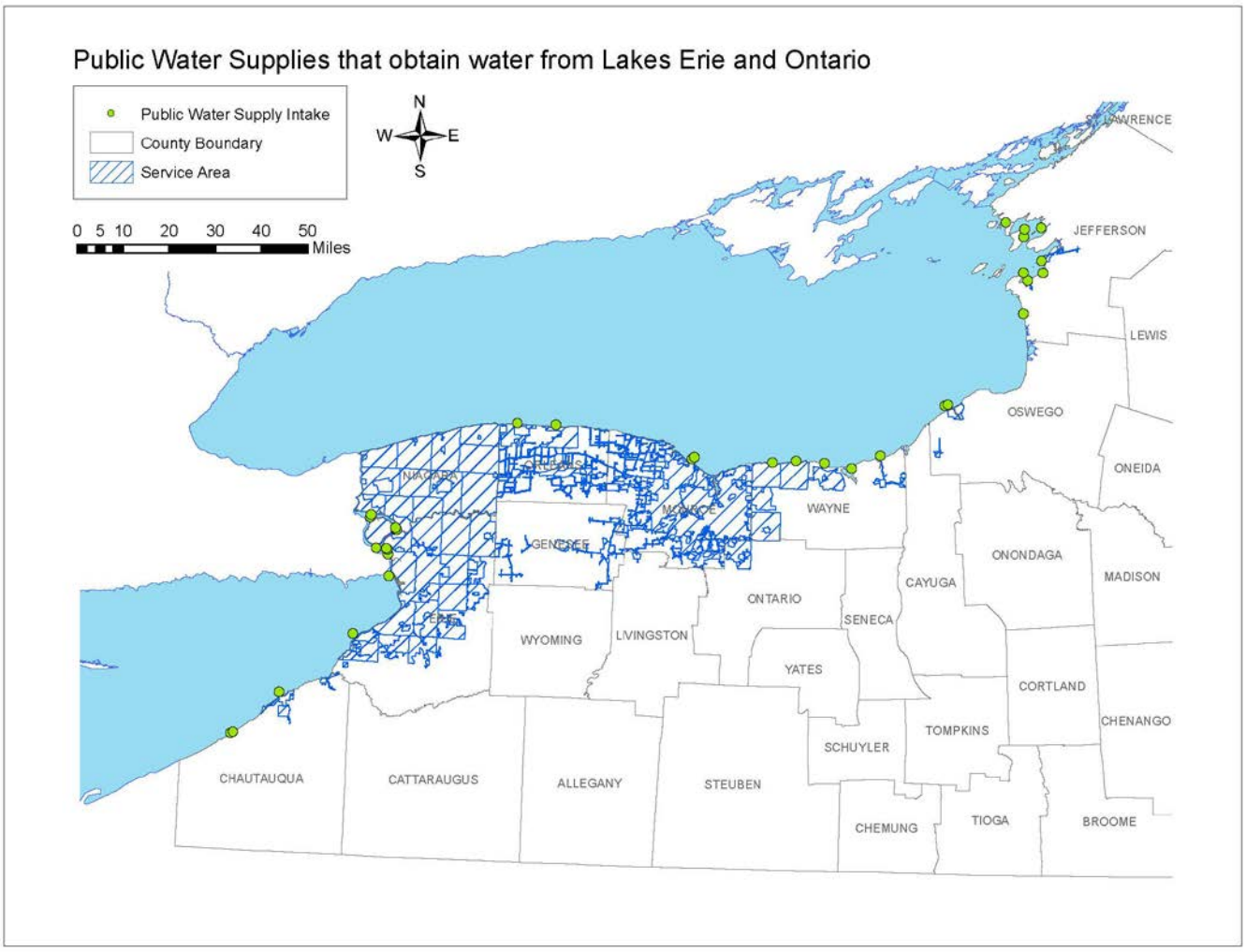
No harmful algae blooms have been identified in the waters of Lake Erie that would affect New York State drinking water and bathing beaches. The harmful algal blooms have impacted the western region of the lake, not areas of the lake where NYS drinking water systems draw water. This part of Lake Erie – the area where Toledo gets its drinking water - is shallower and warmer than the rest of the lake, creating conditions that are more conducive to bloom formation.

