

2015 Summary Report of Harmful Algal Blooms at Public Bathing Beaches



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Harmful Algal Blooms and Bathing Beaches

Harmful Algal Blooms (HABs) are recognized as a widening public health concern throughout the waterbodies of New York State (NYS). Some HABs can produce toxins, some do not. Exposure to HABs can cause health effects in people and animals when water with dense blooms is contacted or swallowed or when airborne droplets are inhaled. As a result, when a HAB is present at a bathing beach, the swimming area must be closed to protect public health, regardless of toxin concentrations. Beach closures due to HABs in NYS are increasing in frequency, magnitude and duration. To date, the highest number of HAB related beach closings in NYS occurred in 2015. The NYS Department of Health (DOH) oversees the regulation of bathing beaches and provides guidance for the public regarding HABs in other recreational water settings. DOH works closely with the NYS Department of Environmental Conservation (DEC) and other partners on HAB detection, response and public notification. DOH also assists Local Health Departments (LHDs) with HAB response at beaches that includes bloom identification, beach closure, sampling, toxin analysis, beach reopening and event reporting procedures. LHDs have been implementing formal guidance developed by DOH for responding to HABs at regulated bathing beaches since 2010. This also includes enforcing the State Sanitary Code that contains regulations to protect the public from exposure to HABs at bathing beaches. DOH has also provided outreach to beach operators to help them recognize HABs and know the steps needed to protect swimmers and how to report HABs to LHDs. When a HAB is present at a bathing beach, swimming is prohibited until the HAB is absent from the swimming area for one day, the beach water is sampled and microcystin toxin levels are below a concentration likely to result in symptoms ($<10\mu\text{g/l}$). LHDs also investigate and report illnesses potentially associated with HAB exposure. The following is a summary of HAB related events at bathing beaches during 2015.

Statewide Surveillance of Beach HAB Events

LHDs reported a total of 77 beach closure events at 37 beaches on 20 waterbodies for a total of 383 closed beach days due to HABs in 2015 (*Figure 1*). For comparison, in 2014 there were 39 closure events and 559 closed beach days reported. The 2015 season reported the greatest number of beaches and waterbodies with documented HAB closure events to-date (37 and 20, respectively). NYS has a running average of approximately 30 beach closure events per year. Notably, blooms on Canandaigua and Seneca Lakes resulted in the first HAB-related beach closures reported on these waterbodies.

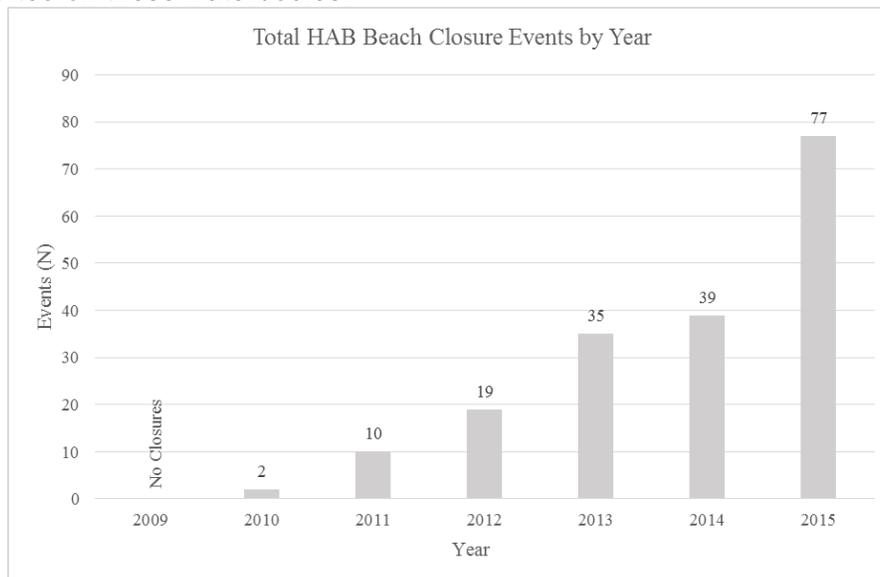


Figure 1. Number of beach closures due to HAB events throughout New York State between 2009 and 2015. DOH began monitoring for HABs at beaches in 2009. Closures represent those events that occurred at State operated beaches.