There are no reported harmful algal blooms on New York's portions of Lake Erie, the Niagara River or Lake Ontario. Sampling is conducted when a bloom is visually observed. As a precautionary measure, efforts are underway to sample drinking water and bathing beaches locations on Lake Erie in Western New York. Laboratory analysis of water samples is performed by DOH. Results for the five water systems that draw water directly from Lake Erie and evaluation of the Lake Erie Beaches are expected by Friday. DOH is in constant contact with Chautauqua and Erie County Health Departments to coordinate all local activities to ensure the safety of drinking water and bathing beaches.

NEW YORK STATE GREAT LAKES WATER SUPPLIES

How many Public Drinking Water Systems draw water from Lake Erie?

There are five (5) public drinking water systems that draw their drinking water from Lake Erie. There are three (3) system in Chautauqua County and two (2) systems in Erie County. In addition there are seven public drinking water systems that draw water from the Niagara River. Drinking water is not routinely tested for microcystin or other toxins created by cyanobacteria unless there is a visible bloom affecting the water near the intake for the system.



How are Lake Erie bathing beaches in NYS monitored?

There are 20 bathing beaches on Lake Erie, including 3 at State Parks. These beaches are routinely visually assessed for blue-green algae blooms and monitored for bacteria. NYS DEC also routinely provides their blue-green algae surveillance information to DOH. Additionally, DOH also receives alerts from the Federal National Oceanic and Atmospheric Administration who use satellite data to identify and track blue-green algae blooms on Lake Erie. We have not received reports of any blue-green algae blooms currently or historically affecting Lake Erie beaches in NY State. More information about bathing beaches.

What is causing the algae problems in Lake Erie?

Lake Erie is the shallowest of the Great Lakes, the warmest, and the most susceptible to eutrophication (nutrient enrichment) and the effects of climate change. Lake-wide changes have occurred in Lake Erie due to phosphorus enrichment from both rural and urban sources, compounded by the influence of climate change and aquatic invasive species.

In the early 2000s, problems with excess nutrient enrichment appeared in Lake Erie and have continued to worsen. In recent years, the problem of harmful algal blooms has become widespread. In 2011, heavy spring rains flushed a large amount of phosphorus into western Lake Erie. This diffuse runoff from rural and urban lands is a leading factor in eutrophication. The runoff carries a form of phosphorus (dissolved reactive phosphorus, or DRP) that can be immediately used by algae to grow.

Of the three basins of Lake Erie, the western basin has been most impacted by harmful algal blooms, as it is the shallowest basin of the lake and receives the largest input of nutrients, primarily due to the vast agricultural watershed area draining into that basin. In New York, HABs have thus far been limited to smaller, shallower inland lakes and enclosed in embayments of larger lakes. In Lake Erie, HABs have been limited to the western and to a lesser extent, central basins of the lake and have not extended to New York State waters in the eastern basin of the lake

However, the New York waters of Lake Erie, especially the shoreline areas, have been impacted by nuisance (not harmful) algal blooms., This algae, known as Cladophora, is different in type and form from the algae creating the HAB. It looks like wet fabric or moss and while they do create aesthetic problems for recreational users of the water, they are not generally considered a direct health threat.

HABs and Drinking Water in New York State

What are harmful algal blooms?

Cyanobacteria, commonly known as blue-green algae, are a type of bacteria with characteristics similar to that of algae. However, unlike most algae, some species of cyanobacteria can produce secondary compounds known as cyanotoxins. Under certain conditions these cyanobacteria can increase in number and form large blooms (visible, dense build-ups) commonly known as Harmful Algal Blooms (HABs). For more information visit DEC's What is a Blue-green Harmful Algal Bloom webpage.

Can drinking water treatment systems remove toxins from Harmful Algal Blooms?

Conventional drinking water treatment is effective at removing the cyanobacteria and any cyanotoxins that may be within the algae cells. Current removal practices are more powerful when the algal cells are intact rather than broken or lysed. Intact algae and intracellular toxins are effectively removed through flocculation, coagulation, sedimentation, and filtration.

The application of chemical algaecides to remove blooms causes the cells to break open (lysis) and release toxins into the water column. If algae cells are broken open conventional drinking water treatment practices are usually not effective at removing cyanotoxins after they have been released from the algae. Additional treatments that can successfully remove dissolved toxins include: activated carbon filtration, oxidation with adjusted pH and chlorine dosages, and advanced oxidation with ozone.

Is there a guideline for Microcystin in Drinking Water in NYS?

There are currently no State or federal drinking water standards for cyanotoxins (e.g., microcystin). The World Health Organization (WHO) has developed a provisional guideline of 1 ug/L (part per billion) for microcystin in drinking water. This guideline was based on the tolerable daily intake (TDI) or the amount that can be consumed daily over a lifetime with negligible risk of adverse health effects.

How are bathing beaches monitored for HABs?

DOH has provided comprehensive guidance to beach operators, local health departments and State Parks on how to protect public health and respond when blue-green algae blooms impact beaches and other areas of water bodies used for recreation. The guidance relies on visual assessment for blue-green algae blooms for closing beaches and issuing advisories. There are no specific standards for blue-green algae or their toxins in the State Sanitary Code for bathing beaches. The Code contains qualitative requirements for chemical, physical and biological quality that are protective of public health, however, cyanobacteria and maximum concentrations of their associated compounds are not specified. The water

must be free of a visually apparent bloom for 24 hours and microcystin toxins must be <10ug/l in order to reopen a beach, consistent with World Health Organization guidelines.

For the Public: http://www.health.ny.gov/environmental/water/drinking/bluegreenalgae.htm

For Beach Operators: http://www.health.ny.gov/publications/2849/index.htm

What is NYS doing about HABs?

Regulatory

The NY State Pollution Discharge Elimination System (SPDES) permitting program controls point source wastewater and storm water discharges (including nutrients) in accordance with the federal Clean Water Act and State law. SPDES permits apply to discharges from municipal wastewater treatment facilities, industrial outfalls, construction sites, medium or large concentrated animal feeding operations (CAFOs), and other private/commercial/institutional sources.

NYS enacted the Dishwasher Detergent and Nutrient Runoff Law in 2010. This law prohibits the use of phosphorus-containing lawn fertilizer unless a new lawn is being established, or unless a soil test shows that the lawn is phosphorus-deficient. The provisions of the law were phased in during 2012-2013, and the law is now fully in effect. The intent of the law is to reduce the amount of phosphorus entering waterbodies from point (sewer/sanitary wastewater discharges) and non-point (surface runoff, stormwater) sources.

In June 2014, U.S. Environmental Protection Agency (EPA) and NYSDEC declared the New York waters of Lake Erie a "no discharge zone," or NDZ, which means that boats are completely banned from discharging sewage into the water. Boaters must now dispose of sewage at one of many boating pump-out stations located at most marinas on the lakes. While the primary benefit from this will be the reduction of chemicals and biological pathogens from sewage discharged from boats, this sewage can also be a significant source of nutrients (nitrogen and phosphorus) that feed algal blooms in the lake, especially in shallow water embayment and harbor areas.

Management

The most effective measures for reducing incidences of HABs is control of the nutrients- phosphorus and nitrogen- that are the most direct cause of these blooms. The following activities work toward this goal.

Many agricultural Best Management Practices (BMPs) are aimed at keeping nutrients out of runoff and reducing agricultural runoff in general. This protects water resources as well as preserving agricultural soil resources. New York State's Agriculture Environmental Management (AEM) program is a voluntary, incentive based program which helps farmers develop comprehensive farm plans. These plans provide a framework tailored to each farm for the implementation of BMPs. Specific BMPs addressed by AEM include manure storage, application, and management; clean water diversions; buffer zones; fertilizer

management; soil erosion control; treatment of processing wash water and silage leachate; and fencing livestock away from surface water.

Total maximum daily loads (TMDLs) (a plan that identifies sources and determines the amount of a pollutant that a waterbody can receive and meet water quality standards) have been developed for several inland water bodies in NYS that have experienced HABs in past years. Management programs within NYSDEC are working toward reducing nutrient inputs into these to prevent future incidences of HABs. NYS DEC is also re-evaluating existing in-lake permitting programs to better address the challenges associated with HABs, including the use of algaecides and ways to inactivate nutrients.

Specific to the waters of the Great Lakes, NYSDEC personnel participate in bi-national (U.S. and Canada) Lakewide Action and Management Plans, or LAMPs, for both Lake Erie and Lake Ontario. LAMPs are a mechanism for the U.S. and Canada to cooperatively and effectively address the most pressing problems and needs of the Great Lakes. Over the past few years, the primary focus of the Lake Erie LAMP has been to address the excessive nutrient inputs in the western basin of the lake and resulting HABs and hypoxic (dead) zones. While these HABs and dead zones have not yet extended into NYS waters of Lake Erie, we remain vigilant and fully participate in multi-state and U.S./Canadian efforts directed toward the western and central basin problems.