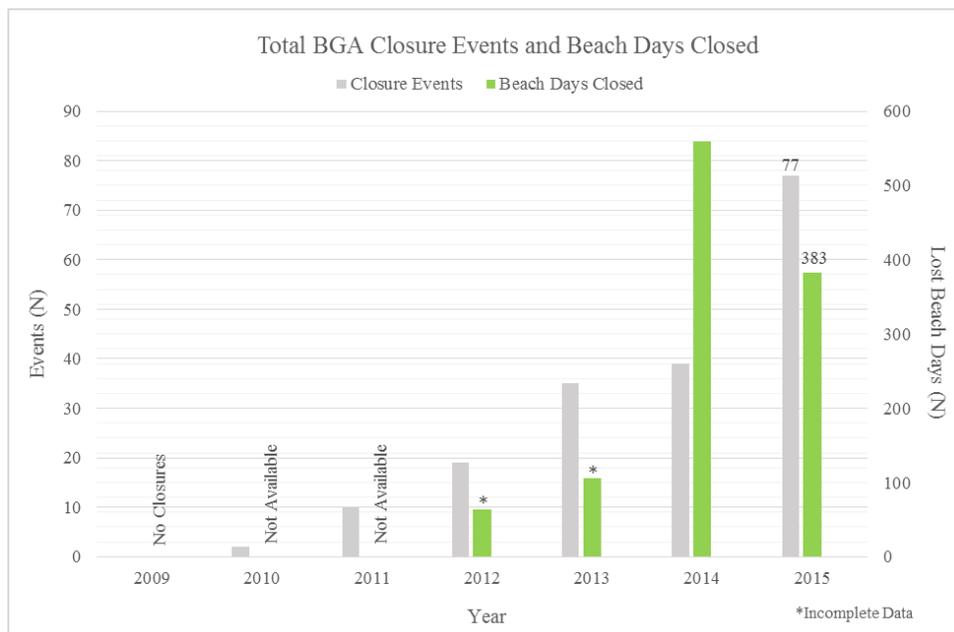


Figure 2. Comparison of beach closure events to number of lost beach days in New York State between 2009 and 2015. Note, beach days closed are unavailable for 2010-2011, and incomplete for 2012-2013.

Beach HAB Occurrences by Region

In NYS, implementation of environmental health protection programs are separated into four geographic regions ([map viewable here](#)); Capital Area, Central, Metropolitan Area and Western Regions, respectively. In 2015, the Metropolitan Area Region had the largest number of HAB related beach closure events, lost beach days, affected waterbodies and affected beaches compared to the rest of the state and with 43% of the HAB related beach closures. The Central Region was next with 34%, followed by the Western with 17% and the Capital Region at 7% (Figure 3).

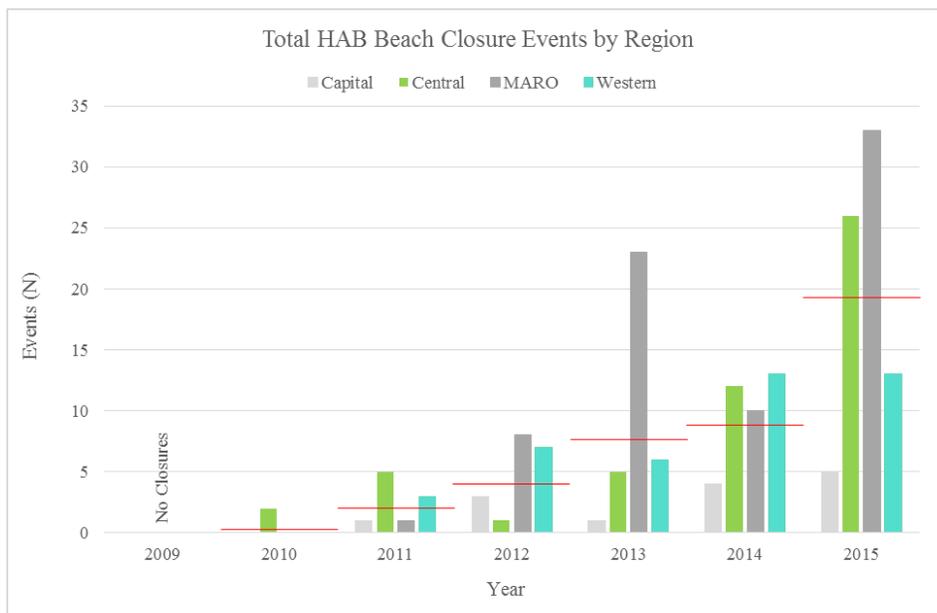


Figure 3. Number of beach closures due to HAB events throughout New York State between 2009 and 2015 according to Region. DOH began monitoring for HABs at beaches in 2009. Red lines indicate the regional average for beach closure events during the corresponding year.

Throughout the 2015 beach season, bloom-related closure events occurred in 16 Counties. The impact of the beach closures in each County was evaluated based on number of events, number of beaches affected, number of lost beach days due to the closure events, and number of waterbodies on which the closure events occurred (*Figure 4*). Putnam County observed the greatest number of each parameter evaluated, with 26 beach closures at eight beaches on four waterbodies resulting in 212 lost beach days.