Monitoring & Reporting

NYS DEC has set up a robust monitoring program through several state lake monitoring initiatives, particularly the volunteer-led Citizens Statewide Lake Assessment Program (CSLAP), an innovative partnership between DEC, SUNY College of Environmental Science and Forestry (ESF), Upstate Freshwater Institute (UFI) and the New York State Federation of Lake Associations (NYSFOLA). NYSDEC also conducts its own lake monitoring program, maintains an active surveillance program involving SUNY Stonybrook and other partners regularly reporting on HAB conditions around the state, and seeks public reports of potential HABs through its web page. While these efforts are primarily focused on inland lakes, DEC is working toward the development of surveillance and monitoring networks on Lakes Erie and Ontario.

As part of NYS DEC's annual fisheries monitoring programs in Lake Erie and Lake Ontario, water quality data (including nutrient concentrations) is collected that can be used to evaluate the potential for HABs in the lakes. In addition, personnel involved with this monitoring act as an informal monitors for potential HABs because they spend a significant amount of time on the water during the Spring-Fall period actively observing lake conditions.

NYS DEC also maintains an active online HAB reporting program that is updated weekly during the summer/full (June through October). If interested, anyone can sign up to receive electronic notification of the weekly updates (visit the NYS DEC web page to do this). This program has also focused on inland lakes, but includes reporting and notification of HABs in the embayments of Lake Erie and Lake Ontario, and would include reporting and notification of HABs in nearshore or offshore waters of the lakes should NYSDEC receive any reports of potential HABs in these waters.

The National Oceanic and Atmospheric Administration (NOAA) collects satellite imagery of Lake Erie on a regular basis, including the extent of HABs. These can be viewed on publicly-accessible websites,

are generally updated on a weekly basis, and also include predictions about how the bloom will change/migrate over time. NYS DEC actively monitors this imagery and migration predictions, to assess the possibility of HABs migrating into the NY waters of Lake Erie.

Research

NYS DEC is working with SUNY ESF, SUNY Stony Brook and NYS DOH to conduct research of HAB occurrences in NYS, as part of a federal Centers for Disease Control and Prevention (CDC) grant issued to NYS (through NYS DOH) and several EPA grants awarded to NYS DEC. Other research efforts include the National Oceanic and Atmospheric Administration (NOAA) Monitoring and Event Response for Harmful Algal Blooms (MERHAB) work led by SUNY ESF, and ongoing discussions within NYS DEC and NYS DOH about potential development of water quality standards for HABs and nutrients that are the likely triggers of HABs.

Outreach and Education

NYS DEC and NYSDOH both have information on their websites to inform the public about HABs. DEC has a series of web pages dedicated to blue-green algae blooms, including:

- general information about algae,
- health related information and links to more health resources,
- impacts to lake environments,
- commonly requested information about blooms by individuals and communities,
- list and map of waterbodies with a bloom,
- historical bloom information, and
- photo gallery of green and blue-green algae.

Receive weekly updates on blue-green algae blooms from DEC
DEC sends out weekly updates on blue-green algae blooms through the Division of Water's Making Waves email listserve. Making Waves also provides information about new and important water-related issues, events and news, which could affect your watershed.

To subscribe to the Makingwaves listserv Subscribe to GovDelivery , and enter the requested information. When you reach the topics page, check the "Making Waves" box under the "Water" category.

What else is needed to prevent HABs?

Although we can't control the physical conditions of Lake Erie and other water bodies that make them potentially susceptible to HABs (water levels, temperatures, circulation patterns, basin depth, natural losses/gains of water, nutrient cycling processes, etc.), we all can try and reduce the amount of nutrients released into surface waters.

Examples of ways the public can help reduce the amount of nutrients reaching waterbodies:

- Have septic systems – especially those near surface waterbodies – emptied and inspected/repaired (if needed) on a regular basis;
- Eliminate illegal/improper connections to storm sewer systems;
- Clean up pet waste from hard or impervious surfaces, and vegetated areas that may drain into surface waters;
- Use phosphorus-containing fertilizers only when necessary and in accordance with the instructions (and the NYS law!);
- Eliminate/minimize the amount of yard waste (grass clippings, leaf litter, etc.) in or near bodies of water, including drainage ditches that may discharge into them (or sewer systems). If possible, leave vegetated buffers between your yard and adjacent bodies of water (including ditches) to allow for more filtering/uptake of nutrients.