Snapshot of Blue-green Algae Blooms at Beaches by County, 2015

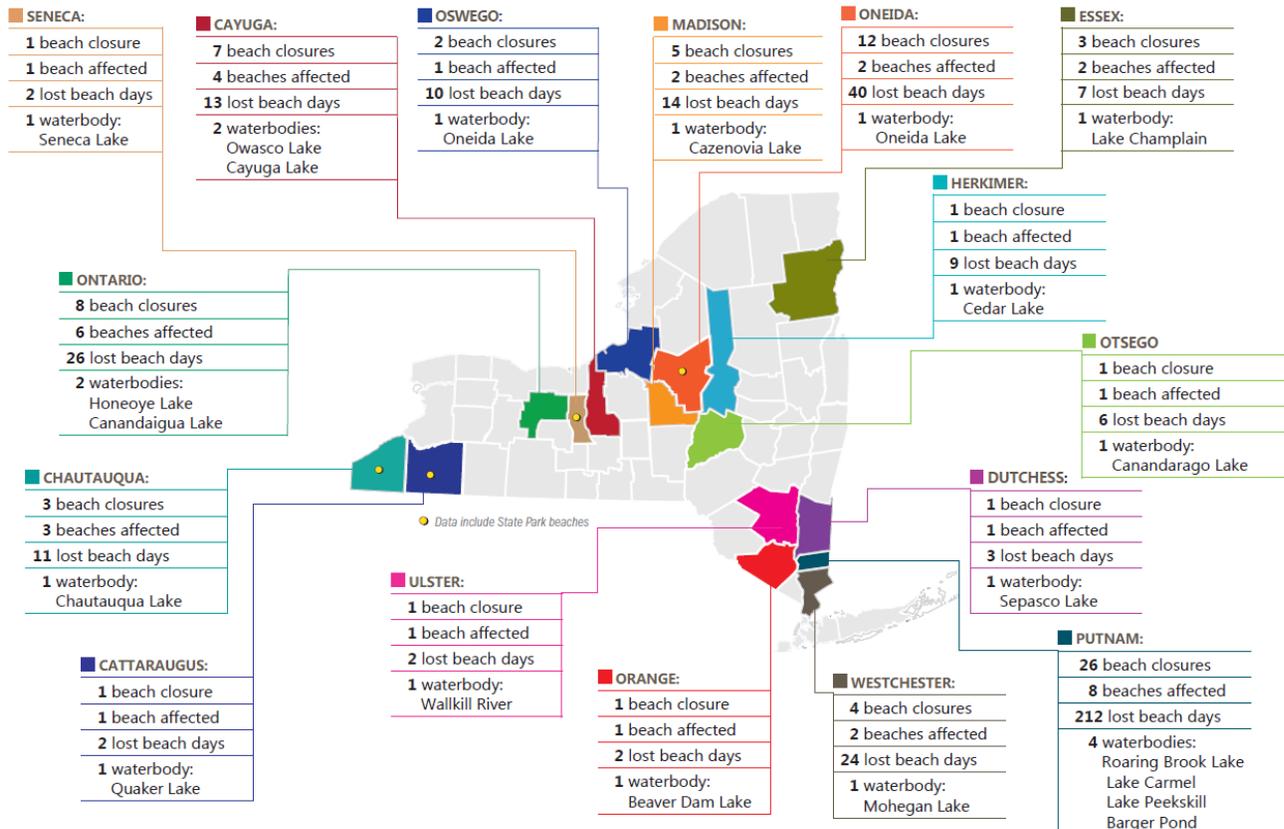


Figure 4. Impact of bloom-related beach closure events throughout New York Counties in the 2015 season. Some affected counties include beaches owned and operated by Office of Parks, Recreation, and Historical Preservation as indicated.

Surveillance Summary Notes

In 2015, there were substantially more HAB-related beach closures reported compared to previous years. It is unclear whether this is due to an increase in the occurrence of HABs or due to enhanced surveillance efforts, increased outreach and education and/or increased overall awareness of HABs. Climate change, excess nutrient concentrations and other environmental factors may play a role in the apparent increase in HABs. Despite there being a record number of beach closures in 2015, there was a lower number of total lost beach days compared to 2014. This may be attributed to streamlined guidance provided by DOH that encouraged field testing for toxins, rather than shipping samples to laboratories. Field testing often reduces the time that a beach is closed by at least one day (*Figure 2*).

Future Activities

DOH and LHDs will continue surveillance of HABs impacting bathing beaches. The effectiveness of DOH HAB guidance and response procedures will be assessed and modified as needed. DOH will continue support to LHDs to identify HABs, evaluate beach conditions, interpret analytical results, respond to inquiries, investigate and report HAB related symptoms. DOH will continue to work closely with Federal, state and other partners to keep informed of research, analytical methods, public health risks and rapid response methods associated with HABs at bathing beaches and other recreational waters.